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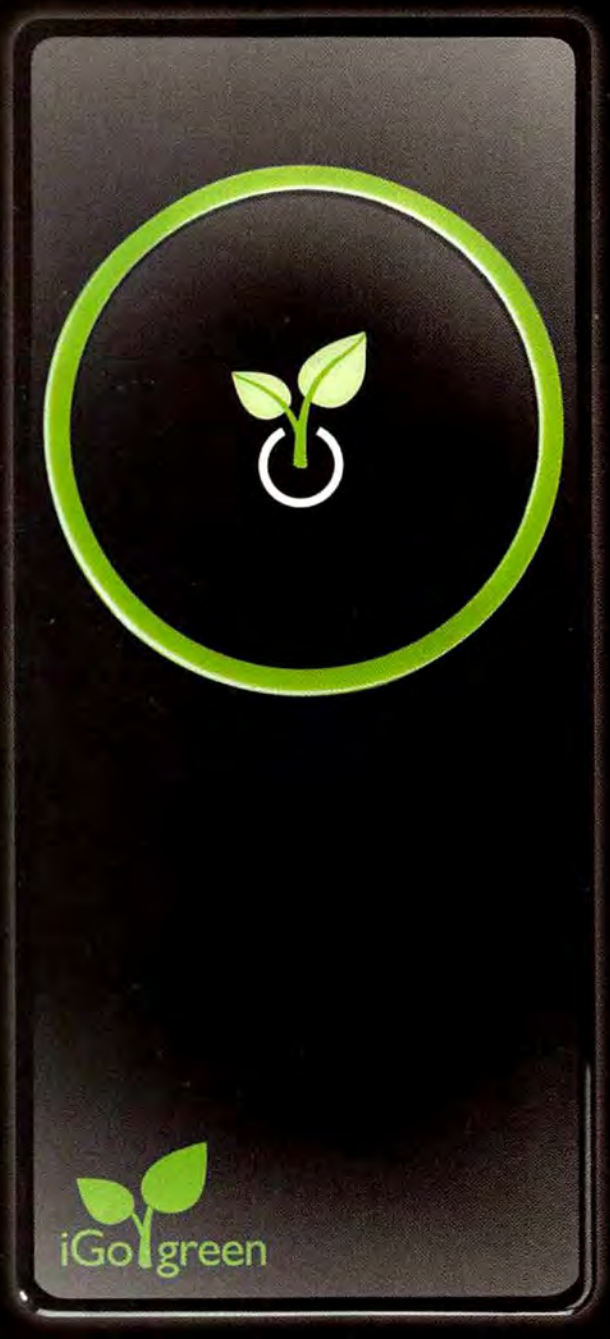

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[1] Based on HP internal testing comparing hardware on HP ProLiant DL380 G4 to HP ProLiant DL385 G7.

[2] Source: IDC white paper sponsored by HP *Gaining Business Value and ROI with HP Insight Control*, May 2009.

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Techlog

STEVE FOX

PC Models That Sound Like Alphabet Soup

The people responsible for naming computers have never seen a string of numbers they didn't like. Maybe some discipline is in order.

DOES IT EVER seem like PC manufacturers are clueless when it comes to actually selling products? Or that they have no interest in making their products seem desirable, interesting, or fun?

Let's say that you're in the market for a laptop. You do your research (consulting PCWorld.com, of course), and you narrow your choices to just a few likely candidates. "Hmmm," you think. "Which one sounds best? Well, I could get a Toshiba Satellite L645D-S4036, an HP Pavilion DV4-2173nr, or a Dell Inspiron iM501R-1459MRB."

Don't those model names just roll off your tongue?

Um, no. They're a garbled grab bag of inharmonious numbers and letters. Can anyone really get excited about a product whose name can't be recalled, much less repeated, without a teleprompter?

The products that I mentioned above aren't exactly obscure items either; all three are best sellers at Amazon. So that means someone is buying them, even if their names have all the sizzle of a Microsoft Security Bulletin code.

Why do PC names have to be so deadly dull? Consider the names of the latest phones: Droid Incredible, iPhone 4, Samsung Vibrant—simple, direct, zippy names all. Maybe this is one reason why throngs of buyers line up to snag the latest phone, whereas you never see a news report about people queuing up for a hot new notebook.

Sure, phone makers have it easier in some ways: fewer products in the line, fewer configuration options. But simplifying a name just requires a little discipline, creativity, and maybe—gasp!—even plain old fun. It works for car manufacturers, why not for PC makers?

Some manufacturers might argue that these unwieldy names are highly descriptive, giving an accurate representation of the internal options a buyer can expect. The problem with that argument: PCs, both desk- and lap-bound, are now so configurable that no label can hope to encapsulate what's really inside. Within any given line of laptops, you can chose from a panoply of processors, storage options, and more. That kind of choice is great; there's just no need to call out every combination of options in the machine's name.

Designed to Confuse

A cynic might say that computer manufacturers design their naming conventions to produce confusion. Obfuscation isn't accidental; it's the point.

If a big-box store advertises a WidgetTech Huzzah 5097B-15iJ laptop, it does not have to worry that a consumer may demand that the store match the price that a retail outlet across town is offering on the WidgetTech Huzzah 5097B-15iK. In reality, there may be virtually no difference between the two units, but the consumer doesn't know that.

Complex names also make online price comparisons impossible. Dozens of models; thousands of configurations; indecipherable, protean prices? Don't sweat it; just click the 'Buy Now' button.

Still, I find it hard to believe that increasing customer confusion is an effective marketing strategy. Most manufacturers these days are selling a computing "experience," not just a bundle of components. So why can't they pick a name that conveys that experience and lose all the follow-on letters and numbers.

Customers would rejoice—and maybe even ask for products by name. ●

Steve Fox is editorial director of PCWorld.

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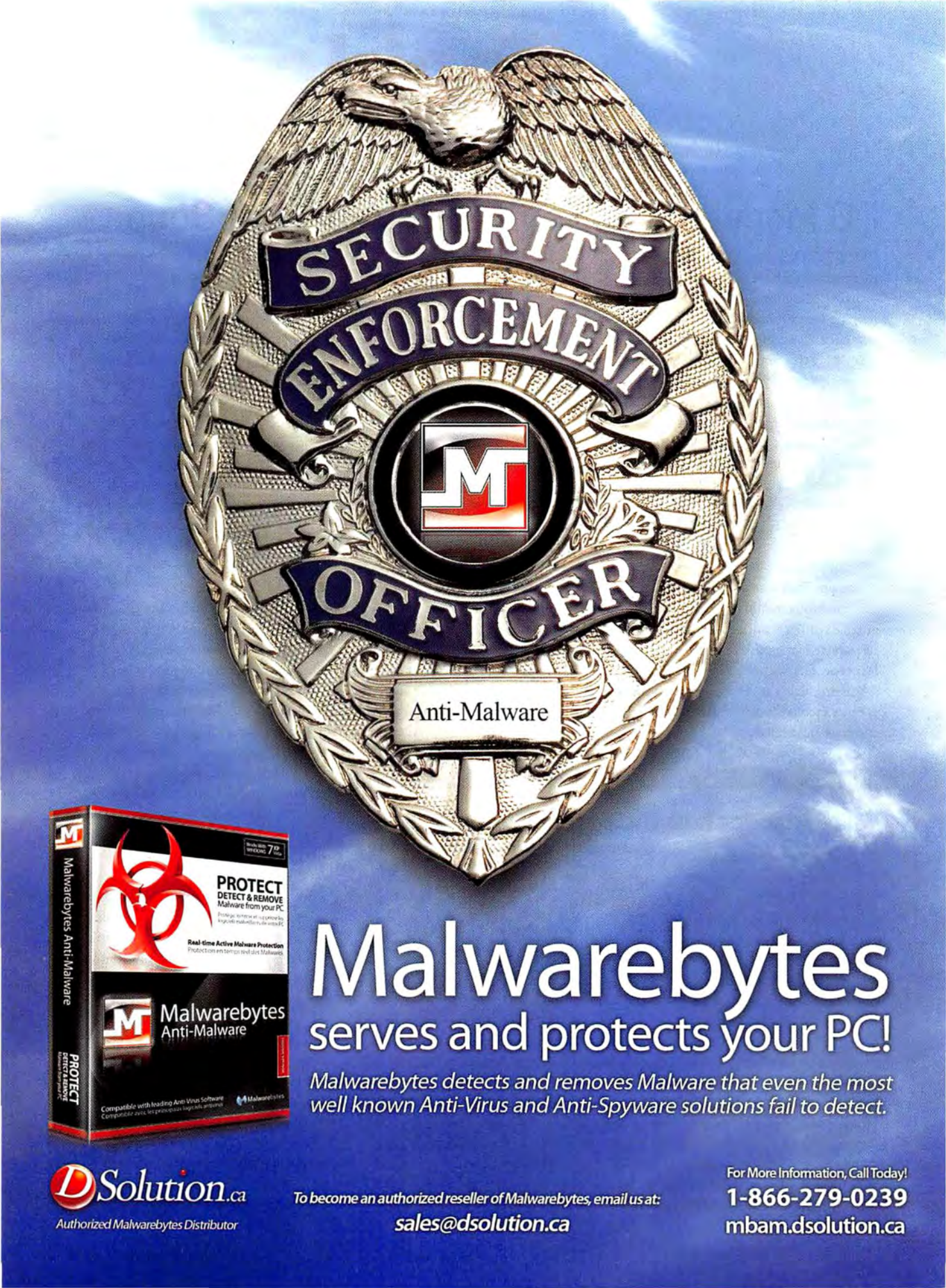
Take Our Tech IQ Quiz on Facebook

IN THIS ISSUE of PCWorld, we challenge you to test your knowledge with our tech quiz ("What's Your PC IQ?" page 70). But if you don't feel like tabulating your score manually, there's an easier way to see how you rate: We've posted all 45 questions on a special Facebook page (find.pcworld.com/70391), with the added inducement of automatic score tallying.

PART SAT, PART trivia contest, our PC IQ test dares you to see how much tech data your brain is storing.

Why Facebook? Well, for one thing, it's where many of you—and a sizable number of PCWorld editors—start the day. Plus, our main page on Facebook is a great place for our staffers and readers to interact in a comfortable, informal environment. We like to think of the PCWorld Facebook page as our digital clubhouse, where we let our hair down, chat with folks, and discuss topics and stories that interest us. You'll find the page at facebook.com/PCWorld. If you haven't visited yet, please stop by and see what's shaking; we'll be waiting for you.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PCW Forum

July's feature about online and brick-and-mortar tech stores, "Where the Deals Are," brought out some readers who had their own favorite stores and others who had points to make about sales taxes, or comments on our test questions. You can vote and critique at find.pcworld.com/70305.

The Best Stores?

July's "Where the Deals Are" left out my favorite place to buy products: Buy.com. I have found many bargains there. A while back I purchased a 60-inch LG HDTV for $1725. I checked many other stores and Websites, including the ones listed in your article, and none came close—some stores wanted twice as much for the same model. Buy.com's price included shipping and handling.

I also noted that RadioShack was graded low. Some ten years ago, I purchased a set of TV earphones from RadioShack. They still work flawlessly, and my wife thanks me every night. Another item I bought from Radio Shack is a reel-to-reel tape recorder in July 1974. I took this recorder to many, many *pachangas* (parties); I have hours and hours of oldies, and it still works.

If quality and price were the criteria for this article, you left out the best.

Ignacio A. Balli, Jr., San Antonio

There are better places to shop online, with much better service and prices. Newegg.com, TigerDirect, ZipZoomfly, even eBay (but you have to do your research). Microcenter is another good store; it competes with Newegg's prices.

bz2010, PCWorld.com forums

Remember the Sales Taxes

"Where the Deals Are" was very informative. However, one item that's mentioned at various points—sales tax charges—needs more discussion.

For example, in the "Desktop PCs" section, you trumpet the fact that Amazon "doesn't charge sales tax in many states." What this really means, however, is that Amazon is not *required* to collect sales tax in those states. It does *not* mean that the consumer is off the hook for paying the sales tax. If Amazon does not charge the sales tax, then the buyer is required to pay a *use tax* directly to their state instead.

Some states allow you to pay the sales tax with your annual tax form, but the ones that do not have this option require the buyer to obtain appropriate forms from their state, fill them out, and mail a check for the amount of the sales tax to the state with the forms.

Edward J. Mackey, Westbury, New York

The Value of LEDs

In "Where the Deals Are," I read the test question "How does an LED backlit screen differ from a regular LCD-type laptop screen?" with the answer "The LED screen saves power and can have better color and contrast, but you don't need one unless you like the way it looks." There's more to it than that.

LEDs not only save power, they are inherently low-voltage devices, whereas fluorescent tubes need a high-voltage power supply, which is the major source of failure in these displays. So the LED is also more reliable than the older LCD screens. That means LED displays can be much thinner because you don't need to have room for the high-voltage power supply board and shielding, as well as the light tubes.

LEDs have far longer life expectancies than a fluorescent tube (lifetimes measured in tens of thousands of hours).

Finally, because you can distribute many more LEDs across the back plane of the display, you can get a more uniform illumination of the entire screen than you could with a few light tubes.

Arnie Berger, Sammamish, Washington

Reading this article ["The Fall of Dell: A Business Model Innovator Loses Its Way," find.pcworld.com/70306] seems to confirm the idea that Dell skips out on how to properly ensure its parts are working as they're supposed to.

Blues22475, PCWorld.com forums

Mobile Donations

Addressing scams in the nonprofit world, Ginny Mies advises *PCWorld* readers: "Stick to the big-name charities, and you should be okay" ["Should You Not Donate by Text Message?" *Skeptical Shopper,* July].

Wow! Why send more money to organizations that already draw the majority of government, corporate, and large-foundation donations? Yes, there are some scoundrels posing as nonprofits, but if people followed Mies's advice, we would have only a handful of large, corporate nonprofits while thousands of well-run, well-meaning humani- »

ILLUSTRATION: HARRY CAMPBELL

tarian organizations starved to death.

Mies should reconsider her advice, or at least stress her point about researching nonprofits beforehand.

Gary Selnow, Director
WiRED International, San Francisco

Public Broadband?

Mark Sullivan's editorial advocating a truly government-run Internet service ["A 'Public Option' for Broadband?" find.pcworld.com/70309] was built on faulty logic, with a false analogue to SEC and EPA regulatory schemes.

Higher prices in the United States are the result of its much larger infrastructure. The cost to redevelop and expand old telco networks is far greater in the U.S. than in a small country like Japan. The demographic and geographic reality of our country is being ignored as the free market is attacked.

No one, however, has stepped up to answer the big question: What makes us think the government could be more efficient? Municipal Wi-Fi has failed in almost every instance or been trumped by private firms like Starbucks, yet we prescribe government intervention as a way to improve service?

WLAN and satellite Internet providers are gaining market share, and the broadband access market is becoming increasingly competitive through innovation. Price controls, regulations, access-speed floors, and the like would undoubtedly set America back years.

Marc Oestreich
The Heartland Institute, Chicago

WordPerfect Lives!

Regarding July's "Inside Office 2010": As an old WordPerfect user, I always felt that it had major advantages over Microsoft Office's Word. Chief among these is that, when you insert a graphic into a document, mousing over it in WordPerfect will reveal the file name and path of the graphic. Word leaves you puzzling over where the graphic came from. Judging from your article about Office 2010, that still hasn't changed; such an annoyance.

Richard H. Gleick, Maitland, Florida

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CLARIFICATION

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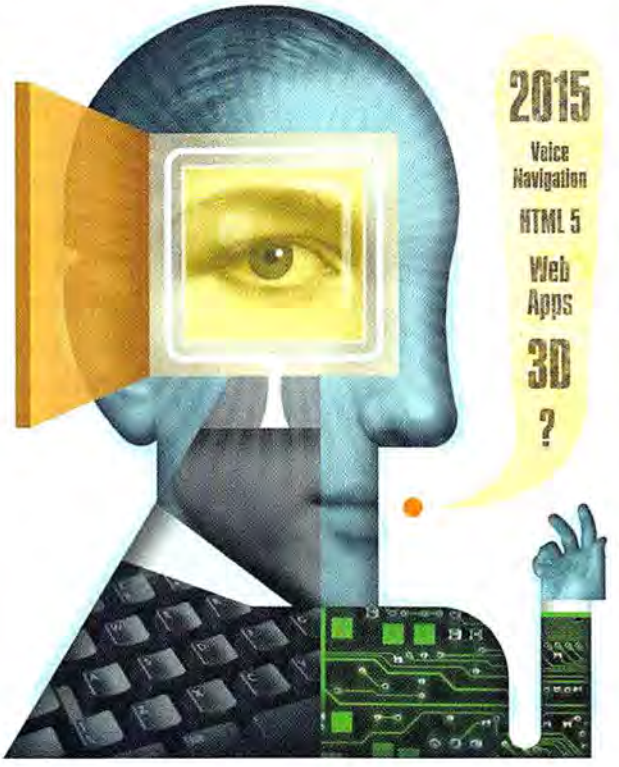
Forward

Your Browser in Five Years

BY JEFF BERTOLUCCI

The next dominant computing platform won't be Android, Mac OS, or Windows. It's already here—and it's the Web. The underpinnings of the 2015 Web are closely tied to your browser.



WHAT WILL YOUR Web browser look like in 2015? Five years doesn't always bring dramatic change to a technology—today's desktop PC, for instance, isn't much different from its 2005 predecessor—but browsers are undergoing major changes that will alter our day-to-day computing lives.

Future browsers will become commonplace in cars, but they'll also add voice recognition, text-to-speech, and touchless gesture controls for apps where keypads, trackpads, and even touchscreens may be either inconvenient (as on smartphones) or downright dangerous (as in driving).

A Rush of Innovation

"You're going to see tremendous innovation in the browser space in the coming years," says Linus Upson, vice president of engineering at Google. "We really want the Web as a platform to get to the point where you can do anything on the Web that you can do on Windows, the Mac, or the iPhone."

Google envisions a future where the browser handles all of your applications—including eye-grabbing 3D games, seamless language translations, and even grammar corrections. Some features exist in rudimentary form today, but they'll be far more capable in five years.

As today's tech lab projects enter the mainstream, the browser will take on a new look and feel. AMD's Fusion Media Explorer, for example, is a 3D browser designed to showcase the multimedia capabilities of the chipmaker's processors; it also features drag-and-drop uploading to Facebook and other social networks.

An Israeli startup called EyeSight Mobile Technologies is developing touchless gesture controls for Android phones: Swipe your hand over a front-facing camera to navigate a photo gallery, say.

Google is building voice recognition and text-to-speech features for browsers. (Opera Software's free Opera browser pioneered voice- and mouse-gesture browsing, however.) No wonder major automakers, including Audi, BMW, Ford, General Motors, and Mercedes, are experimenting with ways to add browsers to cars and trucks.

In short, the next big computing platform is already here—and it's the Web. And the competition to offer the most compelling window to the Web possible, via the browser, is intense.

