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Cover design by Greg Silva.







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# Needed: One Digital Media Revolution

# Why can't all our entertainment gadgets, software, and services just get along?

IT'S ONE OF personal technology's eternal verities: New stuff that creeps into your world under the pretense of simplifying your life usually ends up complicating it. That unavoidable fact of life has never been truer than with today's ever-expanding array of movie and music gear.

Mind you, I speak as someone whose entertainment has gone almost completely digital. I have gigabytes of media sitting on a networked drive at home. Both a TiVo and a Slingbox reside in my living room. I have multiple iPods and a satellite radio. Individually, I love 'em all-at least most of the time.

But as a group, they're driving me a little crazy. The promise of digital media holds that all your entertainment will be available on any device, anywhere. So far, though, my products don't make up anything remotely resembling a coherent system.

Consider music. Wrangling separate devices for MP3s and for satellite radio is just plain absurd. (I've been known to lug both in my briefcase on business trips, along with the accoutrements needed to charge them.) Theoretically, I could upgrade to a satellite/MP3 hybrid such as Pioneer's Inno. But as long as I want to manage songs in iTunesand play copy-protected songs I've bought from the iTunes Music Store-I'm an iPod person. And no iPod does satellite radio.

Then there's TV. The Slingbox streams video from TV to PC across the Internet. and does it wonderfully well. But to move video in the other direction (from PC to TV), I'd need yet another box.

If I weren't running short on cashand shelf space-for new toys, I might spring for Apple TV, which shipped in March. Though it's far from the first net-



ED ALBRO with the Apple TV remote in our video.

worked device designed to get movies and music off of a computer and onto a TV screen, it's the first one that could handle every bit of content I've stored in iTunes and on my iPods.

(Time out for a little shameless selfpromotion: You can read Executive Editor Ed Albro's review of Apple TV on page 58, and find a longer version at find.pcworld. com/57109. The online version includes Ed's video walk-through of the gadget, one of our burgeoning collection of video reviews, how-to's, and more. Check 'em out at www.pcworld.com/video.)

# A LITTLE UNITY, PLEASE!

THE MORE TIME I spend swearing at digital entertainment products that don't play nicely with each other, the more I'm convinced that the only tolerable future for this stuff is one in which every major player in the electronics and music industries agrees on a few standards and complies with them-and in which copy protection either goes away or is so transparent

that it might as well not be there.

Which is why the really significant Apple-related news of recent weeks comes not from Apple but from British music behemoth EMI. In April, the company announced that it will be making nearly all of the songs it controls available at the iTunes Music Store as \$1.29 downloads that sound better than standard 99-cent iTunes tracks and are free of copy protection. (It says that it'll work with other online music purveyors to bring unlocked songs to their services, too.)

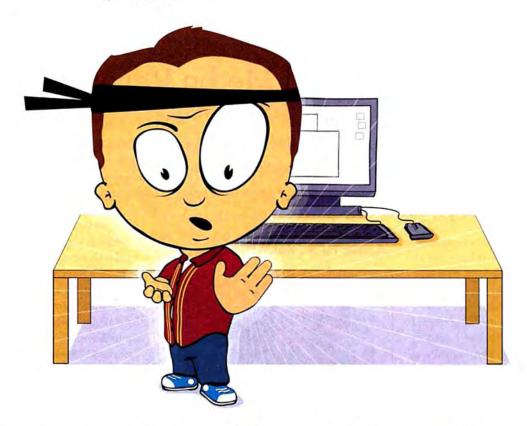
The immediate impact of EMI's move won't be earthshaking-for one thing, the iTunes tracks, though unprotected, will be in AAC format, a

standard that isn't widely supported by non-Apple products. Still, it's the first time a major music firm has unshackled most of its content. If the rest of the industry were to follow suit, we'd be vastly closer to a world where you could enjoy whatever entertainment you wished using whichever devices and services you preferred.

Did I start this column by saying that digital media hassles amount to a permanent fact of life? It's entirely possible that EMI's bold experiment may set off a chain of events that makes the networked entertainment of tomorrow far less annoying and far more...well, entertaining. And nothing would make me happier than being forced to eat my words.

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





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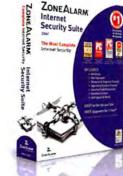
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# Vista Security

THOUGH WINDOWS VISTA MAY BE SAFER THAN XP, MICROSOFT'S FAR-FROM-IMPREGNABLE NEW OPERATING SYSTEM IS ALREADY PROVING TO BE VULNERABLE. BY RYAN NARAINE

IN LATE MARCH, when security researchers stumbled upon drive-by download attacks exploiting yet another serious Windows hole, they had an eyeopening surprise: The vulnerability-caused by the way Windows handled animated cursor (.ani) files-didn't affect just Windows XP. It also hit Vista, Microsoft's new security-centric OS.

Security experts still proclaim Vista a major improvement over previous Windows versions, and readily say that its important new safety features-

including an improved firewall, a "Protected Mode" for Internet Explorer, and User Account Control-make it much more resistant to the



most common forms of spyware and malware. But this latest flaw (now fixed) is a major black eye for Microsoft; along with two other critical security patches issued for Vista in its first three months on shelves, the problem has tarnished Vista's security sheen (see "Vista's Vulnerabilities" on page 21 for details). The new OS may be safer, but its users must still be on their guard.

### NAGGING DEFENSE

USER ACCOUNT control (UAC) has the best of intentions behind it. According to Microsoft's own estimates, a whopping 95 percent of all pre-Vista Windows users perform everyday tasks logged in with Administrator credentials that let them make any kind of system changes-but that also allow malicious hackers to hijack a PC easily. By

default, UAC requires a password for such tasks, keeping users-or malware-from haphazardly changing sensitive parts of the OS.



VISTA'S BUILT-IN ANTISPYWARE app, Windows Defender, offers daily scans but missed a third of spyware and adware samples in tests.

But UAC is its own worst enemy. Its frequent pop-up prompts seriously annoy many users, particularly during setup of a new machine. The prompts appear less often after about ten days of heavy use, but some early adopters have never made it that far.

"These alerts just kept popping up constantly and unnecessarily," says Sergio E. Yáñez, a Vista user who works as a vice president at a New York bank. "I would try to move a file between folders and have to deal with these prompts. Very, very annoying."

Like many other people,

RISKS

Yáñez responded by turning off UAC completely. In his case, he had to turn it back on to run some older games that required additional user rights, but the fear within security circles is that many irritated users will disable UAC and leave it off, or else get into the habit of clicking 'Allow' at every prompt, defeating the purpose entirely.

"The average user will be programmed to click 'Allow' for everything," says Roger Thompson, chief technical officer for security vendor Exploit Prevention Labs.

Also, security researcher

Joanna Rutkowska says that UAC has a design weakness in that it requires giving all program installations full system access whether they need it or not. (Rutkowska's report is at find.pcworld. com/57069.) Microsoft says that it included the potential weakness to ensure a smooth user experience, and it has not announced any plans to change UAC's design.

A second major addition to Vista's security arsenal is Windows Defender, an antispyware tool that is available at no cost for XP and is baked into Vista's guts. Though not meant to be a full antivirus utility, it can easily scan for spyware applications that suck up system resources and bombard you with popup advertising. Defender also offers additional protection when you download files via Internet Explorer 7.

A great idea. But in independent tests performed by the AV-Test security lab (AV-Test.org). Defender detected only 65 percent of 14,517 adware and spyware samples > IN BRIEF

# Product Pipeline



# Lavasoft says that a new

version of its popular Ad-

Aware antispyware program

due in June will feature improved detection of adware and hidden malware, a scanning engine that goes easy on PC system resources, and an updated interface. A personal-use version will remain free, while the \$40 Ad-Aware 2007 Pro will include advanced features such as Ad-Watch TrackSweep, a tool that clears the cache, cookies, and history in Internet Explorer, Firefox, and Opera. END OF KP: In early 2008 Microsoft will end shipment of Windows XP to computer makers and stop selling XP retail licenses. According to Dell, however, Windows XP sales to small and mediumsize businesses are still strong. The PC maker says that it plans to offer "Customized with XP" Dimension desktops and Inspiron notebooks this summer for small businesses that may want extra time to contemplate a possible switch to

# VISTA'S VULNERABILITIES

. Animated cursors: A flaw in animated cursor code used by Windows 2000 SP4 through Vista. With a poisoned .ani, .cur, or .ico file, remote attackers can create a buffer overflow, overwhelming a program with more data than it can handle and allowing takeover of a victim's PC. Fixed with Microsoft's critical MS07-017 patch (find.pcworld.com/57066).

· Malware Protection Engine: A critical vulnerability in all versions of Windows using the Microsoft Malware Protection Engine, built into Vista's baked-in Windows Defender antispyware and the Microsoft OneCare antivirus program. The flaw can force the engine to execute attack code when it scans a hacked PDF file. Fixed in Microsoft's critical MS07-010 patch (find.pcworld.com/57067).

. CSRSS privilege escalation: A vulnerability in the Windows Client/Server Runtime Server Subsystem's (CSRSS) error handling could allow an attacker to make an end run around Vista's UAC (User Account Control) protections. Fixed in Microsoft's critical MS07-021 patch (find.pcworld.com/57071).

the Mac OS or Linux.

in an on-demand scan. By comparison, detection rates for eight antivirus programs with built-in antispyware ran between 73 and 99 percent for the same test sample.

"Windows Defender is not very good in my eyes. Most, if not all, stand-alone and integrated antispyware solutions are performing a lot better," says Andreas Marx, CEO of AV-Test in Germany.

# A BETTER FIREWALL

VISTA'S IMPROVED firewall is another story. It offers the

ability to block both inbound and outbound connections (XP's firewall blocks only incoming traffic). Outbound filtering provides a second layer of defense in blocking sophisticated forms of malware that make invisible connections from your system to remote hackercontrolled servers-but as with many forms of secondary protection, deciding which apps should and shouldn't be blocked takes some technical know-how. For that rea-

son, Microsoft turned it off by default. But even without outbound filtering, the firewall "is better than good enough," says Ed Bott, coauthor of Windows Vista Inside Out.

"It blocks all unsolicited incoming connections and is almost invisible in operation," he says. And advanced users can configure outbound filtering for additional protection, while nontechnical userswho would be just as likely to break something as to prevent an attack, Bott says-are not forced to set up any rules for outbound filtering.

The Vista firewall passed

most tests in AV-Test's analysis. However, it was not able to filter incoming mail attachments, as some firewalls do. Also, it failed a large percentage of so-called leaktests. which use a specially crafted program to see whether a firewall will block outbound connection attempts.

Still, many security companies and researchers, including AV-Test's Marx, argue that since these programs are artificial (as opposed to the real malware thrown at antivirus products), they may not by default runs in Protected Mode, preventing IE-or any successful Internet attack that hijacks it-from changing sensitive parts of the operating system. This defense tactic has already been successful against current attacks that target holes such as the animated cursor flaw. Besides these up-front de-

fenses. Vista also includes a number of back-end protections. PatchGuard attempts to block rootkits, which can hide virus infections. A technique called Address Space Layout

Mew Outbound Rule Wizard 23 Rule Type Select the type of firewall rule to create Steps: What type of rule would you like to create? Rule Type Program Rule that controls connections for a program. Program Port Action Rule that controls connections for a TCP or UDP port. Profile Predefined: BIT'S Peercaching Name Rule that controls connections for a Windows experience. Custom Custom rule Learn more about rule types с Васк Next > Cancel

VISTA'S UPGRADED FIREWALL can block an unknown program's attempts to connect to the Internet, but that functionality is turned off by default.

provide accurate assessments of a firewall's abilities.

The Vista firewall, along with many others, may do a good job at blocking outside attempts to infiltrate your computer. But Internet programs must go through the firewall to browse a Web page, access your e-mail, or carry on an IM chat-and this itself creates an avenue for attack.

Because Internet Explorer opens up the door to your PC and has such a huge user base, the browser is constantly under attack. To improve IE 7's defenses, the Windows Vista version of the browser

Randomization makes it harder for malware to find and infect running processes. Finally, several changes to the kernel, the heart of any operating system, increase its resistance to hacker attacks.

# HUMAN (IN)SECURITY

BUT WHILE VISTA is safer than XP, experts expect online thugs to quickly look for ways to circumvent Vista's protections. One increasingly common method is to use socialengineering tactics to target the person, not the PC.

"People will still execute that file to see Paris Hilton's next video," says Thompson of Exploit Prevention Labs. Social-engineering techniques that send malware in the guise of a game or a sexy video exploit people's curiosity or ignorance to get them to click a tainted link or attachment. If someone clicks, the malware has already evaded half of their computer's automated defenses, including the firewall. "Vista is an improvement," says Thompson, "but it's not the end of the malware industry. Not by a long shot."

Another potential end run around Vista's defenses is to attack programs rather than the operating system. Media players such as the Adobe Flash player and Apple's QuickTime have suffered recent attacks as hackers discover and exploit serious software vulnerabilities-with poisoned online movie files, for example. To keep your machine safe, patching your programs has become just as important as fixing the operating system they run on.

"The applications are sitting on every desktop, and they all have known vulnerabilities," says Andrew Jaquith, a security analyst in The Yankee Group's Enabling Technologies Enterprise division.

For PC users, the message is clear: Though Vista may make things more difficult for crooks, it is far from impregnable. You will still need to apply patches to close the inevitable holes. And you must still use the same type of antivirus protection that you needed with XP. (For our review of antivirus programs available for Vista, see "Virus Stoppers" on page 102.)



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# **Hard-Drive Failures Surprisingly Frequent**

# TWO RECENT STUDIES OBSERVE MORE DEVICE FAILURES THAN VENDOR ESTIMATES SUGGEST.

YOUR HARD DRIVE may not be as reliable as manufacturers would like you to think, Recent studies by researchers at Carnegie Mellon and Google suggest that vendor

Mean Time To Failure (MTTF) ratings for hard drives are a bit misleading.

The Carnegie Mellon study, conducted at several locations, found typical failure rates of 2 to 4 percent and a high of 13 percent, in contrast to the less than 1 percent you'd expect based on vendor MTTF ratings (see chart). Google's

Both studies were based on observations of approximately 100,000 drives, with Google looking at its own farm of consumer-grade disks and Carnegie Mellon examining both consumer-grade drives and the ostensibly more reliable enterprise variety; the latter have beefed-up actuator magnets, more-robust spindle motors, and advanced features such as rotational vibration safeguards.

study pegged the annual fail-

ure rate at about 3 percent.

# **DEFINING FAILURE**

VENDORS ATTRIBUTE PART of the discrepancy between their ratings and the findings in these reports to differing definitions of disk failure. For vendors, it's when a drive fails on one read or write attempt within a set periodtypically about 24 hours-on the test bench. Vendors say that, by that criterion, nearly 40 percent of returned drives have not actually failed.

The two new studies, however, consider failure to be



any symptom that causes a user-presumably, in both cases, experienced IT typesto replace the drive. Such symptoms include software problems, driver conflicts, and the like, as well as drive failure as defined by vendors.

Also, vendors base MTTF numbers on the past performance of similar drives; no one tries running a new model for years to prove it will last.

Surprisingly, Google's study found no correlation between drive failure and elevated heat and activity levels. The largest

> percentage of failures occurred on drives operating within a mild 77-to-88-degree range. However, desktop PCs typically operate at temperatures well over the maximum of 125 degrees reported in the Google study, so the findings do not support running hard drives without adequate airflow to cool them.

Google found that failure rates varied significantly according to make and model, but the company declined to identify failure-prone models. Carnegie Mellon points out that bad manufacturing runs occur and that improvements over the past few years may be yielding more-reliable drives.

Google's study relied in part

on SMART (Self-Monitoring And Reporting Technology) data from drives that have this feature. But so many drives failed without any SMART warnings that Google concluded the feature was not helpful in predicting realworld failure patterns.

Google's findings do support one tip: If you encounter a scan error during a routine error check (by running Scandisk, for example), your drive is 39 times more likely to fail within 60 days than drives that don't show such errors. IT pros recommend replacing a drive with scan errors.

# **FEWER FIGURES**

THE MOST LIKELY immediate fallout from these reports is that vendors will stop touting MTTF figures. In my online research, MTTF figures for consumer drives were already few and far between.

Corporate buyers might rethink purchasing plans in light of Carnegie Mellon's finding that fiber-channel and SCSI drives appear no more reliable than the cheaper SATA variety. But IDC analyst David Reinsel says fiberchannel and SCSI drives are still worthwhile when performance matters.

For most of us, these reports simply reemphasize the need for smart practices. Keep your drives cool and, most important, backed up so that if failure occurs, it's merely an inconvenience and not a financial or emotional disaster.

-Jon L. Jacobi

# **FAILURE RATES**

# Studies Challenge Claims

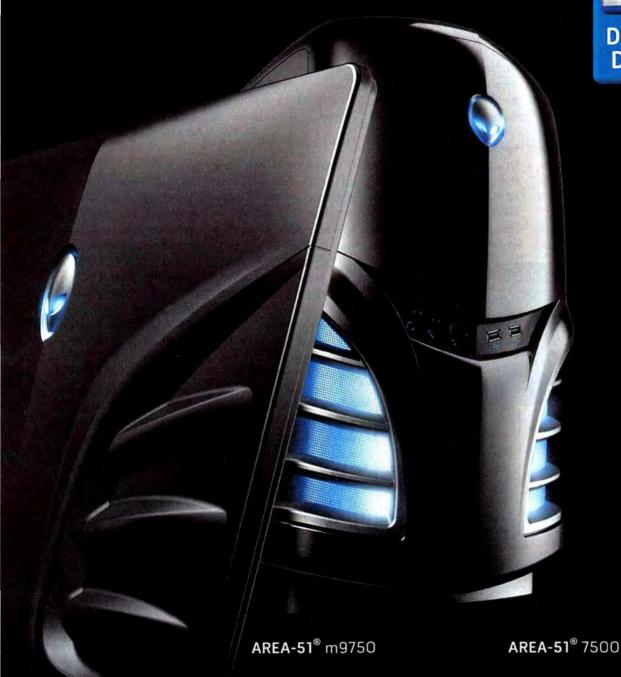
BASED ON THE hard-disk industry's Mean Time To Failure estimates, you'd expect less than I percent of hard drives to fail each year. But studies of facilities with many hard drives found significantly higher failure rates.

	Annual failure rate
Industry claims (based on MTTF of 1 million hours)	0.88 percent
Carnegie Mellon report (typical sites)	2-4 percent
Carnegie Mellon report (maximum observed)	13 percent
Google report	3 percent

CHART NOTE: By definition, MTTF is the average lifetime of a hard drive. A year has 8760 hours, so the probability of a hard drive failing in a given year, or the estimated annual failure rate, is 8760/MTTF.

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MOBILE ENTERTAINMENT

# **Broadcast-Style TV Comes to Cell Phones**

# VERIZON'S V CAST MOBILE BEAMS PROGRAMS PACKAGED FOR TINY SCREENS. IS IT WORTH IT?

SERVICES TO STREAM video to cell phones haven't been hugely successful: Few people are eager to watch TV on screens no bigger than a business card. But if you spend lots of time on the road, would you pay \$15 a month to view Major League Baseball games live-or catch last night's Letterman show-on your cell?

Some Verizon Wireless customers now can do just

that. The carrier's recently launched V Cast Mobile, available in some 25 cities at press time (with more on the way), offers eight channels of news, sports, prime-time shows, and cartoons

for \$15 a month (or \$13 for four channels) on top of your calling plan. You must also buy a compatible phone. AT&T (formerly Cingular Wireless) plans to have a similar offering later this year.

# VIDEO VARIATIONS

VERIZON'S NEW SERVICE provides nonstop broadcaststyle TV, with full-length programs on different channels that are multicast (sent from one transmitter to many receivers) over dedicated wireless spectrum.

Previous unicast models stream video from point to point over existing cellular data networks. Multicast advocates say today's 3G networks simply don't have the bandwidth to handle large

numbers of simultaneous video streams. Still, Verizon continues to offer an ondemand unicast video service for \$10 per month along with the new multicast offerings.

Both the Verizon and the upcoming AT&T services use Qualcomm's MediaFlo technology, marketed in the United States by Qualcomm subsidiary MediaFlo USA. The technology encompasses everything from chips that



LG'S \$250 VX9400 lets you rotate its screen to view programs in landscape mode.

turn handsets into tiny TVs to servers that optimize programs for handsets to the network technology for broadcasting to mobile devices. MediaFlo USA is acquiring broadcast spectrum (specifically, UHF channel 55) to

offer service, while signing more content deals with networks and producers, and distribution deals with carriers. MediaFlo USA says it can support up to 20 channels.

# IMPERFECT PICTURE

I TRIED V Cast Mobile using a \$150 Samsung SCH-u620 (one of two handsets that support the service; the other is LG's \$250 VX9400) during a visit to Orlando, Florida.

> Pressing a button sporting a TV icon on the side of the handset calls up an electronic program guide; you use the phone's navigation pad to select a show. and in seconds it appears. Another button switches you to a full-

screen landscape view. And you can change the channel without going to the guide.

Broadcast quality wasn't ideal, especially when I tried to watch a show while on a bus. Images sometimes froze, or became pixelated and blurry; and the audio sometimes skipped. But the service was, overall, quite watchable.

Whether you'd want to watch is another question: At launch, the eight channels are compilations from CBS, Comedy Central, ESPN, Fox, MTV, NBC Entertainment, NBC Sports, and Nickelodeon. But they don't offer the same exact programs you see at home, because these networks don't own mobile broadcast rights to all their shows. MediaFlo simulcasts popular shows (as

well as news and sports) as much as possible, and fills in gaps with rebroadcasts-for example, Late Night with David Letterman appears at 11:30 p.m. on CBS, and then at noon the following day.

# RIVALS COMING

THOUGH MEDIAFLO'S AT&T and Verizon deals make it the front-runner for mobile TV in this country, it could encounter competition from services based on DVB-H (Digital Video Broadcast to a Handheld) technology. At this writing, one such service, Modeo, was in trial in New York City; a second, HiWire, was readying a Las Vegas trial.

DVB-H services have already been deployed overseas. And HiWire CEO Scott Wills says the service will launch here with some 30 channels. Even if cellular carriers don't buy in, Wills says cable companies might offer DVB-H services on portable media players or notebooks.

Meanwhile, unicast services such as MobiTV argue that people with smart phones don't want broadcast-style TV, preferring on-demand video. MobiTV CEO Phillip Alvelda says demand for unicast video won't be substantial enough to stress today's 3G networks until significantly speedier 4G technologies (such as WiMax) make the issue moot.

One way or another, TV is coming to cell phones. It remains to be seen whether the audience will follow.

-Yardena Arar





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ONLINE ADS

# Companies Can't **Break Ties to Adware**

# DESPITE VOWS NOT TO ADVERTISE THROUGH ADWARE. COMPANIES STILL CAN'T ESCAPE.

EARLIER THIS YEAR, AT&T's Cingular division and Travelocity both pledged not to advertise anymore via adware-programs that slip onto PCs and inject ads into a user's browser. Verizon took a stance against computer invaders when it became a sponsor of an antispyware initiative. Yet, in March, ads from all three companies were being distributed through adware.

These businesses, along with Comcast and Vonage, acknowledge that their ads have surfaced in adware, but say they never intended for that to happen. The incidents raise a troubling question: Have advertising networks grown so complicated that sponsoring firms can't control where their ads appear, or are the companies simply not being vigilant enough?

# **ADWARE'S SOURCES**

THE FINDINGS COME from research by adware and spyware expert Ben Edelman. Edelman found that PCs with the adware program Full-Context installed showed ads for Cingular and Travelocity that appeared to be on the Google Web site-without the search giant's knowledge. FullContext, according to

Edelman, is sometimes installed on a PC without user consent. Security companies McAfee and Symantec identify FullContext as a mediumrisk adware program and quarantine it on their customers' PCs. At press time, the FullContext firm had not replied to PC World's e-mail requests for an interview.

Cingular and Travelocity say they prohibit the use of adware by advertisers they hire. Travelocity says that as soon as it found out its ads were showing up in adware, it "immediately suspended and eventually terminated its advertising campaigns with partners who may have been associated with those violations." Cingular says that it took similar action.

According to Edelman, Verizon banner ads were showing up on sites like Google because of a program called DollarRevenue. Once installed on a PC, the DollarRevenue software can inject ads on Web sites in the same way FullContext does. McAfee and Symantec both quarantine DollarRevenue when they find it on users' PCs, calling it a high-risk program.

"Something went wrong," says Jim Smith, a Verizon spokesperson. He says Verizon did business with an advertiser that contracted with another advertiser to distribute the ads. That firm in turn contracted with another advertiser. While Verizon permits redistribution of ads. Smith



PCs WITH THE FullContext adware installed showed AT&T/Cingular ads apparently on the Google site-without the search giant's consent.

says, it prohibits the use of adware to show Verizon ads. He says Verizon suspended the advertiser from distributing ads until further review.

## COMPANIES' ROLE

THERE IS LITTLE doubt the companies highlighted by Edelman have no interest in seeing their ads in adware, experts say. Earlier this year both Cingular and Travelocity agreed to pay fines of \$30,000 to \$35,000 to settle an investigation by the New York Attorney General's office into their use of DirectRevenue adware. In the settlement, both Cingular and Travelocity promised "to investigate how their online ads are delivered" and to ensure ads were not distributed by adware surreptitiously installed on users' computers.

"We are the victims here," says Joel Frey, a Travelocity spokesperson, explaining that some of the company's partners made deals with adware firms despite Travelocity's policy against the practice.

Some advertising experts say companies shouldn't be absolved of their responsibility to control their online advertising, "They have the power to monitor their own ads. and so they should," says Kevin Heisler, analyst at Jupiter Research. By pleading ignorance, he says, companies risk feeding the nuisance of spyware by supporting its proliferators with ad dollars.

Advertising industry representatives, though, maintain that the connection between adware and online advertisers is complicated. Web advertising relies on a byzantine network of affiliates that pay one another to display ads.

Online advertising is very new, and "obviously there are kinks to be worked out," says Sheryl Draizen, spokesperson for the Interactive Advertising Bureau, But, Draizen adds, for every rogue advertiser there are ten honest ones.

# WHAT YOU CAN DO

JUPITER'S HEISLER SAYS fedup consumers should complain loudly to the companies that advertise-intentionally or unintentionally-via adware. If advertisers actually enforced a zero-tolerance policy, he says, it would eliminate much of the economic incentive for spreading adware.

-Tom Spring



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# PLUGGED IN

ERIC DAHL

# iPhone, Therefore I Am

PLUS: A (MUCH) NICER LINUX INTERFACE AND SECOND-GEN UMPCs.

# THE IPHONE COMETH

The Buzz: As the iPhone countdown continues. I thought I'd chime in with my reflections on Apple's uberdevice and its rivals. I spent some quality time with an iPhone at Macworld Expo in January, and it truly is impressive. Its mobile Web browser alone is worth the price of admission-the touch-based pinch and stretch zoom controls are beautiful. The music. photo, and messaging features are cool as well. But the touchbased keyboard isn't great for thumb typing, and Apple's decision to ban third-party apps is a big disappointment.

Unfortunately, competition may not arrive for a while: LG's Prada phone won't be sold in the States; and Samsung's neat F700, a touch-screen phone



with a slide-out keyboard, may not reach our shores either.

Bottom Line: Unless the iPhone can magically get an AT&T signal to my house, I'll skip it. Too bad Apple locked out third-party solutions-I was all set to take Skype calls over the iPhone's Wi-Fi.

**FUTURE TECH** 

# MIND CONTROLLERS

SAY GOODBYE TO controller thumb and Nintendinitis-the latest innovation in game controllers takes its orders directly from your mind. Emotiv Systems and NeuroSky each use electrodes positioned in a helmet or headset (Emotiv's prototype looks a bit like a deconstructed bike helmet-see below) to detect emotions or brain patterns and translate that data into actions in games



or software apps. By concentrating on a word or emotion, your mind can actually interact with a game. Both companies hope that games tailored to their technology will arrive in 2008.

# LINUX GRAPHICS

The Buzz: If you've ever considered switching to Linux, the user interface was probably pretty far down your list of reasons. But that could change this year, thanks to the Beryl Project, a hardwareaccelerated window manager to rival the visual flash of Vista and OS X. As of this writing, Beryl has barely reached its 0.2 release, but already it boasts some very cool features (see find,pcworld.com/57047). It has transparent windows and title bars, a Mac OS Exposélike task switcher that scales windows to thumbnails, and a 3D cube interface for switching between virtual desktops.

Bottom Line: Beryl could drive up Linux adoptions once it's stable enough to be included in default Ubuntu installations. Combine that with Dell's expanded lineup of Linux PCs (check out find.pcworld.com/ 57048), and this should be a good year for penguins.

# REFOLDING ORIGAMI

The Buzz: As mentioned last month, Microsoft isn't done with Origami yet. The first generation of Ultra Mobile PCs were marred by high prices and limited hardware, but the latest ones aim to change that. Samsung's nicely designed Q1 Ultra starts at \$799 and packs a split-style

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TWITTER: Megatrendy social network built around text-message updates, twitter.com

XBOX 360 ELITE: Updated model priced at \$479 adds HDMI, 1080p, and a 120GB hard drive. find.pcworld.com/57029

BOOTCAMP 2.0: Beta of the pre-Leopard dual-boot utility for Macs now supports Vista. find. pcworld.com/57028

OCZ TRIFECTA: The enthusiast memory maker produces 1GB and 2GB MicroSD flash media that also fits SD and USB. find.pcworld.com/57027

SEND TO CELL: Moredetailed MapQuest directions ported to a phone. find.pcworld.com/57045



thumb keyboard and a 7-inch, 1024-by-600-pixel display. Asus and Gigabyte have sub-\$1000, keyboard-equipped models coming, too. The Asus T83 swivels tablet-style to reveal a QWERTY keyboard under its LCD. Samsung's and Gigabyte's UMPCs should arrive in May; Asus's, later this year.

Bottom Line: This is a step in the right direction, but between powerful smart phones and smaller subnotebooks, I still can't see where UMPCs are going to fit in.

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





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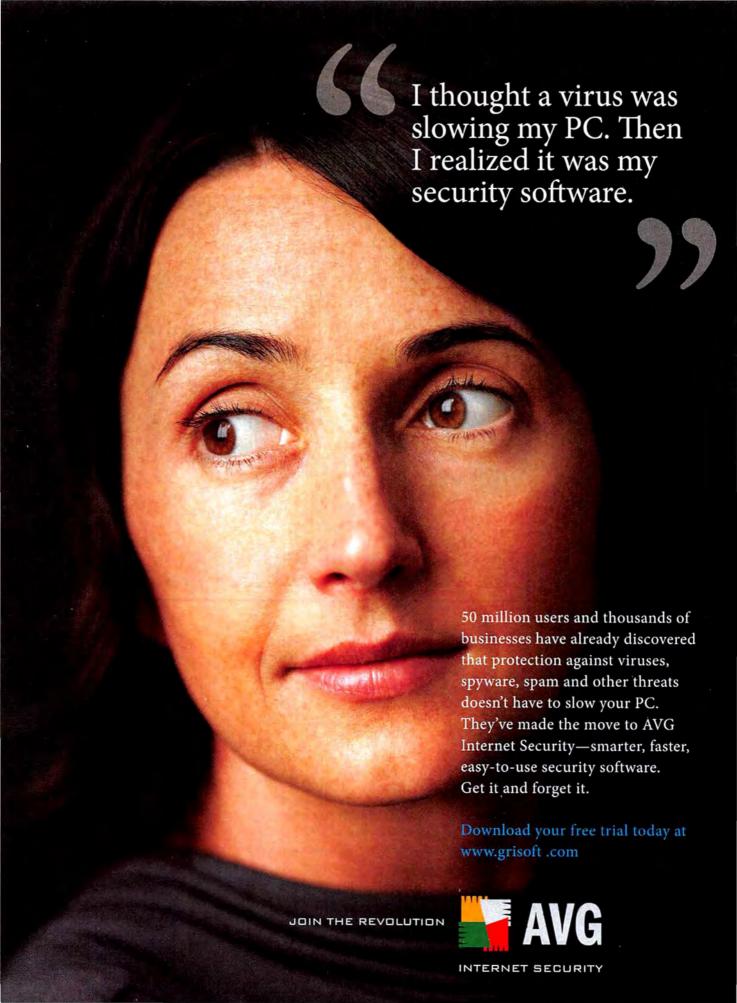
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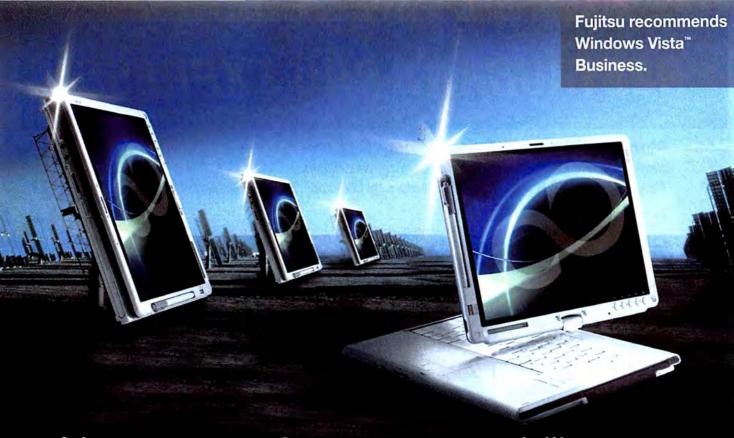
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LETTERS@PCWORLD.COM

I returned the PC and purchased an

iMac. It was a snap to set up, though it

still took a little time to get used to. But I

now have a solid, fast machine that starts

Len Carmichael, Prospect Heights, Illinois

RECENTLY, RATHER THAN buy a new

laptop with enough hardware to run Win-

dows Vista, I picked up a gently used one,

wiped the hard drive, and installed the

Ubuntu distribution of Linux. The Ubun-

tu folks (ubuntu.com) include Mozilla

Firefox and OpenOffice as part of the

download, and the installation was easier

than a comparable Windows one. The

THINKING ABOUT ALL the Vista naysay-

ers and boo-hooers out there who have

criticized Microsoft's new OS, I cannot

help but be reminded of an old Eagles

tune, "Get Over It." These people proba-

Charles Etheridge, Norfolk, Virginia

free forum support is excellent, too.