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Future browsers will use HTML5. Read "How HTML5 Will Change the Web" at find.pcworld.com/70388. And get a look at Google's concepts for a Chrome OS–based tablet at find.pcworld.com/70389.

ILLUSTRATION: GORDON STUDER

Web Everywhere

The browser is spreading beyond PCs and smartphones into areas of gadgetry formerly unknown to it, such as TV set-top boxes and printers. Nascent examples include Google TV, the search giant's platform for bringing Web content to your living room television (see find.pcworld.com/70351); HP's Photosmart Premium TouchSmart Web All-in-One Printer, a color inkjet with a 4.33-inch color LCD that provides access to Web-based apps; and a crop of tablet devices inspired by the Apple iPad.

Meanwhile, the emergence of newer, faster wireless data services—4G technologies like LTE and WiMax, and the increasingly widespread Wi-Fi—will put browsers into yet more business and consumer devices.

For many of these devices, the browser won't deliver Web pages; rather, it will act as an application platform, an entertainment hub, and a gateway to users' files that are securely stored online. One important, soon-to-ship example is Google Chrome OS, a browser-based operating system that is slated to debut on netbooks and tablets later this year.

With Chrome OS, the command center for all user activity, most of which is Web-based, is the browser.

So how might we interact with Web-enabled devices in a few years? Web design firm Adaptive Path, a leader in user interface development, created a conceptual interface for Firefox maker Mozilla in 2008. Called Aurora, the interface anticipates a Web-centric world where all data and apps reside in the framework of the browser. In a demonstration video, a man named Tim uses gestures to interact with Aurora on a large wall screen. The display includes a camera that reads and interprets Tim's hand and arm movements. Personal workspaces, similar to bookmarks, appear as large thumbnails; Tim organizes his desktop by "grabbing" workspace objects (without touching the display) and pushing them to where they belong on the screen.

IN THEIR AURORA browser concept, Mozilla Labs and Adaptive Path envision, in the format shown here, a business-card-size browser that gives you fast access to personal and professional content and communication tools.

Aurora offers an intriguing glimpse of a browser-based future. (You can see Aurora videos for yourself at www.adaptivepath.com/aurora.)

A Browser-App World

Popular, widely used desktop software—particularly business-oriented tools such as Microsoft Office—are unlikely to vanish completely by 2015. But the emergence of Web-based apps, including productivity suites like Google Docs and the new Microsoft Office 2010 Web Apps, could hasten a migration from relatively slow-booting desktop OSs like Windows and the Mac OS to speedy, simpler browser-based systems like Google Chrome OS.

For this "cloud" vision to come true, though, competing vendors must agree on standards to undergird this browser-based world. And reaching such an accord won't be easy. Will Apple, which has achieved great success with its App Store, a proprietary (and highly profitable) online marketplace of programs solely for the iPhone, iPad, and iPod Touch, accept a vision that works against its walled-garden approach to personal computing? And will Microsoft, which is notorious for ignoring browser standards in favor of its own technologies, play nice? (Neither Apple nor Mozilla responded to *PCWorld*'s interview requests for this article. Microsoft declined requests for interviews.)

Recent signs are somewhat encouraging. For its part, Microsoft has said that it is committed to adhering to emerging Web standards such as HTML5, which will let developers build dynamic Web apps that work well across various browsers, including those on mobile phones and tablets that don't support power-hungry browser plug-ins like Adobe Flash, Apple QuickTime, and Microsoft Silverlight.

Early examples of apps that run inside HTML5-compliant browsers may provide a peek into the future. Flickr Explorer, for instance, allows users to zoom in and out of images and to pan through photos much faster than they can in today's browsers.

Complex 3D games will run inside browsers, too. Browsers will become more gamer-friendly as such emerging Web standards as WebGL—which provides a 3D graphics application programming interface in a browser without requiring the use of plug-ins—take hold.

"Click on a link, boom, you're playing a 3D game," says Google's Upson, who contrasts the simplicity of Web-based gaming with the cumbersomeness of a PC desktop installation, or of physical media such as DVDs that today's gaming consoles usually have to use.

One thing is certain: The browser in 2015 will play an even larger role in our daily lives than it does today—and that's saying a lot.

Hulu Plus Subscription Service Streams TV

Reasonably priced service has huge potential, but our hands-on preview also found some limitations.

HULU'S LIBRARY OF TV shows provides loads of content for tablets.

AFTER MONTHS OF speculation, video-streaming site Hulu released a preview of its long-rumored subscription service in late June. But in this preview, the service does not go far enough either in uniting video playback devices or in offering a library of shows. (For another take on the Hulu subscription service, see *Skeptical Shopper*, page 24.)

The new, $10-a-month Hulu Plus can stream TV content to Net-connected TVs, Blu-ray players, and other devices including the iPhone and iPad. The service can handle up to 720p high-definition streaming, and will work across PCs, TVs, mobile phones, and tablets.

How Hulu Has Grown

Hulu's appeal is its wide selection of TV shows from major production studios, broadcasters, and independent content creators. After more than two years on the Web, Hulu has grown its library and its usability dramatically since we first reviewed the site two years ago. Now, Hulu aggregates material from 100 providers, including networks ABC, Fox, and NBC. The service is jointly owned by NBC Universal and The Walt Disney Company, among others.

Not only does Hulu's site provide an easy way to catch up on current TV episodes you missed, but it also provides an impressive archive of back seasons of classics.

At launch, Hulu Plus will work with PCs and Macs; with Apple's iPad, iPhone (3GS and 4), and iPod Touch (third-generation) platforms, via an app; and with 2010-built Samsung connected devices (including Blu-ray players, Blu-ray home theater systems, and TVs) via the Samsung Apps platform. The Hulu Plus app streams over both 3G and Wi-Fi.

Hulu also notes that Sony PlayStation 3 support is "coming soon," and within months after launch, the service should work with connected HDTVs and Blu-ray players from Sony Electronics and Vizio. Microsoft Xbox 360 support is slated for early 2011.

After some hands-on time with Hulu Plus, I can say it's off to a good start but is far short of fulfilling the ideal of a cloud-based library of television shows.

In many ways, Hulu Plus underscores the challenges of making TV series widely available. For starters, not all Hulu-hosted offerings are available in Hulu Plus, and Hulu may instead refer you to another site.

But audiences should not have to think about the complex, Hollywood deal-making realities behind such limitations—issues relating to the ownership rights to a show, and where that show will live online. As audiences, we simply want seamless access to that entertainment.

HULU PLUS STREAMS TV shows to mobile platforms as well as to PCs.

And seamless access is, mostly, what Hulu Plus does deliver for the selection of shows it offers. One thing I like about the service is that, once having subscribed for $10 a month, I can use Hulu Plus on different platforms—including my Apple iPad and iPhone 4. On both devices, playback was of a pleasingly high quality, over both Wi-Fi and AT&T 3G on an iPhone.

Glitches and Gripes

But I repeatedly ran into glitches where the image quality became unwatchable; this happened consistently after commercial breaks.

My other gripe is the lack of cooperation among devices. For example, if I start watching on my iPhone and want to switch to watching on my iPad or on my PC, Hulu can't keep track of my last viewed show and where I was, so as to link the devices accordingly. That's a feature I've gotten used to with multiplatform e-readers such as Amazon's Kindle.

Until Hulu Plus can dramatically grow its content library, improve integration among different viewing devices, and eliminate the boundaries among shows, the service won't live up to its game-changing potential.

—Melissa J. Perenson

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Seagate's Huge New 3TB Drive Raises Storage Ante

SEAGATE Technology recently announced that it is shipping the industry's first 3TB hard drive, the FreeAgent GoFlex Desk, which works around a technical constraint that has kept hard-drive capacity maxed out at 2TB. (Western Digital debuted the first 2TB hard drive a year and a half ago.)

The new drive breaks that limitation at a reasonable cost per gigabyte—$250, or $0.08 per gigabyte (with a USB 2.0 base). Seagate sells its 2TB GoFlex Desk external drive for $190, or a comparable $0.09 per gigabyte.

For better performance, you can swap out the USB 2.0 base for optional FireWire 800 or USB 3.0 modules.

Though the company does not specify the file parameters, it does say that its 3TB drive can store up to 120 high-definition movies, 1500 video games, thousands of photographs, or "countless" hours of digital music.

THE FREEAGENT GoFlex Desk is the first 3TB external drive.

According to Seagate engineers, the capacity issue lay with the master boot record (MBR) partition table, contained in the first sector of a hard disk. The partition table used with Windows XP and earlier Microsoft operating systems was limited to 2.2TB—an unthinkably high number a decade-plus ago.

Vista and Windows 7 introduced a new partition-table scheme, dubbed GPT (for GUID Partition Table). The GPT supports up to 8 zettabytes (a zetta is about 10 to the 21st power).

Seagate's workaround is to make the 3TB drive report a 4K sector size to the operating system, in order to accommodate a larger drive inside the device, which can then work with Windows XP, Vista, and Windows 7, as well as with Mac OS and Linux.

With this SmartAlign Technology, as Seagate calls it, the 3TB drive achieves its capacity boost without increasing areal density. It has five platters, each with 600GB—one platter more than current 2TB drives have.

Look for more to come. Storage analyst Tom Coughlin, of Coughlin Associates, notes: "I expect we will see up to 750GB to 800GB per platter on 3.5-inch drives before the end of this year. That would give us 3TB or more with a four-platter drive, or approaching 4TB with a five-platter drive." Later this year, Coughlin expects to see a two-platter, 1TB drive that will fit in a standard laptop computer.

—Melissa J. Perenson

New Technology Could Replace HDMI Cables

ARE HDMI'S DAYS numbered? They might be if a new audio/video (A/V) cable standard developed by four tech companies catches on.

The recently finalized cable technology, known as HDBaseT, transfers both audio and video signals over ordinary RJ-45 ethernet cables. The standard is the result of an effort—by LG, Samsung, Sony Pictures Entertainment, and Valens Semiconductor—that started more than six months ago.

The venerable HDMI cable was first produced back in 2003; the rise of the Blu-ray Disc format and the growing popularity of HDTV have fueled its adoption.

While HDMI has several advantages over other sorts of A/V cables, it does have its problems. The technology frequently suffers from switching delays and is known for its limitations on cable length—problems that HDBaseT could solve.

In addition, HDBaseT will be able to deliver full-HD video, audio, Web connectivity, and power over one cable simultaneously.

Whereas an HDMI cable can be no more than a few meters in length, HDBaseT supports cables up to 100 meters long. The new technology can also carry 100 watts of power via the cable.

But what do all these promising advantages really mean? The back of any TV is usually an unsightly mess of cables. If this specification proves popular, it'll mean fewer cables. A single cable would not only power your television, but it could also send in all the data signals—sound, visuals, and more—to your set. Replacing multiple cables with just one would be a welcome change.

The HDMI cable isn't dead just yet, but the HDBaseT alliance hopes that devices supporting the new standard will ship later this year, with the new cable becoming increasingly widely adopted during 2011.

Whether that becomes a reality remains to be seen, however—an updated HDMI specification is expected in the not-too-distant future.

Find more information—including a technology comparison table (as a PDF file)—on the HDBaseT Alliance Website at hdbaset.org.

—Chris Brandrick

ILLUSTRATION: GORDON STUDER

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I want to make it great because the only thing worse than cubes are TIES.
I'm Nick and I have a strict dress code: T-shirt and jeans. I work from home as a graphic designer, tattoo artist and musician. I use Conversation View in new Outlook® 2010 to keep email threads together so I don't have to weed through my inbox anymore. I'm actually more on top of things now than I ever was when I wore pleated khakis.
> See how you can make it great with new Office 2010 at office.com/2010 or snap tag below.
Get the free tag reader for your phone at http://gettag.mobi/

Free Products Lead in Security Software Market

THE HIGH BRAND visibility of large security vendors doesn't necessarily mean dominance in the market, according to a new study.

The study was performed by Opswat, a company whose primary product, Oesis, is a development toolkit used to manage third-party security apps.

Opswat's study focused on what kind of security software the participants in their survey used, primarily in English-speaking markets.

Opswat gathered the data from Windows users running both AppRemover, an application designed to completely uninstall security apps, and Am I Oesis OK? which can detect whether security tools are compatible with other third-party applications. Both are free and have "hundreds of thousands" of deployments, according to Opswat.

AVAST FREE ANTIVIRUS led free security programs with a market penetration of 11.45 percent, according to the Opswat report.

The report found that 42 percent of the market is composed of free utilities.

"It would appear that end users have as much faith in the ability of free antivirus applications to keep them secure as they do paid antivirus," the report says.

Free programs ranked as the top four security software deployments, as follows: Avast Free Antivirus at 11.45 percent; Avira AntiVir Personal Free Antivirus at 9.19 percent; AVG Anti-Virus Free at 8.6 percent; and Microsoft's Security Essentials at 7.48 percent.

Ruggero Contu, principal research analyst with Gartner, says the figures are not surprising. Free products are more likely to be popular in a recession, while advanced users looking for more features are willing to pay for that kind of software.

—Jeremy Kirk

BETA WATCH

EDWARD N. ALBRO

How Secure Is My Password? Let's Check

There are two kinds of passwords: those that you don't care about and those that really, really need to be secure. But how can you tell whether the password that protects your life savings is strong enough to repel a serious hacker? HowSecureIsMyPassword.net is one tool that can help you figure it out. Enter something lame, like Fred15, and you'll find that a desktop PC would hack it in 3 minutes. On the other hand, NiTtFaGm2CtTaOtP would take roughly 151 trillion years to crack (of course, it takes about half that long to enter). Test various combinations, and you should soon arrive at a good balance between security and convenience in a password. howsecureismypassword.net

Paper.li: Sedate Twitter

Paper.li is a Twitter-based service that violates everything that's supposed to be great about Twitter—yet it's oddly effective. Paper.li takes a Twitter feed, search, or topic; scours all the related tweets; and creates a newspaper-style digest of all the articles that are linked within those tweets. The service has one big catch, though: Like dead-tree newspapers, the Paper.li digests are updated only once a day. So much for the famous immediacy of Twitter news. But if you're not inclined to follow your Twitter feed obsessively, Paper.li's summaries can be a convenient way to catch up. paper.li

SHORTFORM.TV BRINGS SOME of the best Web videos—such as this one about gangster hamsters—into one site, in continuous streams.

Shortform.tv: PC TV

On the scale of unrelenting toil, finding good Web videos is hardly comparable to, say, working in the plant that makes your iPhone. Still, you do have to watch a lot of junk to find a few video gems. Shortform.tv picks some of the best online efforts, arranges them in channels, and lets you watch them one after another without having to jump from site to site. Never has watching gangster hamsters rap about toaster cars been so easy! shortform.tv

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New Spec to Boost Bluetooth

A NEW LOW-ENERGY specification for Bluetooth that should greatly expand the wireless technology's presence has been finalized, a standards group announced.

"Some of these new low energy devices [that the spec will make possible] will be able to operate for years on just a tiny, button-sized battery," Bluetooth Special Interest Group executive director Mike Foley wrote in his blog. "The ability to run on such a miniscule amount of power—as little as 10 percent of the energy used by Classic Bluetooth devices—will enable a host of new uses for wireless products in everything from sports and fitness to healthcare and home entertainment."

The new spec, called Bluetooth Core Specification Version 4.0, is likely to be adopted swiftly. In fact, some observers predict that it will grab half the market within five years.

How soon are gizmos that incorporate Bluetooth 4.0 going to arrive on retailers' shelves? According to Foley, the first devices should start arriving this fall, "with a flood expected in 2011."

—John P. Mello Jr.

GEEKTECH

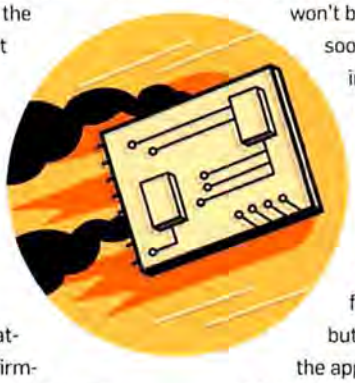
Does Jailbreaking Still Make Sense with iOS 4.0?

THE NEW iOS 4—formerly iPhone OS—brings a slew of great features to the iPhone and the iPod Touch. Multitasking, home-screen wallpapers, and app folders are all features that jailbreak users have been enjoying for a long time. Now that they're officially part of the OS, are there any reasons to continue hacking your iPhone? We think there are—as outlined below.

> The new features in Apple's mobile operating system may not end iPhone jailbreaking.

'Obsolete' Hardware

If you have an iPhone 3G, you may have been saddened to hear that iOS 4 would not be bringing any of the new multitasking goodness to your device. Apple claims that the 3G's old ARM6 processor is not capable of running multitasking. But as jailbreakers have known for a while, the iPhone 3G has always been perfectly capable of running multiple apps simultaneously, albeit with a hack.



Now that iOS 4 is out and the Dev Team has already created jailbreak tools for the new firmware, iPhone 3G users willing to tinker are comfortably running the 3GS version of iOS, bringing Apple's own slick multitasking interface to their "obsolete" hardware. I'm fairly certain it won't run as well as on the 3GS or iPhone 4 (and I wonder about the effect on battery life). Such considerations could partly explain why Apple wants users to experience multitasking on faster devices. All the same, Apple's stance sure smells as if it has more to do with an interest in selling new hardware.

The AT&T Problem

Have an iPhone but think that AT&T is just the pits? Join the club. Even Steve Jobs took a couple of well-deserved jabs at the carrier giant during his iPhone 4 announcement. It's a little disappointing that the Apple/AT&T exclusivity agreement has seemingly been extended, but fear not! If you are willing to hack your phone (thereby voiding your warranty), unlocking your iPhone can bring you to potentially greener pastures—in the form of a carrier such as T-Mobile. Unlocking works on all existing iPhone hardware, including the 3GS; we have yet to see whether Apple has adopted further measures to thwart unlocking on the iPhone 4.

More Apps, Please!

Don't think the App Store has quite enough apps? Cydia, the unofficial app store available only to jailbreakers, might be just the thing for you. Cydia contains thousands of apps that won't be approved by Apple anytime soon. Sometimes this translates into unstable apps with weird user interfaces; but in many cases, Cydia apps deliver functionality that Apple chooses to block. With iOS 4 (especially if you have a 3GS), there are definitely fewer apps to jailbreak for, but as long as Apple hand-picks the apps to be sold in its store, a niche for alternatives will exist. Dying for Flash (and don't care about stability or battery life)? Jailbreaking is still your only recourse.

—Mike Keller

iPad and Velcro—a Great Team

Speaking of iGadgets, iPad owner Jesse Rosten devised some clever uses for the iPad, with the help of a little Velcro. Just slap one side of some industrial-strength Velcro to the back of your iPad and slap the other side onto anything that you please (for easy transportation from one place to another); on your wall to display photos; on the dashboard of your car or motorcycle to display GPS navigation; or on the top of your oven for play-along cooking videos.

Jesse's video—which got posted on Apple's site—shows these and some other really creative uses for putting the two together. Check out the video at find.pcworld.com/70338.

—James Mulroy

Visit the GeekTech blog at go.pcworld.com/geektech for more hacks, tips, and hardware news.