(and shuts down) in under 60 seconds.

# READERS CHOOSE THE OS THEY WANT

# THE BLAME FOR PHONE BILL WOES

# **REBATES: BAN** OR USE THEM?



### WHICH OPERATING SYSTEM?

YOUR ARTICLE ["THE Right Operating System for You," Part 2 of "Windows Tips for Everyone," April] is spot-on.

To replace my old machine that was running XP, I bought a new HP Slimline with Vista. It took a quite a bit of time to set it up and get the software working. Even with the latest processor and 1GB of memory, the PC was no faster than the five-year-old system I was replacing-and Vista is basically a painted-over XP with some bolted-on upgrades.

HOT TOPICS IN FORUMS

# Laptops, TV on PCs, a Net Nanny

HERE ARE SOME of the hot topics going on now in our forums. You can take part in our community discussions by heading to find.pcworld.com/55165.

LAPTOPS OUTDOORS: Yes, there are products just for the problem you describe-blocking sun glare on a laptop when using it outdoors. These products are known as sun shades, privacy screens, visors, or hoods...

-SupportguyNY

► RECORDING TV TO PC: To record two shows [at once], or to even record one and watch another, you would indeed need two TV tuners. The computer itself, however, may not be able to handle recording two shows at once. You would most likely want two hard drives for this, and a very strong processor.

-StormX2

## ► PROTECTING CHILDREN ONLINE: An

Internet filter would probably work best. Some routers have built-in filters that can be set to block certain Web sites. For about \$35 you can purchase ContentProtect [recently renamed Net Nanny 5.5; netnanny.com), which some call the best filter for home use...

-techie4fun

bly never got the shiny red bicycle they wanted for Christmas. For the rest of us, however, Vista is just plain cool.

Buy the installation disc from a local retailer instead of purchasing the OS online (when I tried to do that, I thought I had ruined a perfectly good PC), be sure your computer has adequate resources, follow the simple installation guidesand then proceed to have a blast.

Guy Dorman, Lancaster, California

### **PHONE BILL HEADACHES**

REGARDING THE ARTICLE "Phone Bill Woes" [News and Trends, April]: I've been receiving up to 75 MMS (Multimedia Messaging Service) spam messages per month on my cell phone for the past several months-and I have to pay 10 cents per message to T-Mobile. The first time I called the company, it removed the charges, but after that it said I must pay.

It's particularly disturbing that my cell phone provider actually benefits from spam, so the company has no incentive to fight it. I can't even get rid of this MMS service, though I don't need it at all.

> Sergey Liberman Bedford, Massachusetts

YOUR ARTICLE MENTIONS lawsuits filed against both AT&T and Verizon Wireless for the billing of roadside assistance. As an employee of AT&T, I am tired of stuff like this.

When did it became a company's responsibility to read your bill every month? How in the world do people not look at their cell phone bill to find out what's being charged?

People need to start taking a little responsibility for themselves and stop blaming the companies-which, after all, are in business to make money.

Andrew Holzman, Dallas

### REBATES: GOOD OR BAD?

REGARDING THE ARTICLE "Are Mail-In Rebates Headed for Extinction?" [Consumer Watch, Aprill: Rebates are deceptive advertising, and should be banned.

Art Miller, Hanover, Pennsylvania

FOR THE SAVVY consumer, rebates are great-just make sure you submit all of the information properly, make copies of everything, and follow up. People make the submission process sound like rocket science, but if you follow those

### CORRECTIONS

THE APRIL REVIEW of Diskeeper 2007 Pro Premier should have said the program costs around \$100.

The March Clip and Save of mobile tips should have said the Send2Fax. com service starts at \$12 per month. PC World regrets the errors.

steps, the number of rebates that don't come to you quickly will certainly shrink.

Todd Maddison, Oceanside, California

### CONFLICTING ADVICE?

THE APRIL ISSUE ["Windows Tips for Everyone," security item, page 92] suggests using the free Avast antivirus app. But on your Downloads page, you say its "performance is 'bottom of the barrel."

Carlyle Davidsen, Phoenix Editors' reply: The comments on our Downloads page are based on how Avast fared in an earlier roundup, but several PC World editors and contributors still favor this utility as an alternative to paid programs.

### **PESKY LOG FILES**

MY THANKS TO Steve Bass for the tip on deleting tvDebug.log [Hassle-Free PC, Aprill. When I checked my computer for it, I discovered that this ZoneAlarm file had grown to 25MB, plus there were literally hundreds of other small ZoneAlarm log files (ZAlog\*.txt). After I deleted them, the ZoneAlarm program, which had begun loading very slowly, immediately began to load much, much faster. But in only one day, tvDebug.log has already grown back to over 2MB.

> Eric Kemmler Farmington, Connecticut

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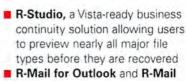
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## **About Your Professor**

Professor Timothy Taylor is Managing Editor of the Journal of Economic Perspectives, a quarterly academic journal produced at Macalester College and published by the American Economic Association. He received a master's degree in economics from Stanford University. At Minnesota, he was Teacher of the Year for Hubert H. Humphrey Institute of Public Affairs master's degree students.

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# CONSUMER WATCH

YARDENA ARAR

**NAVIGATING AMAZON'S** PRICING OFFERS

ONLINE SERVICES FIGHT **IDENTITY THEFT** 

**AOL PUTS ADS IN PAID** E-MAIL MESSAGES

# Amazon.com: One Item, Many Prices

# How to find the best deal when Amazon shows several offers for one product.

FOR A LONG time, Amazon.com was the Macy's of online shopping-a huge store with almost everything you could want. For everything else, you'd go to a boutique site. Now, though, many of those boutiques have storefronts on Amazon.

You've probably noticed this by now: When shopping for an item, you'll see the names of several merchants that also sell that product, along with price and availability info. And if you search for something, the results will typically include offers from third-party stores.

But are these deals worthwhile? To find out, I checked with Amazon and did a little investigating. My conclusion: Shopping boutique stores through Amazon can have some real benefits. but not in all situations. You should make your decisions on a caseby-case basis after checking out offers-both on Amazon and elsewhere-for whatever you're buying.

**AMAZON'S TAKE** 

AMAZON OFFICIALS SAY partnerships with third-party vendors support the company's customer-centric philosophy.

"It helps ensure customers are able to buy high-demand products as soon as possible," spokesperson Craig Berman says. "iPods are a great example. If we're out, they can get it from a third party."

Third parties also allow Amazon to offer a much wider selection than it could on its own. For example, Amazon sells some gourmet food items, but you can buy Madagascar green peppercorns in brine (which I use in a favorite recipe) only through GourmetFoodStore.com.

Would it be cheaper just to go directly

to GourmetFoodStore.com? Not by much. The two sites' prices were identical, though Amazon charged a couple of bucks more for shipping.

I couldn't do comprehensive price checks on millions of Amazon items, but

a colleague and I did price about a dozen random products from third-party merchants that sell through Amazon and at

their own sites. By and large, we found little difference in the bottom-line price, though you should always check for yourself. You may find a sale or an attractive deal on shipping at the store's site.

If prices are equal, buying at Amazon can make sense: The company protects most purchases made with an Amazon account by its A-to-z Guarantee, which basically promises refunds for all charges (including shipping) if the item doesn't arrive or is "materially different" than described. (Amazon's guarantee does not cover several major partners-Eddie Bauer, eBags, Target, and others-that offer their own guarantees.) I'm certainly more inclined to rely on an Amazon guarantee than one from a small thirdparty merchant I may never have heard

of, and that may not explicitly offer such a guarantee-something to look for when you're shopping on the merchant site.

### THE BUY BOX

IN CASES WHERE Amazon and partner vendors offer the same item, how do you ensure you get the best price? It's not as easy as Amazon would have you believe.

Berman initially told me that if a third

party "can offer the product cheaper than us, then they win the buy box"; that is, that company is chosen by default if you click the 'Add to Shopping Cart' button on the right side of a product page.

The contest for the buy box is based on the bottom-line price, which includes shipping. Because Amazon charges nothing for standard shipping on purchases over \$25 (and has to include sales tax only for merchandise its ships to Kansas, Kentucky, North Dakota, and Washington state), it often gains an edge over the competition.

That edge increases if, like me, you subscribe to Amazon Prime, paying \$79 a year to get free two-day shipping for anything you buy from the company. Someday I'm going to figure out if Prime really pays off for me-and you should do the math, too. In some locations standard shipping winds up taking only two days anyway, and with a little planning you can always reach the required \$25 minimum to make it free.

But even with the free shipping, I found at least one instance in which Amazon was the default supplier even though its bottom-line price wasn't the lowest.

In March, when I was shopping for



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## CONSUMER WATCH

a camcorder, a Canon HV10 high-def MiniDV model's price on the product page was \$900 from Amazon. But Ace Digital Club was selling it for \$830 (including standard shipping). Even more annoyingly, the Amazon product page indicated that the camera "usually ships within 4 to 6 weeks." Ace Digital's estimated ship date, on the other hand, was within a day or two.

When I asked about this apparent contradiction, Berman acknowledged that bottom-line price isn't the only factor determining the buy box winner. Other considerations include "availability, volume, refunds, customer feedback, [and] A-to-z Guarantee claims.... This means that there can be times when the seller

with the lowest price (product price plus shipping) is not the winner of the buy box. This information is communicated to our merchants and sellers so they can improve on all factors, increasing their chance of winning the buy box."

But customers who rely on the product page may not realize that a lower partner price is available. And they aren't alerted to any problems that are keeping a company from winning the buy box.

## **ELUSIVE LOW PRICE**

SIMILARLY, DON'T ASSUME that because Amazon shows offers from thirdparty partners, it has the best prices on the Web. A search of PCWorld.com's own shopping engine, powered by Price-

PRIVACY WATCH

# New Services Help Prevent Identity Theft



FOR ID THEFT victims, it's often the hairpulling hassles of the recovery that cause the most pain.

This month I looked at online services that can ease this difficult process.

myTruston.com has a free and easy monitoring service that guides you through looking for anything suspicious on your free credit report. The site's fraud recovery service, which costs \$20 per month, walks you through the necessary steps. You pay for it only when you need it; you can revert to the free monitoring service at any time.

Since you're the one doing the actual work, the only info you have to give myTruston is your e-mail address-for, say, getting reminders when you're eligible for another free credit report.

One thing myTruston doesn't yet provide (but says it will) is a guide to freezing your credit report. For a fee, you can instruct credit bureaus not to give anyone access to your report, something most companies require before granting credit. Rules for freezes vary by state, and not all states allow them.

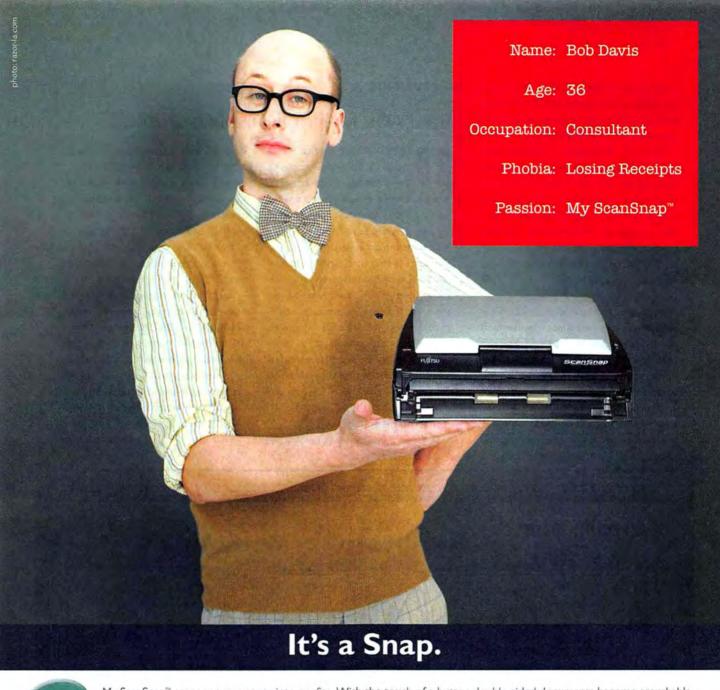
For details and per-state instructions, see find.pcworld.com/57025.

Another site, TrustedID.com, handles credit freezes as part of its \$8-permonth IDFreeze service. Much of its offering consists of acting on your behalf to do things you could do for yourself but may not want to deal with. One of its included services, which searches for your credit card or Social Security number among data pulled from shady online caches, is also available free at www.stolenidsearch.com.

You'll need to give TrustedID a limited power of attorney that authorizes it to communicate with the credit bureaus and to flag or freeze your report-and only those tasks, the company says. If you are hit by identity theft while you are a TrustedID customer, the company will guide you through the recovery steps at no extra cost, but you'll need to perform the work yourself.

These services do little that you can't do on your own if you're willing and well organized. (If that's you, one great free resource is the ID Theft Resource Center at idtheftcenter.org.) What they can do is help make a burdensome situation a little easier to deal with.

-Erik Larkin



My ScanSnap<sup>™</sup> scanner turns paper into profits. With the touch of a button double-sided documents become searchable PDFs, business cards become contacts. It's easy to install, comes loaded with the software you'll need and fits perfectly where my inbox used to be. Instead of managing paper, I'm managing my business. Plus, for a limited time, enhance your ScanSnap experience with FREE® Rack2-Filer™ software, the revolutionary e-filing tool from Fujitsu. For more information about Rack2-Filer, ScanSnap scanners and our full line of scanner products, visit Fujitsu at http://us.fujitsu.com/scanners/80A5 or call 800-831-8094 ext. 80A5.



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Grabber.com, showed that Dbuys.com was selling the Canon HV10 for \$814, also with free shipping (seven to ten business days, no tracking number).

The depth and breadth of product offerings on Amazon.com are unquestionably impressive, and the company's A-to-z Guarantee may ease concerns about shopping with an unfamiliar merchant. But Amazon isn't always going to deliver the best deal, or even make it supereasy for you to find the best deal it is offering. As usual, that's up to you.

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

ON YOUR SIDE

# Paid AOL Mail Now Displays Ads

I PAY FOR AOL service, which includes an e-mail account. This morning, I e-mailed someone and copied myself. When I opened up my copy, I was shocked to see an ad for AOL services at the bottom.

AOL's technical support representative told me that both paying and nonpaying customers will receive this "customer benefit" for a minimum of three weeks and maybe indefinitely. I can't send business-related e-mail messages with an ad at the bottom!

Even worse, AOL provided no notice about the new policy; a sender who didn't check a copy would have no way of knowing that the ad had been attached. This is outrageous.

Don Silver, Los Angeles

On Your Side responds: Sure enough, Silver's e-mail had the AOL "customer benefit" at the bottom. When we asked. AOL confirmed that it had included the advertisement in all AOL Web Mail for the past 6 to 8 months: "It is a reminder to all of our users that AOL offers a variety of free services, including free e-mail. There is no opt-out plan."

You don't have to put up with the AOL ads. Many services offer e-mail accounts with better features than AOL's. We like Yahoo's beta mail service: while the free version also puts an ad in messages, a \$20-per-year premium account makes it disappear. Check out our comparison chart of Web mail services at find.pcworld.com/56875.

-Amber Bouman



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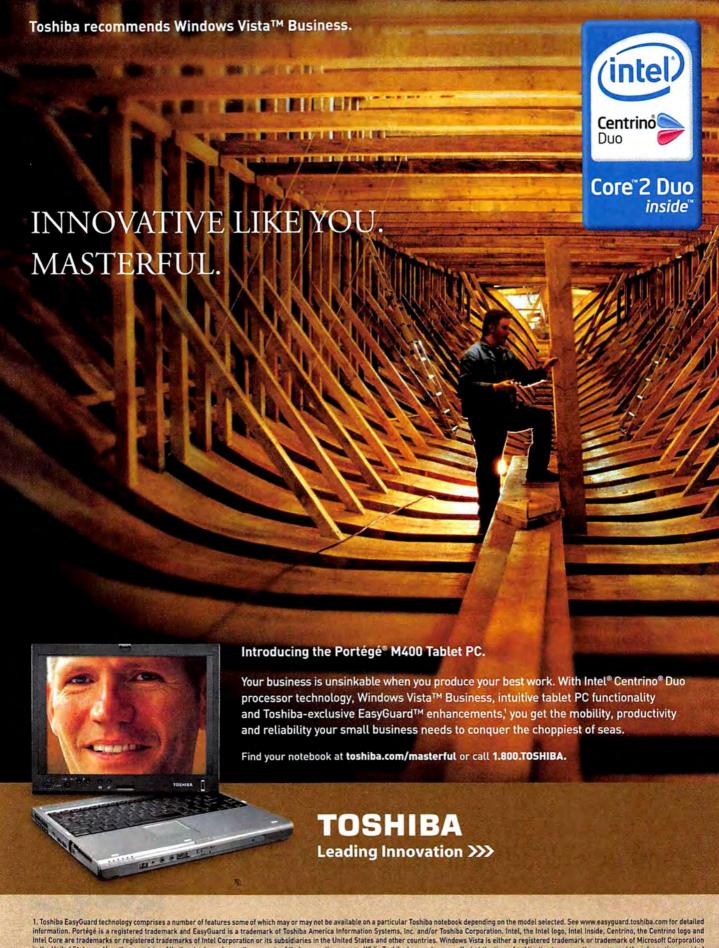
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# Top Tricks for Safe, Smart Downloads

# Plus: Download and play videos, and unclutter your machine's system tray.

ARE YOU READY to download a file? Don't-until you've read this column. I'll tell you how to download files efficiently and safely, and share a trick for transferring download-resistant videos onto your PC.

The Hassle: I download lots of free software, but I'm worried about picking up adware. What do you suggest?

The Fix: Fire up your standard defensive shields (firewall, antivirus, and antispyware); then add an extra coat of armor. I recommend giving Cyberhawk Basic (find.pcworld. com/56828) a try. Unlike antivirus software that checks for virus signatures. Cyberhawk watches for and

blocks suspicious behavior as it occurs.

But Cyberhawk doesn't play well with all computers, so I have two alternatives that thwart malware by running your browser, e-mail, and instant messaging apps in a protected sandbox. That way, you can end a session and easily reverse potential damage to your system. Green-Border Pro with SafeFiles (find.pcworld. com/56830) throws a border around your browser and puts downloaded files into a special folder, so that you can run them



in a protected session. At \$30 per year, it's not dirt cheap, but you do get a 15-day free trial. Or try Sandboxie (find.pcworld. com/56829), a free but complicated tool that quarantines downloads and their installation routines in a sandbox until you decide they're not harmful. Warning: Be sure to try each program separately.

The Hassle: I'm an avid downloader, but I hate downloading files one at a time.

The Fix: You need a download manager. FlashGet (find.pcworld.com/56831) is a

TOOL OF THE MONTH

# Clear Away Clutter With WinPatrol

WINPATROL IS A must-have tool: It helps keep your system tray free of clutter and warns you when a program insists on loading at system boot-up. The latest version-WinPatrol 2007-has Delayed Start, a smart feature that lets you delay launch of nonessential programs for up to an hour after the system boots, so Windows loads faster. That's ideal timing for applications such as backup programs. Also new is a right-click function that opens the startup program's folder in Windows Explorer. WinPatrol costs \$30 (and I promise you, it's worth the money), but there's a free version as well. Compare the two versions at find. pcworld.com/56834, and then download either one at find.pcworld.com/56835.

remarkable free tool. Click a link to download a file, or just copy the link into the clipboard, and Flash-Get pops up to perform the download. Even handier: Drag and drop multiple links onto the program's floating dropzone. The default setting can download ten files simultaneously and resumes the transfer if it's disrupted midstream by, say, a browser or unlikely (ha!) PC crash. If you have a manager but it won't work with Firefox, use Flash-Got (find.pcworld.com/56832).

Quick Tip: Have you ever happened across a site loaded with zillions of images or videos that you

wanted? Forget download managers: The tool you need is WinHTTrack Website Copier (find.pcworld.com/56837); it saves an entire Web site to your hard drive.

The Hassle: Is there a good way to download YouTube or Google video files?

The Fix: Many sites contain Flash-based streaming videos that are yours for the taking. Just use the Web-based tools at KeepVid.com or VideoDownload.com. Both sites have links you can add to your browser's toolbar to handle drag-anddrop video downloading. For multiple YouTube videos, download TubeMe. To watch the files, use VLC or FLV Plaveror convert the videos into AVI files at the Online FLV Converter site. All of these tools are at find.pcworld.com/56833.

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



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The Memory Experts



# Four Ways to Reclaim Your Digital Rights

# Why DRM schemes suck, and what you can (and can't) do about it.

EMI RECORDS' MOVE to sell unprotected MP3 files (available first at Apple's iTunes Store) may finally point the way out of the digital rights management morass. But most of us remain stuck in it, and we're not likely to get unstuck any time soon.

If you buy a music CD at Amazon.com, you can generally rip the songs to your hard drive and listen to them on any device. But if you buy the same songs from iTunes, Napster, or the Zune Marketplace, you typically can't-not without jumping through hoops, anyway. Except for unprotected songs by EMI artists, iTunes downloads play only on iPods. Napster To Go music works solely on approved PlaysForSure devices; and Zune tunes play on Zunes, period. Thank you, DRM.

However, DRM is not exactly airtight. Besides hacks and cracks, there are legal ways to copy media files and play them across a range of devices.

### LET THE MUSIC PLAY

THE CLASSIC WORKAROUND is to open your media software and burn songs to a CD, where they're stored as CD Audio files-DRM-free. Re-insert the burned CD and rip the tunes to a new media player as unprotected MP3s. This method is far from hassle-free, however.

I used the burn/rerip trick to swap my purchased music files between iTunes software and my Zune media player, but I had to retype title and artist information for each track. Napster let me burn tunes I'd bought from the service and open them in iTunes and Zune (again without data tags), but I couldn't rip songs, because Napster's software can't read CD Audio files. One other problem: Napster's

terms of service forbid reripping songs you buy from it (iTunes' and Zune's agreements don't address this issue).

Option two is to buy a program like SoundTaxi Platinum (\$15, soundtaxi. info) or the new NoteBurner (\$30, noteburner.com). SoundTaxi converts tunes into MP3s by silently rerecording them



than normal playback speed. NoteBurner works as a "virtual CD" drive inside your media player; just copy the songs to a NoteBurner folder instead of to a physical CD drive. Both products convert batches of songs with data tags intact, but they need the original media player software.

Of course, you can then upload these MP3s to any file-swapping network. So, are SoundTaxi and NoteBurner legal?

No, says attorney Marc E. Mayer, a partner at Mitchell Silberberg & Knupp, whose clients include Apple and the Recording Industry Association of America. Mayer says such apps run afoul of the

Digital Millennium Copyright Act, because they let users circumvent copy protection. But if you don't swap files online, you probably won't get sued, he says.

Fred von Lohmann, senior staff attorney for the Electronic Frontier Foundation, says such software is legal, because it's simply recording unencrypted audio (I tend to agree). If it tried to crack encryption, that would be different.

### THE HOLE TRUTH

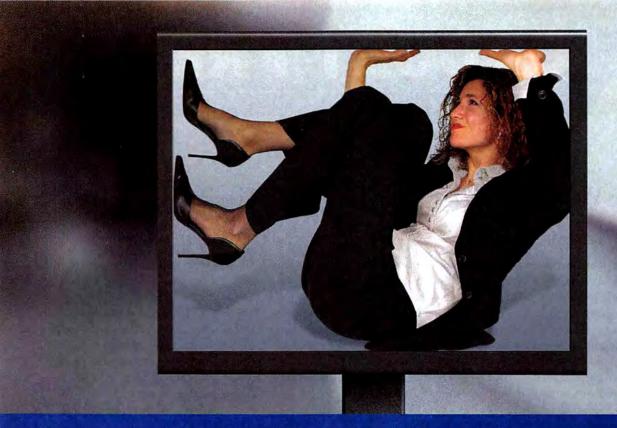
EVEN MORE ONEROUS IS DRM for video. You can't burn copies of videos you purchase from the iTunes Store, and all DVDs are copy protected. The legal solution? Get a device, like the Archos 604 Portable Multimedia Player and DVR station (\$430, archos.com), that records via analog inputs.

I connected my DVD player to the A604 and recorded a Discovery Channel DVD as it played; then I copied it to my PC via USB. The video was less than DVD quality, but it looked fine on my computer.

Hollywood wants to plug this "analog hole" by requiring electronics manufacturers to honor digital flags that limit how video can be copied. So far, it hasn't succeeded. Eventually content owners will have to fix the DRM problem, either by dropping it or by using one scheme that works across different devices.

For now, I have a little less DRM in life. which makes me a little more free.

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



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# Critical Attack Slams IE 6 and 7, Outlook

# Plus: An IE 7 phishing risk, QuickTime holes, and Vista compatibility updates.

JUST AS MICROSOFT'S security mavens celebrated a rare month of no patches, cyberthugs took the wind out of their sails by hitting a serious Windows hole in Vista and XP. Attackers could hijack your PC if you simply viewed a Web site or read an HTML e-mail laced with a poisoned animated-cursor file (.ani).

The flaw can be targeted through browsers, including Internet Explorer (6 and 7) and Firefox, as well as via Outlook versions 2002 SP3 and later, on Windows XP SP2 and Vista systems. Microsoft says that the risk with IE 7 under Vista is mitigated because of IE's protected mode, and that Outlook 2007 is safe because it uses Word to display HTML e-mail.

What galls me is that Microsoft knew about the hole three months before the attacks began. You can get the patch over Microsoft Automatic Updates or at find.pcworld.com/57024.

IE 7's troubles continue with a proof-of-concept phishing exploit published by security researcher Aviv Raff. Using it, an attacker could fool you and IE with an e-mail or Web link



# An animatedcursor attack allows PC hijackings.

to a doctored error page that, when refreshed as directed, would send you to a phishing site disguised as a legitimate destination. The impostor site would show the real site's URL in the address bar, potentially tricking even careful surfers.

At press time Microsoft had

not yet issued a fix; as always your best bet is never to click an e-mail link to access your bank or other financial account, even if you're sure that the e-mail is legit. Instead, type in the address yourself or use a bookmark. For more, including a vulnerability test, see find.pcworld.com/57000.

### **CARING TOO MUCH**

MICROSOFT HAS patched a problem with the way its One-Care antivirus application was handling Outlook (.pst) and Outlook Express (.dbx) e-mail files. Instead of pulling out one suspect e-mail, OneCare quarantined the entire message file, making all the user's e-mail seem to vanish.

Versions 1.1.2306.0 and later have the fix, sent through an automatic OneCare update. To get further details, scroll down at find.pcworld.com/57001.

On a more positive note, Microsoft is shipping another patch batch that improves Vista compatibility for a range of programs, including Trend Micro Internet Security 2007 and Microsoft Money 2006. For the patch and a list of affected apps, see find.pcworld.com/57023. Expect such fixes to be a regular thing.

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

# More Battery Woes

LENOVO IS RECALLING and replacing 205,000 (100,000 in the United States) lithium ion laptop batteries for ThinkPads sold between November 2003 and February 2005, due to an overheating problem that can occur if the battery is dropped or hit. To find out if your battery is affected, see find.pcworld.com/57004.

# Apple OS X Bugs

APPLE PATCHED 45 bugs in OS X, including several critical security flaws. The new, corrected version is Mac OS X 10.4.9 with Security Update 2007-003. Get the update at find.pcworld.com/57005.

# So Long, Firefox 1.5

TWO RECENT PATCHES correct critical security holes in Firefox 2.0 and 1.5 (the fixed versions are 2.0.0.3 and 1.5.0.11). But Mozilla stopped supporting (and fixing) version 1.5 as of April 24, so if you haven't yet upgraded to version 2, do it now. Find the upgrade at getfirefox.com.

## BUGGED?

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

## MORE SERIOUS QUICKTIME FLAWS

APPLE RELEASED YET another update to fix multiple dangerous holes in its QuickTime media player software for both Mac and Windows (affecting XP, 2000, and Vista).

The patch closes eight critical vulnerabilities in how the player handles a variety of media files—and annoyingly it will put QuickTime on your desktop and in your system tray whether you want it there or not. An attacker exploiting any of the flaws could hit you with a drive-by download if you visit a rigged site or click on an e-mail link to a poisoned movie, so make sure that you have version 7.1.5 or later (grab it from find.pcworld.com/ 57002). Learn more at find.pcworld.com/57003.

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Lab-tested and hands-on evaluations of the latest products

EDITED BY KALPANA ETTENSON AND MELISSA J. PERENSON

# Big, Beautiful Monitors

These 30-inch LCDs deliver really high resolution, plus lots of screen real estate—but at a price.

## WIDE-SCREEN LCDs

A POWERFUL CPU OF enter tons of RAM can certainly improve your computing power, but few things help you feel more productive than a big, wide-screen LCD.

A large monitor lets you spread your work out, open several windows, and multitask like the best of them.

And big monitors keep growing even bigger. Just a year ago, a 24-inch display might have been considered luxu-

rious. But the biggest size yet to hit the market-30-inch LCDs-are the new rage. They offer so much screen real estate, you can't help but feel like you've hit the big time when you're using one.

We took a look at a crop of 30-inch wide-screen LCDs to see what the new displays

have to offer. The three monitors we tested-Dell's Ultra-Sharp 3007WFP, HP's LP3065. and Samsung's SyncMaster 305T-all delivered excellent image quality in our tests, with incredibly sharp

ing hybrid-a huge monitor that can handle text display but also has a built-in TV tuner. For more, see "A Big Monitor That Includes TV Capability" on page 54.)

Dell and Samsung came close on its heels, as they also delivered notable image quality and other appealing features. Although using a massive wide-screen monitor can pro-

vide definite advantages over using a small display, you must be willing to fork out quite a lot to purchase one: The HP carries a \$1699 price tag. while the Dell costs \$1700 and the Samsung is a stiff \$1800.

According to Tom Mainelli, a senior analyst who covers the monitor market for research firm IDC, graphics designers and CAD users will appreciate 30-inchers, with their ability to show fine detail and accurate color, thanks to their incredibly high resolution of 2560 by 1600.

Beyond that, "there still are a handful of people that can



DELL'S ULTRASHARP 3007WFP (left) showed nice text and graphics. but the HP LP3065 offered the best image quality of the group.

text and vibrant colors. In addition, each offers features such as built-in media card slots or multiple DVI ports. (We also looked at an interest-

HP's LP3065 earned our Best Buy, thanks to its outstanding image quality and various extras, such as multiple USB and DVI ports. The

## RANKINGS

- 76 IOMEGA STORCENTER PRO 150D, WEST-ERN DIGITAL MYBOOK WORLD EDITION
- 78 NEXO, NING
- 80 ADOBE DREAMWEAVER CS3
- 80 ADOBE FLASH CS3 PROFESSIONAL
- 82 VISIONEER ROADWARRIOR
- 82 GYRATION MEDIA CENTER AND PC UNIVERSAL REMOTE CONTROL AND COMPACT KEYBOARD SUITE
- 84 NAVIGON POCKET LOOX N100, DELORME **EARTHMATE GPS PN-20**
- 84 MOZILLA THUNDERBIRD 2

60 TOP 10 CELL PHONES 73 TOP 5 POWER DESKTOPS



afford the best of the best," Mainelli says, adding that such big LCDs probably won't hit the mainstream because of their prohibitive prices. "I've not seen a dramatic uptick in the category," he notes.

## STRONG TEXT AND GRAPHICS

WE PUT THE Dell, HP, and Samsung units through our series of screen tests, displaying a total of 11 text and graphics images to a group of jurors. We evaluated each monitor on its demonstrated sharpness, accuracy, and vibrancy. Overall, they scored closely with one another-we rated their image quality Very Good across the board.

All three monitors earned similar scores for their text display, but we saw some subtle nuances in photos and graphics. The HP LP3065 edged out the others with its accurate color and first-rate representation of detail in photographs. It also rendered text that was very easy to read, even at 6-point size.

The Dell showed excellent text quality and nice graphics, though a few photos looked slightly darker than they did on the HP. The effect was barely noticeable, and not enough to be a turnoff.

The Samsung also put up impressive text, but, like the Dell, some of its photos took on just a slightly darker cast.

For text, the high resolution

of these monitors can be an issue, especially at small font sizes-when you're trying to read, say, a Microsoft Word document written in 10-point text, you may have to increase the font size display setting in Windows. But the high resolution certainly makes photographs look better: The visible detail is quite remarkable, especially when compared with what you see on a smaller monitor showing the same picture.

## MAKING SACRIFICES

WITH THEIR STRONG image quality, the 30-inch LCDs we tested are indeed tempting. You should consider other important points before you decide to buy one, however.

For starters, because of their high 2560 by 1600 resolution, these 30-inchers require a high-bandwidth dual-link DVI cable, as well as a graphics card that drives dual DVI-out. All three of the monitors here include this cable in the box, but you'll have to supply the graphics card, which can add at least \$150 to the cost if you don't already have a card that's compatible.

Also, these displays lack controls accessible through



THE SAMSUNG SYNCMASTER 305T has strong image quality, though some photos look dark.

an on-screen display (OSD), such as you'd find on monitors of other sizes, even 27inchers. The only controls these three have are buttons on the front to increase or decrease brightness.

According to Dell, HP, and Samsung, the monitors lack an OSD because no components exist that support the high resolution. If you want to make adjustments, you'll have to calibrate the display by using the graphics card. Even so, each monitor is limited by whatever parameters were placed on it at the time that it was manufactured.

And though some graphics cards can offer limited adjustmentsnamely, red, green, and blue controls and gamma (for setting accurate color representation)not all cards have them. (The monitor companies state that the components should be available soon. so on-screen controls will likely be found in future versions of these LCDs.)

Finally, as you might expect with monitors of this size. they cannot pivot-their big dimensions prohibit such movement. All of the models do tilt and swivel with ease. however, and they are also height-adjustable.

### NICE EXTRAS

IN ADDITION TO their generous size, these 30-inchers provide some useful extras. For instance, the HP LP3065 has four USB ports on the

The Samsung unit comes with a power-saver feature that switches the monitor to a low-power mode when the monitor has not been in use for some time. It includes just two USB ports, however.

Dell's 3007WFP has two media card slots on the left of the bezel (one of which is a four-in-one; the other accommodates just CF cards). Two USB ports are also located on the left, and two more are situated in the back of the unit.

	30-INCH WIDE-SCREEN LCD	PCW Rating	Performance	Features and specifications	
1	HP LP3065 Best \$1699 BUY find.pcworld.com/56997	82 Very Good	Graphics quality: 84.1     Text quality: 85.5     DVD motion quality: Yery Good	Inputs: Digital only     Adjustments: Multiple adjustments     6ms response time     Response type: Gray-to-gray	
	Bottom line: The HP delivers stellar image quality, with crisp text and vibrant colors. Three DVI ports and eight USB ports set it apart.				
2	Samsung SyncMaster 305T \$1800 find.pcworld.com/56998	81 Very Good	Graphics quality: 81.0     Text quality: 83.5     DVD motion quality: Very Good	Inputs: Digital only     Adjustments: Multiple adjustments     6ms response time     Response type: Gray-to-gray	
	Bottom line: Samsung's 30-incher offers strong text and pretty graphics. A power-saver mode turns off the monitor when it's not in use,				
3	Dell UltraSharp 3007WFP \$1700 find.pcworld.com/52222	81 Very Good	Graphics quality: 79.9     Text quality: 82.0     DVD motion quality: Very Good	Inputs: Digital only     Adjustments: Multiple adjustments     8ms response time     Response type: Gray-to-gray	

CHART NOTES: Prices and ratings are as of 4/11/07. Response time and response types are as reported by the vendor (ms = millisecond).

So is it worth shelling out the big bucks for one of these big displays? If you work on highly detailed documents or graphics applications, then a 30-incher's high resolution and sharp rendering of both text and graphics will likely be a worthwhile investment. Just

remember that the high resolution will make all of your icons and text appear rather small; if you decide to wallmount your new monitor (all three models we tested have this capability), you must be sure that you don't sit too far away from the display.

If you decide to keep the display on your desk, you'll have to clear plenty of spacethese big LCDs demand acreage. But it just might be worth the effort if it means you'll have more room to spread out all your open windows.

-Kalpana Ettenson

HYBRID DISPLAY

# A Big Monitor That Includes TV Capability

IF YOU'D LIKE a side serving of entertainment with your big display, then NEC's MultiSync 3735WXM LCD may be just what you're after. This 37-inch LCD includes a built-in analog TV tuner, which lets you hook it up to a cable connection and view television while you're getting your work done. The 3735WXM is geared for use as an informational display, but we think that it could be easily connected to a media center PC, as well.

The 3735WXM shows pleasing images when displaying television. I also hooked this monitor up to a PlayStation 3 and watched a Blu-ray DVD-the high-def movie looked crisp and lively, even though the display does not have 1080p resolu-

tion. The monitor's picture-in-picture capability enables you to work on a document side by side with a TV show, though you can minimize either window, too.

The display has a 1366 by 768 resolution, a common resolution for 37-inch TVs. While that's fine when you use the LCD's TV capa-

THE NEC MULTISYNC 3735WXM LCD includes attachable speakers. bility, it can be distracting if you have the monitor hooked up to a PC. Documents and spreadsheets lack the definitive sharpness and detail visible on the 30-inch LCDs we reviewed, which have four times more pixels. In addition, it's advisable to sit 8 to 10 feet from the display, as you would from a similarsize TV-not an ideal distance for viewing documents.

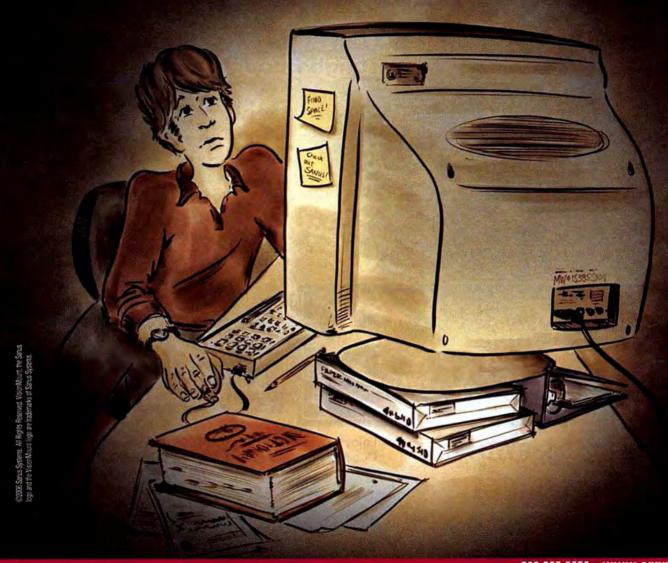
Nevertheless, the lower resolution should suffice if your emphasis is on entertainment. An LCD of this type is a logical fit for a media center PC. But the 3735WXM lacks an HDMI port (which some media center PCs include, and more will have in the future); that can pose a problem if you want to view high-definition content. You'll have to settle for using

the unit's component connections.

And then there's the price: This unit costs a steep \$2300, or a little more than what you would pay for a standard 37-inch television. Its hybrid capability is a nice benefit. But purists might prefer having the more usual arrangement-that is, a TV in the living room and, in another room, a big monitor attached to the computer.



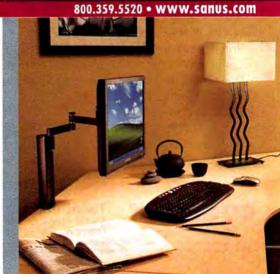
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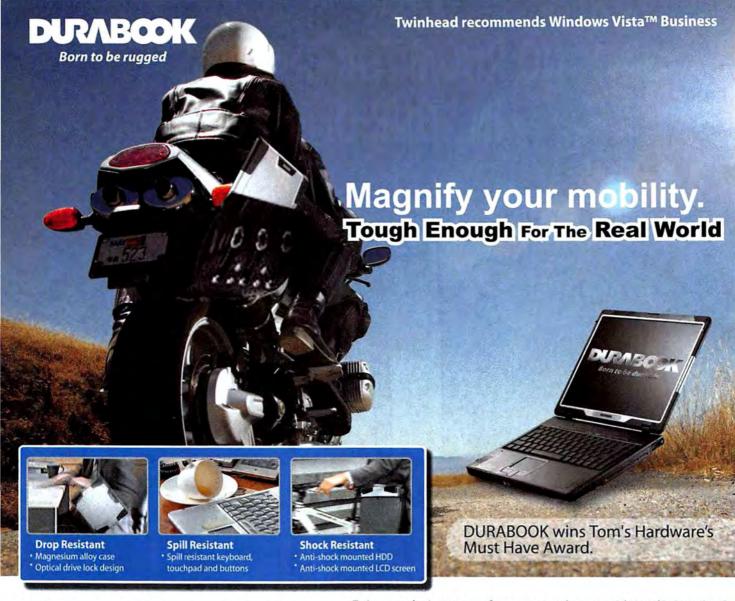


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# Subminiature PCs: FlipStart vs. OQO

# ULTRAMOBILE PCs

TEST IF SIZE AND weight enter were the only criteria, a couple of ultrasmall PCsthe FlipStart E-1001S (\$2000) from FlipStart Labs and the 000 Model 02 (\$1998) from OQO-would be at the top of every traveling PC user's wish list. But when it comes to performance, functionality, ease of use, and affordability, both machines come up short.

### HANDHELD PCs

HEAD-TO-HEAD, the Flip-Start has the edge over the OQO 02, thanks to its roomier keyboard, slightly bigger display, and built-in camera.

One look at either of these handheld PCs tells you they're unlike any portable computer you've ever used. (See video of both units at find.pcworld. com/56883.) Clearly they are not great for text-intensive tasks such as word processing and e-mail unless you're a wizard at thumb typing.

You'll be squinting to make out characters on their small screens, too-even with their zoom capability. (Both products have extenders with VGA ports for linking to an external display; in addition, the OQO has built-in HDMI output.)

## **DESIGN AESTHETICS**

THE OQO LOOKS like a big, buttonless smart phone. You slide the 5-inch, 800-by-480resolution LCD to reveal a miniature keyboard-more accurately a thumb-board designed for two-handed use. The unit has an integrated track stick-a nubby eraserhead that you slide with your thumb or fingertip-and capacitive touch scroll bars on the lower right side of the LCD. But when I used these pointing devices to move the cursor around the screen, my fingers tired quickly. The Model 02 itself has only one USB 2.0 port. An optional docking station that contains three USB 2.0 ports, ethernet, and other connectors is \$299 equipped with a DVD-ROM/ CD±RW drive or \$399 with a multiformat DVD burner.

The clamshell FlipStart resembles a miniature laptop and invites use with two hands while it's perched on a desk. The device has a 5.6-inch, 1024-by-600-resolution SVGA wide-screen LCD and comes with both a track stick and a mini-touchpad. I much preferred using the latter.

A BlackBerry-like jog wheel on the FlipStart's right side aids in navigation. Its keyboard has arrow, <Page Up>, <Page Down>, <Home>, and <End> keys, plus single keys for <Alt>-<Tab> and <Ctrl>-<Alt>-< Delete> functions (the OQO 02 keyboard has zoomin and -out keys, but no Windows or other special-purpose keys). The FlipStart also has a 1.3-megapixel still/video camera above the keyboard.

The FlipStart comes with a 30GB hard drive; my OQO test unit had a roomy 60GB drive (its base configuration calls for only a 30GB drive). Both machines have built-in Wi-Fi and Bluetooth wireless connectivity, and both sup-



port EvDO mobile data services, though you'll have to sign up for a service contract.

Both devices also have their own control applications, but I found that the FlipStart Control Center program made accessing the device's hardware, networking, and other settings easier. The FlipStart's InfoPane-similar to Vista's Sideshow display in concept but not function-puts a 2inch LCD on the top of the case so that you can see your Outlook inbox, calendar entries, and other information without opening the device.

## MODEST PERFORMERS

PERFORMANCE IS hardly a strength for either unit. Considering the FlipStart's 1.1-GHz Pentium M ULV CPU and 512MB of RAM, and the OQO's 1.5-GHz Via CPU and 512MB of system memory, the devices' low WorldBench 5 scores (57 for the E-1001S and

37 for the Model 02) are no surprise. We tested both units using Windows XP Professional, but both are available with Windows Vista as well.

OQO says new battery firmware will extend the life of the device's removable battery; an optional double-capacity battery is \$199. In informal tests with the original firmware and standard battery, our unit ran out of juice after 2 hours, 25 minutes of use. (The standard battery is rated to deliver 3 hours of use on a charge.)

The FlipStart did much better on this measure, lasting 3 hours, 40 minutes on a single charge-its rated longevity.

Both of these devices are so small that mobile professionals can take them places they might not take a laptop. The OQO wins on sheer tininess, but I found that the bigger FlipStart was ultimately the more usable machine.

-Dennis O'Reilly

### FlipStart E-1001S

FlipStart Labs

PCW Rating 78 Good

A clamshell case and relatively large keyboard make this mini-PC easier to use than the OQO. Price as tested: \$2000

find.pcworld.com/57032

### 000 Model 02

000

PCW Rating 73 Good

A smaller, sleeker system than the FlipStart, but its slide-out keyboard can be tiresome. Price as tested: \$1998 find.pcworld.com/57034

# Apple TV: The First Practical Media Streamer

### STREAMING MEDIA

TO SAY THAT Apple TV is the world's best media-streaming device may not sound like much. After all, most attempts based on the concept-which involves taking music, video, and photos from your PC and then playing them on your TV and stereo-have been unreliable, hard to use, and widely shunned by the buying public.

Apple has risen above such failure with its characteristic mantra: Keep it simple and make it pretty. Setting up the \$299 Apple TV is a breeze, and anyone who has used an iPod will feel instantly familiar with its attractive menu interface. Apple bends the definition of a media-streaming device by adding a 40GB hard drive for storing content on the unit, enabling it to avoid the picture breakups and glitches that often occur when you stream video over a wireless network. The hard drive seems paltry, though, given the popularity of 60GB and 80GB iPods.

Apple TV complements the company's iTunes: If you can play something in iTunes, in most cases you can play it on Apple TV. This approach does limit the device-you can't play the Xvid and DivX formats common on BitTorrent, for instance-but that's the price you pay for simplicity.

## COMPACT WONDER

I FOUND THE Apple TV eas-

GOTCHA!



A CLEAN, MINIMALIST design is what sets Apple TV apart.

you to know anything about IP addresses or default gateways. If Apple TV doesn't find your network automatically, simply supply your network's SSID and password, if necessary.

About 7 inches square and a little over an inch tall, the device is compact enough to fit unobtrusively into most entertainment-room setups. You can link to your TV (widescreen models only) through HDMI, component, or analog connections. Despite its hard drive, Apple TV runs almost silently, but it got very warm after about an hour of use.

Once you're connected, you link your Apple TV to a copy of iTunes on a PC or Mac. Apple TV next copies your iTunes content to its hard drive in a specific order: first movies, then TV shows, then music. Unfortunately, I couldn't find any way to move something to the front of the line. Apple TV will sync content with only one copy of iTunes; you can stream content from five other iTunes versions on your wireless network, though this can lead to hiccups in your picture. In my limited testing, streaming worked fine.

I bought episodes of The Office and The Riches from iTunes to test on a 37-inch NEC Multi-Sync LCD3735WXM TV. Picture quality was okay, but not sensational. Overall the images appeared a little dark and washed out, even in colorful outdoor scenes. Apple TV decodes movie files at up to 720p resolution; it can display the videos on a 1080i set, but it relies on the TV to handle the signal's upconversion.

The device handles music playback in much the same way that an iPod does, with lots of ways to view and access your collection. One annoyance: When I left the music area, albums stopped playing.

Despite my reservations, I enjoyed using Apple TV. It's the first media-streaming device that I could imagine recommending to a nongeek.

-Edward N. Albro

Cable Users Get Cut Off

MOST BROADBAND PROVIDERS restrict how much bandwidth

you can use. Exceed your allotment, and your account may

ier than other streaming devices to connect to my Wi-Fi network. Unlike some manufacturers, Apple doesn't expect

be cut off-as at least one Comcast user recently learned.

Comcast says that less than 0.01 percent of its residential customers use the service excessively, and insists that it won't cut off accounts without warning. According to recent media reports, however, one Comcast customer in Massachusetts who was notified of excessive bandwidth use by the provider says she was told that there was no specific limit. Nevertheless, she

says, her account was suddenly cut off a few months later. It is not clear exactly how much bandwidth she was using.

Comcast isn't the only provider that limits broadband use, but today's bandwidth-heavy activities-such as downloading movies-may push more users toward those limits.

-Liane Cassavoy

### Apple TV

**Apple Computer** PCW Rating 86 Very Good

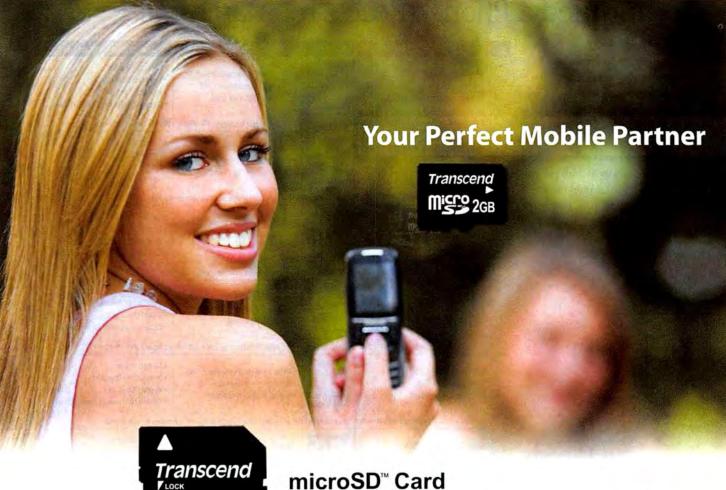
iPod content, but imposes some limits on what you can play. Street: \$299

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# Multimedia Phones Reach Top Rankings

PHONES ORIENTED dominate our rankings. Two returning models stay atop our chart of standard cell phones: RIM's BlackBerry Pearl and Sony Ericsson's W810. Motorola's slider-style Rizr Z3 debuts in third place, with a 2.0-megapixel camera and a built-in music player.

Sony Ericsson's latest Walkman phone, the W300i, combines superior talk-time bat-



SAMSUNG'S SCH-U740 CAN be opened horizontally or vertically.

tery life and a fairly low price. Samsung's clamshell SCHu740 has an innovative dualhinge you can open vertically to make calls or take pictures, or horizontally to use its full QWERTY keyboard. LG's new EnV phone has a similarly hidden QWERTY keyboard.

-Liane Cassavoy

### ONLINE

FOR MORE INFORMATION about these cell phones, including details about how we tested them, go to find.pcworld.com/54886.

	STANDARD CELL PHONE	PCW Rating	Performance	Features and specifications		
1	RIM BlackBerry Pearl  Best \$250 find.pcworld.com/55333	85 Very Good	Battery life (hours:minutes): 8:34     Battery life score: Very Good     Overall design: Very Good	Carrier: T-Mobile Form factor: Candy bar Weight: 3.1 ounces Camera resolution: 1.3 megapixel		
	▶ Bottom line: This sleek cell phone adds a serviceable camera and multimedia features to BlackBerry's already terrific e-mail capabilities.					
2	Sony Ericsson W810 \$175 find.pcworld.com/54198	84 Very Good	Battery life (hours:minutes): 10:00     Battery life score: Superior     Overall design: Very Good	Carrier: Cingular     Form factor: Candy bar     Weight: 3.5 ounces     Camera resolution: 2.0 megapixe		
	► Bottom line: Sony drew on its Walkman roots in creating this impressive cell phone/music player hybrid device.					
3	Motorola Rizr Z3 \$150 NEW find.pcworld.com/56844	83 Very Good	Battery life (hours:minutes): 10:00     Battery life score: Superior     Overall design: Yery Good	Carrier: T-Mobile Form factor: Slide Weight: 3.8 ounces Camera resolution: 2.0 megapixe		
	Bottom line: This well-designed multimedia phone focuses on user satisfaction, though its keys are a bit stiff.					
4	Motorola Razr V3i \$200 find.pcworld.com/55769	82 Very Good	Battery life (hours:minutes): 10:00     Battery life score: Superior     Overall design: Good	Carrier: Cingular Form factor: Clamshell Weight: 3.5 ounces Camera resolution: 1.3 megapixe		
	► Bottom line: Motorola's latest Razr has improved battery life and a built-in version of iTunes, but it won't replace your iPod.					
5	Samsung SCH-u740 \$200 NEW find.pcworld.com/56841	81 Very Good	Battery life (hours:minutes): 4:46     Battery life score: Poor     Overall design: Very Good	Carrier: Verizon Form factor: Clamshell Weight: 3.6 ounces Camera resolution: 1.3 megapixe		
	➤ Bottom line: This phone's innovative dual-hinge clamshell design comes with a OWERTY keyboard that makes for easy typing.					
6	Sony Ericsson W300i \$180 NEW find.pcworld.com/56846	80 Very Good	Battery life (hours:minutes): 10:00     Battery life score: Superior     Overall design: Yery Good	Carrier: Cingular     Form factor: Clamshell     Weight: 3.3 ounces     Camera resolution: 0.3 megapixe		
	► Bottom (line: This budget music phone :	sports a light, com	pact design, but it is a little hard to navigate	k		
7	Nokia 5300 Xpress Music \$150 find.pcworld.com/56558	80 Very Good	Battery life (hours:minutes): 5:06     Battery life score: Fair     Overall design: Very Good	Carrier: T-Mobile Form factor: Slide Weight: 3.8 ounces Camera resolution: 1.3 megapixe		
	► Bottom line: This handset offers excell	ent music playbac	k features and works well as a phone, too.			
8	LG EnV \$250 NEW find.pcworld.com/56847	79 Good	Battery life (hours:minutes): 5:05     Battery life score: Fair     Overall design: Very Good	Carrier: Yerizon     Form factor: Clamshell     Weight: 4.6 ounces     Camera resolution: 1.3 megapixe		
	Bottom line: The EnV isn't the slimmest cell phone around, but it offers excellent messaging features and multimedia options.					
9	T-Mobile SDA \$200 find.pcworld.com/52650	79 Good	Battery life (hours:minutes): 10:00     Battery life score: Superior     Overall design: Good	Carrier: T-Mobile     Form factor: Candy bar     Weight: 3.7 ounces     Camera resolution: 1.3 megapixe		
	➤ Bottom line: This bulky handset's built-in Wi-Fi lets you browse the Web and send e-mail and instant messages quickly and easily.					
10	Samsung SGH-T719 \$150 find.pcworld.com/55762	78	Battery life (hours:minutes): 9:21     Battery life score: Superior     Overall design: Good	Carrier: T-Mobile     Form factor: Clamshell     Weight: 3.5 ounces     Camera resolution: 1.3 megapixel		

CHART NOTES: Prices and ratings are as of 4/11/07; prices are for phones purchased with an accompanying two-year service agreement, before any rebates.



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# "Best Antivirus Product of 2006"

- AV Comparatives





# PHOTOGRAPH, MARC SIMON

# DirectX 10-Ready Graphics Go Mainstream

### GRAPHICS BOARD

TEST THE NEW PC games Center standard is DirectX 10, but graphics boards supporting it have been very expensive (\$600 for an nVidia GeForce GTX-based board with 768MB of memory). Now a new wave of nVidia boards with less memory is arriving. We tested one such model, which still delivers great per-

### GeForce 8800 GTS OC

**BFG Technologies** 

PCW Rating 84 Very Good

Not the cheapest board based on this chip, but it's overclocked and it carries a lifetime warranty. List: \$350

find.pcworld.com/56876

formance. BFG Technologies' GeForce 8800 GTS OC is somewhat pricey at \$350 (other 8800 GTS-based boards cost \$300). but it ships overclocked and has a lifetime warranty.

The GeForce 8800 GTS OC carries only 320MB of RAM. BFG increases the card's core clock speed from 500 MHz to 550 MHz, while its Shader Clock runs at 1.3 GHz, versus the standard 1.2 GHz.

In our Battlefield 2 and Half-Life 2 tests at 1600 by 1200 resolution with antialiasing turned on, the GTS OC delivered frame rates of 75 frames per second and 116 fps, respectively. That's on a par with the 79 fps and 124 fps posted

by XFX's GeForce 8800 GTX (\$589), which is currently the third-ranked product on our power graphics board chart (find.pcworld.com/ 57073). The GTS OC couldn't match the 8800 GTX (with its faster clock speed and memory) in our Quake 4 and Doom

3 tests, though it outran the \$359 ATI Radeon X1950 XTX.

The 8800 GTS OC includes two fully HDCP-compliant Dual-Link DVI connections (maximum 2048-by-1536-pixel resolution), and adapters for component and S-Video-out.



BFG'S GEFORCE 8800 GTS OC supports power graphics.

If you want to prepare for the advent of DirectX 10 software, a GeForce 8800 GTSbased board like this one is the most affordable way to do so.

-Danny Allen

# Run Palm Apps on Windows Smart Phones

### MOBILE COMPUTING

YOU'VE INVESTED IN a fair number of Palm applications over the years, but now you find yourself coveting a skinny Windows Mobile-based handset. StyleTap's eponymous software may ease your transition to Microsoft: Style-

Tap runs Palm apps on a Windows Mobile deviceeven if the device doesn't have a touch screen (Palm units have one by default).

I tried a preview version of StyleTap Platform for Windows Smartphone (\$50) on a Samsung BlackJack. Unlike previous versions of StyleTap, which could support only Pocket PCs with touch screens, the latest version works with newer display formats (for instance, the BlackJack's small, wide-aspect-ratio

screen) and doesn't require the device to have a touch screen.

Getting started with Style-Tap is easy: I installed the associated desktop software-a 1.2MB download-on my PC (Windows Vista users must have the latest version of Windows Mobile Device Center.



STYLETAP'S NEW VERSION puts Palm apps to work on the Windows Mobile OS.

available from Microsoft's site); StyleTap's icon appeared on the BlackJack after my next desktop synchronization. On subsequent sync sessions. StyleTap installed the Palm programs and files I chose.

Whenever I ran a Palm app, StyleTap created a cursor that

> functioned like a stylus: To move it, you use the smart phone's directional control (a four-way wheel on the BlackJack), pressing either the 'select' or 'OK' button in lieu of tapping. By default, the cursor moves one pixel at a time when you press the wheel; a cursor setting lets you increase the number of pixels the cursor moves on each wheel press.

Differences in screen resolution make programs look a little funky. For ex-

ample, I had trouble telling spades from clubs in a Palm card game on the BlackJack. And some pieces of software won't run at all: Another application caused the BlackJack's screen to go white until I rebooted the phone. (StyleTap's site maintains a list of apps that it certifies as compatible.)

StyleTap may not be perfect, but it could help you make the move to one of the increasingly popular Microsoft Windows Mobile-based handsets.

-Yardena Arar

# StyleTap Platform for Windows Smartphone

StyleTap

PCW Rating 80 Very Good

Useful software lets you run many Palm apps (awkwardly) on Windows Mobile devices. Street: \$50

find.pcworld.com/57039

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Go to find.pcworld.com/56897

# Play Your Media, With a Touch on a Screen

### MULTIMEDIA PLAYERS

TEST TWO NEW portable Center media players—the Cowon D2 and the Archos 704 WiFi-are among the first to include touch screens to simplify navigating your media. The D2 is a typical music player with some video capabilities, while the 704 WiFi, with its large screen, makes movie watching more enjoyable.

### POCKET TV

cowon's pocket-size

D2 (\$190) is far smaller and cheaper than the \$550 Archos 704 WiFi. It weighs 3.2 ounces. holds 2GB, has an SD Card slot, sits in your hand comfortably, and slips easily into a shirt pocket. It's essentially a typical audio player that can display photos and video, except that it has a 2.5inch touch screen. Though the display was attractive, I can't imagine watching video on such a small screen for more than a few minutes at a time.

Screen size isn't as much of a problem for the Archos 704 WiFi. Dominating this model, which is more than five times as large as the Cowon D2, is its 7-inch, 800-by-480 touch screen. The 704 WiFi's large size and wide-screen dimensions make watching videos a treat: It's like toting a portable DVD player. But because the unit weighs a modest 1 pound, 6 ounces, you can slip it into a backpack, briefcase, or purse, rather than having to carry it around in its own bag.

In fact, the 80GB 704 WiFi is large enough that Archos tossed in a remote control, although I found it of limited

use while watching video on the player itself. However, you will need the remote to operate the device if you hook it up to a television so that you can record shows (with the optional \$100 DVR Station).

Of course, both players play video files. The Cowon D2 plays MPEG-4 and WMV files, as well as DivX 3.11; the 704 WiFi plays those





sound contained more distor-

tion, and the player generated

In informal tests conducted

at default settings, the Archos

704 WiFi sounded flat and

hollow. But tinkering with the

equalizer to boost the bass

more noise in general.

THE COWON D2 (left) seems minuscule by comparison with the considerably heftler Archos 704 WiFi.

as well as DivX4 and DivX5. Archos also offers two optional plug-ins: One of these enables playback of H.264 video files and AAC audio files; the other one supports VOB and MPEG-2 video and AC3 audio playback. Each plug-in costs \$20 via Archos's Web site.

Among the 704 WiFi's interesting extras: As its name suggests, the device provides wireless Internet access via 802.11g and the built-in Opera browser. The device handled Internet access well, but using the touch-screen keyboard to type proved cumbersome.

### **SOLID SONICS**

IN OUR FORMAL evaluation by the PC World Test Center, which measured the quality of audio from the headphone jack, the Cowon D2 produced a loud signal with little distortion or noise. The Archos's and treble yielded improved audio quality-on a better headphone set than the one included with either player, that is.

### MUSIC-AND MORE

NAVIGATING MUSIC on the Cowon D2's interface was far less intuitive than doing so on the Archos's. For example, choosing 'Music' from the main menu calls up the last song you played. To select a different song or locate a playlist, you have to tap the screen to bring up a row of icons and select the 'Browser' icon to

reach the dynamic playlist or a bookmarked song. Overall the touch screen worked well, though its responsiveness occasionally lagged as I scrolled through the song list. The Archos's touch screen responded relatively swiftly, and the 'Mu-

> sic' icon on its main menu brought up the music library.

To convert video and audio files and to transfer files to the Cowon D2, you must use the included let-Audio software. Unfortunately, you can't set up playlists beyond adding songs to the one dynamic playlist-just one way in which the D2

fails to fully live up to the "portable multimedia player" moniker on its case. The device is expensive for a flash audio player that only flirts with multimedia, and in the end its primary appeal will be to people enchanted by the novelty of its touch screen.

The large Archos's packaging itself as a "mobile DVR" is much more legitimate. This multimedia device is well suited to video lovers with big pockets-and a willingness to shell out another \$100 for the DVR Station, to hook up to and record from their TV.

-Eric Butterfield

## D2

#### Cowon

PCW Rating 70 Good

Basic media player's small touch screen would be more worthwhile if the player were equipped with a more efficient menu system. Street: \$190

find.pcworld.com/56990

## 704 WiFi

## Archos

PCW Rating 78 Good

Huge screen makes watching videos a treat, and touch-screen navigation is smooth, but the player is extremely pricey. Street: \$550

find.pcworld.com/56989



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- Optical mouse
- · One-year limited warranty



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(ET.L6102.018)

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(ET.2216B.0D0)

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- 700:1 contrast ratio
- · 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- · 300 cd/m² brightness
- · 5ms response time
- · Internal power adapter
- · Black color



\$189

(ET.1916B.WDA)

### Acer AL1916W Abd

- 19" wide-screen TFT LCD
- 1440 x 900 native resolution
- 700:1 contrast ratio
- · 150° horizontal viewing angle
- · 135° vertical viewing angle
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color



\$169

(ET.B17RP.F04)

### Acer AL1717 Fbd

- 17" TFT LCD
- 1280 x 1024 native resolution
- 800:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- · 5ms response time
- · Internal power adapter
- Black color



Acer delivers remarkable solutions for breathtaking mobile multimedia entertainment. Cutting-edge mobile technology combined with ultra-bright screens, powerful graphics and complete connectivity make these the ideal choice for no-compromise entertainment on the go.