ILLUSTRATIONS: GORDON STUDER (LEFT); HARRY CAMPBELL (RIGHT)

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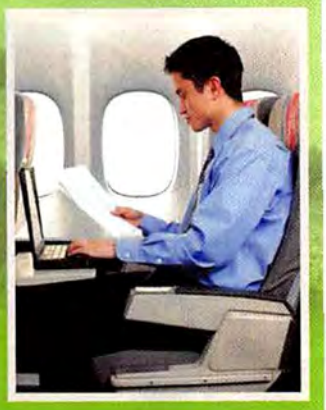

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Google Is Ginormous: Why You Should Care

BY TOM SPRING

IF YOU HAVE a Google e-mail account, use Google search, and see online ads served by Google's DoubleClick, the company probably knows more about you than you might like.

We trust Google with a vast quantity of data—from search history (Web History) to e-mail (Gmail) to physical location (Latitude) to, perhaps, health records (Google Health). And therein lies a privacy paradox. Yet many of us give Google a pass when it comes to the massive amounts of data it collects on us and stores on its servers.

For one thing, it's a likeable brand with dozens of free consumer services such as Google Earth, Picasa photo editing software and image hosting, and Google Docs. In return for using them, we agree to give Google bits of our personal information, which it uses to follow us around the Web and send us targeted ads.

Over the past months we've glimpsed the ugly side of our bargain with Google: privacy-related lawsuits, formal complaints to the Federal Trade Commission by various advocacy groups, and rumors of ongoing or impending Department of Justice antitrust scrutiny.

The search giant's burgeoning portfolio now encompasses health care, wireless, Web-based business apps, and social networks.

ILLUSTRATION ANDREW DEGRAFF

Google's Latest Intrusive Oversight

In May, Google admitted that its Street View cars were collecting sensitive personal information from unencrypted wireless networks as well as harvesting photos of the world's roadways. A privacy uproar erupted in Germany, where the inadvertent snooping was discovered (and where Google faces a criminal investigation over the matter), and carried over to this country. Two U.S. citizens have filed a class-action lawsuit against Google, accusing it of violating federal privacy and data-acquisition laws by collecting parts of documents, e-mail messages, video, audio, and VoIP information being sent over networks scanned by Google's Street View cars. The plaintiffs seek up to $10,000 for each time that Google collected data from unprotected hotspots, according to court documents.

Google acknowledged the snafu, said it hadn't known it was collecting the extra data until recently, and promised to delete the information. Meanwhile, privacy groups such as EPIC (the Electronic Privacy Information Center) have asked the FTC to investigate the way Google collects data.

Privacy Flubs on Parade

Last February, when Google launched its Google Buzz social network, privacy advocates blasted the company for exposing Gmail contacts when users opted in to the service.

Referring to the Google Buzz controversy, Google cofounder Sergey Brin told the company's developers conference in May, "We screwed up, and I'm not making excuses about it."

Earlier, Google had apologized when researchers found that the company could see and record what users typed in the Chrome browser's Omnibox address/search bar—along with their IP address—before they pressed ‹Enter›. Even before 2004, a privacy uproar arose over Google's Desktop Search.

Last April, privacy commissioners from Canada, Germany, the United Kingdom, and seven other countries sent a let- »

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For a mind map of Google's many-tentacled empire, see "Google Is Ginormous—But Is That Bad?" (find.pcworld.com/70358). For details about the earlier Chrome controversy, see find.pcworld.com/70359.

ter to Google expressing concern over the company's privacy practices. The letter blamed Google for "willfully" disregarding privacy laws in many countries when rolling out Google Buzz.

Dedicated Googlers equipped with a Google Buzz account, a Nexus One phone, and a netbook have given Google enough data to pinpoint their identities, lunches, and weekend plans.

In Google's case, problems often arise over unintentional privacy breaches. And sometimes Google has no control over what it shares about you. For instance, Google says that it received 10,000 requests for user data from government agencies in the six months ending on December 31, 2009.

Can You Ditch Google?

Today Google has 178 million Gmail users, according to ComScore, and millions more use everyday services such as Google Maps and Google Search. Google is also an advertising powerhouse, thanks to owning DoubleClick, one of the biggest online advertisers.

I believe that Google is protecting my identity when the information it uses to send me targeted ads is not personally identifiable and when it tries to refrain from ever identifying me by name. I commend Google for offering an easy-to-understand Privacy Dashboard that allows users to view all their Google-related privacy settings easily. It's also somewhat reassuring to know that Google "anonymizes" its server logs, deleting cookies and users' IP addresses every 18 months. But in the end, if Google has amassed a digital library of all the Google-related things I do online, it might as well have my name.

Google is on its way to transforming the Web into a computing platform that rivals Microsoft Windows. But if it wants to avoid the backlash Microsoft endured when it was perceived as being too big, Google should avoid missteps that invite the "Big Brother" label.

PCWorld contributor Daniel Ionescu helped with this report.

SKEPTICAL SHOPPER GINNY MIES

Hulu and Pandora: Worth the Upgrade?

Pandora and Hulu now offer premium subscription services that promise superior quality and more content.

I'VE BEEN A fan of Pandora Radio since it launched in 2000, but the growing number of ads interrupting my stations is annoying. One such ad told me that I could avoid the ads if I upgraded to Pandora One—by buying a year's subscription. Does spending the money make more sense than ignoring or muting the ads?

Similarly, video streamer Hulu touts better audio/video quality and more content with its subscription service. I took both offerings for a spin to see if they're worth the cost. (For a Hulu Plus hands-on by my colleague Melissa Perenson, see page 14.)

Pandora One

Features: Pandora One ($36/year) delivers ad-free playback, higher-quality audio (192 kbps), and unlimited listening (you can use the free service for no more than 40 hours a month). You also get the Pandora Desktop Application, which you can customize with skins and launch outside your browser.

There's also no daily skip limit with Pandora One. With the free service, users can skip songs (by giving them a 'Thumbs Down', by skipping, or by clicking 'I'm tired of this song') only 12 times per day across all stations. The hourly six-skips-per-station limit remains because of Pandora One's licenses with music studios.

Assessment: The difference in audio quality from Pandora to Pandora One is noticeable, and I enjoyed having hours and hours of playback without a single advertisement. Using the browser-based version is already very convenient, so I didn't use the Pandora Desktop app often. The limit on skips per station each hour is unfortunate (ten per hour would be better), as Pandora's Music Genome Project can be a bit random in what it decides to play. For me, Pandora One's value doesn't justify the expense. If you're curious about upgrading, you can subscribe to a 24-hour free trial—no strings attached.

Hulu Plus

Features: Hulu Plus ($10/month) offers HD-quality video and lets you watch every episode in the current season of top shows from ABC, NBC, and Fox. The free version limits you to the five most recent episodes. The premium service also gives access to a bigger library of past seasons of current and discontinued shows; you can watch on your iPhone, iPad, iPod Touch, Samsung TV or Blu-ray player, or Sony PlayStation 3. Support for the Microsoft Xbox 360, Sony and Vizio TVs and Blu-ray players, and other devices is coming.

Unlike Pandora One, Hulu Plus is still riddled with annoying ads, which are up to a minute long and sometimes repeat two or three times in the course of a single episode. It's a drag.

Assessment: For TV addicts with multiple media devices, Hulu Plus is a dream come true. And at $10 a month, it's pretty affordable. If you don't own a supported product, however, you should hold off until Hulu adds more devices to its roster. Also, if you're a Netflix member, you probably won't get a lot out of Hulu Plus. A lot of the older material on it (such as *Buffy the Vampire Slayer* and *Law & Order: SVU*) is already on Netflix Watch Instantly. And finally, if your favorite shows are on Comedy Central, CBS, or the CW, forget Hulu Plus: It doesn't support them. Hulu offers free one-week trials of Plus, but you have to request an invitation.

ILLUSTRATION: HARRY CAMPBELL

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ON YOUR SIDE MARLA MIYASHIRO

I PURCHASED THE RegWork Windows Registry cleaner online but lost my Internet connection before I could download it. The only way to get the download was to pay another $30. I registered a complaint with PayPal and was told that I would get a refund, but the PayPal withdrawal from my checking account showed up on my bank statement, and the refund never did. When I e-mailed RegWork, the company said that it had issued a refund more than two months prior. Can you help?

Ron Morgan, North Olmsted, Ohio

OYS responds: A RegWork representative told us that the company had reversed Morgan's charge. To follow up, the rep then asked ClickBank, RegWork's payment processor, to investigate. The ClickBank investigator subsequently confirmed that the refund had been issued.

When we asked Morgan for copies of any correspondence he'd had with PayPal, he couldn't find any, so he checked his PayPal account—and discovered a $30 credit there. PayPal hadn't sent the money to Morgan's checking account. According to the PayPal site, refunds are credited to a customer's credit card if the person used a credit card for the original payment. However, if the customer used another funding source, as Morgan did, the credit goes to the person's PayPal balance—not to the funding source.

If you're waiting for a refund and the vendor says that you should already have received it, try to think of other places where the funds might have landed—and check there. Also, if you're considering using PayPal to purchase a product online, make sure that you review its dispute and refund policies in advance.

Discouraging Delays

Brian Klapchar of Garner, North Carolina, contacted us when he couldn't get a definitive answer regarding a graphics problem with his fairly new HP Pavilion Elite HPE-110t desktop PC. Over a three-month period, various HP tech support reps told him that his case had been escalated. Each time, the rep would assure Klapchar that he would be hearing from someone soon. He didn't.

After we talked to Hewlett-Packard, a case manager contacted Klapchar and started working to resolve the problem. The case manager directed him to a couple of Websites to run virus scans. One of the new scans discovered an infection, which Klapchar removed, and the graphics problem hasn't reappeared.

If you believe that a company is giving you the runaround, call customer service and ask to speak to a supervisor. Because tech support reps are expected to complete calls quickly (without hanging up on customers), your tenacity will push them to find the answer to your question.

Comarco Power Adapter Recall Notification

Comarco, acting in cooperation with the U.S. Consumer Product Safety Commission, recalled about 507,000 Targus Universal Wall Power Adapters for Laptops (only certain models of the adapters are affected; for details, see www.regcen.com/comarcorecall). Faulty wiring can cause the connector tips to heat, posing a burn hazard. Consumers should immediately stop using these adapters and contact Comarco to receive a free refurbished replacement. For more information, call Comarco toll-free at 877/781-5186.

Sony Issues Major Recall of VAIO Laptops

SONY HAS ANNOUNCED a recall of 535,000 of its VAIO laptop computers following reports of problems with overheating that have caused system damage, and might cause injury. If you own a VAIO laptop, you should verify whether your machine is part of the recall, and then take the steps necessary to get the problem resolved.

The heat management system in the BIOS of affected VAIO laptops is not functioning properly, which can cause the system to run hot. The BIOS for the VAIO laptops was developed by a company other than Sony, and customized for Sony by yet another company; however, Sony tested it on the VAIO platform prior to making it available.

Sony has received nearly 40 reported cases of VAIO laptops overheating to the point where the casing became deformed. Though there have been no reports of fires or burns resulting from the overheating issue, Sony warns that such dangerous outcomes are possible.

To deal with the problem, Sony has developed a firmware update for the BIOS. Sony is directing customers who own affected VAIO laptops to apply the update in order to eliminate the threat of overheating. In its recall statement, Sony also recommends that "If you have any questions or need additional assistance with the firmware update installation, call Sony technical support at 866/496-7669 for assistance."

—Tony Bradley

ILLUSTRATIONS: HARRY CAMPBELL (LEFT); ANDREW DEGRAFF (RIGHT)

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IPv6 Is Coming—What You Need to Know

Failing to plan for the new Internet protocol could cause your business to miss its benefits and to suffer higher costs and painful outages.

BY CURTIS FRANKLIN

THE INTERNET PROMISES unlimited connectivity, but the current addressing plan, in place since the late 1970s, is running out of open addresses, and a new scheme called IPv6 is being put in place to power the Net's next stage of growth.

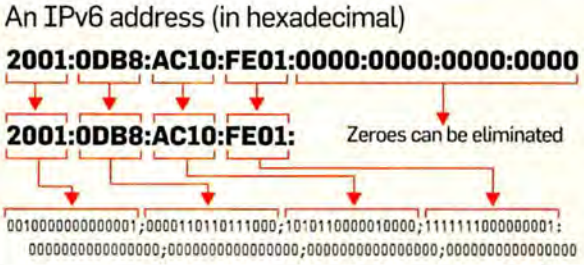
For small businesses that plan ahead, the shift can enhance computing security, reliability, and performance. But waiting now may mean costly equipment updates to avoid outages.

Internet Protocol version 4 (IPv4), created almost 30 years ago, formats Internet addresses in a quartet of numbers, such as 70.42.185.10. (This 32-bit address space allows around 4 billion possible addresses—a number we're rapidly approaching.) URLs, such as www.pcworld.com, are converted into these numeric IP addresses by a Domain Name System (DNS) server.

In 1998, the Internet Corporation for Assigned Names and Numbers (ICANN) ratified a new Internet protocol, IPv6. It shifts to a 128-bit IP address space (each broken into hexadecimal groups), providing some 340 undecillion (340 times 10 to the 36th power) possible addresses.

IPv6 Benefits

A certain level of security will be baked into the protocol. IPv6 carries capabilities for verifying addresses and known identities, and establishing trust between routers. This means, for example, that it should become harder for criminals to mount "address spoofing" e-mail attacks.



IPV6 ADDRESSES WILL use a 128-bit, hexadecimal format that will allow billions of additional addresses on the ever-expanding Internet.

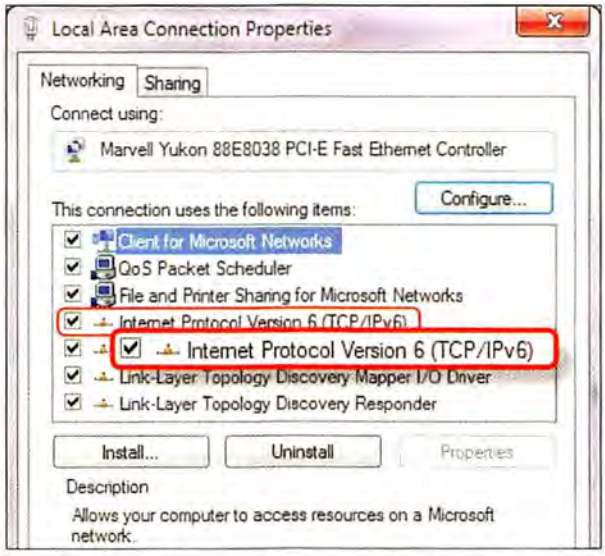
IPv6-era routers and firewalls will provide more-secure connections for business computers, and IPv6 will allow greater security and performance for business-critical apps.

First Steps

Small businesses will have to ensure that all network equipment and software is ready for IPv6 at the switchover time. Planning ahead will help prevent interruptions. It will also allow you to buy equipment and services at negotiated prices rather than on an emergency basis.

Building a checklist of every piece of network equipment and researching its IPv6 capability is a solid first step. Distinguish between systems with IPv6 "transition" capabilities and those with full, built-in IPv6 compliance that you'll want for the long run.

If your small business uses the Internet mostly for e-mail and instant messaging, making sure equipment is IPv6-compatible should suffice. But if you've begun building cloud apps or if you have »



SUPPORT FOR IPv6 (Internet Protocol version 6) is part of the network services package for versions of Windows from XP onward.

PCWORLD.COM

The Internet is expected to run out of IPv4 addresses as early as next year (see find.pcworld.com/70339). Will ISPs migrate directly to IPv6—or use workarounds instead? See find.pcworld.com/70340.

complex online workings, planning now may prevent Internet outages later.

The major points of concern are your ISP; your network infrastructure; and servers, workstations, and devices. ISP issues are largely out of your hands. When the ISP and network infrastructure are IPv6-capable, workstations and servers should hop on board. At the device level, current Windows, Linux, and Mac operating systems can work with IPv6 addresses and networking. The network infrastructure is where most businesses will have major issues.

Internal Infrastructure

If your company purchased equipment for its network in the past two years—anything from routers to fax machines—it's likely to be IPv6-capable. Equipment between two and five years old may have some IPv6 capabilities. If the gear is more than five years old, however, its readiness will be in question.

Check a product's administration program and look for IPv6 features, or ask each of your vendors about existing or upgraded IPv6 capabilities, and begin to plan software or firmware updates.

Even if your infrastructure or ISP is not IPv6-capable, it may begin working with IPv6 addresses from workstations or servers using one of the available IPv4-to-IPv6 transition protocols—but that's not a long-term solution because of security and stability concerns.

You must check firewalls, intrusion prevention systems, DNS servers, and other security and service appliances for IPv6 compliance. A firewall can easily block IPv6 protocols, and DHCP servers will have to be IPv6-capable in order to serve IPv6 addresses.

Once your company begins to look at IPv6, you can use certain Websites and services to see whether IPv6 connectivity exists. Google and YouTube, for example, have IPv6 pages (at ipv6.google.com and ipv6.youtube.com, respectively) for new protocol searching and surfing; if your network lacks IPv6 capability, your browser won't be able to access them.

In short, start taking inventory now.

NET WORK TONY BRADLEY

Collaborate in Real Time With Google Docs

This Web-based productivity platform can be a real boon to small businesses.

GOOGLE DOCS provides small and medium-size businesses with a cost-effective, Web-based office productivity platform. Teams, peers, and partners can collaborate online in real time.

With the recent launch of Microsoft Office 2010 and the accompanying Office Web Apps, Microsoft, too, now lets you work with documents in the cloud. But Google is virtually synonymous with the Web and thus has the advantage when it comes to such online collaboration.

Here is a brief overview of the four different Google Docs applications and their real-time collaboration features.

Documents: Once a document is created, other users who have access to the file can view and edit it. In the most current version of Google Docs, a document can be shared with up to 200 individuals, and as many as 50 users can work on it simultaneously. If two users are editing the same document at the same time, a box at the top of the screen will list the current collaborators.

Users viewing or working with the document will be able to see all edits and additions in real time as they are typed. Obviously, the potential exists for two collaborators to edit the exact same text at the same time. Google, however, closely monitors the time stamp of each edit to apply them in the appropriate order.

Sensibly, Google also provides a chat capability so users can communicate with one another as they collaborate. (You click the arrow to the right of the names at the top of the screen to open a pane where you can chat with other users currently editing the document.) Besides providing instant feedback on changes made, the chat mode lets collaborators coordinate effort and prevent conflicts.

Spreadsheets: Collaboration works much as it does in Docs: Up to 200 users can share a spreadsheet file, and as many as 50 can work together simultaneously. Also as in Docs, the names of currently active collaborators appear at the top of the screen, and clicking the arrow unveils a pane for real-time chat.

A small colored square next to each name gives each user's designated color. Whatever cell a user is editing will have a box surrounding it with that user's assigned color, so that people can easily identify which user is editing which cell.

Presentations: Up to 200 different users can share Presentations files as well, but only 10 editors, rather than 50, can work on them simultaneously.