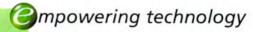
# Acer<sup>®</sup> Aspire<sup>™</sup> 3100

- Mobile AMD Sempron™ Processor 3500+.
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology<sup>2</sup>
- Genuine Windows Vista™ Home Basic
- 512MB DDR2 SDRAM
- · 80GB3 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
- Integrated ATI Radeon™ Xpress 1100 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- · One-year limited warranty

Acer Aspire 3100-1405

Mobile AMD Sempron Processor 3500+ Genuine Windows Vista Home Basic (LX.AX60Y.084)





# Acer Empowering Technology

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

# Acer Technology for Your Mobility



## Acer QuickCharge

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



## 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

Display sold separately.

# Acer<sup>®</sup> AcerPower<sup>™</sup> 1000

- Up to AMD Athlon<sup>\*</sup> 64 X2 Dual-Core Processor
- HyperTransport™ Technology Enhanced Virus Protection Technology²
- Cool'n'Quiet™ Technology
- Genuine Windows® XP Professional
- Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- Integrated NVIDIA® GeForce® 6150 graphics
- Gigabit LAN
- USB keyboard and mouse
- 2.4" W x 9.8" D x 7.9" H
- One-year limited warranty<sup>4</sup>





Windows Vista Capable

# Acer AcerPower 1000-UD400P

AMD Athlon\* 64 X2 Dual-Core Processor 4000+ Genuine Windows\* XP Professional 1GB DDR2 SDRAM, 160GB3 SATA hard drive and 802.11b/g WLAN

Acer AcerPower 1000-UA381P

AMD Athlon\*\* 64 Processor 3800+ Genuine Windows\*\* XP Professional 512MB DDR2 SDRAM and 80GB3 SATA hard drive



# **Ultra-Compact Efficiency**

The AcerPower 1000 delivers desktop-level performance in a system that's just one-tenth the size of a typical tower desktop. Plus, operation is ultra-quiet and power consumption low.

# Acer® Projectors with DLP® Technology



Acer PD726W **Wireless Projector** \$1,669

- 3700 ANSI lumens
- XGA (1024 x 768) native resolution
- UXGA (1600 x 1200) maximum resolution
- 2500:1 contrast ratio
- 7.7 lb. (3.5kg) (EY.J2901.012)





Acer PH530 **Home Theater Projector** \$799

For the name of a reseller near you or further information please call Acer or visit our Web site: 800-571-2237

## **Home Entertainment**

# Acer<sup>®</sup> Aspire<sup>™</sup> T180

- Up to AMD Athlon™ 64 X2 Dual-Core Processor
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology<sup>2</sup>
  - Cool'n'Quiet™ Technology
- Genuine Windows Vista™ Home Premium or
  - Genuine Windows Vista\* Home Basic
- DVD-Dual drive (DVD+/-RW)
- 9-in-1 card reader
- Integrated NVIDIA® GeForce® 6100 and NVIDIA® nForce® 430 graphics
- · Gigabit LAN, V.92 modem
- PS/2°-style keyboard and mouse
- · One-year limited warranty





Acer Aspire T180-UD381A

AMD Athlon 64 X2 Dual-Core Processor 3800+ Genuine Windows Vista Home Premium 1GB DDR2 SDRAM and 250GB3 SATA hard drive Acer Aspire AST180-UA380A Acer Aspire AST180-US340B

AMD Athlon" 64 Processor 3800+ Genuine Windows Vista Home Premium 1GB DDR2 SDRAM and 160GB' SATA hard drive

Display sold separately.

AMD Sempron Processor 3400+ Genuine Windows Vista Home Basic 512MB DDR2 SDRAM and 160GB' SATA hard drive

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

- 1000 ANSI lumens
- 720p (1280 x 720) native resolution
- SXGA (1280 x 1024) maximum resolution
- 2500:1 contrast ratio
- 6.0 lb. (2.7kg) (EY.J4401.007)



Acer PD311 **Portable Projector** \$739

- 2000 ANSI lumens
- SVGA (800 x 600) native resolution
- SXGA (1280 x 1024) maximum resolution
- 2000:1 contrast ratio
- 2.9 lb. (1.3kg)

(EY.J3401.006)





## **Home Entertainment**

# Acer<sup>®</sup> Aspire<sup>™</sup> 5100





- AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-50
  - AMD PowerNow!™ Technology
  - HyperTransport™ Technology
  - Enhanced Virus Protection Technology<sup>2</sup>
- . Genuine Windows Vista™ Home Premium
- 1GB DDR2 533 SDRAM
- 120GB3 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
- Integrated ATI Radeon™ Xpress 1100 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- · One-year limited warranty

Acer Aspire 5100-5033

\$729

AMD Turion 64 X2 Dual-Core Mobile Technology TL-50 Genuine Windows Vista Home Premium (LX.AX90X.095)



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

## Acer Notebook Service Upgrades Protect Your Valuable Investment

Quality is built into every notebook Acer makes, and each comes with a one-year standard limited warranty.' 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:

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 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 (145.AB820.EX2)

\$99

Prepays freight from Acer repair depot. Excludes extension of International Traveler's Warranty. 2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)

\$190

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

Depends on availability of PC-supported connections and location.

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

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

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

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# Vista Desktops That Deliver High Performance

YOU NEED NOT be a Center serious PC gamer to benefit from the performance boost that a power system offers. For this Top 5 chart, we tested eight high-performance PCs, ranging in price from just over \$2000 to almost \$4400. All of them ran Windows Vista and had an Intel Core 2 Duo or Core 2 Extreme processor.

The CyberPower Gamer Infinity Ultimate (\$4399) earned our Best Buy nod despite its price, thanks to its excellent performance and extensive features. This PC-with its Core 2 Extreme CPU overclocked to 3.46 GHz-earned a World-Bench 6 Beta 2 score of 129. the highest of the group. The unit carries 800GB of harddrive space and a Blu-ray drive

(it's the only one of the bunch to do so). No other system we tested has PCI Express-SLI graphics; the rest-including Xi's MTower IGE-SLI, with its SLI-capable motherboardhad single graphics cards.

If you're on a much tighter budget, or you aren't a hardcore gamer, you might consider the \$2033 Dell XPS 410. the least-expensive system we tested. Its thorough documentation makes it easy to set up, but it had just one open external bay in the configuration we tested, and it lacked an unoccupied internal bay. All of the other desktops we tested had at least three expansion bays, except the Shuttle XPC P2 3900g, which failed to make our chart. The very compact



THE CYBERPOWER GAMER Infinity Ultimate was the fastest (and priciest) system we tested.

Shuttle (about the size of two stacked shoe boxes) left room for just a single open bay, but the tiny case gives it a good excuse. Nevertheless, in our performance tests, it needed no apology, earning a strong WorldBench 6 Beta 2 score of 114 and a Superior mark for its high gaming frame rates. But the little dynamo costs \$4301—almost as much as the full-featured CyberPower gaming system we tested.

If you don't need all the features the CyberPower offers, you might like the Xi MTower IGE-SLI. This machine posted a fantastic score of 127 in our WorldBench 6 Beta 2 tests. and it maintained extremely high frame rates in our graphics tests. At \$3655, it costs significantly less than the Cyber-Power. An even less expensive alternative is the \$2399 Velocity Micro ProMagix PCX, a PC whose Asus P5N-E motherboard supports both SLI and RAID for later upgrades.

## **WORLDBENCH 6 BETA**

THIS MONTH WE used the Beta 2 version of our new benchmark, WorldBench 6, to test each new system. Because many of the applications included in WorldBench do not yet run properly on Windows Vista, we used older versions of some applications and we omitted others. Once all of these applications run properly on Vista, we'll retest with the final benchmark.

-Eric Butterfield

## ONLINE

FOR MORE INFORMATION about the power desktop PCs reviewed in this chart, including details on how we tested them, go to find. pcworld.com/57075.

	POWER DESKTOP	PCW Rating	Performance <sup>1</sup>	Features and specifications				
1	Cyber Power Gamer Infinity Ultimate Best \$4399 BUY find.pcworld.com/56849	84 Very Good	WorldBench 6 Beta 2 score: 129     WorldBench 6 rating: Superior     Overall design: Very Good     Graphics: Superior	2.66-GHz Core 2 Extreme 0X6700 <sup>-2</sup> 800GB (RAID) drive capacity     22-inch ViewSonic VG2230WM LCD     768MB XFX GeForce 8800GTX				
	<ul> <li>Bottom line: This overclocked gaming system has blistering speed and comes with the works, justifying the high price.</li> </ul>							
2	Xi MTower IGE-SLI \$3655 find.pcworld.com/56855	82 Very Good	WorldBench 6 Beta 2 score: 127     WorldBench 6 rating: Superior     Overall design: Very Good     Graphics: Superior	2.93-GHz Core 2 Extreme X6800 <sup>3</sup> 300GB (RAID) drive capacity     22-inch Sceptre X22WG-Gamer LCC     320MB EVGA 8800 GTS				
	➤ Bottom line: Water-cooled PC performed very well for a dual-core system, outdoing the quad-core CyberPower gaming PC on some tests.							
3	Dell XPS 410 \$2033 find.pcworld.com/56850	81 Very Good	WorldBench 6 Bela 2 score: 101     WorldBench 6 rating: Good     Overall design: Good     Graphics: Good	2.4-GHz Core 2 Duo E6600     640GB (RAID) drive capacity     20-inch Dell 2007WFP LCD     256MB nVidia GeForce 7900GS				
1	► Bottom line: The XPS 410 is somewhat slow for a power system, but it still offers a lot of features for a low price.							
4	Micro Electronics PowerSpec Extreme X300 \$2280 find.pcworld.com/56851	81 Very Good	WorldBench 6 Beta 2 score: 99     WorldBench 6 rating: Good     Overall design: Yery Good     Graphics: Yery Good	2.4-GHz Core 2 Duo E6600     250GB (RAID) drive capacity     19-inch ViewSonic VP920B LCD     512MB nVidia GeForce 7900 GT				
	Bottom line: This system has a fair number of ports, but its hard-drive space is limited and it's slow for a power desktop.							
5	Velocity Micro ProMagix PCX \$2399 find.pcworld.com/56854	79 Good	WorldBench 6 Beta 2 score: 96     WorldBench 6 rating: Good     Overall design: Good     Graphics: Very Good	2.4-GHz Core 2 Duo E6600     320GB drive capacity     19-inch ViewSonic VA903b LCD     320MB nVidia GeForce 8800GTS				

CHART NOTES: Ratings are as of 3/16/07. Drive space (hard-drive capacity) may represent multiple drives. FOOTNOTES: 'WorldBench 6 scores are from the Beta 2 version of the benchmark; results may differ under the final benchmark, and are not comparable to scores from WorldBench 5. Processor was overclocked to 3.46 GHz. Processor was overclocked to 3.2 GHz.

## INTERNET POSTAGE

INTERNET POSTAGE IS a terrific idea—if you send enough stuff to justify the monthly subscription fee most providers charge. If your mailing needs are more modest, check out Dymo's \$240 Desktop Mailing Solution. This two-part package includes a label and stamp printer, and a scale that feeds package weights

## **Desktop Mailing Solution**

Dymo

PCW Rating 87 Very Good

Ouick label and stamp printingand no subscription fee-make this product combo ideal for small businesses with light USPS mailing needs. Street: \$240

find.pcworld.com/56993

into the product's software—all with no monthly fee.

The 300-dpi LabelWriter Twin Turbo thermal printer requires no ink, and it accommodates two rolls—one for mailing labels and the other for stamps. It takes many label types; a roll of 350 single-address labels is \$20 (also available are return-address and shipping combo labels).

You can print labels from popular applications, or via an included Dymo app. But to print stamps you must use a second included program; it calculates only United States Postal Service charges.

The scale connects to your computer through USB, and handles packages weighing up to 5 pounds. Just place your



letter or package on it—the weight and appropriate postage show up in the included Windows application; you then click a button to generate a stamp. Dymo says that the printer can spit out a single label in 1 second, or 55 labels per minute; on my system, a single label took a couple of seconds—and 6 seconds when I embedded a graphic.

A roll of 200 stamps costs \$20 (including shipping) from e-postage provider Endicia, Dymo's only partner. The minimum purchase is \$10.

I'd recommend the Desktop Mailing Solution for small businesses with moderate mailing needs that don't run afoul of the product's weighing and shipping limitations.

-Alan Stafford

# Kensington's Internet Phone Great for Laptops

## WEB TELEPHONY

DESIGNED FOR USE with Voice over IP (VoIP) services from brands such as Google, MSN, Skype, and Yahoo, Kensington's \$90 Vo200 Bluetooth Internet Phone offers an



THE KENSINGTON INTERNET phone fits into a PC Card slot.

innovative design. The svelte little device is the picture of minimalism, and the phone itself works quite well.

The flat, credit-card-size handset fits in a laptop's Type I or II PC Card slot for storage and recharging. A clever two-way swivel flap doubles as the mouthpiece in one orientation and as a speakerphone stand in the other.

Because the phone uses a Bluetooth wireless connection, you can talk at distances of up to 30 feet away from your PC. Pairing the Vo200 with your Bluetooth-enabled PC is kludgy and a hassle; but in my experience, once Bluetooth pairing was completed, the unit worked smoothly 30 feet away from my PC.

One drawback: The Vo200

lacks a keypad for dialing, so you have to make the call from your PC before walking away from it. The phone has just three buttons—one for power, one for Bluetooth connectivity, and one for toggling the speakerphone. A side switch controls volume. Operating the phone is easy: PC speaker audio is muted as soon as you pick up the phone (it rings audibly); to end a call, flip the mouthpiece closed.

In my hands-on tests, I found the sound quality to be slightly tinny overall, but not bothersomely so; incoming audio was surprisingly clear. In speakerphone mode, audio was acceptable, though with some hollowness.

Kensington rates the Vo200 at 30 hours of standby battery

life and 3 hours of talk time. In my informal tests, the phone lived up to its billing: I got the 30 hours and at least 2.5 hours of talk time before recharges were necessary.

This Lilliputian phone's use of the PC Card slot for storage and recharging is pure genius. But its lack of a dedicated keypad for outbound calls imposes a significant limitation.

-Michael S. Lasky

## Kensington Vo200 Bluetooth Internet Phone

Kensington

PCW Rating 82 Very Good

Credit-card-thin Bluetooth phone for wireless VoIP calls is cleverly designed, but the device lacks a keypad for dialing.

List: SS

find.pcworld.com/57043



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# Iomega, Western Digital Take On the Network

## NETWORK STORAGE

TEST JUST BECAUSE TWO Center drives both have an ethernet connection doesn't mean they'll operate similarly. Take the example of Iomega's \$800 StorCenter Pro 150d and Western Digital's \$500 My Book World Edition II. Both drives provide up to 1 terabyte (TB) of network storage. In terms of design and bundled software, though, these units have very different hooks.

The hefty StorCenter is built like a tank. It's a large, rectangular box with a ventilated, swing-out front door that opens to reveal four hot-swappable drives. Unfortunately, you must buy your replacement drives, mounted on a drivebay sled, directly from Iomega or risk voiding your warranty.

Setting up the StorCenter was a snap. The Discovery Tool Pro utility autoconfigured the drive. One button simplified mapping the drive to my network, and another launched the Web-browserbased management tool. At its default RAID 5 configuration (which protects data), our test unit left 686GB of its 1TB of storage available for use.

## REMOTE ACCESS

IN CONTRAST, THE My Book is relatively inexpensive at \$500 for 1TB of storage on two 500GB drives. By default, the drives are configured in disk-spanning mode, which lets them function as one drive. You can also set them to RAID 1, which mirrors the drives for data protection.

TECH TREND

# **Brighter Laptop Screens**

LAPTOP SCREENS TRADITIONALLY have been lit by fluorescent lamp technology, but several new notebook models are offering a superior display technology: light-emitting-

diode (LED) backlighting.



Compared with standard fluorescent displays, LED-backlit alternatives tout up to 30 percent greater brightness (better for use outdoors), lower power consumption, and greater uniformity of the image throughout the screen. Equally important, the technology lets manufacturers build thinner laptop lids.

Three ultraportables (Toshiba's Portégé R400, Asus's U1F, and Fujitsu's LifeBook P7230) that we tested for "The Best Vista Notebooks" on page 115 use LED-backlit displays-we found them noticeably brighter and easier to read. Sony also has LED-backlit models, and Apple and HP are expected to follow suit soon.

-Danny Allen



IOMEGA'S HEFTY STORCENTER Pro 150d (right) dwarfs Western Digital's My Book World Edition II, in size and breadth of features.

The petite drive's design is a study in simplicity. Unfortunately, the included WD Anywhere Access remote-access software, based on an application and service by MioNet, is less so: It has interface issues that could be confusing.

For example, after you've shared a drive folder, people you've invited to use it receive an e-mail that directs them to MioNet's site to sign up and install software on their PC. creating the secure tunnel to access the My Book drive. The user is then prompted to sign in to WD Anywhere-a puzzling step since an account is already created on MioNet. Western Digital says it will work to streamline this process in the near future.

The Iomega StorCenter's performance ranked near the top among tested networkattached drives. On our copyfiles-and-folders test, the Stor-Center required merely 354 seconds. The My Book took almost twice as much time; its pokey performance-the second slowest we've seenaccounts for its low rating.

The Iomega StorCenter Pro 150d is a strong choice for small-business use. The Western Digital My Book World Edition II might seem like a good option for people who need a network drive with backup software and remoteaccess capabilities, but poor performance and usability snafus limit its appeal.

-Melissa J. Perenson

## StorCenter Pro 150d

Iomega

PCW Rating 80 Very Good

Hot-swappable drives and a RAID 5 drive configuration make this product a great choice for small-business users.

Street: \$800

find.pcworld.com/57035

## My Book World Edition II

Western Digital

PCW Rating 60 Fair

This inexpensive choice for network-attached storage offers remote access, but it is a slow performer.

Street: \$500

find.pcworld.com/57036



## ESCAPE THE SERVER ROOM.

With tools that give you remote management capabilities, the HP ProLiant DL360 G5 server, powered by the Quad-Core Intel® Xeon® Processor, lets you manage your systems from almost anywhere. Now you have the freedom to spend less time in the server room and more time on the tasks that drive the business.



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Smart (PN: 470064-382)

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HP STORAGEWORKS ULTRIUM 448 TAPE DRIVE

\$1749 (PN: DW028B)

Lease for as low as \$44/month2

- 400GB compressed capacity
- in half-height form factor
- · Ships with Data Protector Express Software, One Button Disaster Recovery, and a 1U Rackmount Kit

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1. A HP SC11Xe Host Bus Adapter (\$209) is a required option needed to connect the Ultrium 448 solution to the DL360 G5 server. 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 published list price of configure-to-order equivalent (\$5125 - \$1426 instant savings= SmartBuy price \$3699). 2. Financing available through Hewlett-Packard Financial Services Company (HPFS) to qualified commercial customers in the US and subject to credit approval and execution of standard HPFS documentation. Prices shown are based on a lease 48 months in term 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 June 30, 2007. HPFS reserves the right to change or cancel these programs at any time without notice. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. © 2007 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

# Ning and Nexo: Do-It-Yourself Social Networks

## SOCIAL NETWORKING

SITES LIKE MYSPACE and Facebook have popularized social networking via the Web. The next step: social networks that you start yourself, away from the spam and adolescent silliness that can accompany the big sites. Ning and Nexo's eponymous, competing services let anyone create, at no cost, a site for their bowling club, theater company, or other group.

In many ways, Ning and Nexo aren't that different from services like Homestead, which for years have helped people create personal Web pages. Both services offer a variety of design templates and let you point and click to add elements to the page (no need to download an application, as site creation is entirely Web-based). Both will provide you with a URL within their domain. And both let you put blogs, discussion forums, and video modules on your site so that visitors can interact with you-and with one another.

## MAKE YOUR SITE YOUR WAY

I FOUND BOTH Ning and Nexo easy to use: If you have all the materials you need (photos, logos, and such), you could have your site up in half an hour. Of the two, I prefer the look of Ning's templates and the basic organization of the Web sites it creates. And if you know what you're doing, Ning-which was cofounded by Netscape pioneer Marc Andreessen-is a tweaker's paradise. You can easily adjust everything, from the font used for body text to the background color of the title bar.

If you know Cascading Style Sheets, the editing possibili-

ASK OUR EXPERTS



NING LETS YOU customize a Web page for any interest, but the highly visible ads from Google mar the otherwise attractive looks.

ties are endless. Ning has opened the site's source code, so programmers can build small apps to perform whatever function they need and embed them on sites. Largely spoiling the look of free Ning sites, however, are the Google text ads that take up most of one of the four columns on the page. (For \$20 a month, you can remove the ads.)

Nexo, which was in a public beta when I tested it, doesn't allow as much flexibility as Ning. But for now Nexo has one great advantage: No ads appear on your site. Nexo CEO Craig Jorasch says the company plans to include ads on most pages, probably in the last quarter of this year. You'll be able to pay a nominal monthly fee (price to be determined) to prevent ads.

Nexo does offer more pre-

programmed modules, however, so you can show product information pulled from Amazon.com, say, or post a one-question poll. I don't like the default organization of Nexo sites, though: The first page of a site shows just a boring list of the site's pages.

Ning has another advantage over Nexo: Its blog and forum creation tools are a bit more sophisticated than those of the other service. Ning lets you thread forum posts, and blog entries have formatting that makes them look more substantial than Nexo's.

If you want a Web site that can be heavily customized, and you have the skills to make changes, Ning is a great choice. But if all you want is a simple site, go with Nexo, especially while it's ad-free.

-Edward N. Albro

## Laptop Battery Life

SHOULD I ALWAYS leave the lithium ion battery in my notebook or should I take it out until I need it?

-Elly44, via the PCWorld.com forums



Senior Editor Kalpana Ettenson responds: Even if you use your laptop primarily when it is plugged in, removing the battery is not a good idea-your battery will function better and last longer if you keep it in the ma-

chine. However, if the battery is unused for a long time, it can lose its ability to hold a full charge. To use your battery optimally, you should charge it up all the way when you first buy your notebook. You should then discharge it all the way down, and then charge it up again. This procedure calibrates the battery and enables it to run for more cycles.

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

## Nexo

Nexo Systems

Beta site; not rated

Service lets you easily set up a Web page with lots of module options and no ads-for now.

find.pcworld.com/57038

## Ning

Ning

PCW Rating 79 Good

Ads mar the looks of this service for creating Web communities. Free (\$20 per month without advertisements)

find.pcworld.com/57037



300Mbps Wireless N-Draft Firewall Router TEW-631BRP

tests-besting...the competition" CNET - Nov. 2006

"The most cutting edge product we tested was from TRENDnet." LAPTOP - Jan. 2007

## Freedom

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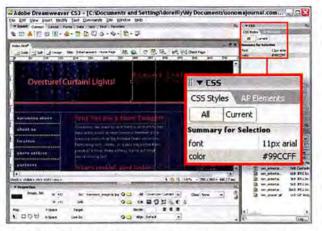
# Dreamweaver Now Integrates With Photoshop

## GRAPHICS SOFTWARE

FOR WEB-DESIGN professionals, Dreamweaver CS3's integration into Adobe's Creative Suite bundle of programs is the ideal marriage of graphics applications. Fundamental to the revamped Dreamweaver is its tight integration with Photoshop.

Former Macromedia Studio users might take a while to adjust to seeing Photoshop open when they double-click an image on a Dreamweaver page (in the past, Macromedia's Fireworks application would have handled such tasks). But Dreamweaver and Photoshop go together so well that I'm betting it won't be long before those same people are saying, "Firewha?"

QUICK TAKE



DREAMWEAVER CS3 BOASTS not only integration with Photoshop CS3, but also enhanced Cascading Style Sheets management tools.

I tested a shipping version of Dreamweaver CS3. Alone, it costs \$399; alternatively, you can buy it as part of Creative Suite 3 Design Premium (\$1799, or \$599 as an upgrade

from CS2) or Creative Suite 3 Web Premium (\$1599, or \$499 as an upgrade from CS2 or Macromedia Studio 8. Studio MX, or Studio MX 2004).

The bidirectional integration between Dreamweaver and Photoshop works well: You can copy all or part of a Photoshop image and paste it directly into Dreamweaver; a dialog box lets you choose options for optimizing the image for the Web. Doubleclick the image in Dreamweaver, and it opens in Photoshop with all of its original layers, masks, and other Photoshop file format attributes.

# Flash Joins Adobe's CS3

ANOTHER FORMER MACROMEDIA product now in Adobe's Creative Suite design and publishing tool set is Flash CS3 Professional (\$699), the de facto standard vector-graphics program for Web animation and navigation. Just as you can now move images between Dreamweaver and Photoshop,



Flash's CS3 label means that you can also copy and paste Photoshop (.psd) and Illustrator (.ai) files into Flash projects. When you import a .psd or .ai graphic, a dialog box appears so that

you can choose settings, including the layers to import.

I noticed minor changes to the interface, made to modify Flash so that it looks more like the other Adobe applications in the suite. Longtime Flash users may need a slight adjustment period. For more, see find.pcworld.com/57113.

-Dennis O'Reilly

## INTERACTIVITY

THE PROGRAM HAS two other noteworthy additions. Its Spry framework of Ajax-like interactive widgets lets you drag and drop links to XML data onto your pages. Enhanced Cascading Style Sheets management tools include the new CSS Advisor online resource for troubleshooting browser-compatibility issues.

The Spry JavaScript library includes XML-based tables. tabs, and form-field validation, the appearance of which you can customize via CSS. Spry effects let you make elements fade in or out, grow smaller or larger, or move across the screen, all without scripting, and without requiring any server components. Adobe says that the Spry code is 99 percent HTML, so it should be easy to customize to suit your needs.

The program also adds a Browser Compatibility Check that lists the problems your site may have in various versions of Internet Explorer, Firefox, Netscape, and any other browsers that you want to add; meanwhile, Dreamweaver's code view highlights potential CSS-related problems in green.

Current Dreamweaver users can upgrade to the new standalone version for \$199 and continue to use it with Fireworks and the other former Macromedia apps, but they will be missing out on the new version's biggest productivity booster: that is, its direct links to other tools in CS3. The tandem of Dreamweaver and Photoshop is greater than the sum of its parts.

-Dennis O'Reilly

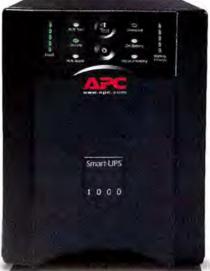
## Dreamweaver CS3

Adobe Systems PCW Rating 82 Very Good

Integration with Adobe Photoshop and other Creative Suite apps will help save sitedesign and publishing time. Street: \$399; \$199 upgrade from Dreamweaver 8 and Studio MX; also part of the various Creative Suite 3 bundles

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- Venture Development

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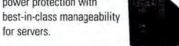
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## SCANNER

WHEN YOUR OFFICE resides wherever you've unpacked your suitcase, lugging paperwork along with your laptop can be a real drag. Visioneer's \$200 RoadWarrior mobile scanner can help reduce your load by letting you scan receipts, business cards, and other documents on-the-go.

The RoadWarrior is a breeze

## RoadWarrior

Visioneer

PCW Rating 80 Very Good

Compact USB-powered mobile scanner is easy to use and includes excellent software. List: \$200

find.pcworld.com/56996

to use. The USB-powered scanner weighs less than a pound and is about the size of a rolling pin. A single button on the slender device launches Visioneer's customizable OneTouch scanning app.

A minor challenge was the scanner's lack of a paper tray: Getting the hang of keeping documents straight as I inserted them into the unit's autofeed mechanism took time. (The scanning software's autostraighten and autocrop features nicely corrected the final images.) Turning the autofeed off can make inserting sheets easier.

In my hands-on tests of the RoadWarrior, the unit took

Visioneer RoadWarrior VISIONEER'S ROADWARRIOR MAKES It easy for travelers to handle paper.

just 11 seconds to scan a fulltext black-and-white document at 200 dpi, and a respectable 38 seconds to scan a color document at 150 dpi (both 8.5-by-11-inch pages, archived in TIFF format). This performance was reasonably fast for a USB 2.0-powered scanner. The RoadWarrior was also proficient at scanning documents into PDF files, including searchable PDFs.

The scanner produced clear text and accurate color graphics; but in some monochrome graphics, shades were slightly darker than in the original image.

The RoadWarrior comes with a carrying pouch, calibrating and cleaning sheets, and a software bundle that includes the well-performing OmniPage Pro optical character recognition software.

Good performance and a strong set of software tools make the RoadWarrior a welcome traveling companion.

-Richard Jantz

# Gyration's Wireless Remote for Media Buffs

## INPUT DEVICE

IF YOU HAVE your PC connected to your TV, you'll love Gyration's Media Center and PC Universal Remote Control and Compact Keyboard Suite. If you don't, you'll find this \$170 wireless product expensive and of limited usefulness.

The black and silver universal remote control has all the buttons you need to control your PC, TV, receiver, and DVD player. (The 50-page manual gives remote codes for oodles of home-theater devices.) The remote has a gyroscope inside to detect movement: it communicates with a USB-connected RF receiver, which plugs into a PC running Windows XP Media Center or Windows

Vista Ultimate or Premium. Inserting the USB dongle prompts your PC

> install the drivers. Installation was easy on a Toshiba Satellite P105 notebook with Vista Home Pre-

> > mium, even

though synchronizing the remote control and the dongle took a few tries.

Once I got going, preset buttons let me quickly locate music, photos, and stored videos, as well as play DVDs. A button in the middle, when pressed twice, transforms the remote into a mouse (surrounding buttons become left- and right-click buttons) that I could control with the movement of my wrist.

Gyration Media says that the remote has a 100-foot range, and a coworker told me that it was still working when I walked about 40 feet away with walls in between. The wrist-motion movement worked well for covering large screen areas (such as a TV connected to a PC) but not for

navigating e-mail or browser software. For that, I used the compact 88-key keyboard, which also connects wirelessly to the USB dongle. It had ample range, though less than the remote control.

Couch surfers with some cash to burn would find the Gyration combo impressive; others, likely not.

-Narasu Rebbapragada

## Media Center and PC **Universal Remote Control** and Compact Keyboard Suite

Gyration

PCW Rating 84 Very Good

Wireless keyboard and gyroscope-based remote control work well for navigating mediacenter content.

Street: \$170

find.pcworld.com/57040



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P

S

HANDHELD GPS DEVICES fall loosely into two categories: those for street navigation and those for use where the pavement ends. Two recent examples of this Paris Hilton-Grizzly Adams split are the stylish Pocket Loox N100 from Navigon (codeveloped with Fujitsu Siemens Computers) and DeLorme's rugged Earthmate GPS PN-20.

I tested a late preproduction version of the Loox. Not only can this 4-ounce unit accurately tell you how to get from here to there, but it can simultaneously play digital music to enhance the journey; the occasional voice directions play over your music.

The Loox is pretty thin as a multimedia player, though. All of the media has to reside on the included 2GB miniSD Card, which holds 1.6GB of map data, too. Audio sounded fairly good through the included earbuds, but the audio controls were rudimentary. (My test unit lacked the ability

to handle photos and videos.)

You get detailed street maps and points of interest for the United States, Canada, Puerto Rico, and the Virgin Islands. Based on the unit's performance in the San Francisco Bay Area, I'd say its points of interest are a bit thin.

The maps look great on the 2.8-inch, color touch screen. The Loox's main faults: The text is too small to read while driving, and the screen is difficult to read in bright light.

## **OLD-SCHOOL STYLE**

DELORME'S EARTHMATE GPS PN-20 lacks svelte styling and multimedia entertainment features. This yellow brick is sturdily built, weighs 7 ounces, and is waterproof.

What separates the PN-20 from the crowd is its ability to store and display topographic, aerial, and satellite imagesall of which you purchase and download (either to the 75MB of on-board memory or to an SD Card) from DeLorme. This feature is still more con-



NAVIGON'S SVELTE POCKET Loox N100 (left) can handle multimedia: DeLorme's Earthmate GPS PN-20 cannot.

cept than practical application. I downloaded images-a cumbersome process-for Yosemite National Park and had difficulty picking out familiar features (like large, distinctive peaks) on the PN-20's 2.2-inch color screen. The USGS's Quad topographical maps that I downloaded to the device are far more useful on such a small screen.

The unit comes with toplevel base maps offering world and U.S. coverage. You can download more-detailed maps via the included software.

The PN-20 is a fine navigation device. I found its color screen exceptionally easy to

see in bright sun, and the display showed travel stats in large, readable text. The unit has all the features you would expect for use outdoors, including waypoint and track recording (for maintaining a log of where you've been), plus point-to-point navigation.

Would I use the PN-20 in wilderness areas without a paper topographical map? Not on my life-but it can make a nice complement to paper maps. Meanwhile, the Pocket Loox is cute and compact; but unless you need something that can slip into your pocket, you have better GPS options.

-Tracey Capen

QUICK TAKE

## Thunderbird 2 Eases Mail Sorting

IF YOU LIKE Thunderbird 1.5, you'll love version 2, now downloadable as a near-final release candidate. Like the new Firefox 2, Thunderbird 2 doesn't introduce any radical changes. But it does have some inherently useful upgrades that will boost your produc-

PCW-IMAP has 1 new message Go ahead, make a pop-up 1 1000 印 器 411 Tuesday, 03/20 1:56

MOZILLA'S THUNDERBIRD 2 provides pop-up mail alerts.

tivity, particularly if your inbox overflows.

I've been using version 2 since its beta 2 release earlier this year, and found it stable and up to the task of handling my daily e-mail chores. Making the switch is easy: Thunderbird 2 maintains filters and account settings.

> Of the client's new tweaks, my favorites are its mail pop-ups and its unlimited tags, which replace the few e-mail labels of previous versions. For more on Thunderbird, see find.pcworld.com/57070.

-Erik Larkin

## Pocket Loox N100

Navigon

Preproduction unit, not rated Nicely styled and solid GPS navigation unit is small, and especially attractive if you like multimedia capabilities. List: \$499

find.pcworld.com/57042

## Earthmate GPS PN-20

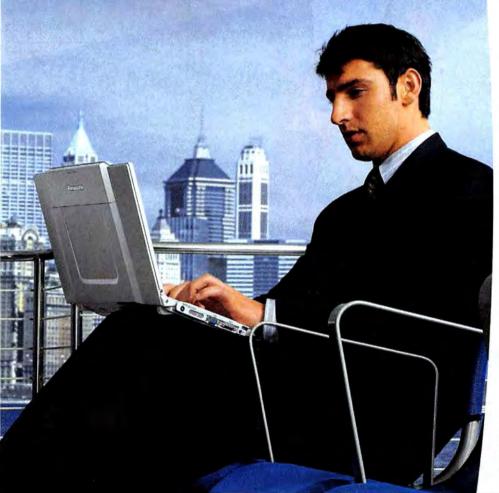
DeLorme

PCW Rating 84 Very Good

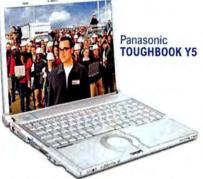
Rugged but pricey outdoor GPS offers exceptional flexibility in map types, from topo to satellite. List: \$370

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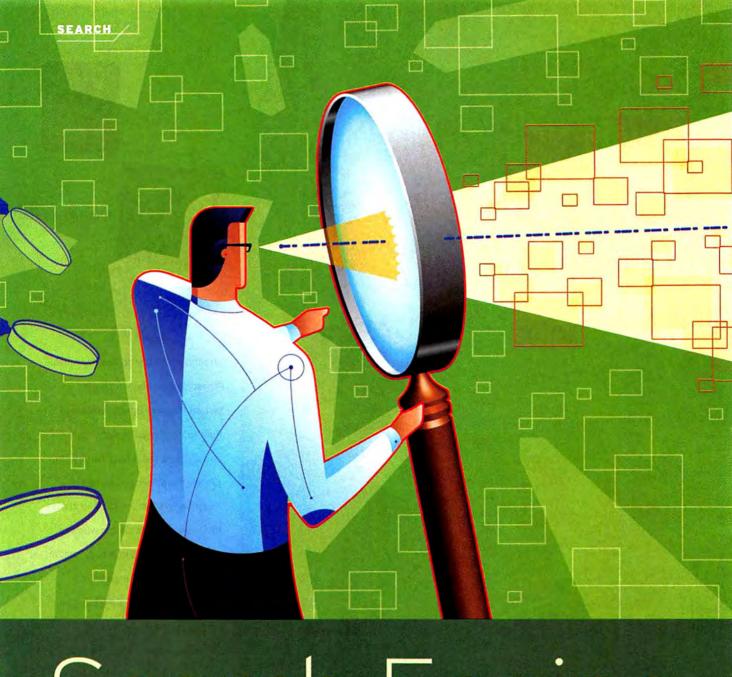
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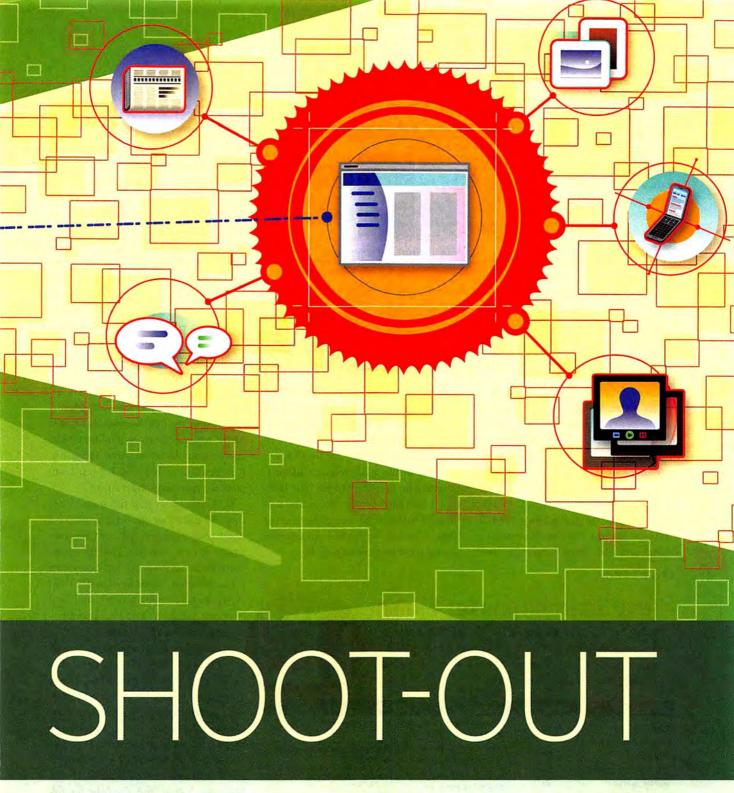


# Search Engine

Whether you're searching for text, video, images, news, or local information, you have lots of options beyond Google. We tried dozens of search engines and found some worthy challengers to the king.

BY JEFF BERTOLUCCI

ILLUSTRATIONS BY STEVEN LYONS



OT MANY BRANDS BECOME VERBS, as in "I googled [fill in the blank] last night." Nielsen/NetRatings' January 2007 report found that more than half of all Web queries in the United States in that month went through Google. The second-most-popular engine, Yahoo Search, garnered less than half that amount.

Which led us to wonder: Does Google deserve all that traffic, or is it living off its reputation? Are people using it because they're not aware of other, potentially better search engines? To find out, we pitted Google against its big-name competitors, Yahoo and Microsoft Live Search, as well as against smaller challengers

such as AlltheWeb, AltaVista, and Ask.com-plus a couple dozen of the specialty search services, including Blogdigger, Picsearch, and TubeSurf.

Our verdict? Google is indeed the best search engine, even though two other services topped it-barely-in our text-search tests. Google's index proved to be the most accurate, comprehensive, and timely of the bunch. It also bested the majority of the specialty-search sites we tried, meaning those that focus on a category or file type, such as videos, images, news, blogs, or local info delivered on a mobile phone.

Recent enhancements to Live Search's mobile component moved that service into the lead in our test searches for local information, although you have to navigate manually to its mobile-optimized site rather than being redirected automatically when you log in from a cell phone or other handheld device (see our charts throughout this story for details).

That said, the competition is fierce-



and Google had better stay on its toes. Its challengers are implementing some innovative tools and interface upgrades (Ask.com is particularly impressive in this area) that enhance the user experience and deliver more relevant information than do the standard ten blue links on a results page. We also like several useful tools that can help you go beyond the basics of search: we describe our favorites among these services on page 90.

## UNDISPUTED CHAMP?

IF YOU USE Google and are happy with it, you have no reason to switch engines. Simply put, Google is an excellent search tool. It scored at or near the top in every search category we tested, including the standard search for text information, as well as our searches for videos, images, news, blog postings, and local info. While other services performed as well or slightly better in specific areas, only Google aced virtually every test we threw at it.

Our initial round of testing included dozens of general-purpose and specialty search sites; the final two rounds focused on the top engines in each of our six categories from the initial round. (Browse to find.pcworld.com/57020 for our complete test questions and results.)

This isn't to say that the search sites that did poorly in our tests don't have noteworthy features. Ask.com deserves praise for its usability and its image searches, although in our text-query tests it was just so-so. Yahoo fared well in most categories, including text-info and local

search, but it was a middling performer in image and video queries.

In addition to the big dogs, dozens of specialty Web sites are devoted to searching for images, news, blogs, and other specific items. For some queries, these boutique engines are a good choice. Superpages.com and Whitepages.com, for instance, excel at people searches. And TubeSurf, a metasearch engine that simultaneously scans Google, MySpace, Yahoo, and YouTube for videos, is a quick way to query multiple sites. In many categories, however, including video, image, and news search, the big engines were just as good as-and often better than-the little guys.

Maybe you've heard that search engines all spit out the same list of hits. There's some truth to this claim: For instance, when you query news-search sites about

## TEXT INFO

## Text-Search Blanket Finish

IN OUR TESTS, variation among the top four general Web search engines was minor, with Microsoft's Live Search coming in a distant fifth; Ask.com finished two points behind Live Search and ranked in sixth place.

SERVICE	Average score 1	Comments				
AlltheWeb <sup>z</sup>	24	This Yahoo-owned site blends its parent's powerful search index with a homely but easy-to-use interface.				
AltaVistaz	23	Another Yahoo property that's a top-notch text-searcher. The spartan interface is more aesthetically appealing than AlltheWeb's.				
Google Search 21 Yahoo Search 21		The goliath of Web search, Google still manages to be comprehensive, timely, and a breeze to use.				
		Great engine, but Yahoo's overwrought home page is the Vegas Strip of search sites. (The Yahoo engine also powers AlltheWeb and AltaVista.)				
Microsoft Live Search 16		A notch below Google and Yahoo, yet a solid engine. But it isn't well inte- grated with other Live services the way Google and Yahoo services mesh.				
Ask.com	14	A decent showing, but some results weren't as timely or as accurate as those from competing sites. Its experimental Act X interface shows promise				

FOOTNOTES: 'The average score is composed of scores from three rounds of testing. In the first round we posed ten queries, awarding one point if a link to the target response-or the response itself-was included in the first page of results. In the second and third rounds, we awarded three points when the target response was available from the first result (or above it, in several cases), two points if the target was in the second or third result, and one point if the response was listed elsewhere on the first page of results. <sup>2</sup>These two services apply their own ranking algorithms to Yahoo's search engine.

a major, breaking story, you can expect very similar results. But in our tests, the items returned varied considerably from engine to engine, particularly with image. video, and blog queries. Take images, for example. Our query for Mardi Gras photographs often produced a motley mix of hits, everything from amateur close-ups of bleary-eyed revelers-who, frankly, could have been partying anywhere-to professional-caliber shots of the Mardi Gras parade. And a search for the moreobscure "windform" produced a grab bag of thumbnails, from patio decorations to wood sculptures. (We were actually looking for an image of a musical instrument called a windform, which is a horn that measures about 20 feet long.)

Blog-search results were equally unpredictable. In one test we queried "Huffington Libby" (without typing the quotation marks), our target match being an article from The Huffington Post blog on the trial verdict for former White House aide Lewis "Scooter" Libby—breaking news at the time. At several of the blog-search

sites, such as Ice Rocket, Sphere, and Technorati. the results didn't include links to the target story, but rather pointed to articles on other blogs that mentioned The Huffington Post's Libby piece. The lesson here is that some specialty sites are worth the detour, while others are not. For the record. Google topped our blog-search tests, followed by the specialists Sphere and Blogdigger.

Our scoring awarded a search engine three points if the first link in the results led to the target answer or site (or if the answer itself appeared at the top of the results page or within the first result). A link to the correct answer as the second or third result was worth two points, and a link to the correct response elsewhere in the top ten results scored one point. (For image search engines,

VIDEO

## TV Guides of the Internet

THE SEARCH SERVICES that specialize in finding Web videos weren't able to keep pace with Google's video index.

SERVICE	Average score	Comments				
Google Video	20	The most reliable video-search engine we tested. Its results page pro- vides clip thumbnails and the source URL without looking cluttered.				
AOL Video Search	18	Surprise! AOL's Truveo media-search engine is comprehensive and timely. The results provide fast access to top video categories too.				
TubeSurf	18	Metasearch tool scans multiple video-search engines. Very accurate, but lacks thumbnail images and a preview window.				
YouTube (Google)	17	If a video's online, you'll probably find it in this inexhaustible video catalog. YouTube's Google-like results page is easy to browse, too.				
Blinkx	17	Solid search tool with a few annoying interface quirks, Example: The search-results page doesn't show the length of video clips.				
Yahoo Video	14	Well-designed interface and a respectable clip-finder, although we expected better results from the search giant.				

which typically include more than ten thumbnails per page, we awarded a point if the target photo appeared on the first page.) If the target answer or item didn't appear anywhere on the first page, we awarded no points to the search engine.

With some queries, we were seeking a particular news story or blog article. We



deemed other answers accurate as long as they had the requested information for example, multiple sites contain a photo of Rutherford B. Hayes, the nineteenth president of the United States.

Some tests forced us to make judgment calls. A mobile search site that required us to enter an exact street address (for example, "123 Main Street, Oak Park, California") as the starting point for driving directions didn't score as well as one that needed only a city and state.

## WHAT'S NEW IN SEARCH

IT'S HARD FOR many Internet users to remember the pre-Google Web, but there was a time when AltaVista ruled search, and before AltaVista, Magellan was the search service of choice. The history of the Web shows that people will switch to another engine in a heartbeat if it produces more accurate hits on their queries and is easy to use. So search vendors realize they need to be on top of their game. "The amount of competition that's out there right now is benefiting the consumer," says Microsoft Live Search senior product manager Justin Osmer. "We're all trying to come up with the next great thing-the Cool New Thing-so you're seeing a lot of innovation in search."

Much of that innovation centers on how the services display results. Few people use their favorite engine's news, image, and other specialty search tools, even if doing so would mean more accurate results. The trick for vendors, therefore, is to make their search algorithms smarter, giving them the ability to anticipate what the searcher really wants.

If you enter "daffodil" in the Google search box, for example, the results page will display a few photos of daffodils

above the Web hits. "What users really want is a picture of those things," says Google software engineer Matt Cutts.

When we tried out the same query in Ask.com, Microsoft Live Search, and Yahoo, none of them displayed an image of the flower in their results. To be fair, we did a similar search using "Eiffel

Tower"; this time, Google, Ask.com, and Yahoo displayed at least one photo of the Parisian landmark, but Live Search did not. (Live Search did provide us access to images of the Parisian landmark through a handy 'Eiffel Tower Photos' link in the Related Searches column, though.)

The integration of news stories with

Web-search results is a work in progress, with Ask.com leading the way. For instance, when we searched for "titan" and "flash memory" (two separate queries), only Ask.com posted the latest headlines on related topics, including a link to a story on Saturn's moon Titan, and another to a piece on Intel's new flash memory

SEARCH TOOLS

## New Services Put Search in Your

FROM PERSONALIZED SEARCH engines to deep-Web infiltrators to throwback human-powered Web indexers, these are the new search resources that we've come to rely on.

ROLLYO: The big search engines are great for everyday queries, but what if the information you're looking for is a bit esoteric? Rollyo (www.rollyo.com) is the place to go. Here you can create your own "Searchroll," a customized search engine that provides results from up to 25 sites of your choosing.

Getting started is easy: Enter a Searchroll name and some sites (Rollyo says 5 to 15 work best), and then pick a category (such as 'News & Media'). Add a few tags or keywords if you

wish to help others find your creation. The real fun is in exploring other people's Searchrolls. The site has lists of popular and recently added Searchrolls-who knew that Diane Von Furstenberg had one?-and you can search by keyword or URL for topics that interest you. So if Google isn't delivering on your "Antarctic beach volleyball" query, Rollyo is the place to go.

CONGOO: Ever hear of the "Dark Web"? It sounds ominous, but don't be afraid. The term refers to the huge chunk of Web content that search engines can't index, including paidsubscription sites (such as that of the Wall Street Journal) and password-protected corporate and government databases. In addition, some pages can't be indexed because there are no links to their content, or because their very long and complex URLs are too difficult for search engines to crawl.

Certainly, much of this content is hidden for a reason. A corporation, for instance, doesn't want the product development and marketing plans on its intranet made public. But you do have a way to search many paid-content sites. Even better, you can access that content-some of it, anyway-without paying a penny. Congoo NetPass, a free utility that's available at www. congoo.com, allows you to search and read a limited number of stories from 35 popular paid-content sites, including the online homes of Billboard, Encyclopaedia Britannica, New Republic, and the WSJ. You can make between 4 and 15 visits per month, depending on the site. When you exceed the monthly allotment of visits to a particular site, you're prompted to subscribe to the service, since you're apparently finding it useful.

Browse to find.pcworld.com/57018 to download the free Congoo NetPass toolbar, which attaches to your Internet Explorer or Firefox browser. Use it as you would any conven-

> tional toolbar: Simply type a query in the search box and press <Enter>. The service searches Yahoo for the standard Web results, but it also uses its own index to search for any

related paid content, such as a full company profile from the MorningStar financial service. If you already use another search engine's toolbar, you might find that in-

stalling Congoo's shrinks your browser's viewable area, but just right-click your toolbar area and uncheck the options you're not using to enlarge your browser window.

PREFOUND: Another mashup of social networking and search, PreFound (www.prefound.com) lets you express your expertise in a subject by creating your own Groups, which are comprised of links to the best Web resources, whether news, images, video, or other information. The service offers to share its revenue from the AdBrite online-ad network with "Finders" who devise more than 150 Groups. You could also become one of the site's Featured Finders, who include university professors, outdoors enthusiasts, and even professional baseball players. Along with the PreFound search results for your query, you'll find the standard Google listings.



storage-in both cases providing the information we were searching for.

When it comes to movie-related queries, both Google and Yahoo appear to have a slight edge. We searched for "300," looking for information about the War-

ner Brothers film, which was in theatrical release at the time of our testing. The very first match returned by both Google and Yahoo provided links to the movie's theatrical trailer and reviews, as well as a search box for entering a city or zip code to find local show times.

Microsoft Live Search. in contrast, was incorrect when it attempted to guess our location based on the IP address of the DSL account

we used for testing (it was 74 miles off), and it listed movie theaters for Irvine, California, a good 90-minute car trip in Southern California traffic. Ask.com inquired if we meant "300, the movie"; we entered a zip code, clicked the supplied movie link, and received the expected trailer, reviews, and show-time links.

## **SMART INTERFACE TRICKS**

THE BEST SEARCH-RESULT pages provide links to related items, even if the pages don't include your exact query (a great Beatles photo when you query "John Lennon", for example). It also helps if they know a little about you: If your IP address indicates that you live in the United States and you query "civil war", you're probably interested in the American Civil War and are looking for a war timeline, maps of the conflict, or maybe even biographies of Generals William T. Sherman and Robert E. Lee.

Ask.com does the best job of displaying related information and links. If you search for "WWII" (World War II), the service's Narrow Your Search column to the right of the results helps fine-tune your query with such links as 'History of WWII', 'Cause of WWII', and so on. Yahoo and Live Search provide similar tools, but they're neither as easy to use nor as comprehensive as Ask.com's.

Other sites are improving the user experience in different ways. For instance, Live Search has a "Smart Scroll" feature for image results. As you scroll down a

lars feature, for example, allows you to preview certain site results in a pop-up window by holding your pointer over results that have a binoculars icon associated with them. But for text-page previews, the large thumbnails don't provide enough detail to help you de-

termine the page's content.

## 16/25d | 5+th Ask Names Your Sector Versego Complaints Violage Reviews Vonage Earthurs Latest News: Vonage Judge blocks Vonage from adding new customers Reuters via MSN Money 40 minutes ago Vonage Injunction Revised in Patent Feud AP via News 4 38 minutes ago

YOU'LL FIND LINKS to recent news stories related to your query

at the top of your search results when you use Ask.com.

collection of image thumbnails, the page reloads itself, adding thumbnails on the fly. Since there's no pagination, you don't have to click a link to load more images. In addition, Live Search's Scratchpad is a handy visual-bookmarking tool; you can drag images from the results page and drop them in the Scratchpad column on the right. When you're scrolling through dozens or even hundreds of images, the Scratchpad makes it easier to track shots you want for a report or presentation.

Not every interface trick works, even if it seems clever at first. Ask.com's Binocu-

## **HUMAN INSIGHT**

SEARCH SITES ARE adding more human opinions to search results. "If you're look-

> ing for a hotel for your vacation, traditionally you've gotten a list of hotels," says Tim Mayer,

Yahoo Search's senior director of product management. "But there's no person or authoritative expert saying, 'I

went to this hotel and recommend it."

One solution is to add more "human expertise" to the autogenerated results. Yahoo has a homegrown source of this content: The Yahoo Answers service (answers.yahoo.com) is an online community where users ask and answer questions on a variety of topics. The company recently began adding Yahoo Answers posts to the bottom of some search-result pages. For instance, when you search for "summer vacations",

you will see a 'Shared by Yahoos' section at

MOBILE/LOCAL

## Dial Into the Local Scene

NEWCOMER MICROSOFT LIVE Search for Mobile edges out Google Maps atop our list of services that retrieve local info; local specialists trailed despite their many noteworthy features.

SERVICE	Average score	Very good at finding names and directions. But the main Live.com URL doesn't accommodate mobile devices; you have to navigate to m.live.com.  A tad better than most. The service is great for maps, directions, and restaurant searches but poor for locating long-lost friends.  Yahoo's local search scored well overall, though it doesn't list the distance between a business and your location (no "1.2 miles," for example).				
Live Search for Mobile	19					
Google Maps	18					
Yahoo Local	16					
Whitepages.com	15	The service did well in our restaurant and person searches; but it's not a good choice for general queries, such as finding an online ticket broker.				
Ask City	14	To get driving directions, Ask City required that we enter a full street address (like 123 Main St.) rather than just a city name.				

the bottom of the results: the section includes links to several summer-vacation 'Best Answers' (meaning the most relevant), as chosen by Yahoo Answers users.

Cynics may point out that this

feature benefits Yahoo by routing users to its in-house content, boosting its page views as a result. Perhaps, but we found the Yahoo Answers opinions more relevant than many of the standard, top-ten hits, a few of which were

just random links to vacation rentals. In contrast, Yahoo Answers posts were more interesting: One contributor described seven travel destinations in India. while another offered a comprehensive list of family-friendly theme parks.

eedback on this image

Opinionated results are a good start, but at present they aren't always blended smoothly with the conventional search results, usually being relegated to the bottom of the page. Few people are likely to scroll down to find them. Yahoo's Mayer acknowledges this issue: "We're just beginning to integrate this content, so we're going to be learning more about how to rank it. Long term, we will incorporate it more aggressively on the search page."

The same "summer vacations" query

Kentucky Derby.jpg dimensions: 325x394 file size: 33kb secderby.jpg RATHER THAN COPYING and pasting multiple images, let Live Search's Scratchpad store the best possibilities for you until you're ready. run on Ask.com, Google, and Live ensions, 198×156 Search produced a conventional the size: 3kb www.spiletta.com/L/THQF/sec (though mostly useful) collection add to scratchpad

of travel-site hits. While Live Search did serve up a link to an

kentuckyderby01.jpg dimensions: 250x280 file size: 12kb

MSNBC message board on seasonal travel, it was labeled as merely 'boards.live. com', which gave us no indication that it was related to our search specifically.

Yahoo's 'Also try' feature at the top of its results page presents related queries culled from users: Search for "muffins" on the site, and 'Also try' lists "muffins recipe", "banana muffins", and other alternate forms of relevant content.

## MOBILE SEARCH

USING SEARCH ON a mobile phone or other handheld device is a unique and sometimes frustrating experience. Odds are you're traveling and you want quick. local information,

............

like directions to

a nearby restaurant or gas station, the phone number of a long-lost friend, or tickets to a base-

ball game. But your device's 12-button keypad or tiny thumb keyboard makes entering the wrong street address or zip code far too easy. Depending on your ISP and your physical location, your mobile Internet connection may not be particularly fast or reliable. And obviously, the road

is no place to be searching for videos.

All of the major search services help you retrieve local information on a mobile device. We found Microsoft Live Search for Mobile offered the most accurate local results, but only by a small margin over Google Maps, Yahoo Local, Ask City, and Whitepages.com. Live Search for Mobile worked particularly well at finding contact information for businesses and people. That said, you'll want to use at least two mobile search sites, as different engines excel in different areas. For instance, if you're searching for phonebook-style information, use Live Search for Mobile, Superpages.com, or Whitepages.com. To find an online ticket seller for baseball seats, go to Ask.com, Google, or Yahoo-but use their Web search rather than the local-search option.

What's the difference between the two? The Web search allows traditional queries. Using our baseball example, if you're in Los Angeles, you can enter

"dodgers tickets" and find an online ticket site such as StubHub. In contrast, local search may help you find the name, address, and phone number of a nearby ticket dealer-the kind of information you'd get from a phone book-but what you're probably looking for at the moment is an online seller.

The mobile search engines we tested are optimized for handhelds. Some accomplish this more gracefully than others, however. On our first visit to Google Maps and Yahoo Local via our Nokia E62 phone, we had to click the Mobile link on their home pages to view the modi-

## NEWS

## Keep Up With the Times

NO NEWS-SEARCH SERVICE beats Google's timeliness. which is everything when it comes to hearing stories first.

SERVICE	Average score	Comprehensive listings of local and national news sources; the service also provides image thumbnails for some of its news stories.  AltaVista returns accurate news results, but it provides access to fewer local news sources and image thumbnails than Google offers.				
Google	19					
AltaVista (Yahoo)	18					
Yahoo	15	To find News Search on Yahoo, you must click the More button; we think the feature should be easier to find in this cluttered kitchen-sink layout.				
Live Search	15	Impressive showing, but its search-results page is too sparse. Adding some image thumbnails of news events would help.				
Ask.com	13	A decent news-search tool, but you'll get more timely hits elsewhere. And in our tests, Ask displayed fewer image thumbnails than Google does.				

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fied display; on follow-up visits, both sites automatically switched to the mobile interface. By comparison, Ask City, Superpages.com, and Whitepages.com immediately recognized that we were connecting through a handheld and offered their mobile-friendly interfaces automatically. Using Live Search for Mobile was somewhat confusing: The main site (www.live.com) isn't optimized for mobile devices. Rather, we had to manually browse to m.live.com to access the mobile-optimized service.

Even though the search engines are optimized for handheld browsers, most of the sites they'll point you to aren't. StubHub, for instance, is built for conventional browsing only, which makes it painful to navigate on the Nokia's miniature screen. Indeed, when you're viewing only a small portion of the page at a time, it's easier to get lost. Ask City is one of several sites that attempt to reformat a page to fit the small screen, but the results are often just as difficult to use.

## **GOOGLE'S SECRET SAUCE**

SO HOW DOES Google maintain its edge over rivals? A comprehensive index is key, as is a fanatical devotion to excellence. "We live and breathe search. There are guys who'll come in over the weekend. They'll say, 'I was doing a query on this strange thing and I wanted Google to return this page.' And then people will spend a few hours figuring out how to IMAGE

## Find the Perfect Pics

IMAGE-SEARCH SPECIALISTS SUCH as Picsearch couldn't best the accuracy and clear interface of Google's top-scoring image-search component.



SERVICE	Average score	Great attention to detail. Below each thumbnail is the image size in pixels, the file size, and the domain where the image is located.				
Google Image Search	23					
Ask Images	21	Returned very accurate image results, and it has a well-designed search results page. This is a worthy alternative to Google.				
Lycos Image Search (Ask)	20	This service uses the Ask.com image index. It is about as accurate as Ask.com, but we prefer the latter's less-cluttered look.				
Live Search Images	19	Clever interface, particularly the "Smart Scroll" feature that autoloads new images on the search-results page (no click to the next page).				
Picsearch	18	Comprehensive and quick, Picsearch proves that a little engine can compete with the big players.				
Ixquick Metasearch	17	A metasearch engine that's easy to use. Good performance, but a notch below the top performers.				

tune our algorithm to return more relevant results," says Google's Matt Cutts.

Fair enough, but other sites certainly have their own search fanatics. So what else? Timeliness is crucial. Cutts says, "If we don't have an important document or breaking news within a day or two after it happens, we need to do better. It used to be that search engines would update once a month, and we've led the charge in trying to return and refresh little bits of our index every day." Within a week or two. Google has refreshed its Web index.

Many of the smaller search engines license their indices from larger players and then massage the results with their own home-brewed algorithms, or via human indexing, a technique pioneered by Ask.com but now used by several search services. The Yahoo-owned AlltheWeb and AltaVista, for instance, each use their parent company's index, while Lycos hooks into Ask.com, and AOL Search is really Google in disguise.

Why use a smaller site if it's simply mirroring another engine's results? For one thing, you might like its interface better. Google's iconic, simpler-is-better approach is the industry standard-bearer: just a search box, a fanciful graphical treatment of the brand, plenty of white space, and no ads on the home page. Both Ask.com and Live Search mimic Google's minimalist motif, although the former spices things up a bit by adding a

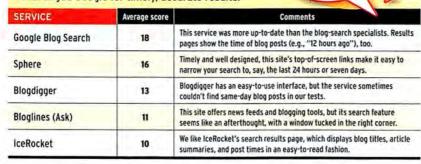
handy Search Tools column on the right side of the screen, giving you easy access to useful search helpers that you might otherwise miss, such as the service's encyclopedia, dictionary, and maps.

AlltheWeb's home page is unadorned as well (some might call it homely), consisting mostly of a query box and a few tabs for accessing specialty-search sections (news, pictures, and so on). On the other hand, its parent site is the Times Square of Search: Yahoo's home page is so jam-packed with news headlines, ads, and links to other features that the

BLOGS

## Scan the Blogosphere

AMONG THE BLOG-SEARCH specialists, only Sphere challenged Google for timely, accurate results.



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WHEN YOU DON'T have a PC handy, tell Google what you're looking for by using its toll-free Voice Local Search service.

search box at the top of the screen is easy to overlook entirely. Meanwhile, if you enter a query in AOL's search field, you'll get much the same results as you would by doing the same search at Google.

Specialty engines vary in their presentation. This is illustrated by our two favorite blog-search sites, Blogdigger and Bloglines. Blogdigger adheres to Google's less-is-more rule, while Bloglines uses its home page to pitch its RSS newsreader and blog-publishing tools.

## THE FUTURE OF SEARCH

SEARCH SITES CONTINUALLY test new looks, some of which may go mainstream at some point. For instance, Ask.com's Act X interface divides the results into three regions: The middle displays standard text and links, the left has links for expanding/narrowing a search, and the right serves up related dictionary and

encyclopedia entries, as well as shopping links. Try it at find. pcworld.com/57017. Google lets the public test its experimental interfaces at www. searchmash.com.

One company that is taking a different approach to search is Snap (www.snap.

com), which lists search results in the left half of the browser and a preview of the first result in the right half. Each result has a Preview button you can click to see the page. Or click the Next Result button to scroll through previews in sequence.

In all these experimental interfaces, the search box is still the sole means of data entry. Don't expect this to change anytime soon, although work continues on

voice-driven search. Google recently took the wraps off its experimental Voice Local Search service: Dial 800/GOOG-411 (800/466-4411) to try it out yourself. (The company warns that the service is currently available only in the United States, for businesses in this country.)

Jeff Bertolucci is a freelance writer living in Southern California.

METHODOLOGY

## How We Tested the Search End

OUR GOAL WAS to replicate the real-world use of search engines. Most people aren't search gurus or reference librarians, and they typically don't use or understand Boolean commands (such as AND, OR, NOT); the average Web user simply goes to a search site, enters a word or phrase, and presses <Enter>. True, there are many ways to fine-tune a query-see the clip-and-save guide on page 98 for our favorite tricks-but

most folks usually can't be bothered. That's why we didn't place quotation marks (e.g., "hiking boots") around our test queries, even though doing so would almost certainly have produced more-accurate hits.