Capabilities such as seeing changes in real time and opening a chat mode are the same as in the other applications.

Drawings: Google Drawings is the newcomer to the Docs lineup; it provides features and capabilities similar to those of Microsoft Visio. Up to 50 simultaneous collaborators can work on the same file. Drawings also has chat capability.

However, when using Drawings, online collaborators see changes only when those changes are completed, not as they happen. If a user cancels a drawing action before completing it, none of the other editors will see the cancellation.

Google Docs is nowhere near as robust and feature-rich as Microsoft Office—but many people consider Office to be bloated with unnecessary features. For simple documents, spreadsheets, presentations, and drawings, Google Docs is more than sufficient; and for real-time online collaboration, Google sets the bar.

ILLUSTRATION: HARRY CAMPBELL

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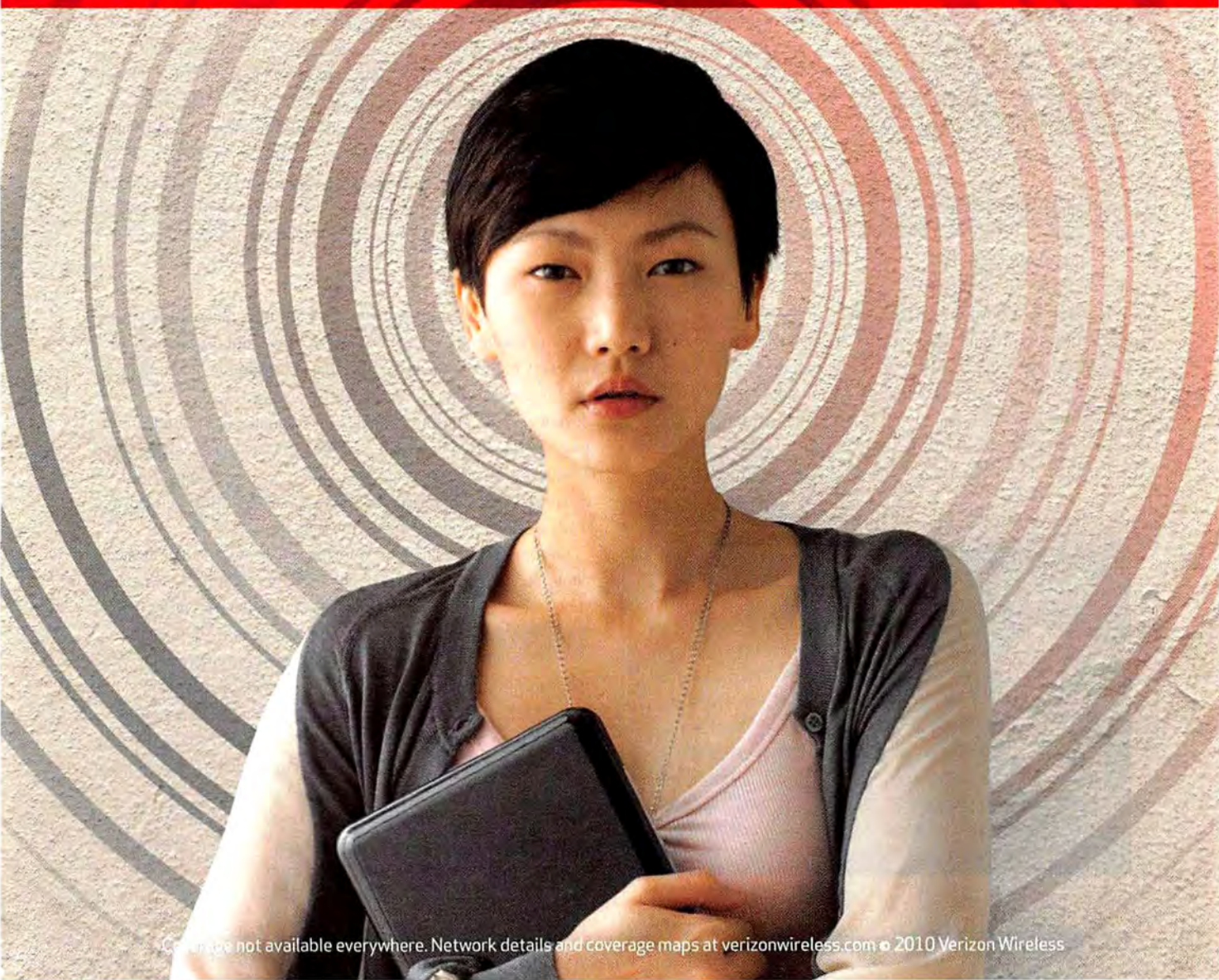

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TECH AUDIT

Manufacturer Boosts Productivity and Morale With IT Overhaul

How a maker of industrial equipment improved productivity and reduced costs via IT upgrades.

ARGUS MACHINE COMPANY has made custom parts and pipeline threading in Edmonton, Alberta, Canada, for oil and gas fields since 1958. But in three buildings totaling 100,000 square feet, unreliable, piecemeal technology was frustrating some 100 employees.

Workers in Argus's plants rely on software that instructs manufacturing and assembly machines, but frequent network outages forced employees to upload commands manually, causing delays. Staff in sales, marketing, accounting, and administration could not easily access the corporate intranet, electronic documents, or the printing, e-mail, and accounting systems.

The existing technology mixed Hewlett-Packard tower servers, an IBM e-series blade chassis, and an old VMware ESX 3.0 server with only 2GB of RAM and four memory-starved virtual machines. A broken Microsoft Exchange server with 2GB of RAM constantly swapped out to the hard drive for extra memory. The main server room overheated, sapping equipment's power and life expectancy.

Also in the mix: unmanaged 100-mbps ethernet network switches, a no-name firewall, and one overloaded uninterruptible power supply. Employees had no idea whether data was backed up, and they wrote over unlabeled tapes that were already full. An old PBX phone system couldn't even transfer calls to other locations.

The Solution

Argus had some nice pieces, such as the IBM blade chassis and blade servers, but we wanted to upgrade the rest of their IT infrastructure. To limit interruptions and expenses, we staged some five miniupgrades and test periods over six months.

We had Argus buy both Thecus N8800 and Qnap TS-809U-RP iSCSI network-attached storage (NAS) units, consolidating storage while increasing and distributing space among servers. In addition, Argus eventually bought a Dell EqualLogic PS5000E iSCSI SAN (storage area network) server—a must-have component for any VMware environment of the type that Argus uses—and migrated the Thecus and Qnap NAS devices to backup duty.

A STORAGE-AREA NETWORK (SAN) server such as this Dell EqualLogic PS5000E iSCSI unit is a must for VMware environments.

We expanded the three blades to 16GB of RAM and turned them into VMware ESX v4 servers using the iSCSI NAS systems. Next, we converted the physical servers to the virtual environment.

With the purchase of a VMware vSphere v4 Essentials Bundle and the existing IBM blades, Argus had a high-performing, scalable server infrastructure backed up with Vizioncore vRanger software. The vSphere package features three ESX servers with dual processors in each. VMware Virtual Center software manages the virtualized server environment. We upgraded the entire network using Dell PowerConnect 5448 Managed Gigabit Ethernet switches.

The Payoff

Once the overhaul was done, the company instantly received positive staff feedback. Argus moved from a constant fire-fighting mentality to growth in an expanding IT department, and management regained trust in its IT infrastructure.

Plant workers enjoyed reliability on computer-controlled jobs in their shops, with almost no downtime. Office workers could access files and e-mail, printing, and other tools, no longer bumping into delays and taking forced coffee breaks. Data security increased, and Argus saved time and money in the long run.

The company has since made further upgrades and enhancements, such as a Voice-over-IP phone system that the new network easily supports. Argus has also established a private extranet site that business clients can use to access secure, up-to-date information online. Clients can find current information on inventory and the status of work orders at any time, instead of asking someone at Argus to dig up the data. Rather than being regarded as a big expense, technology is helping to drive new sales.

—David Papp, Microtek Corporation

If you are an IT consultant serving the small- to midsize-business market and would like to learn how you can contribute to PCWorld Tech Audit, *send mail to techaudit@pcworld.com.*

MEET THE PROS

Microtek Corporation

DAVID PAPP IS president of Microtek Corporation, an Edmonton-based full-service technology solutions firm certified for CISA, Cisco, CISSP, Microsoft, and VCP, among others. Microtek consults on all aspects of technology, ranging from IT strategies, networking, Internet, and Web hosting to custom Web application design and graphic-design marketing. Contact the company at 780/409-2525.

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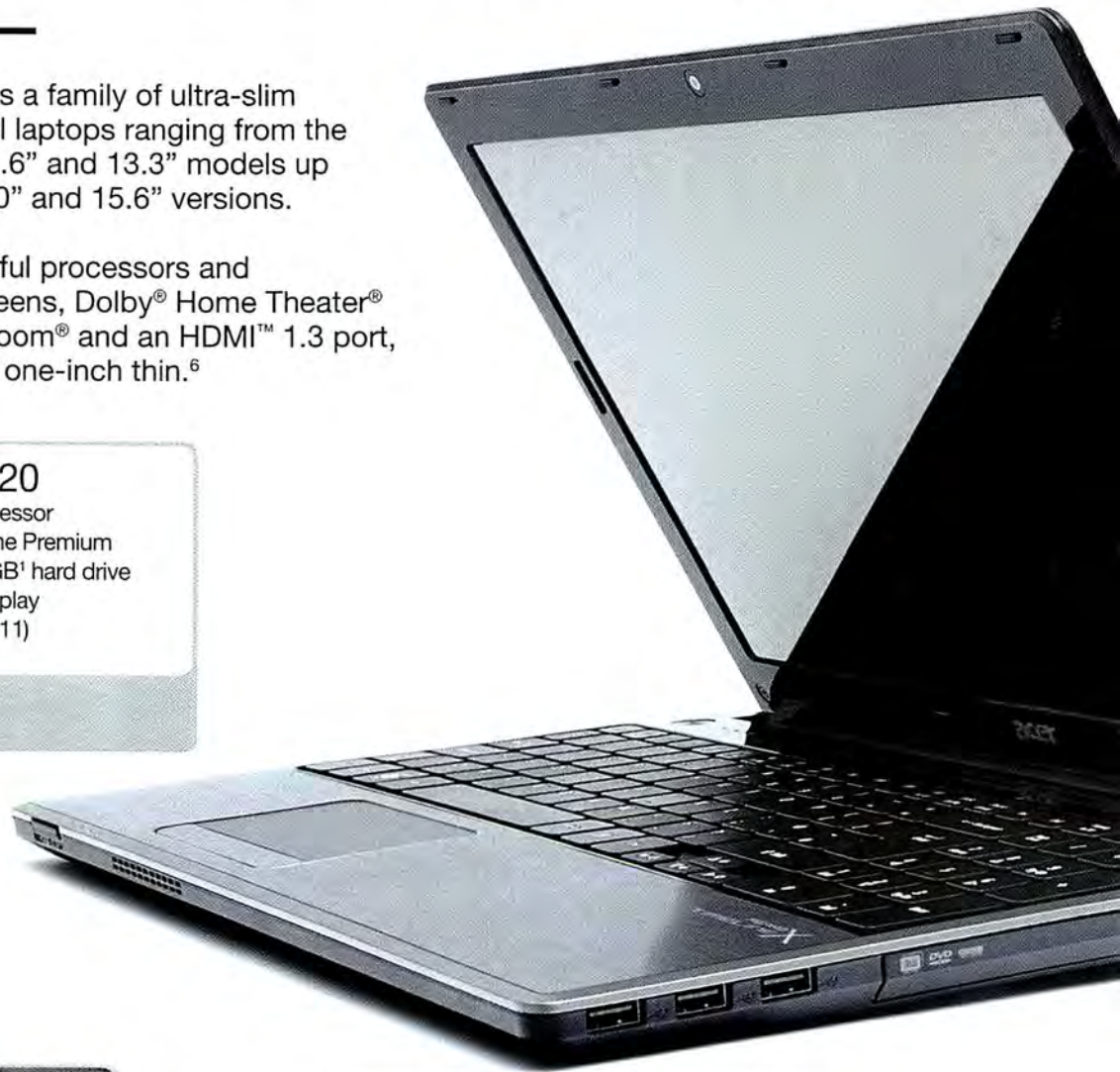

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Acer® Aspire® 1830

- Intel® Core™ i3-330UM Processor
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- Acer CineCrystal 11.6" display

AS1830T-3505 (LX.PTV02.034)

$599

Windows®. Life without Walls™.
Acer recommends Windows 7.

Acer® Aspire® X3950

- Intel® Core™ i3 Processor
- Genuine Windows® 7 Home Premium
- 6GB DDR3 SDRAM
- 1TB[1] SATA hard drive
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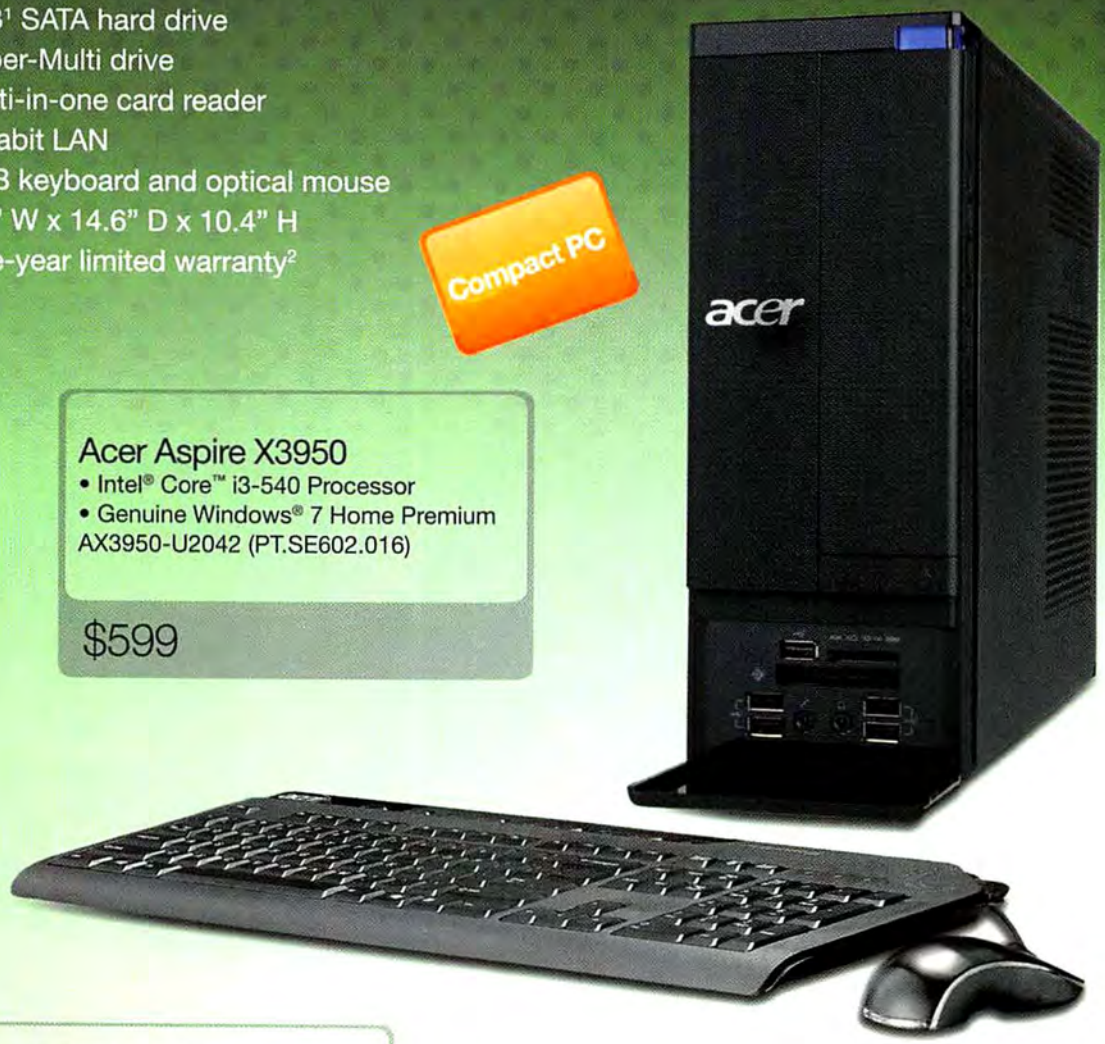
- Multi-in-one card reader
- Gigabit LAN
- USB keyboard and optical mouse
- 3.9" W x 14.6" D x 10.4" H
- One-year limited warranty[2]

Compact PC



Acer Aspire X3950

- Intel® Core™ i3-540 Processor
- Genuine Windows® 7 Home Premium

AX3950-U2042 (PT.SE602.016)

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Acer S243HL bmii

- 24" wide TFT LCD
- White LED backlight
- 1920 x 1080 maximum resolution
- 8,000,000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
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- 250 cd/m² brightness
- 2ms gray-to-gray response time
- One 2.0W integrated speaker
- Tilt adjustment

(ET.FS3LP.001)

$279

Acer P5271

- DLP® 3D-ready professional projector[3]
- XGA (1024 x 768) native resolution
- 4,000-hour lamp life (economy mode)
- 3100 ANSI lumens (standard mode)
- 3000:1 contrast ratio
- 2X digital zoom

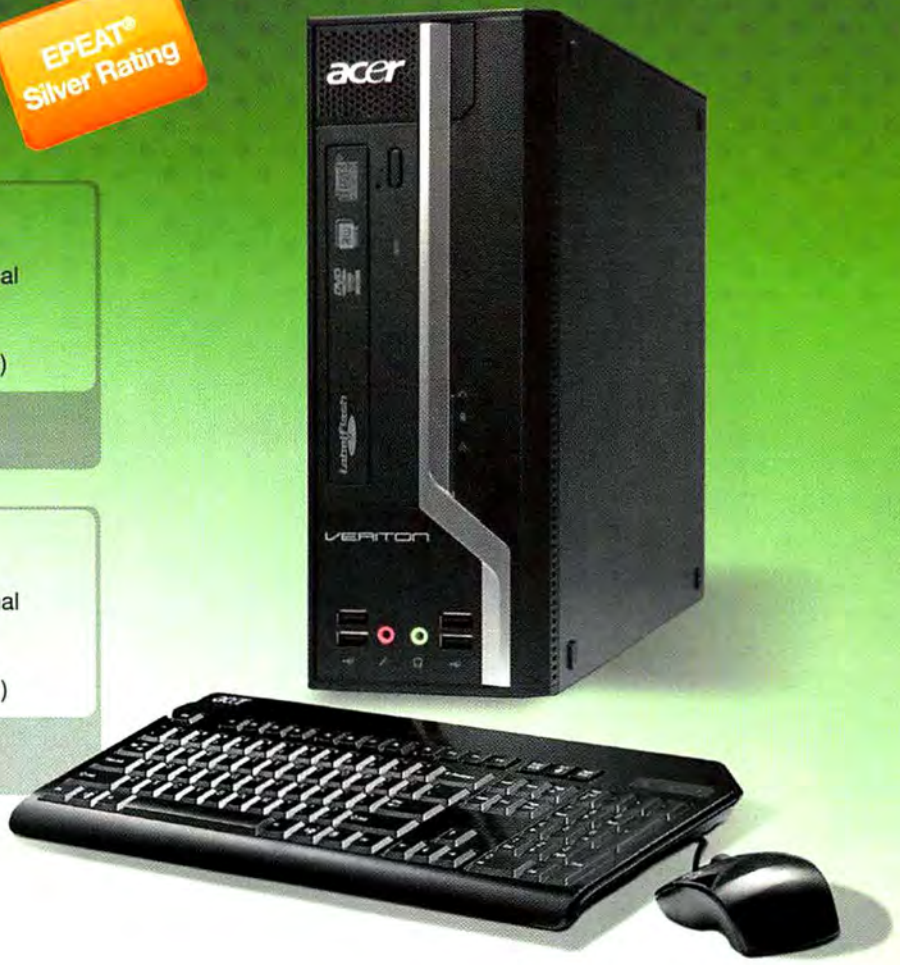
(EY.J8701.008)