We tested a total of 55 services in six categories: general (text info); video; mobile/local; news; images; and blogs. We conducted our tests over three weeks. We used ten terms in each category. For general text-

information searches, for instance, our categories included technology, pop culture, research/academic topics, books, and travel/shopping (go to find.pcworld.com/57019 for more on our test procedures). In each category we posed what we considered an easy query and a difficult one: Just about every search engine could find the 2007 Academy Award winners, for example, but only a few could locate a portrait of Italian poet-philosopher Giambattista Vico. We tested the engines at different times of the day-morning, afternoon, and night-on all seven days of the week. (However, the time of day and the day of the week had no impact on the results.) We occasionally changed our queries, particularly in the news and blog categories, to keep them timely. For instance, our easy pop-culture

> query changed from "Academy Award winners" to "2007 NCAA basketball tournament teams" later in testing.

We performed all of our testing on the same Windows system, a 2-GHz Celeron desktop with 512MB of memory and a 1.5-megabits-per-second (download speed) AT&T/Yahoo DSL Internet connection. We didn't test for query speed, but this typically varied by only fractions of a second. Among the most-popular search

sites, we saw little difference in between the time we pressed <Enter> and the appearance of the search results. However, we did detect significant differences among the blog-search engines, with some smaller sites-such as Best of the Blogstaking several seconds to post the results. For the local-search tests, we used a Nokia E62 smart phone.





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# PCWORLD Clip & Save Guide

SMART SEARCH

# Top Search TRICKS

A few well-placed characters in your search queries can mean the difference between finding and flailing.

YOU SAY YOU'RE no search wiz? Follow these simple steps to find the best answers without wading through pages of useless links.



PUT QUOTATION MARKS AROUND YOUR QUERY: For example, type "air conditioning" rather than air conditioning. "This creates that query as one unit, so all the results you get back will have that set of words," says Microsoft Live Search senior program manager Jeff Osmer. Without the quotes, you'll end up with a lot of unrelated pages on air quality, hair conditioner, and the like.



USE THE MINUS (-) SIGN: This tells the engine, "I don't want this word." If you enter Shakespeare -William, for instance, you're instructing it to display anything that matches "Shakespeare" and doesn't include "William."



3 'define' as a handy way to make a search engine into a dictionary. Just type define word in the query window for a quick definition. (Google users must add a colon, as in define: word.)



ASK IN PLAIN ENGLISH: Today's search engines are constantly being fine-tuned to respond to real-world queries. You'd be amazed at what they can do with even the most cryptic query. "[For] anything you throw into the search box, we'll try to find an answer," says Google software engineer Matt Cutts. For instance, if you enter "yellow polka dot bikini" 45 rpm excellent condition, that lets the engine know you're looking for a copy of Brian Hyland's 1960 novelty record without scratches.

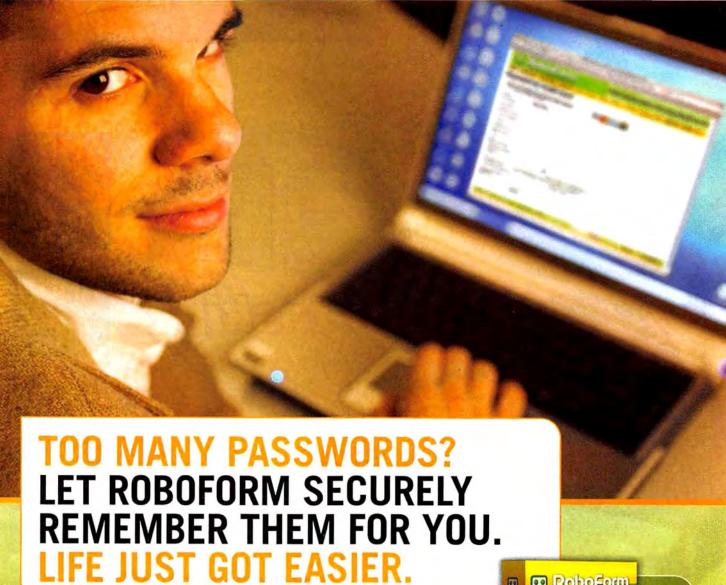
And here's a trick that works with all four major search engines: Plug in a telephone area code as your query. Suppose that you see a number on your phone's caller ID and wonder where the caller is located. Enter the number's area code in the search window to view the city or cities for that number. Caveat: If the caller is using a VoIP line, he or she may not necessarily be located in the area code's geographical region.

# Skip the Advanced

EVERY SEARCH SITE offers sophisticated query tools that the vast majority of its users never touch. If you don't know a Boolean from a hooligan, fear not. "Most people are just typing in keywords these days, so the search engines had to be optimized for that sort of query," says Tim Mayer, Yahoo Search senior director of product management. People who use advanced search tend to be "librarians or information professionals" who bookmark the feature and use it regularly. Stick with the tips listed here, and you'll soon see that your search skills have improved noticeably.



SEE QUICK WEATHER PREVIEWS: If you're flying to, say, San Francisco, enter San Francisco weather in the search box for a fast forecast.



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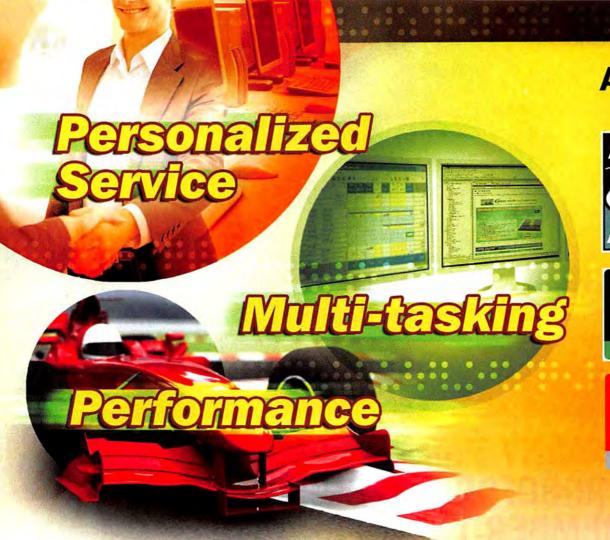
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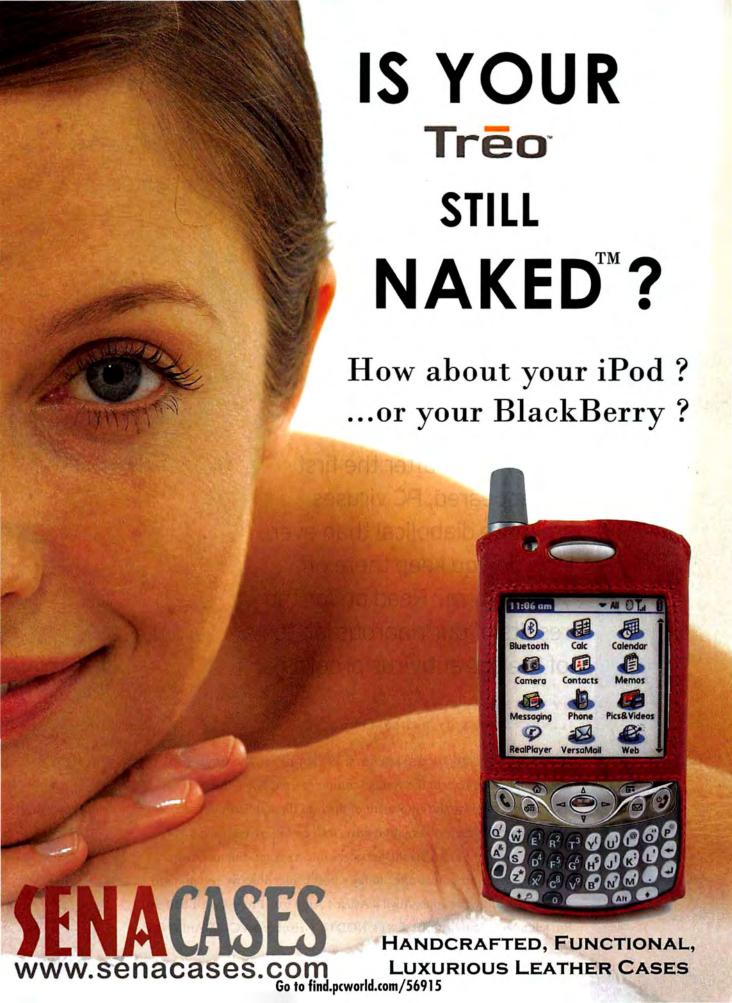








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# Virus Stoppers

Twenty years after the first one appeared, PC viruses are more diabolical than ever. How do you keep them off your system? Read on for the results of our rigorous lab tests of the top antivirus programs.

BY RYAN NARAINE

ILLUSTRATIONS BY RANDY LYHUS

TROJAN HORSES. ROOTKITS. BOTNETS. KEYLOGGERS. These terms might not mean much to the average computer user, but to the average computer they're the equivalent of the bird flu and Ebola viruses. With money serving as the main motive, tech crooks have turned these one-time playthings of maladjusted geeks into a serious business.

To see which programs offer today's best protection, we tested eight stand-alone antivirus apps: Alwil's Avast 4 Antivirus Professional Edition, BitDefender's Antivirus 10, Eset's NOD32, Grisoft's AVG 7.5 Anti-Virus



Professional Edition, Kaspersky's Anti-Virus 6, Panda's Antivirus 2007, Symantec's Norton Anti-Virus 2007, and Trend Micro's AntiVirus plus AntiSpyware 2007. These apps allow users to pick and choose their other security software (such as firewalls), and they cost less than security suites.

All include antispyware protection, and many have antirootkit components to defend against devious attempts to hide malware deep within a system. To protect against unknown viruses, all of the apps we tested come with some form of proactive protection to supplement more-traditional signature-based approaches, which must match incoming threats against a database of known threats in order to block them. For more information about proactive protections, read "When

a Signature Isn't Enough," on page 108.

After rigorous analysis, we awarded Kaspersky's well-designed Anti-Virus 6 the Best Buy. It ended up in a virtual dead heat with the entries from Symantec and BitDefender for best malware detection honors, and it also did the best job of cleaning malware infections. At \$50, however, it's relatively expensive.

In partnership with security research company AV-Test.org, we tested the programs under Microsoft Vista Ultimate; all eight have a Windows XP version as well. By far the most important tests that AV-Test conducted pitted each app against a "zoo"-a collection of nearly 900,000 viruses, Tro-

jan horses, bots, and other forms of malware. After this, each app had to try to detect current threats using oneand two-month-old signature files to simulate how well it could block unknown malware. Our three best-rated apps were, not surprisingly, those that performed best in these critical tests.

We also rated each program on its design and ease of use, including whether the application installed with an appropriate default configuration.

We then factored in performance, support policies, and whether the app had features such as Webtraffic scanning. Finally we rated cost. (For more details on our testing, see find.pcworld.com/57104.)

To choose our contenders, we selected from Vista-ready popular sellers and best-of-breed proBEST BUY KASPERSKY **Excellent virus detection** and speedy signature delivery make it the tops.



**NORTON** The Protection Center affords a useful at-a-glance summary of system security status.

Norton **AntiVirus** 

grams. Alwil and Grisoft offer feature-limited free versions of their programs—but to compare apples to apples, we selected their paid versions. Wondering why McAfee isn't on the list? The company no longer sells a stand-alone antivirus app (its Virus-Scan Plus programs include a firewall). Another

> no-show is F-Secure, whose popular app wasn't Vista-ready in time for inclusion in our testing.

## Kaspersky

OUR BEST BUY antivirus program, Kaspersky Anti-Virus 6 delivered top-notch success rates for malware detection (96 percent) and disinfection performance (86 percent of all items). It was fastest at producing new signatures, too, with a response time of 0 to 2 hours.

You'll pay for this stellar perfor-

mance, however. At \$50 for the downloaded product, Anti-Virus 6 is the most expensive program we tested, though the renewal cost drops to \$35 per year. In addition, its proactive protection was only middling, catching approximately half of the 200 new malware samples it was exposed to when tested using a one-month-old signature database.

Anti-Virus 6's polished interface makes it easy for users to schedule scans. And clearly labeled, one-click drill-down options make finding and setting up various advanced features a breeze.

In dealing with e-mail and news traffic, the program scans incoming and outgoing data over the POP3, SMTP, IMAP, and NNTP protocols. It mon-

> itors HTTP traffic for Web-borne threats, too. It doesn't set up a default scheduled scan, howeveryou'll need to set one up yourself.

Built-in antiphishing protection can block scam e-mail, and Kaspersky's "proactive defense" module looks for the hidden processes and Registry changes that can signal malware hidden with a rootkit.

If you buy this program, do so online-the download costs \$10

less than the retail box. If you want to get the Vista-compatible flavor, you'll have to download the program anyway. Just be sure to download the right version; it's easy to click the wrong link among the many offered on the downloads page.

You get free phone and e-mail support during business hours from Monday through Friday, though the phone number isn't toll-free. Kaspersky says that its Moscow office will answer support calls placed after hours on weekdays and throughout the weekend, on what it calls a "best-effort" basis.

2 Symantec
SYMANTEC NORTON ANTIVIRUS 2007 is a solid performer, with an overall virus detection rate of 96 percent, placing it firmly in the upper

Norton
Antivirus is
a solid
performer,
but support
calls will
cost you
\$10 each.

echelon of the test group. Like the other top-rated products, it has an attractive and easy-to-use interface. It was the slowest to respond to virus outbreaks, however, taking 10 to 12 hours on average to deliver new signatures. And like Kaspersky's, its proactive protection was only middling, catching about half of the unknown threats in our test.

At \$40, Norton Antivirus 2007 costs ten bucks less than Kaspersky Anti-Virus 6, but Symantec offers only a paltry \$1 discount for yearly renewals, making it one of the more expensive antivirus

FEATURES COMPARISON

# TEST Center Top Antivirus Performers

KASPERSKY'S FIRST-RATE but pricey program offers a smooth, easy-to-use design and excellent protection against malware.

	ANTIVIRUS SOFTWARE	PCW Rating	Design and ease of use	Malware- detection rate '	Proactive detection of unknown threats <sup>2</sup>	False- positive detections <sup>3</sup>	System slowdown 4	Outbreak- response time (hours) <sup>s</sup>	Bottom line
1	Kaspersky Anti-Virus 6  Best \$50 (\$35 renewal)  GUY find.pcworld.com/57009	85 Very Good	Superior	96%	51%	6	10%	0 to 2	This effective but expensive program has solid malware detection and the fastest outbreak-response time among currently tested competitors.
2	Symantec Norton AntiVirus 2007 \$40 (\$39 renewal) find.pcworld.com/57010	84 Very Good	Superior	96%	49%	3	10%	10 to 12	Symantec's solid program wins top marks for antivirus detection and cleanup, but its renewal and support costs are high.
3	BitDefender Antivirus 10 \$30 (\$22 renewal) find.pcworld.com/57011	84 Very Good	Superior	96%	61%	14	124%	4 to 6	BitDefender has excellent malware detection and a good price, but it causes a noticeable (though not show-stopping) system slowdown.
4	Eset NOD32 \$39 (\$27 renewal) find.pcworld.com/57012	84 Very Good	Very Good	90%	79%	6	5%	4 to 6	NOD32 provides the best proactive protection by far, but its overall malware detection is second-tier, and it has an overly technical interface.
5	Panda Antivirus 2007 \$30 (\$30 renewal) find.pcworld.com/57013	79 Good	Very Good	90%	56%	3.	4%	6 to 8	This competitively priced option offers good proactive protection, average overall malware detection, and a poor disinfection rate.
6	Alwil Avast 4 Antivirus Professional Edition \$40 (\$28 renewal) find.pcworld.com/57014	78 Good	Good	92%	37%	5	4%	6 to 8	This program has decent overall mal- ware detection, but poor proactive protection, and an awkward design. It also lacks U.S. phone support.
7	Grisoft AVG 7.5 Anti-Virus Professional Edition \$30 (\$15 renewal) find.pcworld.com/57015	77	Good	91%	34%	1	2%	6 to 8	The least-expensive program we tested, AVG has average overall malware detection, the worst proactive protection, and a clunky interface.
8	Trend Micro AntiVirus plus AntiSpyware 2007 \$40 (\$40 renewal) find.pcworld.com/57016	<b>71</b> Good	Very Good	82%	43%	0	9%	6 to 8	Trend Micro's poor performance at detecting malicious software (overall and proactive) put it at the bottom of the barrel in our ranking.

FOOTNOTES: 'Tests conducted using AV-Test.org's collection of 884,164 malware samples. 'Tested using one-month-old signature files.' The number of harmless files incorrectly identified as suspect, out of 20,000. 'The amount of slowdown seen on a computer running Microsoft Office with the antivirus software installed, compared to the same computer without the software. 'The number of hours, on average, that the company took to deliver signatures for new malware during the first part of 2007. CHART NOTES: Street prices are as of 3/31/07. The PCW Rating is based on the program's malware detection rate (overall and proactive), performance (including scan speed and system slowdown tests), price, specs, and product design. For further testing details, see find.pcworld.com/57104.

options in the long term. Tech support is similarly costly: The advertised free phone support applies only to installation problems and known bugs; other types of calls will cost you \$10 each.

Norton performed well in our disinfection tests, finishing second only to Kaspersky. It cleaned up 18

of 22 possible items, missing just one of the two changes to the Hosts network settings file and three lessimportant Registry items.

Symantec has incorporated the new SONAR behavioral analysis technology for proactive protection. The program scans e-mail and Web traffic, covering the POP3, SMTP. and HTTP protocols. In addition, it ties into the MSN, Yahoo, and AOL instant messaging programs (though it protects only MSN by default).

During our tests of Norton AntiVirus's design and ease of use under Windows Vista Ultimate, the program turned off the builtin Windows Defender antispyware utility without notice. This is not because the two utilities conflict, according to the company, but because Symantec feels that "Windows

Defender offers no value beyond what Norton offers." BitDefender was the only other program that disabled Defender when it installed.

Symantec Norton AntiVirus 2007 was also the only program that triggered multiple UAC (User Account Control) alerts when we changed settings;

that behavior could easily annoy power users who might want to customize the app.

BitDefender

BITDEFENDER ANTIVIRUS 10 nearly took top honors overall. It did a fine job of detecting malware, with a 96 percent catch rate. And it ranked second in our proactivedetection tests (behind Eset's NOD32) when relying on one-month-old signature files, nabbing 61 percent of new malware samples. And at \$30, with a \$22 renewal fee, it's one of the least-expensive apps we tested.

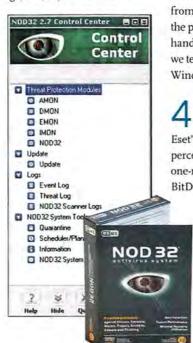
The program was badly hamstrung by serious slowdowns in our application performance tests, however. One Firefox test, for example, which loads a large number of different Web pages, took three times longer with BitDefender than with any other program we tested. The company attributes

**BITDEFENDER Glitches** with the Vista version's performance sabotaged the product's ranking.



**ESET NOD32 The** its difficult-to-decipher

company plans to revamp program interface.



the slowdown to a known bug in the Vista version and says that a future BitDefender update will fix it.

Though it excelled at detection, BitDefender was less adept at disinfection. It successfully cleaned just 13 of 22 items, missing one malware file and both of the changes to the Hosts file.

> BitDefender also turned in the highest false-positive rate, mislabeling 14 harmless files (out of a total of 20,000 in the test) as malware.

On the plus side, BitDefender has a well-designed interface, with a slider bar in the main window that lets you easily modify protection levels, and clearly marked icons for launching full scans or setting up custom scans. It was also the only product to offer free 24/7 phone support, with easyto-locate phone numbers and support

e-mail addresses listed in the app's Help section.

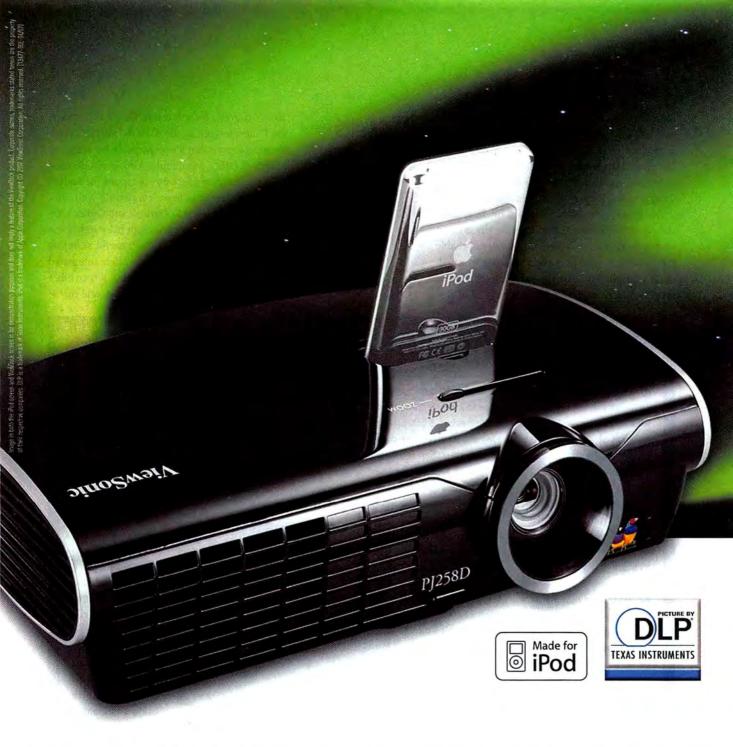
By default, the program runs a full-system scan daily. It monitors e-mail traffic on the POP3 and SMTP protocols, and integrates nicely with Microsoft Outlook, Outlook Express, and Windows Mail (on Vista) for antispam filtering. BitDefender provides a basic level of instant messaging protection, but unfortunately it doesn't scan HTTP traffic by default to identify Web-borne threats-you'll have to turn that capability on yourself.

A unique "privacy guard" feature detects when personal information-such as a credit card number or Social Security number-is being stolen from a computer, without your first having to tell the program what those numbers are. On the other hand, BitDefender was one of only two programs we tested that automatically disabled Vista's built-in Windows Defender antispyware utility, however.

Eset

WHEN IT COMES to proactive protection, Eset's NOD32 clearly wins. In our tests it caught 79 percent of unknown malware samples when using one-month-old signature files. The next-closest app, BitDefender, was a distant second at 61 percent.

> NOD32's overall malware detection rate wasn't stellar, however. Pitted against the huge AV-Test.org zoo of Trojan horses, viruses, and other malware, NOD32 spotted only 90 percent of the baddies, compared to the top performers' 96 percent rate. It fared surprisingly poorly with 32bit Windows viruses (which account



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for approximately 1 of every 11 samples in the zoo), catching only about 75 percent of these. In disinfection tests, NOD32 cleaned up all malware files but missed any resulting changes to the Hosts network settings file and most Registry changes, for a disappointing 55 percent success rate.

The program installed without a hitch, and the default settings were almost ideal for the average customer. One annoyance: NOD32 doesn't enable the full-system scan by default; you have to schedule it yourself. And when you try to set that up or want to change other settings, you may be turned

Fset's NOD32 was the hands-down winner for proactive protection.

off by an overly technical interface. For instance, you'll need to open up the 'DMON' interface module to figure out that it's responsible for scanning Microsoft Office documents. Also, if you do need help, the program offers no guideposts for finding support; you must go to the company's Web site.

The program ties into Outlook and Outlook Express for e-mail scanning, though it doesn't directly integrate with any IM applications for scanning sent links or files. In addition, it offers integrated virus, spyware, and adware scanning, where other programs require two separate scans, one for

PROACTIVE DEFENSE

# nen a Signature Isn't Enough

AT THE BEGINNING of the year, as hurricane-force winds roared across Europe, a storm of an entirely different kind battered computers around the globe. On January 18, the so-called Storm worm began arriving in the form of attachments to e-mail messages with subject lines such as '230 dead as storm batters europe'.

More than 42,000 distinct variants of the new malware spread over a 12-day period, according to security company Commtouch. The attackers intended for the onslaught to evade traditional signature-based virus detection, which must know about a specific piece of malware before it can catch it.

The Storm worm serves as a prominent example of how virus writers try to stay one step ahead of antivirus protection programs by churning out new variants of successful malware strains. The crooks also try to stay under the radar (and out of the signature database) by launching targeted attacks that send a small batch of malware to a single company or organization. Such attacks typically involve more social engineering than the average attack; for example, they may employ faked 'From:' addresses of actual company

employees to send virus-laden e-mail.

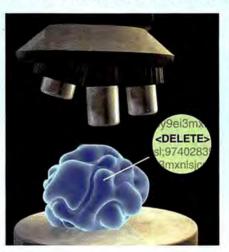
In response, security companies are using proactive protection that doesn't need a full virus signature to be effective. Such protection is "a necessity," says Natalie Lambert, a senior security analyst with Forrester Research. "It's all about the unknown and target-

ed threats," Lambert says.

One proactive approach uses a method called heuristics to examine a virus's programming for suspect commands or segments of code. Often this method can catch a new variant of some existing malware-one of the many Storm worms, for

example-by recognizing commonalities with previously analyzed variants.

The heuristics approach looks inside a potential piece of malware, but behavioral analysis, another proactiveprotection technique, looks



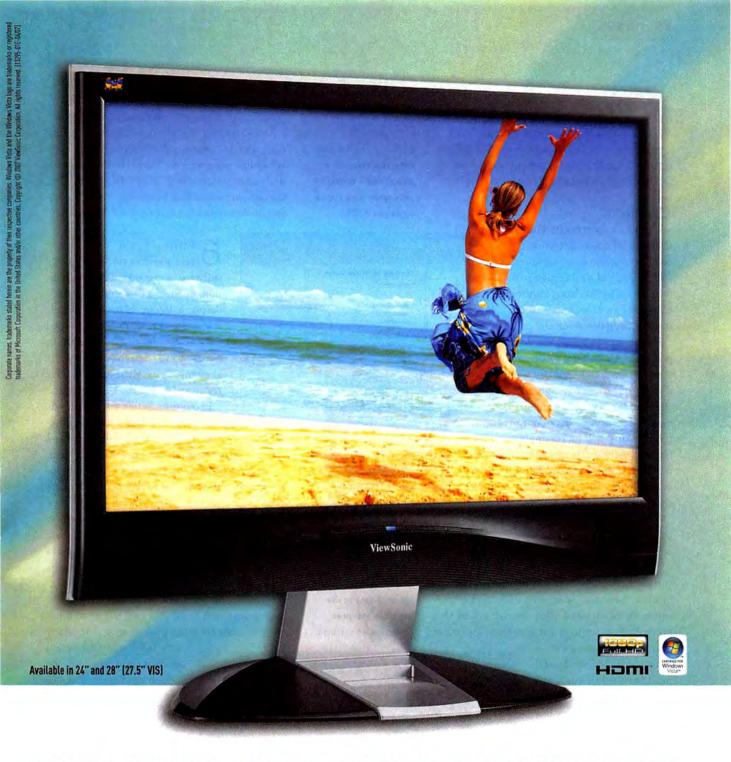
at it from the outside to see how it runs. If a file behaves suspiciously, such as by executing from a temp directory, antivirus programs may flag it as potential malware.

Some newer, advanced types of behavioral methods create what's called a sandbox, in which part or all of a suspect program can be analyzed in a protected virtual environment. The top two performers in our proactive tests, which subject PCs protected by month-old signatures to new malware to simulate future unknown

> threats, rely on the sandbox approach. Eset's NOD32 program intercepted 79 percent of malware, and BitDefender Antivirus 10 stopped 61 percent. On the other hand, Grisoft AVG finished last, at 34 percent, despite using a sandbox.

These numbers demonstrate that though proactive

protections are important supplements, they are not yet ready to replace traditional signatures altogether. To see how effectively our tested programs handled proactive scanning, consult the "Proactive detection of unknown threats" column in the chart on page 105.



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antivirus and one for antispyware. The multithreat engine can also detect malware-hiding rootkits.

At \$39 for a single-user license and \$27 for yearly renewals, Eset NOD32's pricing is about average for the group. E-mail and phone support is free.

Panda

PANDA ANTIVIRUS 2007'S middle-of-the-road detection results, inadequate default settings, and uninspired disinfection performance offset its strong features to produce an unimpressive fifthplace ranking in our tests.

The application discovered 90 percent of AV-Test.org's malware samples, a detection rate that was dragged down by a relatively poor showing at catching Trojan hors-

es (87 percent) and back-door programs (86 percent), two increasingly common types of malware. It turned in the thirdbest showing for proactive detection, however, catching 56 percent of new samples with one-month-old signatures.

Unfortunately, several important protective features of Panda Antivirus 2007 are turned off by default. You'll need to enable e-mail scanning yourself in a complicated process that sends you to the Windows Control Panel. Protection against "potentially dangerous files"-a euphemism for adware and other annoying junk that normally gets caught by antispyware in the course

of its standard operationsis also turned off, and you'll need to schedule your own full-system scan.

Once you switch these features on, however, Panda Antivirus scans will cover a good range of e-mail and

news protocols-POP3, SMTP, IMAP4, NNTPalong with Web traffic. It flags suspected phishing e-mail sent over POP3 and SMTP, and integrates with Yahoo, MSN, and AOL IM applications.

Panda Antivirus 2007 scored poorly in our disinfection tests. It missed one existing infection entirely, and failed to clean up another's changes to the Hosts and Registry files. Including Registry changes, it scrubbed up just 41 percent of all infections. And after we uninstalled it, Panda left behind a stray .dll file that some other antivirus

PANDA So-so malware detection translated into a middle-of-thepack ranking for Panda Antivirus 2007.

Scanning all My Computer A Hore to Scan in progress 5 Setting HAND BONE: Services Panda Antivirus 2007

> **AVAST** The basic layout option is easy to use but hides advanced configuration settings.

programs then flagged as potentially dangerous.

At \$30 for two PCs (there is no single-license rate), Panda Antivirus 2007 is among the most affordable programs we tested, but unlike with most apps, you receive no renewal discount. Also, the company offers free telephone support for the first 30 days only; after that a call will cost you \$20.

6 Alwil THE PAID VERSION OF Alwil'S software, Avast 4 Professional Edition, finished a disappointing sixth. despite a decent, 92 percent success rate at detecting malware. It spotted only 37 percent of the malware in our proactive tests, the second-worst showing. And Alwil doesn't offer phone support in the United States.

In our disinfection tests Avast was

about average, cleaning all infected files but missing changes to the Hosts network settings file and some Registry entries. Its catch rate was 78 percent.

The program installed smoothly, with appropriate default settings for the average person. It offers two interface options: a distinct, media player-type control panel that makes it easy to figure out how to launch a scan or set a manual boot-time scan; and an "enhanced interface" that permits you to access and fine-tune more settings, but that seems far less user-friendly than the first option.

After installation, Avast runs one full-system startup scan. But in the awkward advanced interface, we could not find a place to set up a regularly

> scheduled scan. One option enables scans whenever the screen saver is running, but again, this program setting was difficult to locate.

> The program scans a good range of e-mail and news protocols, including POP3,

SMTP, IMAP, and NNTP. It also scans all Web traffic. And Avast 4's comprehensive instant messaging protection fully supports a number of the most popular IM clients-AIM, ICQ, MSN, Skype, Trillian, and Yahoo Messenger-and even several lesser-known chat tools, such as Gaim, Miranda, and Pal Talk Messenger.

At installation, Avast 4 places on your PC a useful, built-in Virus Recovery Database, which you can theoretically use to repair infected pro-





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gram (.exe) files (we didn't test this functionality).

The paid Professional version of Avast 4 costs \$40, with a \$28 yearly renewal fee. A free Home version lacks some features such as the ability to run scheduled scans and view previous scan results.

Grisoft GRISOFT AVG 7.5 Anti-Virus Professional Edition was the leastexpensive option of the eight programs we tested, and its 91 percent malware detection rate put it in the middle of the pack in that critical category. Unfortunately, the software's

last-place proactive protection performance, clunky interface, and lack of U.S. phone support dropped it to seventh place in our rankings.

AVG did a fine job in the disinfection tests, reversing more than 80 percent of all changes made by mal-

ware. It was the only program that removed every malware file and reversed both changes to the Hosts network settings file, though like every other app it missed some Registry changes.

But in proactive protection, AVG ranked last, failing to detect two out of every three new malware samples. Also, the program puts the user in charge of too many decisions that require advanced know-how. To schedule a scan, for example, you have to wade through a "test manager" and figure

out what the differences are between a complete test, a detailed test, a detailed user test, and a simple user test. Grisoft intends to revamp the interface, but we found this one hard to manage.

Grisoft's AVG integrates nicely with Eudora and Microsoft Outlook to quarantine suspect e-mail messages, and it scans all programs' e-mail traffic over POP3 and SMTP protocols. However, it was only one of two programs

(Trend Micro being the other) that don't scan Web traffic, and it doesn't directly support any specific IM clients either.

Similarly to Alwil, Grisoft offers a free version that lacks antispyware protection and has a limited ability to schedule scans. The paid Professional version is \$30, and renewal costs only a scant \$15 per year thereafter. AVG This low-cost but clunky app performed poorly in our proactiveprotection tests.



TREND MICRO The worst overall malware detection rate all but guaranteed this package last place.



TrendMicro

THE LAST-PLACE RANKING of Trend Micro Antivirus plus AntiSpyware 2007 was primarily determined by its lackluster performance at detecting malware samples. The program missed almost one in every five samples, for an entirely disap-

pointing catch rate of 82 percent.

Trend Micro did somewhat better at proactively detecting unknown malware, but even here it had the thirdworst showing. It caught 43 percent

> of threats when tested with a onemonth-old scanner. Weighed down by a relatively expensive \$40 price tag and the lack of a renewal discount, Trend Micro's antivirus product left much to be desired.

> On the plus side, the program installed smoothly, was easy to use, and includes good default settings-such as an automatically scheduled full-system scanfor the average person. It provides a user-configurable scheduled

scan, and it checks for definition updates every 3 hours. These defaults are a snap to change via an intuitive and smooth interface that will appeal to even the most nontechnical user.

One particularly useful feature scans for known Microsoft product vulnerabilities. If a machine is missing an important security patch, for example,

> the application guides the user to Microsoft's Windows Update site to download and apply the appropriate updates and patches.

> Trend Micro's AntiVirus scans e-mail traffic over the POP3 and SMTP protocols, but unlike practically every other program we tested (except for Grisoft's AVG), it does not scan HTML traffic. Also, it stands alone in being unable to launch a manual file scan when you right-click within Win-

dows Explorer, a weakness in the Vista version that the company says it will remedy in future updates. And finally, the application's antispyware protection has an annoying habit of labeling tracking cookies as dangerous spyware.

Ryan Naraine is a freelance technology journalist specializing in Internet and computer security issues.







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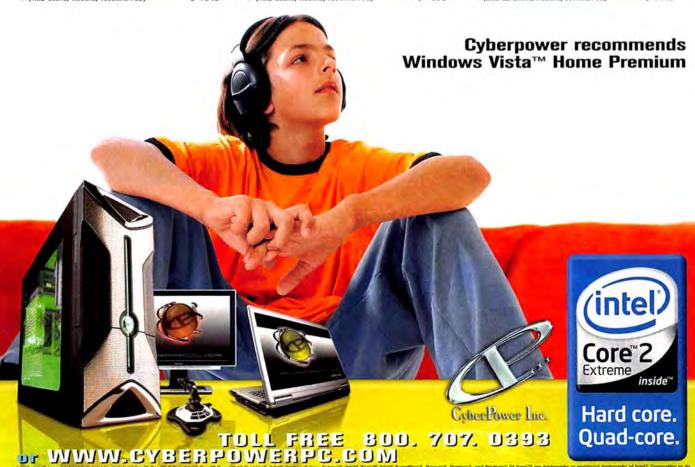
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Intel® Core™2 Extreme Processor QX6700 (8MB Cache, 2.66Ghz, 1066Mhz FSB)	\$ 1829
Intel® Core™2 Duo Processor E6700 (4MB Cache, 2.66Ghz, 1066Mhz FSB)	\$ 1109
Intel® Core™2 Duo Processor E6600 (4MB Cache, 2.40Ghz, 1066Mhz FSB)	\$ 1009
Intel® Core™2 Duo Processor E6420 (4MB Cache, 2.13Ghz, 1066Mhz FSB)	\$ 965
Intel® Core™2 Duo Processor E6320 (4MB Cache, 1.86Gbz, 1066Mbz FSB)	S 939

Intel® Core™2 Duo Processor T7600 (4MB L2 Cache, 2.33Ghz, 667Mhz FSB)	\$ 1619
Intel® Core™2 Duo Processor T7400 (4MB L2 Cache, 2.16Ghz, 667Mhz FSB)	\$ 1389
Intel <sup>±</sup> Core <sup>™</sup> 2 Duo Processor T7200 (4MB L2 Cache, 2.0Ghz, 667Mhz FSB)	\$ 1245
Intel® Core™2 Duo Processor T5600 (2MB L2 Cache, 1.83Ghz, 667Mhz FSB)	\$ 1189
Intel* Core™2 Duo Processor T5500 (2MB L2 Cache, 1,66Ghz, 667Mhz FSB)	\$ 1145



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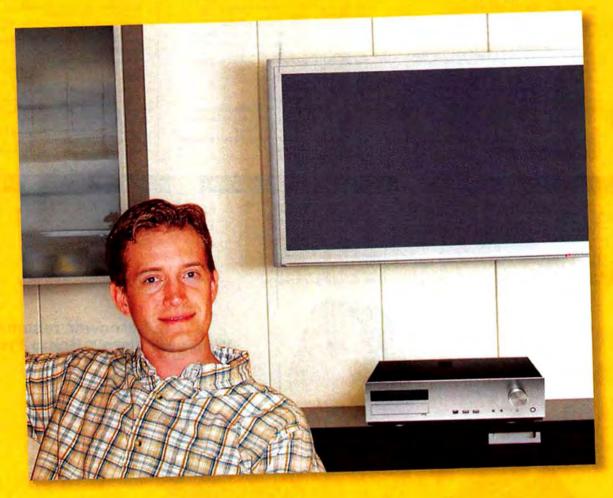
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# The Best Vista Notebooks

The new version of Windows can be a challenge for some notebooks to run. Our tests will point you to the laptops with the power to handle Vista.

BY CARLA THORNTON **TESTING BY THOMAS LUONG** 

> PHOTOGRAPHS BY ROBERT CARDIN

RIGHT NOW could be a great time to splurge

on a laptop, given that many

come with Microsoft's Windows Vista operating system to sweeten the deal. But is the new OS reason enough to jump now, or should you hang on to your trusty Windows XP laptop for a while longer? To find out, we rounded up 15 Vista-equipped laptops from Acer, Asus, Dell, Fujitsu, Gateway, HP, Lenovo, Micro Express, and Toshiba, in two categories: desktop-

BEST BUYS: THE \$2301 HP Pavilion dv9000t (top) and the \$2150 Dell XPS M1210 mix

replacement models powerful enough to serve as your >

primary PC, and ultraportables weighing less than 5 pounds. We tested speed and battery life and carefully evaluated screens, keyboards, and other vital features.

We ranked the best five notebooks in each category and awarded Best Buys to the \$2301 HP Pavilion dv9000t, a desktop replacement, and the \$2150 Dell XPS M1210, an ultraportable. The jazzed-up dv9000t is a snazzy multimedia laptop with a 17inch screen and designer exterior, while the M1210 is Dell at its best in a 4.9-pound package complete with a dedicated entertainment interface, smoking speed, and great battery life.

This roundup also marks the debut of WorldBench 6 Beta 2, the latest version of PC World's test suite for computers. Our PC World Test Center team refreshed the benchmark with Vista support and expanded tests that give multicore systems a workout. We also improved our battery test with a new automated script that rotates simulated typing with full-screen DVD-quality

### FEATURES COMPARISON

# enter Big and Small Laptops Deliver Strong Performance

	DESKTOP REPLACEMENT	PCW Rating	Performance	Features	and specifications <sup>1</sup>	Bottom line
1	HP Pavilion dv9000t  Best \$2301  Find.pcworld.com/56991	84 Very Good	WorldBench 6 Beta 2 score: 74 Superior     Overall design: Very Good     Tested battery life: 2:32	2-GHz Core 2 Duo T7200     2GB DDR2-667 SDRAM     17.0-inch wide screen     7.7 pounds	Windows Vista Ultimate 120GB 5400-rpm hard drive HD DVD-ROM/DVD±R DL/DVD±RW/-RAM 256MB nVidia GeForce Go 7600	The dv9000t provides great desktop muscle plus one-touch music, photos, and movies.
2	Gateway NX860XL \$2055 find.pcworld.com/56862	83 Very Good	WorldBench 6 Beta 2 score: 80 Superior     Overall design: Good     Tested battery life: 1:56	• 2.16-GHz Core 2 Duo T7400 • 2G3 DDR2-667 SDRAM • 17.0-inch wide screen • 8.0 pounds	Windows Vista Ultimate  80GB 7200-rpm hard drive  DVD±R DL/DVD±RW  256MB nVidia GeForce Go 7900 GS	Looks can deceive: The Gate- way NX860XL lacks flair, but it's fast and powerful.
3	Micro Express NP5760 \$2499 find.pcworld.com/56866	82 Very Good	WorldBench 6 Beta 2 score: 82 Superior     Overall design: Good     Tested battery life: 1:52	• 2.33-GHz Core 2 Duo T7600 • 2GB DDR2-667 SDRAM • 17.0-inch wide screen • 9.4 pounds	Windows Vista Home Premium 100GB 7200-rpm hard drive DVD±R DL/DVD±RW 512MB nVidia Quadro FX 2500M	This expensive gaming note- book's scorching performance is undermined by poor design in certain areas.
4	Acer Aspire 9810-6829 \$2999 find.pcworld.com/56865	81 Very Good	WorldBench 6 Beta 2 score: 75 Superior     Overall design: Very Good     Tested battery life: 1:57	2-GHz Core 2 Duo T7200     2GB DDR2-667 SDRAM     20.1-inch wide screen     17.3 pounds	Windows Vista Ultimate Two 160GB 5400-rpm hard drives DVD±R DL/DVD±RW/-RAM 256MB nVidia GeForce Go 7600	The 20.1-inch screen is hard to resist, but this hefty desktop-replacement unit needs a detachable keyboard.
5	Toshiba Satellite P105-S6217 \$1649 find.pcworld.com/56861	81 Very Good	WorldBench 6 Beta 2 score: 68 Yery Good     Overall design: Yery Good     Tested battery life: 1:55	1.66-GHz Core 2 Duo T5500     2GB DDR2-533 SDRAM     17.0-inch wide screen     7.4 pounds	Windows Vista Home Premium 200GB 4200-rpm hard drive DVD±R DL/DVD±RW 128MB nVidia GeForce Go 7300	This reasonably priced desktop replacement has good multime- dia features, including an HDTV tuner, but its speed was modest.
	ULTRAPORTABLE					
1	Dell XPS M1210  Best \$2150  BUY find.pcworld.com/56871	82 Very Good	WorldBench 6 Beta 2 score: 76 Superior     Overall design: Very Good     Tested battery life: 5:18	2-GHz Core 2 Duo T7200     2GB DDR2-667 SDRAM     12.1-inch wide screen     4.9 pounds	Windows Vista Home Premium 120GB 5400-rpm hard drive DVD±R DL/DVD±RW 256MB nVidia Geforce Go 7400	If 5 pounds won't weigh you down, the Dell XPS MI210 is the perfect choice for work and play.
2	Lenovo ThinkPad X60 Tablet \$2500 find.pcworld.com/56869	81 Very Good	WorldBench 6 Beta 2 score: 63 Very Good     Overall design: Yery Good     Tested battery life: 5:20	1.83-GHz Core Duo L2500     2GB DDR2-667 SDRAM     12.I-inch screen     4.6 pounds	Windows Vista Business 100GB 7200-rpm hard drive DVD±R DL/DVD±RW/-RAM Intel GMA 950	Though pricey, the ThinkPad X60 offers the best of both worlds if you're choosing between a regular notebook and a tablet PC.
3	Asus W5fe-2P025E \$2199 find.pcworld.com/56872	77	WorldBench 6 Beta 2 score: 74 Superior     Overall design: Good     Tested battery life: 2:27	2-GHz Core 2 Duo T7200     1.5GB DDR2-667 SDRAM     12.1-inch wide screen     4.0 pounds	Windows Vista Business 160GB 5400-rpm hard drive DVD±R DL/DVD±RW Intel GMA 950	Powerful, light, and carrying an always-on lid LCD, the Asus W5fe-2P025E is perfect for people with heavy schedules.
4	HP Pavilion tx1000 \$1894 find.pcworld.com/56592	76 Good	WorldBench 6 Beta 2 score: 64 Very Good     Overall design: Very Good     Tested battery life: 1:45	2-GHz Turion 64 X2 TL-60     2GB DDR-400 SDRAM     12.J-inch wide screen     4.2 pounds	Windows Vista Home Premium 160GB 5400-rpm hard drive DVD±RW NVidia GeForce Go 6150	Sensibly organized tablet PC has thoughtful design touches but short battery life,
5	Fujitsu LifeBook P7230 \$1899 find.pcworld.com/56868	75 Good	WorldBench 6 Beta 2 score: 32 Poor     Overall design: Very Good     Tested battery life: 5:12	1.2-GHz Core Solo U1400     1GB DDR2-667 SDRAM     10.6-inch wide screen     2.6 pounds	Windows Vista Business  60GB 4200-rpm hard drive  DVD±R DL/DVD±RW/-RAM  Intel GMA 950	This sub-3-pound laptop has an integrated DVD burner, a super- bright LED-backlit screen, and an easy-to-use keyboard.

CHART NOTES: Prices and ratings are as of 4/11/07. Tested battery life is measured in hours:minutes.

videos. (In view of its various updates, of course, WorldBench 6 Beta 2 scores are not comparable to previous WorldBench 5 results.) Visit www.worldbench.com for more information.

So what can you expect from this first batch of Vista-enabled portables? Though graphically busy and a memory hog, Vista and its Aero 3D environment look great and run well on these suitably powerful laptops; most models in our roundup came with 2GB of memory. If you buy a Vista notebook now, however, you'll encounter more problems with hardware and software compatibility than you would have with an early Windows XP laptop; for example, some docking stations currently disable Aero. But most sources of incompatibility are identical to those you'd run into with a Vista desktop PC, and they should soon fade as vendors update their drivers and software applications.

While a few of the models here are XP-era laptops with an OS transplant, others are among the first notebook PCs to take

advantage of some daring new Vista-inspired evolutionary advances. For example, though the Toshiba Portégé R400-S4931 missed out on our chart due to limited performance and a hefty \$3499 price tag, it and the \$2199 Asus W5fe-2P025E were the only two models to implement Vista SideShow technology. SideShow-equipped laptops come with a small secondary screen in the lid or edge—a little like external displays on clamshell phones—that can display useful information (such as Outlook appointments) even when the notebook is turned off.

The Portégé R400-S4931, the Asus U1F, and the Fujitsu Life-Book P7230 all have vivid new LED-backlit screens that are noticeably brighter and easier to read than a standard fluorescent-backlit panel. The LED-backlit screens are also thinner and use about a third less power, making for lighter laptops with longer battery life. In another first, we formally tested a laptop—the Acer Aspire 9810-6829—with a mammoth 20.1-inch screen.

# Best Vista Desktop Replacements

ASIDE FROM THE Acer, with its 20.1-inch display, each desktop replacement we tested had a 17-inch screen; and some came with TV tuners, HD DVD drives, Media Center remotes, and more.

# HP Pavilion dv9000t

Best SINCE ITS DEBUT last fall as a Windows XP-based machine, the dv9000t has been among the few note-

books capable of displaying HD DVD movies in high definition—and it can do so on its own 17inch WXGA+ screen or on an HDTV connected to the notebook's integrated HDMI port.

The dv9000t is gorgeous, with an eye-catching, glossy, piano-black lid and hidden hinges. Inside, the upper casing is imprinted with a sophisticated wave pattern, and the keyboard has a backlit, touch-sensitive membrane that controls multimedia applications. With the notebook turned off, swiping your finger across the membrane launches the HP QuickPlay menu so you can bypass Windows and directly play movies, music, video, and photo slide-show collections whether they're located on the hard drive, in the optical drive, or on a memory card.

The laptop also comes bundled with an ExpressCard digital/analog TV tuner, a remote control, and a coaxial adapter cable.

The dv9000t is speedy and powerful enough to handle any kind of application. Our review unit's 2-GHz Core 2 Duo T7200 processor, 2GB of RAM, and 120GB hard drive helped it earn a very creditable WorldBench 6 Beta 2 score of 74—a result that was three points higher than the average mark of 71 for the desktop-replacement group.

At 7.7 pounds, the dv9000t's carrying weight is middle-of-theroad, and its battery life is merely so-so at about 2.5 hours.

Thanks to its 256MB nVidia GeForce Go 7600 graphics control-

ler, the dv9000t held its own in our gaming tests, turning in better-than-average frame rates. It performed best in our Far Cry test set at a resolution of 1024 by 768 (79 frames per second), but was fast enough in each test to establish itself as a solid portable gaming machine.

SPEED KINGS: THE \$2499
Micro Express NP5760 (right)
and \$2055 Gateway NX860XL
were the fastest and secondfastest WorldBench 6 Beta 2
performers, respectively.



The dv9000t is an excellent laptop suitable for work and play. Its battery life is undistinguished, but its big screen and onetouch media strip will thrill movie mavens.

# Gateway NX860XL

SOME LAPTOPS THAT cost less than the \$2055 NX860XL have bigger hard drives, more card slots, or nicer keyboards, but the NX860XL trumps them with its combination of a high-quality screen, speedy performance, and robust speakers.

The NX860XL has a solid feel, and weighs 8 pounds (not counting the power adapter). Though it isn't the lightest desktop replacement we've seen recently, its heft is quite reasonable for a notebook in this class.

The Gateway's 17-inch Ultrabright screen is bright but not excessively reflective, and its WSXGA+ resolution of 1680 by 1050 pixels allows it to be equally adept at handling graphical tasks and mainstream work.

The NX860XL's keyboard layout is excellent; and a touchpad of reasonable size, with a dedicated scroll area where you can slide a finger to move a page up or down, aids typing.

Our test unit included an 80GB hard drive-disappointing considering that some sub-\$1000 models have 120GB of storage. (You can bump it up to 100GB or 200GB when you order.)

Battery life was unimpressive at 1 hour, 56 minutes with the standard eight-cell. A twelve-cell battery for \$44 more should improve matters, though it extends the back of the notebook.

Configured with a 2.16-GHz Core 2 Duo T7400 processor and 2GB of RAM, the Gateway earned a WorldBench 6 Beta 2 score of 80, just two points behind the top score of 82 earned by the 2.33-GHz Core 2 Duo T7600-equipped Micro Express NP5760. And thanks to its powerful 256MB nVidia GeForce Go 7900 GS video card, the NX860XL cleaned up in our gaming tests, finishing second only to the Micro Express in frame rates and running Doom 3 and Far Cry without a stumble.

If you need to work like a dog during the day and crank up Doom 3 when the office empties out, the NX860XL has the muscle, screen, and audio to put most other notebooks to shame.

# 3 Micro Express NP5760

THE \$2499 MICRO Express NP5760 boasts hot performance, but that's offset by a frustratingly designed optical drive, a ponderous 9.4-pound weight, and a fleeting 1.8-hour battery life.

Bundled with Windows Vista Home Premium and equipped with the speedy 2.33-GHz Core 2 Duo T7600 chip, the Micro Express not surprisingly earned the best WorldBench 6 Beta 2



the \$2999 Acer Aspire 9810-6829 (left) dwarfs the 17-inch displays of regular desktop replacements, including the likable \$1649 Toshiba Satellite P105-S6217.

score of the bunch, an 82. It easily took the gaming crown, too, clocking in at more than 80 frames per second in all four of our tests, including Far Cry (at 1024 by 768 resolution,

without antialiasing) at a smooth, lickety-split 100 fps.

This desktop replacement also comes with a built-in TV tuner, an integrated 1.3-megapixel Webcam, keyboard media buttons, and a Windows Media Center remote control.

The laptop's designers seem to have positioned the left-side dual-format DVD burner as close as possible to the front of the notebook for convenience. But more than once when we picked the unit up, we accidentally pressed the eject button, which caused the tray and its still-spinning contents to pop out.

Despite this drawback, the Micro Express NP5760 is a powerful notebook capable of handling any work or entertainment task you can put your mind to. Just watch where you grab the case.

# 4 Acer Aspire 9810-6829

THIS DESKTOP REPLACEMENT'S enormous 20.1-inch, 1680by-1050-pixel-resolution screen is bright and crisp, and its speakers are outstanding. A powerful workstation and an adequate gaming rig, it includes TV, Webcam, and VoIP-phone features.

At a gargantuan 18.7 inches long by 15.1 inches deep by 2.7 inches tall, the 9810-6829 takes up 40 percent more space than an average-size desktop replacement. For a big unit, though, it has decent near-2-hour battery life and runs remarkably coolly.

The 1.25-inch-thick screen is thicker than the rest of the notebook and has a built-in supportive foot to prevent it from toppling backward. It's hardly surprising that the total weight is 17.3 pounds (19.2 pounds including the power adapter).

The 9810-6829 can run any operation well and juggles multiple open windows like a champ. In gaming, it ran neck and neck with the HP Pavilion dv9000t, which has the same good 256MB nVidia GeForce Go 7600 dedicated graphics chip. The frame rates for both laptops were plenty fast enough to play Doom 3 and Far Cry without skips or artifacts. The Acer's 2-GHz Core 2 Duo T7200 chip, 2GB of RAM, and Windows Vista Ultimate operating system enabled it to turn in a strong WorldBench 6 Beta 2 score of 75, virtually identical to the HP Pavilion dv9000t's 74. Our test unit came configured with dual 5400-rpm 160GB hard drives for a total of 320GB of storage.

Overall, the 9810-6829 is excellent for any stationary purpose, but especially for working in multiple windows. The keyboard is comfortable to use and the 1.5-watt Acer 3Dsonic stereo speakers plus 4-watt BasSonic subwoofer produce loud, rich sound.

If you want the biggest, easiest-to-view notebook screen available, the \$2999 Acer 9810-6829 is the obvious choice.

# 5 Toshiba Satellite P105-S6217

THE \$1649 TOSHIBA Satellite P105-S6217 isn't a high-concept notebook, but it would be an excellent choice as a second home PC or as a solid small-office desktop replacement. At 7.4 pounds, it's also quite light for a big laptop with a 17-inch screen.

Though the icon-heavy touchpad looks gimmicky, it proved to be one of the notebook's best features. A tap in the upper-right corner switches the touchpad from cursor mode to button mode and activates pressure-sensitive symbols that you can use to launch six different Web sites or applications.

Storage is extremely generous: The spacious 200GB hard drive invites you to record gigabyte-gobbling TV programs. The drive's slow, 4200-rpm spin rate-along with the laptop's 1.66-GHz Core 2 Duo T5500 processor-kept the Satellite's World-Bench 6 Beta 2 score to a modest 68, three points below the average of 71 for our desktop replacements group. Its battery life of slightly less than 2 hours, however, is disappointing.

The only thing this laptop tanks at is 3D gaming. The 128MB nVidia GeForce Go 7300 graphics chip's minimal memory showed up in our tests. Far Cry and Doom 3 with antialiasing enabled crawled along at between 7 and 13 fps. Without antialiasing, only Far Cry was playable-and barely so, at 37 fps.

It's not the fanciest multimedia laptop on the shelf, but this Windows Vista Home Premium-equipped portable does all right. It bundles an external HDTV tuner, including a desktop antenna for picking up signals. The excellent Harman/Kardon stereo speakers deliver terrific output. Four square buttons above the keyboard play, stop, and move backward and forward through CDs and DVDs; and if you leave a disc in the DVD burner, pressing the Media button will play it.

### WHAT'S NEXT

WINDOWS VISTA MAY have brought some interesting features (such as Vista SideShow displays) to certain laptops, but a number of even moreexciting laptop changes are in store.

By the time you read this, Intel is likely to have unveiled the fourth gen-

eration of its Centrino mobile platform, codenamed Santa Rosa. In April, the company announced that this platform revision for premium business notebooks (with extra features such as Active Management Technology, for IT staffers who manage a multitude of notebooks) will be known as Centrino Pro; at press time, however,

Intel hadn't yet revealed the nomenclature that it intends to use for the consumer variant of the Santa Rosa platform.

Santa Rosa will include mobile Intel 965PM or GM graphics chip sets (the latter with integrated GMA X3000 graphics) and an 800-MHz frontside bus (up from Centrino Duo's 667-MHz bus) that can underclock during periods of low CPU use to save power. Also confirmed are DDR2-800 memory support, built-in draft-802.11n Wi-Fi with 802.11a/b/g backward compatibility, and a new CPU socket supporting a range of faster mobile processors expected to debut in the same time frame. Intel has said that its Turbo Memory technology, which uses

# **New Mobile Platforms** to Debut Soon



Vista's ReadyBoost feature and either 512MB or IGB of NAND flash memory to speed up application launch times, will be an option rather than a requirement for Centrino laptops. Santa Rosa notebooks will probably also support not-yet-available hybrid hard drives

that will be equipped with built-in flash memory.

Flash memory-based solid-state drives constitute another replacement alternative for traditional hard disks, and 32GB versions have recently begun providing performance, power, and weight benefits to ultralight portables such as Sony's VAIO UX and Fujitsu's LifeBook P1610 and B6210.

Meanwhile, AMD will soon launch its next-generation mobile platform, which includes the Hawk processor family (the first 65nm mobile part will appear in this family), and the recently announced M690 mobile chip set. The M690 chip set supports an ATI Radeon X1250 graphics option that can handle DVI or HDMI output and built-in ATI Avivo image and video enhancement, as well as third-party 802.11n Wi-Fi products and hybrid hard drives. The M690T variant will support 32MB of a local frame buffer technology that is touted to extended battery life by ensuring that the CPU remains in a low-power-state mode when appropriate. -Danny Allen

# Best Vista Ultraportables

MOST OF THE lightweight laptops we tested offer great battery life for the road; and some have bright LED-backlit screens, cellular broadband connectivity, or even Vista SideShow displays.

# Dell XPS M1210

Best THE XPS M1210 has some excellent show-biz genes, such as media buttons and a TV-tuner option. But it's also a strong, well-designed, and highly mobile performer.

Though the 4.9-pound M1210 is by no means the lightest laptop in the ultraportable class, it's still quite travel friendly. In addition, the machine's 12.1-inch WXGA screen is bright and inviting, and the keyboard is nicely laid out.

When the notebook is turned off, a single press of the Media-Direct button opens a menu of choices for playing movies, music, video, and photo slide-show collections-whether they're located on the hard drive, on a CD or DVD, or on a memory card. An 'Instant office' option allows you to do likewise with PowerPoint slides or calendar entries.

Our \$2150 review unit's Mobile Media Guru configuration includes an integrated Webcam and an external USB TV tuner with remote control. The notebook's 'WiFi Catcher' switch makes it easy to scan for any type of wireless signal-Wi-Fi, broadband, or Bluetooth. (An integrated Cingular or Verizon cellular broadband card and Bluetooth cost extra, however.)

Configured with Windows Vista Home Premium, a 2-GHz Core 2 Duo T7200 processor, and 2GB of RAM, the M1210 earned a WorldBench 6 Beta 2 score of 76, the highest mark among ultraportables in our roundup. The 256MB nVidia GeForce Go 7400 graphics chip supported only basic 3D gaming. When work takes you away from electrical outlets, the included nine-cell battery's 5.3-hour battery life saves the day.

With its media-savvy features, the M1210 is probably the best sub-5-pound entertainment notebook currently on the market.

# 2 Lenovo ThinkPad X60 Tablet

THE LENOVO THINKPAD X60 Tablet is a superb convertible notebook with a first-rate keyboard and a 12.1-inch display that can accept input from both a digitizer pen and fingers.

A Vista-refreshed successor to the ThinkPad X41, the X60 adds some irresistible new features, including an auto-rotation capability that senses when you turn the tablet and automatically rotates the picture accordingly. The tablet design is meticulously thought out, from the spring-loaded digitizer pen (for one-handed removal) to the rubber grip strips on the battery. A four-way rocker and its reprogrammable 11-item shortcut menu are among the tablet buttons that help you navigate applications.

Wi-Fi comes standard, while Bluetooth and WWAN cellular broadband are options. The included master on/off switch is a much-needed feature that Lenovo tablets previously lacked.

The X60's 5.3-hour battery life placed it in the top one-third of all notebooks tested for this story. Preconfigured with a 1.83-GHz Core Duo L2500 processor and 2GB of RAM, it earned a WorldBench 6 Beta 2 score of 63-about 17 percent below the mark of 76 posted by the 2-GHz Core 2 Duo T7200-equipped Dell XPS M1210 (the fastest ultraportable of the group), but good enough to handle any kind of work with reasonable alacrity.

A few minor guibbles: The screen latch has to be manually pushed into the case to secure the lid or it sticks up in the way. Also, there is no next-generation ExpressCard slot-a strange omission from what is otherwise a top-flight notebook.

The X60's versatility as a tablet and its long list of excellent features make it a great choice for mobile professionals.

# 3 Asus W5fe-2P025E

THIS 4-POUND UNIT is the first notebook we've seen that comes equipped with a Windows SideShow LCD-a bright, 2.25-by-2.75-inch secondary screen in the lid that lets you access e-mail

messages, calendar appointments, photos, music, and more without your having to turn the notebook on.





THINKPAD X60 Tablet (left) is our favorite convertible, but we also loved the \$2199 Asus W5fe-2P025E's useful and stylish Vista SideShow LCD.

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The W5fe-2P025E's 2.5-hour battery life (measured using the 4800-milliamp battery included in our \$2199 review unit's configuration) was relatively short. Though this was a letdown, Asus does offer a 6600milliamp battery for \$179.

Crafted of sturdy, attractive magnesium alloy, the dark casing feels smooth and solid in the hand, and the bottom protective panels are thick and sturdy. The 12.1inch WXGA screen is plenty bright, the keyboard is well laid out, and the touchpad

is textured. Powered by a 2-GHz Core 2 Duo T7200 CPU and 1536MB of RAM, the W5fe-2P025E earned a WorldBench 6 Beta 2 score of 74, the same mark posted by our number one desktop replacement, the HP Pavilion dv9000t. The machine's only stumble involved 3D gaming, where its use of integrated graphics instead of a dedicated 3D graphics chip proved costly.

If battery life is all-important to you, Asus's 2.4-pound U1F, which lasts for 6-plus hours, might be a better match. But the W5fe-2P025E has a much better keyboard; and for cutting-edge SideShow technology, it's currently the ultraportable to beat.

# 4 HP Pavilion tx1000

AN ARTFULLY DESIGNED convertible Windows Tablet PC, the \$1894 HP Pavilion tx1000 is geared for multimedia. This 4.2pound machine has some interesting and distinctive design details, including a unique touchpad, but it's hampered by abysmal battery life and an excessively reflective screen.

Buttons for running HP's QuickPlay software (which lets you play DVDs or music without having to boot Windows) and for rotating the screen occupy the area just below the display.

Converting from notebook to tablet mode is easy, and the 12.1inch screen rotates into place firmly. The screen jiggles a bit in notebook mode, which can be distracting if you are in motion-say, on a train. The touch screen is responsive in tablet mode, but unfortunately it lacks an antireflective coating. It seems to have another

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# More Online

YOU CAN FIND extended reviews of all of the notebooks discussed in this roundup at find.pcworld.com/57065.

There you'll also find our latest ratings and an in-depth look at the desktop replacements (Acer's Aspire

9300-5005 and Asus's W2Pb-7M005C) and ultraportables (Asus's U1F, Gateway's NX100X, and Toshiba's Portégé R400-S4931, pictured) that failed to make our chart.



\$1894 HP Pavilion tx1000 (left) seemed woeful next to that of the \$1899 Fujitsu LifeBook P7230, but it was twice as fast in our tests.

kind of coating with a smoky hue that makes seeing the display at an indirect angle unduly difficult.

In WorldBench 6 Beta 2, the tx1000, equipped with a 2-GHz

AMD Turion 64 X2 TL-60 processor and Windows Vista Home Premium Edition, managed a middling score of 64. In our battery tests, it ran down after just 1 hour, 45 minutes.

Overall, it's nicely designed and comfortable to use, despite the screen glare. Just don't forget to pack the AC adapter.

# 5 Fujitsu LifeBook P7230

THE LIFEBOOK P7230 is the lightest laptop we've seen that comes equipped with an integrated optical drive. It weighs 2.6 pounds with a dual-layer DVD burner in place.

The P7230's footprint is about the same as the Asus U1F's, at 10.6 inches wide by 7.9 inches deep by 1.3 inches tall. Both notebooks have superbright LED-backlit screens. (The LifeBook's 10.6-inch WXGA screen is roughly 10 percent brighter than the Asus U1F's 11.1-inch display, despite being smaller.)

Our \$1899 LifeBook P7230 unit came with the Windows Vista Business operating system and a 60GB hard drive.

You'll have to be patient when attempting relatively processorintensive operations. With a 1.2-GHz Core Solo U1400 CPU and 1GB of RAM, the P7230 managed a WorldBench 6 Beta 2 score of 32, the lowest mark of any laptop in our roundup.