$849

Acer® Veriton® X498G

- Intel® Core™ i5 Processor or
  - Intel® Core™ i3 Processor
- Genuine Windows® 7 Professional
- Downgrade right to Windows® XP Professional[3]
- Super-Multi drive
- Gigabit LAN
- PS/2®-style keyboard and optical mouse
- 4.0" W x 15.6" D x 10.5" H
- Three-year limited warranty[2] with limited on-site service during first year[7]

EPEAT® Silver Rating



Acer Veriton X498G

- Intel® Core™ i5-650 Processor
- Genuine Windows® 7 Professional
- 4GB DDR3 SDRAM
- 500GB[1] SATA hard drive

VX498G-Ui5650C (PS.VAW03.002)

$699

Acer Veriton X498G

- Intel® Core™ i3-540 Processor
- Genuine Windows® 7 Professional
- 2GB DDR3 SDRAM
- 320GB[1] SATA hard drive

VX498G-Ui3540C (PS.VAW03.001)

$599

Acer T230H bmidh

- 23" wide TFT LCD
- Touch-screen capable[8]
- 1920 x 1080 maximum resolution
- 80000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
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(ET.VT0HP.001)

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Acer® TravelMate® 8572

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TM8572-6592 (LX.TW603.022)

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Protect Your Investment with an Acer Notebook Service Upgrade

The Acer notebooks and netbooks featured in this insert come with a one-year standard limited warranty.[2] For extra protection and peace of mind, consider the Total Protection Upgrade, which covers the cost of a replacement unit if, as determined by Acer, your covered notebook or netbook cannot be repaired. On-site service is available, too, for TravelMate notebooks.[7]

2-Year Extension of Limited Warranty (146.AB820.EX2)
For Acer Notebooks and Netbooks with 1-Year Limited Warranty
$99

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

2-Year Extension of Limited Warranty + 3-Year Limited On-Site Service (146.AD362.001)
for TravelMate Notebooks with 1-Year Limited Warranty (On-site service runs concurrently with limited warranty and limited warranty extension.)
$149

2-Year Extension of Limited Warranty + 3-Year Limited On-Site Service + 3-Year Total Protection Upgrade (146.AD362.002)
for TravelMate Notebooks with 1-Year Limited Warranty (On-site service and Total Protection Upgrade run concurrently with limited warranty and limited warranty extension.)
$299

[1] When referring to storage capacity, TB stands for a thousand gigabytes and GB stands for one billion bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.
[2] For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.
[3] The alternate operating system can be installed in place of, not in addition to, the pre-loaded operating system.
[4] Actual battery life varies by usage, settings, and operating conditions. The "8+ hours battery life" claim is based on Mobile Mark 2007 productivity benchmark test results for the Acer Aspire TimelineX. Performance may vary depending on system configuration. For test result information visit: acer.com/tlx_test
[5] 3D content, 3D glasses and an appropriately equipped PC are also required to display 3D images.
[6] Heights range from 0.94" – 1.24" for the Aspire 5820 to 1.0" – 1.1" for the Aspire 1830.
[7] On-site service applies to the continental U.S. and Canada only and may not be available in all locations. In those areas where on-site service is provided, a technician will be dispatched, if necessary, following efforts to resolve the problem by telephone support.
[8] Touch-screen capability requires appropriate software installed on the PC connected to the display. This software does not come with the display.

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Big Headaches From Little Data Breaches

BY ROBERT VAMOSI

UNTIL EARLY JUNE, AT&T had an online tool that helped iPad 3G owners sign up for its mobile Wi-Fi service: Users typed in the 19-digit serial number for their iPad's micro-SIM card, also known as the ICC-ID (integrated circuit card identifier), and the site returned the e-mail address that the owner had used to verify registration. AT&T used that address to populate a field on the Web registration form.

A group of researchers called Goatse Security spotted a flaw, and made a script that randomly generated and submitted ICC-ID numbers to the site (find.pcworld.com/70346). They got back over 114,000 e-mail addresses, including those of White House Chief of Staff Rahm Emanuel and New York Mayor Michael Bloomberg. Goatse Security did not contact AT&T first, but they did wait until it changed the site before providing the e-mail addresses and serial numbers to a Gawker.com editor, who then disclosed the flaw.

Should such seemingly trivial leaks be subject to current data-breach notification laws? And if they should, just how serious is the threat of identity theft when an attacker obtains an e-mail address and a serial number?

Under current law, AT&T did not have to disclose the exposure of the addresses or serial numbers. Dorothy Attwood, AT&T's chief privacy officer, said in an apology to customers (find.pcworld.com/70347) that Goatse "deliberately went to great efforts with a random program to extract possible ICC-IDs and capture customer e-mail addresses." She also stressed that the AT&T site did not lead directly to financial or personal data.

An exposed e-mail address might attract more spam, but the ICC-ID by itself should be useless. However, speaking at SOURCE Boston in April, Nick DePetrillo and Don A. Bailey showed how ICC-IDs such as those employed by AT&T can be used to guess the more important IMSI (International Mobile Subscriber Identity) number for each account owner. Although it was specific to attacking the GSM mobile phone network, DePetrillo and Bailey's talk (PDF at find.pcworld.com/70348) showed how IMSIs could help to reveal the identity of the owner and other information.

> Even a minor piece of data can reveal quite a bit of personal information—but you can't expect to be notified about all such threats.

ILLUSTRATION: JASHAR AWAN

Notification Laws

As of April, 46 states and three U.S. territories have laws for notification of consumers whose information may have been compromised in data breaches, according to the National Conference of State Legislatures. (None specifically cover leaks of SIM card data.) Alabama, Kentucky, New Mexico, and South Dakota do not yet have such laws. No federal notification law exists, but one may be in the works. A federal law specific to health-care data breaches (PDF at find.pcworld.com/70349) became a reality as part of the American Recovery and Reinvestment Act of 2009.

Most state laws mirror California's 2003 law SB1386, in which "personal information" is defined as first and last names, plus any combination of a Social Security number, driver's license, account number, or credit or debit card number with a password or security code. Leaks of unen- »

PCWORLD.COM

Are you a Windows XP holdout who is committed to Service Pack 2? Discover how to keep XP SP2 safe—now that Microsoft has stopped releasing patches for that version—at find.pcworld.com/70356.

crypted personal data must be disclosed unless under law-enforcement investigation (in which case the disclosure can be delayed). Encrypted data is exempt.

A pending 2010 revision to the California law includes improvements that other states have made, such as a description of the data-breach event in the notification letter, a copy of which must go to the attorney general's office.

Arm Thyself

Though the law is currently playing catch-up, consumers can take action for themselves. The Federal Trade Commission's site at find.pcworld.com/70350 tells how to guard against identity theft, and what to do if you become a victim.

Additionally, the Fair and Accurate Credit Transaction Act of 2003 allows consumers to get one free credit report from each of the three credit bureaus annually. Sometimes the three reports have discrepancies; FACTA makes it easier for consumers to resolve errors.

FACTA introduced consumer credit tools, too. One is a fraud alert that requires anyone making an inquiry or change to your credit report to contact you first. A credit freeze, a more drastic measure, prevents anyone from accessing your credit report without your unfreezing it. There is a fee to freeze and unfreeze your credit report; some states waive the cost of a freeze if you have been a victim of identity theft and can document the event. Neither tool prevents you from getting a copy of your credit report. Mortgage companies and others that currently do business with you retain access to your credit history; only new inquiries are stopped cold.

Though these tools and laws were designed to address credit-related data breaches, personal data is now leaking out in new and different forms. If criminals can guess how mobile carriers are associating users' account information with serial numbers, then perhaps new and better definitions of what qualifies as a data breach are necessary. The lesson here is that no leak is too small to cause major headaches later.

BUGS & FIXES

JAMES MULROY

Microsoft and Adobe: More Monthly Patches

Plus: An update for Firefox introduces safeguards against plug-in crashes.

FIXES FOR THIS month include a barrage of updates for many Microsoft products, covering threats ranging from remote code execution to data corruption.

Multiple Microsoft Fixes

Microsoft's Patch Tuesday release in June consisted of ten updates that fixed 34 vulnerabilities affecting Windows 2000 and later. Three updates are rated "critical," and seven are rated "important."

One critical update resolves two flaws that may allow remote execution of malicious code in Windows Media files, software that delivers Web content, or streaming media. Another fixes two holes that could allow remote code execution through Internet Explorer; one method of exploit involves an ActiveX control. The last critical patch plugs six holes in IE 6, 7, and 8.

Be sure to apply three "important" updates for Office and SharePoint. Update MS10-036 addresses a vulnerability that puts you at risk if you view an attacker's specially crafted Excel, Word, Visio, Publisher, or PowerPoint file. MS10-038 fixes 14 flaws in Office that allow remote code execution and give attackers access to your PC. And MS10-039 fixes three holes that permit bad guys to gain user privileges via a SharePoint site and a malicious link.

If you do not use automatic updating, download the patches manually: Go to Control Panel, click *Windows Update*, and click *Check for Updates*. You can learn about each patch, confirm whether your software version is affected, and download the fixes at find.pcworld.com/70328.

Updates for Adobe Apps

Critical flaws in Adobe Flash Player 10.0.45.2 and earlier could cause the application to crash and permit an attacker to take control of the victim's computer. Adobe Air versions 1.5.3.9130 and earlier for Windows, Mac, and Linux are similarly vulnerable.

You can download the latest Flash Player at find.pcworld.com/70329. Download the newest version of Adobe Air at find.pcworld.com/70330.

Adobe also released updates for Reader and Acrobat. The company recommends that users update to Reader 9.3.3 and to Acrobat 9.3.3; for details about this fix, visit find.pcworld.com/70331.

Firefox Crash Protection

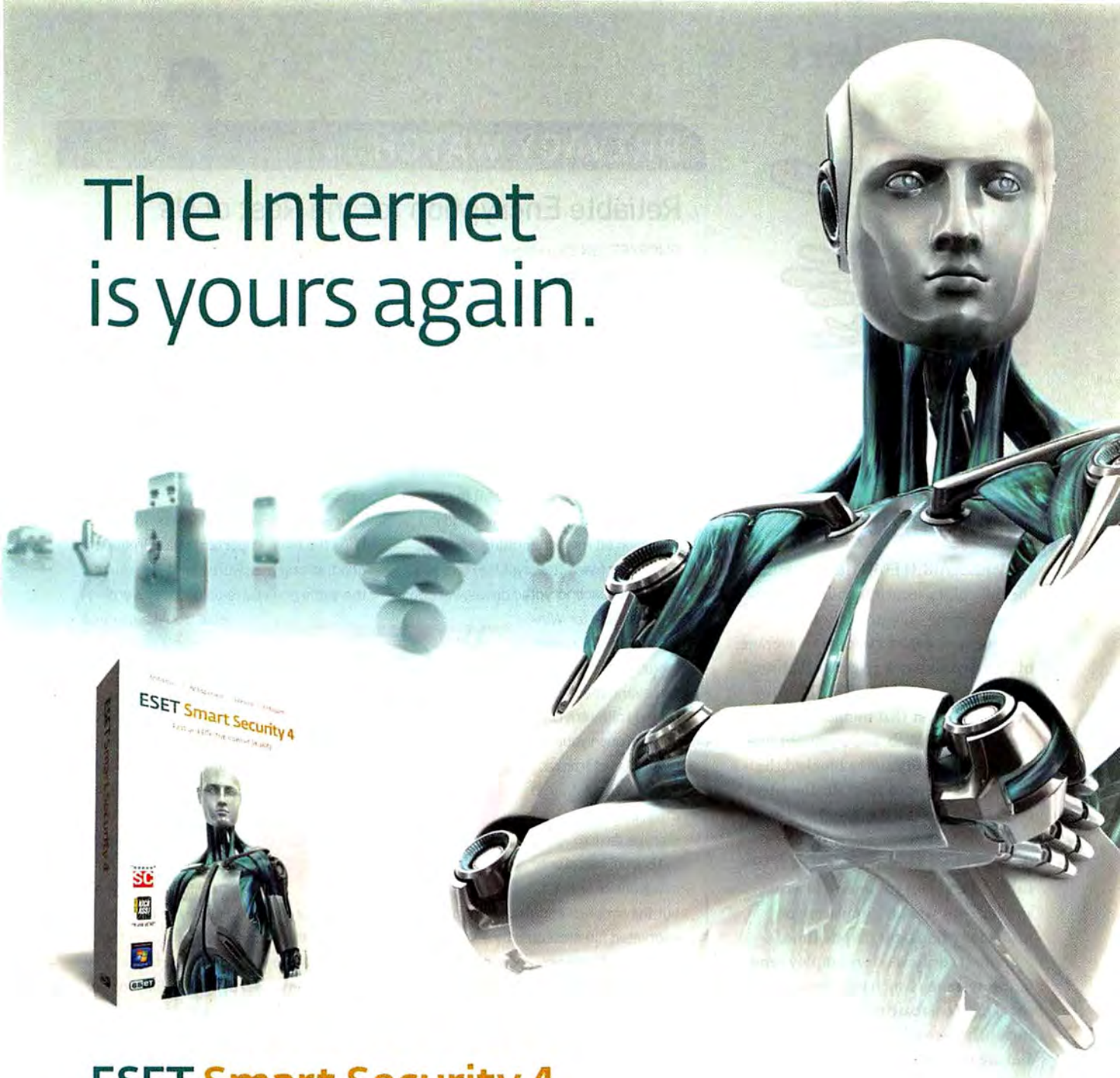
Mozilla has addressed multiple problems in Firefox 3.6.*x* (before 3.6.4), Firefox 3.5.*x* (before 3.5.10), Thunderbird (3.0.5 or earlier), and SeaMonkey (2.0.5 or earlier). Exploits could cause browser crashes, and attackers could run malicious code on the victim's computer. Other issues include stability bugs in the browser engine employed in Firefox and other Mozilla products. For more information, browse to find.pcworld.com/70332 and find.pcworld.com/70333.

Mozilla also released a new feature called Crash Protection (find.pcworld.com/70334) to ensure that Firefox will keep functioning when plug-ins crash; all you need to do is click Refresh, and the page will continue working. This should be a huge plus, since many people use third-party Firefox plug-ins, which can slow and/or crash the browser.

To correct the vulnerabilities and get Crash Protection, you can either download the newest version of the browser at getfirefox.com or update within the application by clicking *Help•Check for Updates* in the Firefox toolbar.

ILLUSTRATION: HARRY CAMPBELL

The Internet is yours again.



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Security Apps Frequently Miss New Malware

NEW RESEARCH FURTHER confirms the difficulties security vendors are having in keeping up with malware.

Security software can take an average of two days to block an attack Website, says a report from NSS Labs. The firm developed a test that mimics how people browse the Web, and recorded how and when security suites blocked the threats—if they did so at all. The latest test ran 24 hours a day for nine days.

"We've done testing like the bad guys do," says Rick Moy, president of NSS Labs. "We go out to the live Internet and find out what is circulating on malicious campaigns, in real time."

Some security vendors employ reputation systems, which usually involves checking a database of blacklisted sites. But such systems are not widely used and are immature, according to NSS Labs. Overall, vendors took an average of 45.8 hours to block a site, if they blocked it at all, the report states.

If a suite did not block a bad site the first time, NSS Labs continued to test every 8 hours to see how long the vendor took to add protection; times ranged from 4.62 hours to 92.48 hours. The researchers also had a "zero-hour" criterion, in which the test checked whether the software stopped newly found malware sites, and the results weren't great: The best vendor blocked new sites only 60.6 percent of the time.

—Jeremy Kirk

PRIVACY WATCH ERIK LARKIN

Reliable Encryption for the Rest of Us

A useful free download protects your private information with minimal fuss.

ENCRYPTION IS a strong way to safeguard passwords, personal information, and other sensitive data, but it can be confusing due to the acronyms and technobabble that surround the topic.

Many encryption utilities—such as the BitLocker feature in Windows 7 Ultimate, or the Rohos Mini Drive utility for protecting info on a thumb drive—are available. But my favorite tool covers all the bases: It's free, it's easy, it's effective, and it works on all major operating systems. TrueCrypt (www.truecrypt.org) lets you create virtual encrypted drives. Versions are available for Windows, Mac OS X, and Linux; if you install it on several machines running different OSs, you can open your encrypted files from a network share, thumb drive, or other shared storage device.

The tool has plenty of advanced options, but the simplest approach is to make an encrypted file protected by a strong password. When you open your TrueCrypt file, it acts as a hard drive with its own drive letter. You can interact with that virtual drive the same way that you might with any storage device: You open, save, drag, and drop files to and from the data store. TrueCrypt handles all the encryption and decryption in the background. When you close the encrypted file, the data is protected until you give the password to open it up once more.

Creating Your Data Safe

First, download TrueCrypt from find.pcworld.com/70321. Install it, fire it up, and click *Create Volume* to build and name your virtual encrypted drive.

Stick with the default 'Create an encrypted file container' and 'Standard TrueCrypt volume' options, and then choose a name and location. For its name, you'll need to manually enter the .tc file extension that TrueCrypt uses.

Stay with the default AES (Advanced Encryption Standard) selection; AES is approved for use with top-secret government data. Pick a volume size big enough to hold any files you plan to encrypt.

Next comes setting the password, perhaps the most important step. Create a good, strong password; don't just reuse the same one you're using for everything else. You'll also need to write it down somewhere safe—TrueCrypt has no password-recovery option, as that could provide a means for breaking in. Lose the password, and your data is likewise lost.

Stick with FAT for the file system type. Move your mouse to generate randomness for the encryption—you'll see the encryption key changing next to the 'Random Pool' header—and click *Format*.

Your encrypted virtual drive should now appear. If you double-click that file (or click *Mount* in TrueCrypt and select it), your data store will open at the drive letter you choose. At this point, you can add the files you'd like to encrypt.

When you're finished, click *Dismount*. Under *Settings•Preferences* you can also specify 'Auto-dismount volume after no data has been read/written to it for *XX* minutes', so if you forget about TrueCrypt, it will close and encrypt your file.