Its 5800-milliampere battery life is fabulous, however: 5.2 hours on one charge. You can achieve even longer battery life by frequently using the ECO button. According to Fujitsu, this button disables the optical disc drive, among other features, reducing component power consumption by 30 percent. Unfortunately, the screen is almost unusably dark in this mode.

The LifeBook P7230 is slow, but if e-mail, light work, and online researching on the go are all you need-along with the convenience of a built-in DVD burner-look no further.

Contributing Editor Carla Thornton has covered laptops for PC World since 1998. Danny Allen is a PC World associate editor.

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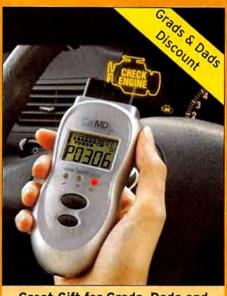
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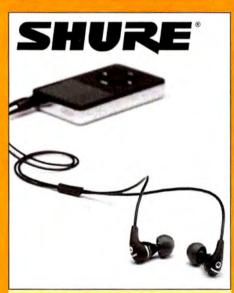
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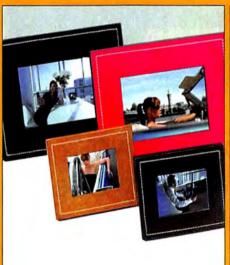
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EDITED BY ERIC DAHL AND DENNIS O'REILLY



# STORAGE TIPS

JON L. JACOBI

# Easy, Low-Cost Network Storage for Everyday Use

IF YOU'RE TIRED of leaving your PC on continuously so that other machines in your house can access the files you store on it, you're ready to step up to networkattached storage. As you might guess from the name, NAS devices connect via ethernet directly to your router.

Your network storage device can be a stand-alone unit designed specifically for centralized storage, or you can convert an old PC into a file-sharing device. Either way, you'll have a 24/7 data repository for backups and for sharing documents, images, videos, and other files.

A NAS device should be isolated in a safe, cool, dry, out-of-the-way place to make it less vulnerable to bumps, spills, and other physical dangers. (Plus, hiding your storage device keeps it safer from theft.) Though off site is the safest destination for your backups, NAS can be the next best thing-barring tornadoes, tsunamis, and other acts of nature.

NAS boxes are isolated from most of

the software dangers that networked PCs fall prey to, as well: Even if the files stored on a NAS device get infected, the box's operating system resides in its firmware (unless you're using a retasked PC), and is therefore very difficult to attack.

### DEDICATED TO STORAGE

THE EASIEST WAY to add NAS to your network is to buy a box designed for that task. I kicked the tires on two units: the \$699 Maxtor Shared Storage II 1TB, and the \$389 Iomega StorCenter 500 (see FIG-URE 1). The quoted prices average about 70 and 78 cents, respectively, per gigabyte, versus 50 to 60 cents per gigabyte for general-purpose external hard drives.

Nearly every PC under four years old supports gigabit-per-second ethernet. If yours doesn't, spending \$20 or so for a gigabit ethernet adapter is a good idea (see PCWorld.com's Shopping area for more about these products). With gigabit ethernet, a movie streamed from a PC or NAS box looks as smooth as silk, large files transfer at blazing speed, and backups are far faster than with older 10/100 ethernet cards, which are limited to 100 megabits per second (note that these are theoretical speed limits; real-world speeds are slower). That said, my old reliable 10/100 500GB Maxtor Shared Storage Drive still manages the small-scale backups for my office network.

Gigabit ethernet is not a perfect solution, however. Router vendors have been focusing on boosting the speed and reliability of their wireless networking gear. Only a few pricier wireless routers-such as the \$150 D-Link DGL-4300 I've used for the past year, D-Link's \$180 DIR-655, Netgear's \$160 WNR854T, and Buffalo's \$250 WZRAG300NH—include a gigabit-

### STORAGE TIPS 126

Share files on your LAN via a network-attached storage device, whether a dedicated box or an old PC.

### 130 WINDOWS TIPS

Save time by placing shortcuts to your most-used files and folders to keep them close at hand.

### INTERNET TIPS

Protect your site's domain name from would-be interlopers; Whois tools tell you who owns that site.

### 132 HARDWARE TIPS

Prepare your PC and peripherals for the move to Vista; a flexible fan cools your system's hot spots.

### 134 ANSWER LINE

Keep the helpful Web cookies around, but give the spying ones the boot; disable your Windows key; back up your Registry.



FIGURE 1: IOMEGA'S STORCENTER 500 (left) and Maxtor's Shared Storage II offer 500GB and 1TB, respectively, of storage for your network's PCs to share.

capable ethernet switch. Some NAS boxes can connect wirelessly, but they transfer data at a considerably slower pace than a cabled connection does.

Linksys's WRT350N pre-N wireless router (about \$170 online) has a quartet of gigabit-ethernet ports, as well as other features that make it an alternative to a dedicated NAS box. The WRT350N sports a USB 2.0 port to which you can attach a normal USB hard drive, effectively turning the router itself into a NAS controller (see FIGURE 2). USB 2.0's real-world transfer rate of about 200 megabits per second can't match gigabit-ethernet speeds, but it's faster than standard ethernet and most wireless connections.

The WRT350N, like the Iomega Stor-Center and Maxtor Shared Storage II. also functions as a Universal Plug and Play (UPnP) server to stream photos, MP3 files, and movies to your PC, TV. stereo, portable player, or other playback device equipped with a UPnP media adapter. Like gigabit ethernet, UPnP is an important feature to have if you're planning a home multimedia network.

For even more flexibility, get a NAS box

with USB ports for attaching a printer that you can share across the network or for expanding the network's storage capacity via standard USB hard drives. With a high-end NAS box, you can back up your network storage by attaching a backup device directly to the box, rather than having to go through your PC. Most people, however, will store the backup of their NAS box on DVDs, or on a hard drive or tape drive attached to their computer.

Another option: Buy a NAS enclosure that lets you plug in your own hard drive to build a NAS box with as little or as much storage as you can get on a drive (or two, for enclosures that support multiple drives). Tritton's \$100 TRI-NSS001 NAS Enclosure works with any 3.5-inch ATA drive and supports up to 400GB.

### REPURPOSE AN OLD PC

INSTEAD OF DONATING your old system when you upgrade to a new model. retask it as a NAS box. Its ethernet connection makes converting it into a storage device easy. Don't worry about its slow processor or lack of RAM: CPU speed and memory are less important when you're just sending files. The network's limited bandwidth is more of an inhibiting factor than even a ten-year-old PC's processor speed.

Turn the old machine off, unplug its power cord, open its case (ground yourself by touching a piece of metal first), and remove all extraneous hardware (such as a sound card or a TV tuner card, but not the network adapter, if the ethernet port isn't on the system board). Next, close the case, turn the system on, and enter its PC Setup program (look on the screen for the appropriate key to press before Windows starts loading).

Once you're in the BIOS, disable any unnecessary features: If you won't be attaching a parallel printer, for instance, disable the parallel port. Other candidates for deactivation are audio devices, serial ports, secondary ATA channels, and unused USB controllers. You can expand your NAS PC's storage or back it up easily via USB, FireWire, and eSATA ports, so you might want to keep those. But less hardware means fewer potential driver conflicts and better reliability.

I don't recommend this, but you could add wireless to your pseudo-NAS box via an add-in card or a USB adapter. Data transfer won't be nearly as fast as across a wired connection, and this setup



FIGURE 2: USE YOUR WIRELESS router as a network storage device via its USB port, such as the one on the Linksys WRT350N.

won't work very well for streaming multimedia. But it's a viable alternative in places where cable is difficult to run.

With your hardware pared down, it's time to clean out your unnecessary software. First, create one last backup in case you need to recover a vital bit of data. Then reformat the PC's hard drive, or the drive partition that holds the operating system. Repartition the drive to create a partition solely for the operating system; set the size at the minimum amount the OS requires, plus 1GB or so for a safety margin. Since you won't be installing many apps, this partition won't need much extra storage. Rule of thumb: 10GB is fine for Windows XP or Linux: 20GB will work for Windows Vista. Partition the rest of your drive as you see fit for storing the actual shared data.

After you've finished repartitioning the drive, reinstall the operating system, enabling as few options as possible. Then

remove the unnecessary apps and services running in the background that you couldn't opt out of during the installation, such as Windows Messenger. This will save you some CPU cycles. If you uninstall the wrong app, you can reinstall it via your Windows disc, but it's a good idea to be cautious about removing Windows utilities.

Adventurous and/or techni-MAS cally proficient users should consider a minimal Linux installation. Using Linux to serve files to a Windows network ensures that your do-it-yourself NAS box won't fall prey to a Windows-specific malware attack. I like Xubuntu for its small footprint and friendly installation.

After you connect your NAS box to your router with an ethernet cable, you'll want to configure the unit via the HTML setup

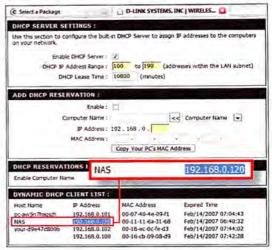


FIGURE 3: ENTER YOUR ROUTER'S configuration program to set up your network storage device.

application in its firmware, which opens in your PC's browser. Most NAS boxes provide software utilities that walk you through the setup process-or you can administer the unit directly. To do so, open your browser, type 192.168.0.1 into the address bar (192.168.1.1 for some Linksys routers, and 192.168.2.1 for others), and press (Enter). If you're not sure of the IP address to use, open your router's setup page and look in its quick-start guide for the correct address. Log in, locate your router's DHCP table, and note the address of your NAS box (it may be similar to '192.168.0.120'; see FIGURE 3). The entry name will likely give you a clue as to which device you're looking for. (Hint: It's the new device on the network!) When in doubt, turn the device off, look at the table, turn it back on, and look for the new address in the table.

Next, type the address of your NAS box into your browser's address field and press (Enter). You may be greeted by a log-in screen demanding your user name and password, which you'll find in your manual. More likely, you'll have to create a password. Use the configuration utility to handle such options as formatting and partitioning the device's drives, adding or deleting users who can access the drive, making folders public or private to individuals or groups of users, joining a workgroup, and setting RAID levels.

Contributing Editor Jon L. Jacobi resides in Northern California.

# GET YOUR PC-BASED NAS BOX READY TO SHARE

IF YOU PLAN to convert a PC for your NAS device, you must reconfigure it and define an area to store files in. It will need a keyboard, a mouse, and a display, which may not be practical to attach and use in a closet or other out-of-theway location. Windows XP's Remote Desktop Connection lets you configure and administer the machine remotely, so you can skip the peripherals-though the BIOS in some PCs requires that a keyboard be attached unless you change

**NAS Properties** ? X General Sharing Security Customize You can share this folder with other users on your network. To enable sharing for this folder, click Share this folder. O Do not share this folder NAS Share name: Share this folder NAS Share name: Shared storage device Comment: User limit: Maximum allowed O Allow this number of users: -To set permissions for users who access this Permissions folder over the network, click Permissions. To configure settings for offline access, click Caching

FIGURE 4: SET YOUR NAS DEVICE to share its files by enabling this option in its Properties dialog box.

this setting manually, Remote Desktop Connection works with Windows 95 through 2000 as well; go to find.pcworld. com/56800 for the free download.

If you installed your OS on a small partition and created one or more other partitions for data, XP lets you share files by simply right-clicking a drive icon, choosing Properties Sharing, and checking Share this folder (see FIGURE 4: the option on some systems is Share this folder on the network). (The con-

> text menu's 'Sharing and Security' option invokes an unrelated Windows utility.) Most routers use the default Windows group, named 'MSHome' or 'Workgroup'. If you have renamed yours, you must reset it: In XP right-click My Computer and select Properties; in Vista right-click Computer and click Remote settings. In both versions, select Computer Name • Change and enter the workgroup and computer names.







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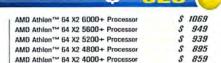
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# **WINDOWS TIPS**

SCOTT DUNN

# The Fast Track to Your Favorite Files and Folders

THERE YOU ARE, rummaging in an 'Open' or 'Save As' dialog box, navigating furiously through a maze of files and folders in search of the one you need. Isn't there a better way? Glad you asked. These tips will get you where you're going faster.

Places Bar: Array the two or three folders that you access most often on the Places Bar on the left side of the dialog box. Lincoln Spector describes how at find.pcworld.com/56803. (Windows' Places Bar is separate from the Places Bar in Office apps, so changes to one won't affect the other.)

Another option: Put shortcuts to the folders and documents you frequently use in a separate folder, and then add a shortcut to this folder o' shortcuts on the Places Bar, You'll have to click at least once more to select the one you want, but it's still faster than digging through layers of folders.

In Vista, the Places Bar is called Favorite Links and is located both in Explorer and in most file dialog boxes (applications not designed for Vista being a nota-

ble exception). To customize this list, locate the folder you want in the Folders pane (below Favorite Links) on the left, or select a folder or file in the main file window in the center of the dialog box: then

≪ BUCEPHALUS (E) + doc + Copy of Upda New Fold Name Da # Create link in Links Copy of Updat Blow Dictures Cyberlink DVD/CD-RW Drive \* Downloads BUCEPHALUS (E) MMy Web Sites 6c01d892275364 Create link in Links

FIGURE 1: CUSTOMIZE your favorite links in Vista dialog boxes instantly with a simple drag and drop.

drag the item into Favorite Links until a line appears between two existing items (see FIGURE 1). Release the mouse button to create the new shortcut. For a bigger view, click the down arrow next to Folders to collapse the pane. Drag and drop to

rearrange items. To eliminate or rename a link, right-click it and choose Remove Link or Rename Link (or simply Rename). Some links (including Desktop and Computer) aren't removable, but you can customize links in the file list by clicking Links in the Folders tree that appears below Favorite Links.

My Recent Documents: Most file dialog boxes have a History (Windows 2000), My Recent Documents (XP), or Recent Places (Vista) shortcut in the Places Bar. Click it to see a list of recently accessed files and folders. In Windows 2000 and XP, you can filter the types of files in this list via the 'Files of type' drop-down menu at the bottom. In Vista, you can remove the current batch of shortcuts in Recent

Places by right-clicking the icon and choosing Clear Recent Items List.

'File name' drop-down: A shorter list

of recently used files lies in the 'File name' drop-down menu near the bottom of the dialog box. Click the arrow to the right to see the path of recently accessed files. To filter this list by file type, select the type from the 'Files

of type' drop-down list (2000 and XP) or from the pop-up menu located to the right of the 'File name' box (Vista).

To open a recently used folder rather than a file, in Windows 2000 and XP, use the 'File name' drop-down menu to select a file located in the folder you need, press the right arrow key once to deselect the text in the 'File name' box, and press <Backspace> as many times as necessary to delete the file name, leaving only the path. Finally, press (Enter). The file list above switches to the desired folder. In Vista, the drop-down list at the top of Explorer and most file dialog boxes displays the full path to recently used folders and Web addresses. To return to one of those locations, just select the desired path and away you go.

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

### WINDOWS TOOLBOX

# Open Your Favorite Apps and Files Faster With Launchy

VISTA LETS YOU press the (Windows) key, type a few letters until a match to your application of choice appears, and then press (Enter) for a quick launch. If you aren't yet ready to move to Vista (or if you use Vista's Classic Start menu), try Launchy, a free, open-source tool from Josh Karlin. Press <Alt>-<Space> (or another hot-key combination of your choice) to pop open a command-line window; type a few letters, and Launchy anticipates your target file, displaying it (and other alternatives). When the file that you want appears in the window, press (Enter). Launchy enables you to customize the directories it searches and the file types it shows, so you can use it to open picture or music files as well as to run applications. Download Launchy at find.pcworld.com/56804.

# **INTERNET TIPS**

SCOTT SPANBAUER

# Five Ways to Maintain Reign Over Your Domain

WHETHER IT SERVES as your business's indispensable catalog of services or simply announces you to the universe, your Web site is important. Its content and design are likely paramount in your

thoughts, but the single most telling element of any Web site for visitors is its domain name. These tips will help you keep tight control of your domain.

Avoid shady registrars: Once upon a time (back in the twentieth century), the only domain registrar was Network Solutions (www.networksolutions.com).

Registering cost \$35 a year, and it didn't cover

Web site hosting, e-mail, or any other domain-related service. Now more than 500 registrars compete for your business, offering prices as low as \$7 per

year, along with multiyear deals. Many bundle site hosting, e-mail, URL forwarding (which redirects browsers who enter a domain name to a different URL), and other domain-related services.

All registrars are approved by the Internet Corporation for Assigned Names and Numbers (see the list at find.pcworld.com/56808), but that doesn't guarantee that you will enjoy a specified level of service, or even that the registrar is safe to use. As we went to press, the registrar RegisterFly was still offering its services online, even though it permanently lost the domains of thousands of customers and was unable to process the domain transfer requests of other customers due to mismanagement by a former CEO (find.pcworld.com/56809). Other regis-

trars, especially some that offer the lowest prices, may be slow to respond when you need customer service. A way to find a good registrar is to consult one of several sites that offer user reviews of regis-



FIGURE 1: GET THE GOODS ON potential domain registrars from NamePros' ratings, which are based on the services' customers.

trars, including NamePros' index of registrars (find.pcworld.com/56810; see FIGURE 1), DNForum.com's Domain Registrar Reviews (find.pcworld.com/56811), and RegSelect (www.regselect.com).

Own your domain: Make sure your name appears in the official WhoIs database record for your domain (see "Who's Who on the Web," below). An untrustworthy

registrar may sell you a domain but enter its own name in the domain's database record. Or it may offer you a "private" domain registration, with your name, address, and phone number missing from where they would ordinarily appear in the record. Before you register a domain, make sure that the registrar lets you decide who is listed as the owner.

Lock your domain: ICANN's regulations state that a request to transfer your domain to another registrar must go through if the domain owner fails to respond to the request within five days. In other words, while you're soaking up the sun on your vacation, a shifty registrar could come and hijack your domain. Select a registrar that lets you block any

attempted domain transfer until you specifically okay it. (Microsoft came close to losing its namesake domain a few years ago when it failed to pay a \$35 renewal fee on time.)

Block squatters: Most registrars have a tool on their site that lets you enter a domain you're interested in to see whether it's available. An unscru-

pulous registrar could use your search criteria for domain warehouses or domain kiting—schemes in which speculators snap up and sit on domain names that are likely to

generate ad traffic. To avoid losing your hoped-for domain, restrict your searches to reputable sites and tools.

Send your questions and tips to nettips@ spanbauer.com. We pay \$50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. Scott Spanbauer is a contributing editor for PC World.

# WHO'S WHO ON THE WEB: MAKE THE MOST OF WHOIS TOOLS

ICANN'S WHOIS DATABASE (find.pcworld. com/56813) is a vital resource for anyone who owns a domain or is looking to acquire one. The database lists ownership information for all domains registered using .com, .net, .org, or another popular top-level domain. Unix and Linux computers include a whois command; NirSoft's free WhoisCL (find.pcworld. com/56815) adds a similar feature to Windows. Alternatively, Gennady Feldman's free Win32Whois application (find.pcworld.com/56816) delivers the same data in a graphical interface.

# HARDWARE TIPS

KIRK STEERS

# Minimize Your Vista-Related Hardware Hassles

WHEN WINDOWS XP launched, some PCs and peripherals wouldn't work with the new OS because device drivers had not yet been written. The same is true for Vista (browse to find.pcworld.com/56817 for more on life with Vista). Whether you plan to install Vista on your current PC, or to buy a Vista-equipped system to use with your existing peripherals, these tips will help smooth the transition.

Study up beforehand: To run the barebones Vista Home Basic, Microsoft recommends a CPU running at 1 GHz or faster, plus 512MB of RAM and 15GB of hard-drive space. Home Premium, Business, and Ultimate editions with the new Aero environment require at least 1GB of RAM, and for systems without integrated graphics, a DirectX 9-capable graphics processor with 128MB of its own RAM, DirectX 9, and a few other features. Go to find.pcworld.com/56818 to read Microsoft's Vista System Requirements.

Microsoft's Vista Upgrade Advisor (find.pcworld.com/56819) scans your PC to determine which editions of Vista will run on it, and which of its hardware components are incompatible with Vista. When I ran Upgrade Advisor on my yearold machine, the program found no compatibility problems-but it did list ten components for which it had no data,

including the PC's USB port. You can also check Microsoft's Hardware Compatibility List (find.pcworld.com/56821). or the Vista hardware list on IeXwiki



FIGURE 1: CHECK VISTA'S DEVICE Manager for peripherals or devices the OS considers problematic-they'll be flagged as shown.

(find.pcworld.com/56822). Need to identify what components are in your system? The free Belarc Advisor utility (find. pcworld.com/50032) will quickly scan your PC and identify all its hardware.

If Vista doesn't support one of your

PC's components, look for updated Vista drivers on the vendor's Web site. If you can't find them, the drivers may still be in development-so ask the company about it. RadarSync, a device driver update service, has created a list of links to Vista drivers at find.pcworld.com/56823.

After you have identified which drivers lack Vista equivalents, copy the XP versions to a CD or anyplace you can easily access them once you've installed Vista. Make sure you have your network drivers handy so you can go online and download other device drivers and updates.

Be prepared for trouble: Back up your old XP installation to a second hard drive or to a different partition on your main drive so you can revert to XP if something goes wrong with Vista. (What can go wrong? One possibility: A PC World editor found that, after installing Vista on his home PC, he could no longer log in to the office network because no Vista ver-

> sion of the Cisco VPN client existed.) As an alternative to doing a complete

backup on a separate hard drive, use a drive-image program such as the \$40 Acronis True Image 10 (find.pcworld. com/56824) to burn an image of your XP installation onto recordable DVDs.

Browse to find.pcworld.com/56882 for instructions on installing both versions of Windows on a PC set to dual-boot.

Once you've installed Vista, open Device Manager to check for problems: Right-click the Computer icon and choose Manage. Device Manager. Nonfunctioning devices are flagged with an exclamation point in a yellow triangle (see FIGURE 1). If Windows can't find a driver, it may list the device as 'Unknown Device' under 'Other devices'. HunterSoft's free Unknown Device Identifier utility helps you find the name of the mystery hardware (find.pcworld.com/56825).

# HELP YOUR COMPUTER BEAT THE SUMMER'S HEAT

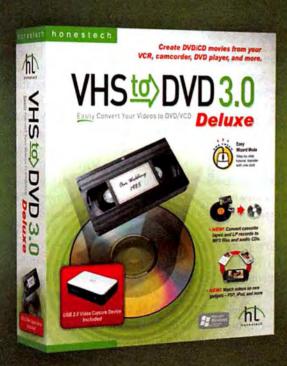
DOES THE SUMMER sun leave your system a little hot under the collar? Antec's \$20 SpotCool (find.pcworld.com/56826) may be just what your machine needs to keep cool and quiet. SpotCool's threespeed fan is less than 3 inches in diameter; it attaches to any motherboard mounting hole and draws power from an open three-pin connector on your board. The fan's flexible arm lets you focus its cooling air current on your CPU, graphics card, or other internal component.

Go to find.pcworld.com/31511 for past Hardware Tips columns. Send your tips and guestions to kirk steers@pcworld.com. We pay \$50 for published items. Kirk Steers is a PC World contributing editor and the author of PC Upgrading and Troubleshooting Quick-Steps from McGraw-Hill/Osborne Press.



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# Block Spying Cookies, But Keep the Helpful Ones

IS THERE A way to tell which of the cookies on my PC are helping, and which ones are spying? Harlan Davis, Warrenville, Illinois

A COOKIE IS merely a small file that a Web site puts on your PC to identify you, or to store information about you or your computer, such as your IP address.

The good ones save you the trouble of logging on to the site on return visits, a big help if you use subscription news services such as that of the New York Times (nytimes.com).

The bad cookies are placed by ad companies that pay for the right to place advertising on the sites' pages (some sites also leave their own ad cookies). These files track your visits to pages that display their clients' ads (or their own), and they may tailor the ads you see to your browsing history.

Over time, cookies can reveal your browsing habits, though standard ad cookies. like those that DoubleClick uses, can't attach a name to a specific surfing trail.

That means, if you wipe out your cookies as soon as you close your browser, the ad networks never get a chance to track your surfing from session to session.

Internet Explorer 6 and 7 and Firefox

1.x and 2 have good cookie-handling procedures. IE lets you keep first-party cookies (left by the site you're visiting) but block those from third parties: Select Tools. Internet Options. Privacy. Advanced. In the Advanced Privacy Settings dialog box, check Override automatic cookie han-

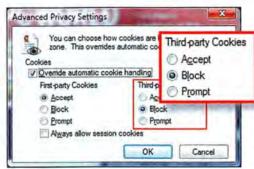


FIGURE 1: SET INTERNET EXPLORER to allow firstparty cookles but block all third-party cookles.

dling (see FIGURE 1). Under 'First-party Cookies', select Accept; under 'Thirdparty Cookies', choose Block. Ignore the session cookies option. Click OK twice.

Firefox 2 can accept, and regularly wipe away, any cookie you haven't explicitly told it to keep: Click Tools. Options. Privacy, check Accept cookies from sites, and in the 'Keep until' drop-down box, select I close Firefox. To keep cookies from a few trusted sites, click Exceptions, and in the dialog box, enter the URLs of the sites whose first-party cookies you wish to keep in the 'Address of web site' field. Click Allow for each, and when you're done, click Close and OK. If you're using Firefox 1.5, click Tools-Options-Privacy-Cookies, check Allow sites to set cookies, and choose for the originating site only.

Many security programs, including Norton Internet Security, PC-Cillin, and Ad-Aware, also identify and destroy known spying cookies.

### DISABLE THE WINDOWS KEY

I'M A COMPUTER gamer. Accidentally hitting the Windows key in the middle of a game is a disaster, Can I disable it?

Joe Barteluce, Kelso, Washington YOU CAN WITH a little Registry tweaking. But back up the Registry first; see the boxed item at lower left for details. Once the Registry is backed up, select Start. Run (just Start in Vista), type regedit, and press (Enter). In the left pane, navigate to and select HKEY\_LOCAL\_MACHINE\SYS-TEM \CurrentControlSet \Control\ Keyboard Layout (this is not to be

Edit New Binary Value, name the new value Scancode Map, and then doubleclick it. Enter the code below, which will wrap automatically as shown here:

confused with the 'Keyboard Lay-

outs' option just beneath it). Click

00 00 00 00 00 00 00 00 03 00 00 00 00 00 5B EO 00 00 5C E0 00 00 00 00

Click OK, close the Registry Editor, and reboot Windows. Your Windows key will be no more. If you want to disable the Windows key only for specific applications, try the free WinKey Killer utility (find.pcworld.com/56880).

Send questions to answer@pcworld.com. We pay \$50 for published items. See find. pcworld.com/31577 for more Answer Line columns. You'll find Contributing Editor Lincoln Spector's humorous and other writings at www.thelinkinspector.com.

# BACK UP THE REGISTRY IN WINDOWS XP AND VISTA

IT'S ALWAYS A good idea to back up the Windows Registry before installing new software or making other system changes. In XP, select Start+All Programs+Accessories•System Tools•System Restore. Click Create a restore point, choose Next, and follow the prompts. In Vista, click Start, type sysdm.cpl, and press (Enter). In the User Account Control box, enter your password if necessary and select Continue. Choose System Protection Create, and then follow the prompts. Another option, and the best for users of Windows 2000 (which lacks System Restore), is the free ERUNT utility (at find.pcworld.com/56836).



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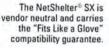
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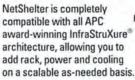
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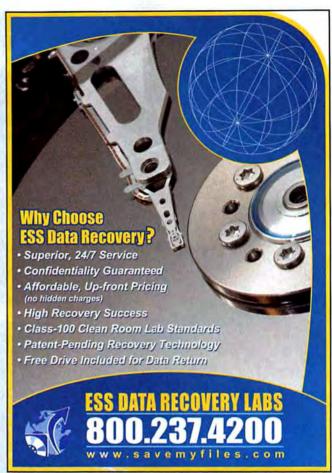


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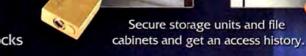
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o!	Where!	When!	Wr	nat!				
Key Name	Lock Name	Date/Time	Status	412				
loe Wilson	East Entrance	03/20/2004 06:14:22 AM	Denied	C 100	- 1			
Abby Chaney	West Entrance	03/20/2004 07:28:03 AM	Key Authorized		30	1000	THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW	- 1
Pete Sussman	Records Room	03/20/2004 07:59:15 AM	Out of Schedule	7411	AUD THE	202170/2	004	A STATE OF
John Michaels	Computer Room	03/20/2004 08:00:03 AM	Pro Audionized		1000	00101003/500	ESTELLE	Sec. 197
velyn Leffer	West Entrance	03/20/2004 08:12:16 AM		-50		1010001	DETESTOR	
luanita Banks	Computer Room	P 20/2004 08:18:52 AM			11/1/2 24/2	14NET 601001		
andy Dunsmore	Computer Room	*2004 08:27:12 AM	IE E WAR		Sent The Sylich	CHEDULE		

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- without wiring in doors, safes, padlocks, and cabinets!

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- Record all openings and attempts
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# ULL DISCLOS

STEPHEN MANES

# The Next Step for Search: Beyond Words

I LOVE SEARCH. It's one of the things computers can do so much better than we mere mortals can. I first witnessed its magic back in 1989 when desktop search utilities gave me a cutting-edge look at the contents of my hard drive. And when search hit the Internet, it made all the differ-

ence between frustration and freedom.

Today's best search engines-which, as "Search Engine Shoot-Out" on page 86 indicates, tend to be various incarnations of Google-have text-based information pretty much nailed. If the material is publicly available on the Net and not buried in some database, you generally find it. There's little left for search to do, except maybe simplify things for people who refuse to learn how to make more-relevant requests.

But lots of innovating remains to be done. Phones are one promising platform. For bringing up phone numbers, Google Mobile already works better than dedicated online directories and the phone companies' pricey directory assistance, but it's not much good if you're trying to keep your eyes on the road.

Next up (and no doubt one reason that Microsoft just bought voice pioneer Tellme Networks): phone-based search you control by speaking, rather than with keypresses. I remain dubious, however. Ad-supported services are likely to waste your time with commercials before delivering help. And even with a screen, how can you scan quickly through the multiple results you'll receive when the system doesn't quite understand you?

Whether you talk or type, text search works with what's there: Nobody has to categorize something before you can find it. The next great search frontier in-



# Search is superb at finding text. How about everything else?

volves things that aren't text, like pictures, audio, and video. When search engines assume that the text near an image describes the picture, they're sometimes right-but by no means always.

Type 'dahlia' into Google Image Search, for instance, and you'll see pretty pictures of flowers and a couple of odd nonfloral illustrations from Japanese Web sites. Try it on Microsoft's Live Search (www.live. com), and 18 of the first 20 images relate to the Black Dahlia murder case.

Hey, if I want 'black dahlia', I'll say so-and when I do, Google comes back with the gruesome images and movie posters I expect. This difference in accuracy is one reason why, in real life, I use Google constantly and Live never. It also helps explain why Microsoft reportedly has offered businesses a bounty if their employees use its third-rate offering.

Even Google often veers wildly off base with images. Again and again when I look for a photo of some nonfamous person, I get images of their book covers or some PowerPoint they presented somewhere. Sorry, but that's not what I had in mind.

For now the fallback for nontext search is usually tagging-as seen on sites such as Flickr-whereby humans assign keywords to photos and the like. It mostly works, but if the categorization is wrong or missing, you won't get good results.

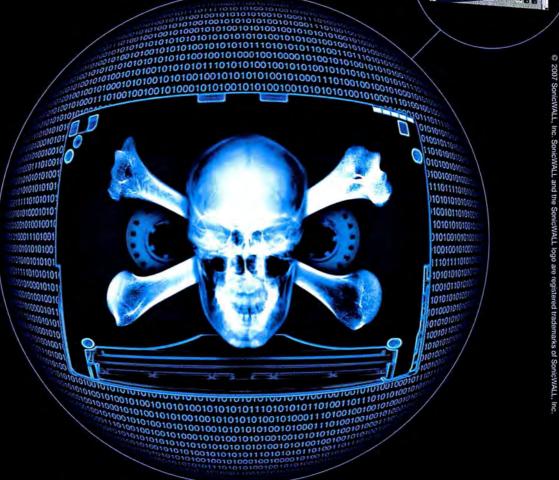
Still, companies are trying out plenty of clever ideas. Podzinger (www.podzinger. com), for instance, converts podcasts into text, then indexes their full content. And some services analyze TV clips by indexing their built-in closed captions. But until someone develops algorithms to spot "Dorky guy dancing around to Strauss's Blue Danube" from the video and audio alone, searching text will likely continue to provide the richest rewards.

Contributing Editor Stephen Manes was cohost of PC World's Digital Duo (www.pcworld.com/ digitalduo) on public TV. Visit find.pcworld. com/31595 for more Full Disclosure columns.

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