You should also back up your TrueCrypt file. After saving the backup to a thumb drive or other shared media device, you can restore your encrypted files on a new computer as long as you have installed TrueCrypt on it. ●

ILLUSTRATIONS: JASON SCHNEIDER (LEFT); HARRY CAMPBELL (RIGHT)

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Your child is online now. Sadly, so are the bad guys. Each day, more than 50,000 predators are striking up conversations and trying to set up personal meetings with unsuspecting children through Facebook, MySpace, chat rooms and Instant Message services. How much do you really know about your child's online "friends" and what they're planning?

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OWC Mercury Extreme SSDs

The Smartest Upgrade You Can Make

What single upgrade will do the most to make even a new computer feel faster? The answer isn't a new CPU. It isn't a new graphics board. It often isn't even more RAM. It's the right choice of solid-state drive ...with many factors and unknown insights covered by an in-depth article at ***MacPerformanceGuide.com/SSD-RealWorld.html***. Bottom line though, replacing your hard drive with the correct lightning-fast SSD drive will simply change the way you work and give your PC a performance-based personality transplant.

To understand just what a difference an SSD can make, boot up your PC (or Mac), start your favorite applications—Photoshop, Lightroom, Firefox, World of Warcraft, etc.—and start counting. With even the fastest hard drive, it will take more than 30 seconds before you can get down to business. With an average SSD? Seven seconds, according to the tech gurus at *Anandtech*. What's more, SSDs are completely silent and use as little as one third as much power as a hard drive.

Invest in Performance

Fast out of the box is a given for SSDs, but what about a year later? It's not a good investment if the SSD fails to maintain its performance over time. Some of the world's fastest Windows-based SSDs come from Other World Computing—a company sensitive to an ultra demanding Mac audience. Mercury Extreme Pro SSDs provide an award-winning mix of competitive prices and industry-leading speed for PC users who care about long term performance.

Just how fast are OWC's SSDs? *Tweaktown* gave the Mercury Extreme Pro RE its Editor's Choice Award, calling it "class-leading in many real-world tests." *Bare Feats* called it their "fastest SSD tested to date." *Benchmark Reviews* said it offered "the best choice for combined speed and operational performance." *MacPerformanceGuide* says, "When you step back and look at the incredible performance, the resistance to performance degradation and the blissful end of internal fragmentation issues, then add the enterprise-grade reliability and redundancy, this is an entirely new class of product, great for Mac or PC users."

The Mercury Extreme Pro RE SSD incorporates enhancements for RAID-0 striping, and all models include a five-year warranty. They are available in 50, 100, 200, and 400GB capacities. Why the unusual numbers? Because the Pro RE reserves 28% of its actual capacity for over-provisioning, using that space to maintain the same high level of performance and reliability over the full life of the drive.

Users not opting for RAID striping can instead select a model from the Extreme Pro line. The cost is a bit lower, and capacity rises by 20%—Pro models come in 60, 120, 240, and 480GB sizes with 7% over-provisioning.

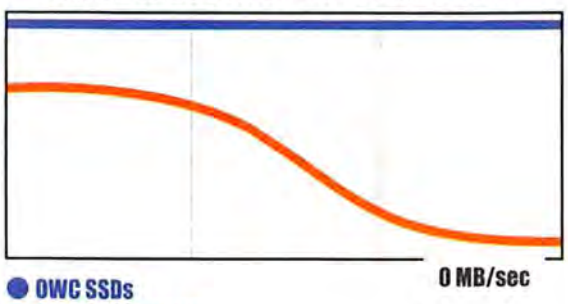
Whichever capacity you choose, you can supercharge your notebook or desktop computer and truly transform your daily computing experience with an OWC Mercury Extreme Pro series SSD.

OWC's SSD vs. HDD Shootout Video!

Which is faster? Watch the video and see the dramatic difference!

www.otherworldcomputing.com/ssd

Comparison of SSD Data Write Speed Estimated Over Time



● OWC SSDs
● Competitors' SSDs

Unlike most SSDs on the market today, the Mercury Pro family uses advanced DuraWrite™ wear-leveling and block management technologies to keep Read/Write performance at peak while others see performance fall.

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AWARDS & REVIEWS

"Write speeds that show no degradation in my initial "seasoning" and moderate abuse, whereas other brands show drops of 15-20% after a single DiskTester fill-volume. Yet the OWC Mercury Extreme SSD write speeds start higher than the other two brands I've tested, and stay there, no small matter."
- Lloyd Chambers, digiloyd

MUST HAVE EDITOR'S CHOICE AWARD! TweakTown

"This drive is a rocket of a SSD... We have to give two thumbs up"
- Les Tokar , The SSD Review

"Class leading in many real world tests... Price is lower than most on the market... the OWC Mercury is at the top of our list."
- TweakTown

"Performed extremely well... A significant step up from any standard hard drive"
- Marco Chiappetta, Hot Hardware

"The best choice for combined speed and operational performance."
- Olin Coles, BenchmarkReviews.com

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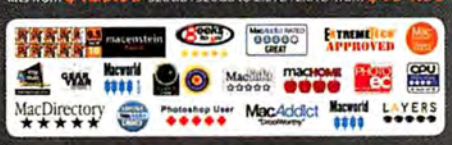

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Reviews & Rankings

iPhone 4 vs. Droid X: A Head-to-Head Comparison

BY GINNY MIES

No two phones are hotter than the latest Apple handset and Motorola's new Android phone. We put both through a range of hands-on tests.

RETINA DISPLAY! Video calls! HDMI port! We've heard lots of shouting from fans of the hot phones of the minute, the Apple iPhone 4 ($199 for 16GB or $299 for 32GB, with a two-year AT&T contract) and the Motorola Droid X ($200, with a two-year Verizon contract). We got our hands on both devices and tested them in key categories.

Due to issues with the iPhone 4's antenna and its proximity sensor, we are keeping its rating as "pending." Apple has acknowledged the problems, and we'll update the rating once the glitches are fixed.

MORE ONLINE

For more on the photo and video capabilities of the iPhone 4, the Droid X, and two other phones, see find.pcworld.com/70336.

Cost of Ownership

On the cheapest voice and data plans (see the chart on page 49), the Droid X costs about $360 more over two years than does the 16GB iPhone 4; but the Droid X plan includes unlimited data, versus 200MB for the iPhone 4. With the high-end plans, the Droid X costs $120 more over two years. Its plan includes unlimited data; the iPhone 4's plan is capped at 2GB per month (few users will exceed the 2GB limit, though).

Another issue is how much storage you get. The iPhone 4 comes in 16GB and 32GB models, and it lacks expandable storage. The Droid X has 8GB of storage built in; a 16GB MicroSD card comes in the box, too. And since the Droid X takes MicroSD cards up to 32GB, you can extend storage up to 40GB.

Winner: Droid X The total cost of ownership is not a lot more, and you get a larger data allowance and the potential for more storage.

Data Speed and Voice Quality

The stats: Both phones have Bluetooth, Wi-Fi, and GPS. The Droid X, however, can also act as a mobile hotspot.

PHOTOGRAPHS: ROBERT CARDIN

56 QNAP TS-25 Pro Turbo NAS

56 APRICORN AEGIS NetDock

64 WESTERN DIGITAL WD TV Live Plus

66 LENOVO MINI Wireless Keyboard N5901

Total Cost of Ownership, Compared

	iPhone 4	Droid X
Initial price (with a two-year contract)	$199	$200
Minimum voice: 450 minutes per month	$40	$40
Text messages: 200 (iPhone 4), 250 (Droid X)	$5	$5
Minimum data: 200MB (iPhone 4), unlimited (Droid X)	$15	$30
Total after two years (low-end plan)	**$1639**	**$2000**
Unlimited voice	$70	$70
Text messages: unlimited (iPhone 4), 5000 (Droid X)	$20	$20
Maximum data: 2GB (iPhone 4), unlimited (Droid X)	$25	$30
Total after two years (high-end plan)	**$2959**	**$3080**

LOOKING AT THE phones' total cost of ownership after two years, the Droid X is pricier—but it has no data cap, and it offers more potential storage capacity.

For an extra $20 per month, the Droid X lets you connect up to five compatible Wi-Fi devices, such as your laptop, to Verizon's network.

Both handsets provide noise cancellation, which is supposed to improve voice calls by blocking the sounds around you.

Testing methodology: In five San Francisco locations, we used the FCC-endorsed Ookla testing app, running three tests and picking the top upload and download speeds of the three.

For our voice tests, we placed calls to a common local number, listening for static, jitter, delay, dropped calls, or a failure to connect.

Data speed winner: iPhone 4

The iPhone 4's average download speed was 1958 kbps, while the Droid X averaged 1130 kbps—still more than enough for Web browsing and standard-def video watching. The phones had similar average upload speeds (434 kbps on the iPhone4 and 564 kbps on the Droid X), sufficient for file sharing but not for multiplayer gaming or videoconferencing.

Voice quality winner: iPhone 4

Our iPhone 4 calls sounded more natural, and were more pleasing to listen to on the other end of the line. We had no dropped calls on AT&T.

In Droid X calls, audio was usually clear enough, but not as full as that of the iPhone 4. On the other end, I'm told, my voice was loud, but less dynamic and a bit shrill. We heard minor static on some calls, and warbling on others. We had one dropped call.

Note that we tested in only one city, and that testing over wireless networks is unpredictable; weather and network traffic can affect the results in unknown ways.

Display

The specs: The iPhone 4 has a 3.5-inch, 960-by-640-pixel screen that Apple says is a "Retina display," one with a resolution that meets or exceeds the maximum resolution the human retina can resolve. Some debate has arisen over the topic, however (find.pcworld.com/70301).

The Droid X's 4.3-inch display is larger than the iPhone 4's screen. But its resolution is lower, at 854 by 480 pixels.

Testing methodology: I set the phones to their maximum brightness and loaded PCWorld.com on both, with no zooming in. After placing the handsets side by side, I asked other editors to look at the text and pick which display was more readable.

Winner: iPhone 4 The difference is astounding. Text is sharper, white backgrounds are brighter, and black text is blacker on the iPhone 4 than on the Droid X. Since non-zoomed text is barely legible on the Motorola phone, we're guessing its browser does not do sub-pixel rendering. I like the extra space for browsing and video watching on the Droid X, but the iPhone 4 definitely has a sharper, brighter display.

OS and Multitasking

The specs: The iPhone 4 runs iOS 4, the latest iPhone operating system. The biggest update is the addition of multitasking.

On the Droid X, Motorola's Motoblur skin runs over Android. The phone does not have the newest Android version, 2.2 (aka Froyo), out of the box. You're stuck »

★★★★½ SUPERIOR

Droid X | Motorola

Shines at multimedia playback, but the multitasking can be awkward.

List: $200 (with two-year contract)

find.pcworld.com/70299

iPhone 4 | Apple

Rating pending

A major upgrade from the iPhone 3GS in almost every respect.

List: $199 for 16GB, $299 for 32GB (with two-year contract)

find.pcworld.com/70300

with 2.1 until the 2.2 update arrives, perhaps around the time you read this. The main difference between 2.1 and 2.2 is a boost in performance.

Testing methodology: Opinions about most aspects of phone OSs are extremely subjective, so trying to deliver a verdict on the OSs overall is foolish. We did, however, examine multitasking. The contrast is striking.

Apple exercises more control over multitasking: Only apps designed and approved for multitasking will work. And for now, the number of such apps is limited.

The interface is smooth and intuitive, though. You double-tap on the home button to call up the multitasking bar; it shows four icons at a time, with the most recently opened apps starting at the left. You flick your finger to scroll through the rest. To close an app out of memory, you press and hold its icon and then click the red circle with a dash.

Android's approach is more open, but harder to navigate. Android keeps apps running in the background, not just suspended as iOS 4 does. For example, a Web page may continue drawing even after you have left the browser to do something else.

To see open apps, you can hold the home button—but that shows just six apps at a time. The only way to see all running apps is to dig down to *Settings•Applications•Manage applications*. You can then scroll to *Controls* and press *Force stop* to close an app.

You can download a third-party tool to make viewing and closing apps easier. For some Android users, this may be a burden. Other users, however, enjoy having this level of control and customization over their phone.

Winner: A draw It's a matter of personal preference.

iPhone 4 vs. Droid X: How the Specs Stack Up

	iPhone 4	Droid X
Manufacturer	Apple	Motorola
Operating system	iOS 4.0	Android 2.1 with Motoblur
Processor	1GHz	1GHz
RAM	512MB	512MB
Size	4.5 by 2.3 by 0.37 inches	5.0 by 2.6 by 0.4 inches
Weight	4.8 ounces	5.4 ounces
Keyboard	Software	Software, with Swype
On-board storage	16GB/32GB	8GB
Expandable storage	No	MicroSD, 16GB included
Display size	3.5 inches	4.3 inches
Display resolution	960 by 640 pixels	854 by 480 pixels
Camera	5 megapixels	8 megapixels
Flash	LED flash	Dual LED flash
Video-call camera	Yes, VGA	No
Video recording	Yes, 720p	Yes, 720p
Noise cancellation	Yes, two microphones	Yes, three microphones
Wi-Fi	Yes	Yes
GPS	Yes	Yes
Bluetooth	Yes	Yes
HDMI	No	Yes
Battery	1420 mAh	1540 mAh
Talk time	7 hours	8 hours
Applications store	App Store, 225,000 apps	Android Market, 65,000 apps
Multitasking	Yes	Yes
Web browser	WebKit	WebKit
Flash support	No	Yes[1]
Tethering	Yes	Yes
Wi-Fi hotspot	No	Yes

FOOTNOTE: [1]With the arrival of Android 2.2 in "the second half of this summer."

Media Playback

The specs: The iPhone 4 supports AAC, Apple Lossless, Audible, HE-AAC, MP3, Protected AAC (iTunes), and WAV. It also supports H.264 video up to 720p, MPEG-4, and Motion JPEG formats.

The Droid X accepts AAC, AAC+, eAAC+, MIDI, MP3, and WAV audio files. It also supports HD playback via its DLNA and HDMI ports, plus H.263, H.264, MPEG-4, and WMA video formats.

Testing methodology: I did casual audio testing. Loading the same MP3 file on both phones, I listened on V-Moda Remix Remote earbuds as well as over each phone's external speakers; I asked colleagues for feedback, too.

Video was tougher to test. First, I couldn't compare YouTube clips fairly, since the iPhone 4 lacks the Droid X's YouTube HQ feature, which lets you watch better-quality videos if they are available; despite that, I decided to use the same *Despicable Me* YouTube trailer on both phones.

I also had problems finding one H.264 file for both handsets. I downloaded trailers via iTunes and rented HD movies for the iPhone 4. On the Droid X, I downloaded H.264 trailers from H264-info.com. As I couldn't get the Droid X's Blockbuster app to work, I couldn't rent feature-length movies for it.

Winner: Droid X for audio, a draw for video It was close, but we unanimously picked the Droid X for sound; the bass was deeper, and vocals sounded crisper and richer. We noted a slight tinny quality in the iPhone 4's playback, but everyone agreed that its audio was still quite good.

As for video, playback on both phones was smooth—no stuttering, pausing, or pixelation. The iPhone 4's image quality was better, but viewing on the Droid X's larger screen felt more comfortable. And when HQ video is available, YouTube on the Droid X blows the iPhone 4 out of the water. Then again, downloading movies directly on the iPhone 4 via iTunes was easy; using a third-party site like H264info.com is risky and time consuming.

Senior editor Mark Sullivan contributed to this report.

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Top 10 Cell Phones

LAB TESTED

HTC's EVO 4G nabs the lead, but other capable Android smartphones follow close behind.

	MODEL	Rating	Notable qualities	Features and specifications
1	HTC EVO 4G $200 NEW find.pcworld.com/70155	★★★★½ SUPERIOR	• Large, but nicely designed • Sharp 4.3-inch display • Decent media player	• Carrier: Sprint • Form factor: Candy bar • Weight: 6.0 ounces • Camera resolution: 8.0 megapixels
	▸ The speedy EVO 4G packs powerful specs and media features into a stylish design, but not everybody will get to enjoy 4G connectivity.			
2	Motorola Droid X $200 NEW find.pcworld.com/70299	★★★★½ SUPERIOR	• Slim, solid hardware • Interface can be sluggish • Great audio and video features	• Carrier: Verizon • Form factor: Candy bar • Weight: 4.6 ounces • Camera resolution: 8.0 megapixels
	▸ Motorola's Droid X shines at multimedia playback, network performance, and features—but the interface can be poky on occasion.			
3	HTC Droid Incredible $200 find.pcworld.com/70079	★★★★½ SUPERIOR	• Beautifully designed • Highly responsive touchscreen • Average music player	• Carrier: Verizon • Form factor: Candy bar • Weight: 4.6 ounces • Camera resolution: 8.0 megapixels
	▸ The HTC Droid Incredible is a terrific Android phone with a gorgeous display, a slick user interface, and a lightning-fast processor.			
4	Google Nexus One $180 find.pcworld.com/64373	★★★★½ SUPERIOR	• Dazzling OLED display • Comfortable keyboard • Audio and video are middling	• Carrier: T-Mobile • Form factor: Candy bar • Weight: 4.5 ounces • Camera resolution: 5.0 megapixels
	▸ The Nexus One offers a stunning display and nice speed, but network issues and its on-screen keyboard keep it from being a superphone.			
5	Samsung Captivate $200 NEW find.pcworld.com/70387	★★★★½ SUPERIOR	• Stunning Super AMOLED display • Responsive keyboard with Swype • Superb multimedia features	• Carrier: AT&T • Form factor: Candy bar • Weight: 4.2 ounces • Camera resolution: 5.0 megapixels
	▸ The Samsung Captivate has a dazzling display and a bevy of multimedia and social networking features.			
6	BEST BUY Motorola Droid $150 find.pcworld.com/64263	★★★★½ SUPERIOR	• Solid construction • Keyboard is a bit shallow • Superb video and audio features	• Carrier: Verizon • Form factor: Slide • Weight: 6.0 ounces • Camera resolution: 5.0 megapixels
	▸ Though the first Android 2.0 phone has strong Web features and a great 3.7-inch display, some users might dislike the shallow keyboard.			
7	Apple iPhone 3GS (32GB) $200 find.pcworld.com/63910	★★★★½ SUPERIOR	• Sophisticated design • Extremely responsive touchscreen • Excellent video and music playback and features	• Carrier: AT&T • Form factor: Candy bar • Weight: 4.8 ounces • Camera resolution: 3.0 megapixels
	▸ Performance enhancements distinguish the 3GS—an otherwise evolutionary step up—from previous iterations of the iPhone.			
8	RIM BlackBerry Bold 9700 $200 find.pcworld.com/64262	★★★★½ SUPERIOR	• Most stylish BlackBerry to date • Ergonomic keyboard • Good video and audio quality	• Carrier: T-Mobile/AT&T • Form factor: Candy bar • Weight: 4.2 ounces • Camera resolution: 3.2 megapixels
	▸ The best BlackBerry available, the Bold 9700 packs a multitude of features into a sophisticated, slimmed-down design.			
9	Palm Pre Plus $50 find.pcworld.com/69450	★★★★☆ VERY GOOD	• Sleek, ergonomic design • Keyboard is small and flimsy • Gorgeous video and audio apps	• Carrier: Verizon • Form factor: Slide • Weight: 4.7 ounces • Camera resolution: 3.0 megapixels
	▸ With expanded memory and new software capabilities, the Pre Plus is an improvement over its predecessor, but it still has some quirks.			
10	Motorola Cliq $150 find.pcworld.com/64261	★★★★☆ VERY GOOD	• High-quality design • Comfortable keyboard • Audio and video are decent	• Carrier: T-Mobile • Form factor: Slide • Weight: 5.6 ounces • Camera resolution: 5.0 megapixels
	▸ The beautifully designed Cliq is a social butterfly's dream phone, but other users may find the Motoblur interface overwhelming.			

CHART NOTES: Ratings are as of 7/8/10.

MORE ONLINE Visit find.pcworld.com/70337 to see in-depth reviews, full test results, and detailed specs for all cell phones on this chart.

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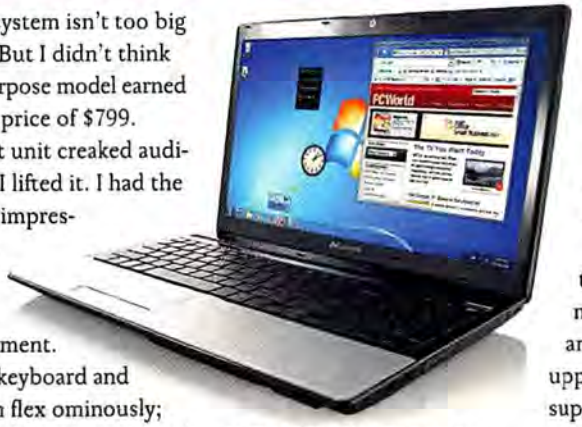
Gateway NV59C09u: Attractive but Seemingly Fragile

THE EXTERIOR OF the Gateway NV59C09 is a subtly rippling silver with black edging. The 15.6-inch LED-backlit screen (with a 16-to-9 aspect ratio) scores, too: It's small enough for easy portability, yet roomy enough for digging into work or games. At 15 inches wide, 9.96 inches front to back, 1.22 to 1.34 inches thick, and 5.5 pounds (6.3 pounds with the charger), the system isn't too big or heavy. But I didn't think this all-purpose model earned its asking price of $799.

Our test unit creaked audibly when I lifted it. I had the recurring impression that it might fall apart at any moment. Both the keyboard and the screen flex ominously; and the keyboard consists of flat surfaces on thin pegs.



THE GATEWAY NV59C09u is stylish but could be sturdier.

Inside are a 2.13GHz Intel Core i3-M330 CPU and 4GB of RAM, providing adequate muscle for applications and video. But the 320GB hard drive (spinning at 5400 rpm) and integrated graphics make the laptop unsuitable for higher-end games. The PC's WorldBench 6 score of 93 isn't bad, but it's not top-of-class either. In our battery-life tests, the system ran for 4 hours, 24 minutes.

Including a Blu-ray player is a nice touch, but the screen's resolution is only 1366 by 768. I had expected both a higher resolution and a bit more hard-drive space for the money.

The PC looks sleek, though. Gateway even made the power button an elegant, thin bar on the upper right. The touchpad supports multitouch, too.

Nearly all connectivity choices except Bluetooth are present. The speakers sound a bit hollow, but they're reasonably loud.

The Gateway NV59C09u shows a lot of potential, but it's not quite the machine it should be for the price.

—Patrick Joynt

★★★½☆ VERY GOOD

NV59C09u | Gateway

All-purpose laptop is slick but a little pricey for its build quality.

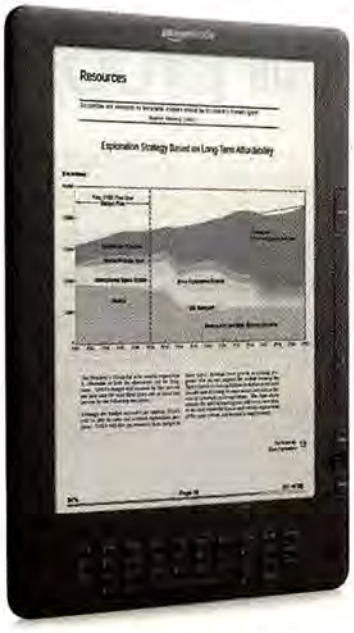
List: $799

find.pcworld.com/70335

Amazon's Revamped Kindle DX Improves Display

WHAT A DIFFERENCE a display can make. Turning on the $380 Amazon Kindle DX (Graphite) second-generation large-format e-reader was all it took to see that Amazon's claims of a higher-contrast display than its predecessor were true.

The blacks truly look black, whereas the blacks on the original Kindle DX were dingy and gray. Words on the new Kindle seem to jump off the page. The screen has a lighter, more solid background to its E-Ink display than the first generation did, too. Regrettably, the darker text also means that you can more clearly see the jaggies in the default (and only) text font, at least at the default font size.



THE NEW KINDLE DX offers a higher-contrast screen.

Note that the new reader is housed in a dark gray ("graphite") exterior, as opposed to the off-white case of the original Kindle DX and Kindle 2. I prefer the darker chassis—I find that the dark border is easier on the eyes, enhancing reading.

Page turns left me with the impression of being zippier than on the first Kindle DX, but still sluggish compared with an LCD-based e-reader. Amazon does add Facebook and Twitter support, so you can highlight a passage and share it with your social network.

At $380—an attractive price—the Amazon Kindle DX continues to excel as a large-format E-Ink-based e-reader, for both Kindle books and PDFs. But you'll need to consider the trade-off involved in purchasing this Kindle instead of a multipurpose tablet like Apple's $499 iPad. E-Ink displays continue to hold battery-life and readability advantages (especially in bright sunlight), but the LCD-based iPad is more responsive, and it supports color.

—Melissa Perenson

★★★★☆ VERY GOOD

Kindle DX (Graphite) | Amazon

Large-format reader's new display greatly improves e-book reading.

List: $380

find.pcworld.com/70357

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Qnap NAS: Blistering Performance

QNAP'S TS-259 PRO Turbo NAS (network-attached storage) posted sky-high performance in tests. Our two-bay unit ($600 sans drives) had two 750GB Western Digital Black Caviar drives in RAID 0, which optimizes for speed. But that explains only a couple of percentage points of zippiness; the TS-259 was more than two times faster than its nearest rival. According to Qnap, the primary reason for the device's speed is its 1.66GHz Intel Atom D510 dual-core CPU.

The TS-259's two gigabit ethernet ports allow MPIO (multipath IO) for failover or load balancing—so if one ethernet path dies, you still have the other. The unit also offers MC/S (multiple connections per session) to increase throughput by using both ports for traffic, and it supported iSCSI in my tests.

The compact server has two slide-out, easy-install trays for use with SATA-300 drives; the trays have individual locks for added security. At the back are two eSATA ports and four USB ports (for connecting additional storage, a printer, or even a mouse and keyboard). At the front are a USB port and a copy button, to enable copying from a USB drive.

The box is a universal plug-and-play media server, too. The Web-based configuration interface and features are largely convenient and useful.

Business-friendly perks include VMware certification, Web server and FTP server functionality, and integrated backup for both the unit and remote PCs. Consumers will like the integrated BitTorrent and iTunes servers.

If you run high-demand data apps, the TS-259's incredible performance is worth the extra cash.

—Jon L. Jacobi

QNAP'S TS-259 OFFERS startling performance for a NAS box.

★★★★½ SUPERIOR

TS-259 Pro Turbo NAS | Qnap

If you run demanding apps, the speed and features justify the price.

List: $600

find.pcworld.com/70320

Apricorn's Docking Station: Convenient, Affordable

THE PACKAGING FOR the $89 Apricorn Aegis NetDock docking station merely implies an optical drive is on board. Not only does it have one—an 8X TEAC DV-W28S-V DVD burner—but four USB 2.0 ports as well.

Two of these ports remain powered even when the unit isn't attached to a computer, so you can charge cell phones and other mobile devices with them. This versatility helps make the device a useful add-on for laptop and netbook users.

Our test unit also came with a 500GB hard drive inside (a $189 option). Buying the optical-only model and adding a 2.5-inch drive yourself later will either save you a few bucks or let you get a drive with more capacity. To add a drive, just remove one screw, slide the drive into the SATA connector, secure the drive there with two screws, and reassemble.

APRICORN'S AEGIS NETDOCK comes with a DVD burner.

The NetDock is indeed useful. A hard drive inside makes backing up a laptop simple, the optical drive is great for installing software, and the USB ports let you quickly add a printer, a scanner, or more storage. Every computer I tried it on—including Windows XP SP2, Vista, and Windows 7 PCs—recognized the station, and drivers installed automatically.

The device makes a very handy IT tool: Instead of dragging around separate drives, carry the NetDock. You can also recharge your cell phone without having to hunt for a free AC outlet in a power-cable maze. Sweet.

The NetDock ships with, and requires, an AC adapter. You simply can't run a hard drive and an optical drive, as well as provide enough power to the USB ports, without one. Apricorn also bundles freebie software for various tasks: Microsoft's SyncToy for syncing and backup, BurnAware Free for disc-related chores, and VLC for playing movies and music.

My only (minor) complaint is that the device lacks USB 3.0 connections.

—Jon L. Jacobi

★★★★½ SUPERIOR

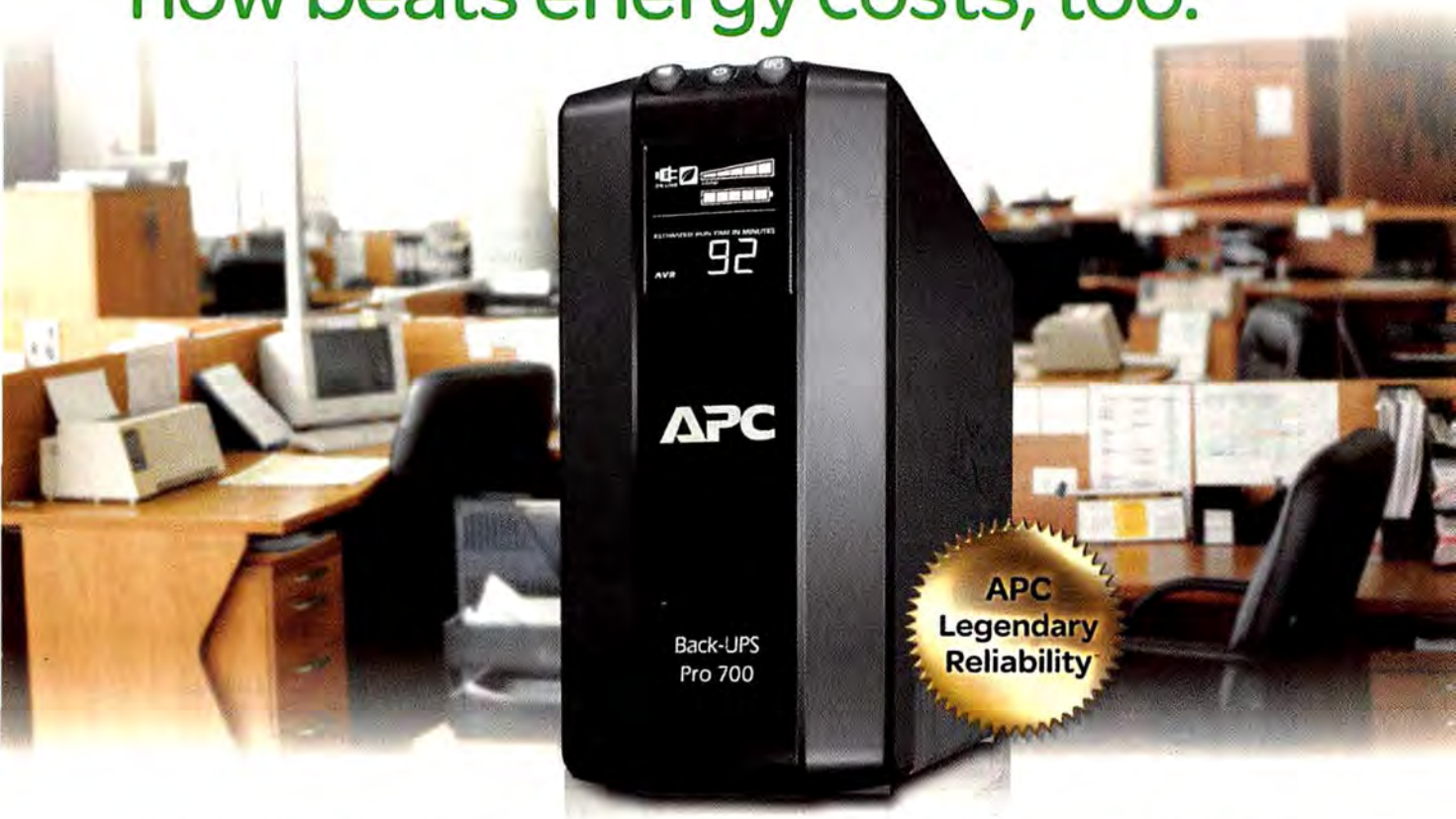
Aegis NetDock | Apricorn

Affordable docking station has an optical drive and USB 2.0 ports.

List: $89

find.pcworld.com/70317

Unbeatable power protection now beats energy costs, too.



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Unique energy-efficient features

Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby. Automatic voltage regulation (AVR) adjusts the undervoltages and overvoltages without using the battery. With our patent-pending AVR bypass, the transformer kicks in only when needed and automatically deactivates when power is stable. Plus, APC's highly efficient designs reduce power consumption when power is good and extend runtimes when the lights go out. Together, these power-saving features eliminate wasteful electricity drains, saving you about $40-50 a year. And managing today's Back-UPS couldn't be easier thanks to an integrated LCD that provides diagnostic information at your fingertips.

Trusted insurance for all your business needs

The award-winning Back-UPS provides reliable power protection for a range of applications: from desktops and notebook computers to wired and wireless networks to external storage. The reinvented APC Back-UPS is the trusted insurance you need to stay up and running and reliably protected from both unpredictable power and energy waste!

Keep your electronics up and your energy use down!

Back-UPS models are available with the features and runtime capacity that best suit your application, and many models have been designed with power-saving features to reduce costs.

The High-Performance Back-UPS Pro Series

High-performance Back-UPS Pro units deliver cost-cutting, energy-efficient features. Power-saving outlets automatically shut off power to unused devices when your computer and peripherals are turned off or on standby, eliminating costly electricity drains. See [illegible]

The energy-efficient ES 750G

The ES 750G boasts innovative power saving outlets which automatically shut off power to controlled outlets when the computer plugged into the host outlet is deemed-asleep, eliminating wasteful electricity drains.

- 10 Outlets • 450 Watts / 750 VA
- 70 Minutes Maximum Runtime
- Coax and Telephone/Network Protection

The best-value ES 550G

The ES 550G uses an ultra-efficient design that consumes less power during normal operation than any other battery backup in its class, saving you money on your electricity bill.

- 8 Outlets • 330 Watts / 550 VA
- 43 Minutes Maximum Runtime
- Telephone Protection

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Top 10 All-in-One Desktop PCs

LAB TESTED

A Sony VAIO model leads this pack of space-saving systems, despite its high price tag.

	MODEL	Rating	Performance	Features and specifications
1	Sony VAIO L117FX/B All-in-One PC $1700 find.pcworld.com/69457	★★★★☆ VERY GOOD	• WorldBench 6 score: 105 • WorldBench 6 rating: Very Good • Overall design: Good	• 2.6GHz Core 2 Quad • 6GB of RAM; 1TB of storage • GeForce GT240M • BD-RW drive
	▸ Sony's 24-inch all-in-one remains king of the category, with strong performance, a Blu-ray burner, and lots of ports. But it's not cheap.			
2	HP TouchSmart 600 Quad $1650 NEW find.pcworld.com/70289	★★★½☆ VERY GOOD	• WorldBench 6 score: 104 • WorldBench 6 rating: Very Good • Overall design: Very Good	• 1.6GHz Core i7-720QM • 6GB of RAM; 1TB of storage • GeForce GT230M • BD-R drive
	▸ HP's latest TouchSmart packs a punch, delivering strong media-center functionality and the signature TouchSmart style.			
3	Lenovo IdeaCentre B500 $1400 NEW find.pcworld.com/70290	★★★½☆ VERY GOOD	• WorldBench 6 score: 108 • WorldBench 6 rating: Very Good • Overall design: Very Good	• 2.6GHz Core 2 Quad • 4GB of RAM; 1TB of storage • GeForce GTS 250 • BD-R drive
	▸ Though Lenovo's IdeaCentre B500 has no touchscreen, it offers a striking design, great performance, and an integrated TV tuner.			
4	Apple 27-inch iMac Core i7/ 2.8GHz $2200 find.pcworld.com/64257	★★★½☆ VERY GOOD	• WorldBench 6 score: 128 • WorldBench 6 rating: Superior • Overall design: Good	• 2.8GHz Core i7 • 4GB of RAM; 1TB of storage • ATI Radeon HD 4850 • SuperDrive
	▸ The fastest all-in-one PC we've seen runs Windows and OS X and has a huge screen—but no multitouch, Blu-ray drive, or TV tuner.			
5	Apple 27-inch iMac Core i5/ 2.66GHz $1999 find.pcworld.com/70291	★★★½☆ VERY GOOD	• WorldBench 6 score: 123 • WorldBench 6 rating: Superior • Overall design: Good	• 2.6GHz Core i5 • 4GB of RAM; 1TB of storage • ATI Radeon HD 4850 • SuperDrive
	▸ Only slightly slower than the Core i7 iMac, this Core i5–based 27-incher is otherwise similar (same OS, same missing extras).			
6	BEST BUY Gateway ZX6900-01e $1020 find.pcworld.com/70292	★★★☆☆ GOOD	• WorldBench 6 score: 113 • WorldBench 6 rating: Very Good • Overall design: Fair	• 2.6GHz Core 2 Quad • 4GB of RAM; 640GB of storage • Intel integrated graphics • BD-R drive
	▸ Aside from a few shortfalls on its spec sheet, this large all-in-one PC produces great numbers for its relatively low price.			
7	HP All-in-One 200-5020 $700 find.pcworld.com/70293	★★★☆☆ GOOD	• WorldBench 6 score: 104 • WorldBench 6 rating: Very Good • Overall design: Good	• 2.7GHz Pentium Dual Core • 4GB of RAM; 500GB of storage • Intel integrated graphics • DVD-RW
	▸ Despite lacking a touchscreen, HP's All-in-One 200-5020 offers excellent performance for the category, and a lush display.			
8	MSI Wind Top AE2220 $900 find.pcworld.com/70294	★★★☆☆ GOOD	• WorldBench 6 score: 90 • WorldBench 6 rating: Good • Overall design: Fair	• 2.2GHz Core 2 Duo • 4GB of RAM; 500GB of storage • nVidia Ion • BD-R drive
	▸ MSI's well-connected Wind Top AE2220 provides a TV tuner and Blu-ray playback, plus advanced connections rare in all-in-ones.			
9	Lenovo IdeaCentre A300 $800 NEW find.pcworld.com/70295	★★½☆☆ FAIR	• WorldBench 6 score: 85 • WorldBench 6 rating: Fair • Overall design: Superior	• 2.2GHz Core 2 Duo • 4GB of RAM; 500GB of storage • Intel integrated graphics
	▸ Though its performance pales in comparison with the rest of the category, the stunning A300 has a wealth of connection options.			
10	Acer Aspire Z5600-U1352 $900 find.pcworld.com/70296	★★½☆☆ FAIR	• WorldBench 6 score: 98 • WorldBench 6 rating: Good • Overall design: Fair	• 2.3GHz Core 2 Quad • 4GB of RAM; 1TB of storage • Intel integrated graphics
	▸ With a vibrant display and a roomy hard drive, Acer's big-screen all-in-one might not stand out much, but it offers good performance.			

CHART NOTE: Ratings are as of 6/29/10.

PHOTOGRAPHS: ROBERT CANDIN

MORE ONLINE Looking for a lower-cost model? Browse to find.pcworld.com/69449 to see our Best Budget All-in-One PCs chart.

In search of a new style
MONEUAL 320

Raising the HTPC Standard

Composed entirely of aluminum, the **MONEUAL 320 HTPC** puts to use a single HDMI cable that outputs both multimedia and audio in digital high quality onto an LCD TV. The Moneual 320 is perfect not only for basic PC functions such as word processing and web surfing, but also for storage, recording, and playback of full HD quality media. Delivering powerful performance at the size of the average DVD player, the Moneual 320 will be the key to bringing the HTPC out of the niche and into the mass market.

Moneual recommends
Windows 7

MONEUAL 312

MONEUAL 320

MONEUAL 972i

MONEUAL

amazon.com

For more information or to purchase one of our award-winning products, call 1-877-450-0105 or visit www.moneual.com

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Lightroom 3 Simplifies Photo-Editing Workflow

MANY PRO photographers and serious hobbyists use Adobe Lightroom in their editing workflow. Version 3 ($299 for first-time buyers, $99 as an upgrade) is likely to attract even more users.

Lightroom 3 introduces a new noise-reduction engine, improved RAW processing, and a streamlined workflow.

★★★★½ SUPERIOR

Lightroom 3 | Adobe

Upgraded software revamps noise reduction and smooths workflow.

List: $299 ($99 upgrade)

find.pcworld.com/70283

Importing images into the program is simpler; the app also allows import presets and gives you control over editing metadata, keywords, and the type of import. Regrettably, the interface ignores CompactFlash and SD Card folder structures.

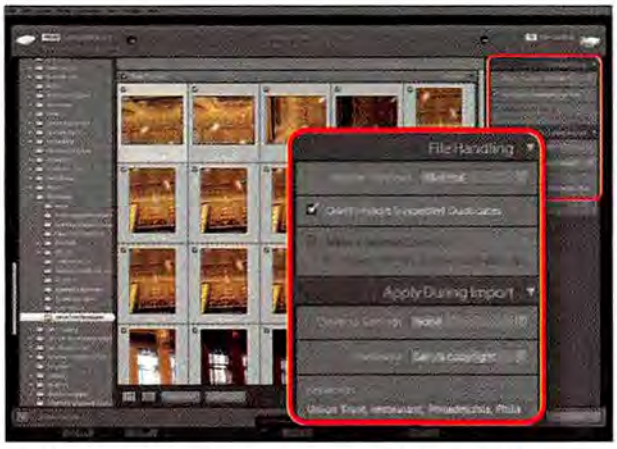
The Develop module now gives you direct access to all collections and recent folders. Adobe has also rewritten the tool's demosaicing, sharpening, noise-reduction, and vignetting algorithms; if you like, you can add filmlike grain to pictures, as well.

The Develop module's Lens Correction reads image metadata and corrects distortions inherent in the specific lens used for a shot.

You can import, catalog, and preview video without leaving the Lightroom interface. The Slideshow module improves video output, too, by simplifying how it handles music and MP4 export.

Lightroom 3 is a compelling upgrade for photographers who depend on the program to import, catalog, and prepare their images.

—Sally Wiener Grotta and Daniel Grotta



THE LIGHTROOM 3 import function can weed out duplicate images.

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Portrait Professional's Digital Dorian Gray App

YOU CAN ALTER any photo, using the sliders in the right-hand panel.

ANTHROPICS' Portrait Professional 9 ($70) allows you to remove blemishes and wrinkles in your photo portraits, as well as to make such alterations as thinning faces, widening eyes, lifting eyebrows, and plumping lips.

You upload an image and mark five spots on it: the outside corners of the eyes, the tip of the nose, and the corners of the mouth. Then you adjust the points on the image to correspond to the features of the face, and click. In a few seconds, Portrait Professional 9 delivers a brand-new face. If multiple people appear in an image, the program lets you change each subject individually.

Once the program has finished its automatic changes, a dialog box prompts, 'Now You Enhance Your Photo.' At that point you can make your own alterations, using sliders at the right side of the screen to increase or decrease each effect.

For amateur photographers and photo enthusiasts, Portrait Professional 9 is an easy and fun tool that does a fine job of enhancing people's beauty. One caveat: It didn't handle children's faces well in my tests, because its algorithms seemingly favor thinning the cheekbones and the nose to create a chiseled appearance that many people consider beautiful in adults, but that looks oddly disturbing in images of children.

—Lisa Cekan

★★★½☆ **VERY GOOD**

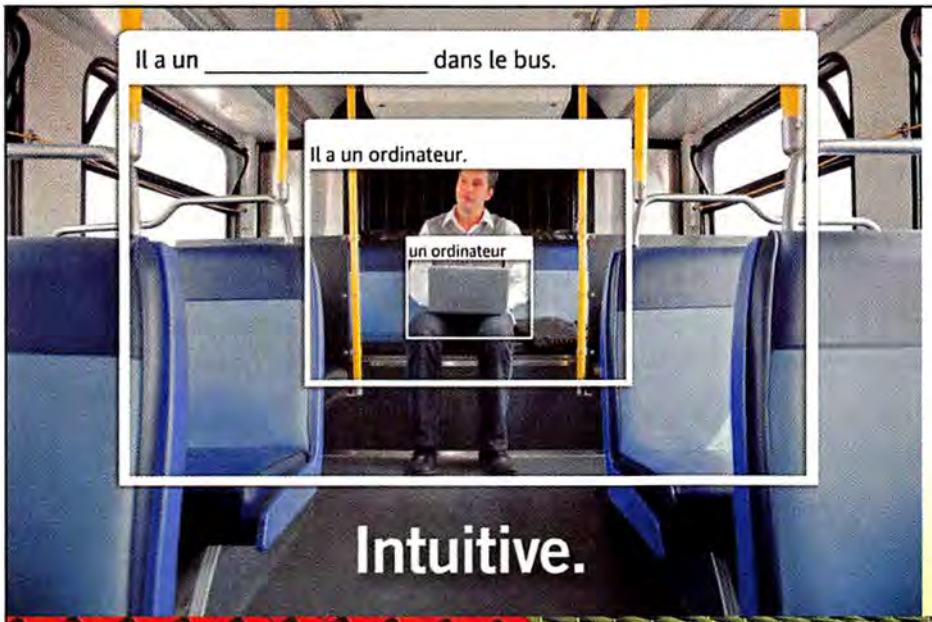
Portrait Professional 9

Anthropics

Image-editing tool evens features in any face to make it more beautiful.

List: $70

find.pcworld.com/70286



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Top 10 Ultraportable Laptops

LAB TESTED

A new HP enters the top 5, but Alienware's superbly designed M11x retains the top spot.

	MODEL	Rating	Performance	Features and specifications
1	BEST BUY **Alienware M11x** **$1099** find.pcworld.com/69984	★★★★½ SUPERIOR	• WorldBench 6 score: 77 Good • Overall design: 91 Superior • Tested battery life: 7:27	• 1.73GHz Core 2 Duo SU7300 • 11.6-inch widescreen • 4.6 pounds • 500GB hard drive
	▸ In the Alienware M11x, gamers finally have a fully capable notebook that's easy to transport and offers great battery life.			
2	Sony VAIO VGN-Z598U/B **$4450** find.pcworld.com/62161	★★★★☆ VERY GOOD	• WorldBench 6 score: 107 Superior • Overall design: 84 Very Good • Tested battery life: 4:46	• 2.533GHz Core 2 Duo P9500 • 13.1-inch widescreen • 3.8 pounds • 250GB solid-state drive
	▸ Sony's high-powered business multimedia ultraportable is a compelling machine—but with all the extras, its price is stratospheric.			
3	HP ProBook 5310m **$899** find.pcworld.com/69436	★★★½☆ VERY GOOD	• WorldBench 6 score: 99 Very Good • Overall design: 86 Very Good • Tested battery life: 4:56	• 2.26GHz Core 2 Duo SP9300 • 14.0-inch widescreen • 3.8 pounds • 300GB hard drive
	▸ The HP ProBook 5310m's slim, stylish case impresses—and so do its quick-booting, business-friendly applications.			
4	Lenovo ThinkPad X200 **$1094** find.pcworld.com/69437	★★★½☆ VERY GOOD	• WorldBench 6 score: 88 Very Good • Overall design: 81 Very Good • Tested battery life: 8:54	• 2.4GHz Core 2 Duo P8600 • 12.1-inch widescreen • 3.0 pounds • 160GB hard drive
	▸ The ThinkPad X200 delivers full-featured performance and strong battery life, and throws in a good keyboard to boot.			
5	HP EliteBook 2540p **$1629 NEW** find.pcworld.com/70281	★★★½☆ VERY GOOD	• WorldBench 6 score: 102 Very Good • Overall design: 80 Very Good • Tested battery life: 5:34	• 2.13GHz Core i7-640LM • 12.1-inch widescreen • 4.0 pounds • 250GB hard drive
	▸ The small, travel-friendly EliteBook 2540p breezed through WorldBench 6, earning the second-highest score on the chart.			
6	Lenovo ThinkPad Edge **$799** find.pcworld.com/69438	★★★½☆ VERY GOOD	• WorldBench 6 score: 65 Good • Overall design: 86 Very Good • Tested battery life: 6:30	• 1.3GHz Core 2 Duo SU7300 • 13.3-inch widescreen • 3.9 pounds • 320GB hard drive
	▸ This ultraportable improves the look and feel of Lenovo's workhorse ThinkPad line without sacrificing any of its best features.			
7	Lenovo IdeaPad U150 **$799** find.pcworld.com/69829	★★★½☆ VERY GOOD	• WorldBench 6 score: 66 Good • Overall design: 76 Good • Tested battery life: 8:20	• 1.3GHz Core 2 Duo SU7300 • 11.6-inch widescreen • 3.2 pounds • 320GB hard drive
	▸ The nice-looking IdeaPad U150 finished in the dead center of our performance benchmarks among ultraportables.			
8	Acer Ferrari One **$599** find.pcworld.com/69439	★★★½☆ VERY GOOD	• WorldBench 6 score: 51 Fair • Overall design: 86 Very Good • Tested battery life: 4:52	• 1.2GHz Athlon X2 Low-Voltage • 11.5-inch widescreen • 3.2 pounds • 250GB hard drive
	▸ Excellent design and features make up for lackluster performance in a cool little laptop that will appeal to cramped netbook buyers.			
9	HP EliteBook 2530p **$2599** find.pcworld.com/69440	★★★☆☆ GOOD	• WorldBench 6 score: 89 Good • Overall design: 85 Very Good • Tested battery life: 6:48	• 1.86GHz Core 2 Duo SL9400 • 12.1-inch widescreen • 4.0 pounds • 80GB solid-state drive
	▸ Priced at a premium but worth it, the HP EliteBook 2530p lives up to its name with extras not found on most ultraportables.			
10	Samsung X360-34P **$2299** find.pcworld.com/69441	★★★☆☆ GOOD	• WorldBench 6 score: 73 Good • Overall design: 87 Very Good • Tested battery life: 7:36	• 1.4GHz Core 2 Duo U9400 • 13.3-inch widescreen • 3.2 pounds • 128GB solid-state drive
	▸ Samsung provides solid competition for Lenovo's ThinkPad X200 with slicker looks and a crisper image, but lower performance.			

CHART NOTES: Prices are as of 6/24/10. Tested battery life figures are expressed in hours:minutes.

PHOTOGRAPHS: ROBERT CARDIN

MORE ONLINE Visit find.pcworld.com/69510 to see in-depth reviews, full test results, and detailed specs for all laptops on this chart.

6:30pm **Days without USB 3.0**

6:30pm **Days with USB 3.0**

Less time transferring files,

means **more time**

for everything else

USB 3.0

*Performance increased by **677%** compared to USB 2.0*

USB 3.0	Read	94sec	Time shortened by 411sec.
	Write	88sec	Time shortened by 508sec
USB 2.0	Read	505sec	
	Write	596sec	

* The result may be different due to varied platforms. Test files: 14.3GB based on real performance of ADATA N004 Flash drive

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USB 3.0 delivers much higher transfer rates up to 4.8 Gbps, which is 10 times faster than conventional USB 2.0 in theoretical terms.

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NH03
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Jabra's Admirably Extreme Headset

PRICED AT $80, the Jabra Extreme puts the company's Noise Blackout Extreme technology in a lightweight shell to create an excellent-sounding headset that neutralizes the noise of the big city or of a busy household.

The unit's silver, electric-razor-like microgrill body is attractive and functional. The dual internal microphones worked well in my tests. The 0.35-ounce Extreme comes with a handful of ear gels for proper fit, plus two earhooks and Bluetooth 2.1+EDR (enhanced data rate) support.

Jabra's Noise Blackout Extreme noise cancellation technology worked very well even with loud music playing in the background. Incoming audio had ample clarity, with minimal static or other problems.

The Extreme supports A2DP for streaming audio from digital music players, but some functions (like remote volume control) don't work with some devices, including the iPod Touch. The Extreme can connect to two devices at the same time, automatically giving priority to a ringing phone.

The headset has a simple on/off switch and a raised center button for connecting and disconnecting calls and for pairing. But the volume buttons on either side of the center button are somewhat hard to find because they're almost flush with the body. The Extreme automatically adjusts earpiece volume in response to ambient noise, and a sound monitor protects your eardrums from sudden volume spikes. The headset also supports voice commands on compatible phones.

The Extreme comes with a small, folding USB charging adapter and adapters for 12-volt car/USB use and AC/USB use. Jabra rates the Extreme's built-in lithium polymer battery at a talk time of 5.5 hours and a standby time of 10.5 days per charge.

On balance, the Jabra Extreme is a good, reasonably priced choice if you want to make sure you can be heard clearly at the other end in noisy environments.

—Robert S. Anthony

THE JABRA EXTREME is a dual-microphone Bluetooth headset.

★★★★½ SUPERIOR

Extreme | Jabra

Sleek-looking headset works well even in very noisy environments.

List: $80

find.pcworld.com/70287

A Versatile HD Media Streamer With Netflix

WESTERN Digital's WD TV Live Plus HD media player ($150) adds integrated Netflix support to the ability of its predecessor (the WD TV Live) to play HD media from USB drives, local networks, and Websites like YouTube. But it still lacks built-in Wi-Fi support, so you'll have to hook it up to your network via an ethernet cable or buy a USB Wi-Fi adapter.

The WD TV Live Plus is a 5.0-by-4.0-by-1.6-inch black box that provides HDMI, digital audio (S/PDIF), and composite video outputs for connecting to your TV; two USB ports for media; and an ethernet port for hooking up to your home network.

Once attached, the box can stream media from any other network-connected drive you have permission to access, as well as from any plugged-in USB drives, and supported Web-based media services. To navigate, you scroll through a list of media types and settings, and then across to access content or options within each.

The Netflix interface is very easy to navigate, as is the integrated YouTube interface. Flickr support is less robust: You can search for your own photos, but you can't actually log in to your account.

You can log in to your Pandora account, play your custom stations, and rate the songs. Same with Live365. In general, music sounded good over the system, but CDs streamed from DLNA-compliant network sources play their songs in alphabetical order unless the file names are numbered to indicate their order on the CD.

Altogether the WD TV Live Plus shapes up as an affordable and attractive option for adding Netflix's streaming service to your HD home entertainment system.

—Yardena Arar

WD TV LIVE Plus supports many formats for DRM-free content.

★★★★ VERY GOOD

WD TV Live Plus | Western Digital

Box conveniently links hard drives and network-connected devices.

Street: $150

find.pcworld.com/70308

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Archos 7 Tablet Takes Fun Out of Android

THE ARCHOS 7 Home Tablet ($199) is designed for people who want access to video, audio, images, e-mail, and Web material, but don't expect high performance. The easy-to-use Android 1.5 OS helps the Archos 7 perform these tasks fairly well, but I had trouble using the device's touchscreen to navigate to and control the apps.

★★½☆☆ FAIR

7 Home Tablet | Archos

Reasonably priced, hard-to-operate Android tablet is difficult to endorse.

Street: $199

find.pcworld.com/70310

The Archos 7 has the same 480 by 800 screen resolution as the earlier Archos 5. The user interface looks and feels very similar too. Connectivity is Wi-Fi only (802.11b/g), and you must use the Archos AppsLib market for new apps.

The 8.0-by-4.2-by-0.5-inch tablet weighs 13.7 ounces and has a 7-inch-wide screen. Along the top are a power switch and a MicroSD card slot. The headphone jack, power connector, and USB port occupy the right edge of the screen. A handy kickstand on the back lets you prop up the Archos 7.

Archos says the device will play video continuously for 7 hours before the battery runs out, but in my tests a fully charged battery became 30 percent depleted (and made the tablet feel surprisingly hot) after displaying video for about an hour.

THE ARCHOS 7 has 8GB of on-board memory and a MicroSD slot.

The 720p video I viewed on the device didn't jump off the screen at me, but it was certainly watchable. The screen displayed Web content, especially news, well.

Sound through the headphones had adequate bass and acceptable treble tones.

To transfer files onto the Archos 7, you plug the supplied USB cable into your computer and then use Windows Explorer (PC) or the Finder (Mac) to move files into the folders of your choice on the Archos 7. The tablet supports a fairly impressive array of video, audio, and image file types.

The Archos 7 performed its core tasks fairly well, but the unresponsive, sluggish touchscreen made app navigation and control a chore. When I touched an on-screen button, the screen often did not register my touch—and there's no capacitive touch for tactile feedback. The device has no physical Home, Menu, or Back buttons.

Also frustrating: When swiping my finger across the screen to move a slider, I had trouble grasping the slider long enough to move it where I wanted it to go.

The Archos 7 handles a set of basic duties fairly well, and at an appealing price. But many Android smartphones perform much better and can access better apps.

—Mark Sullivan

Couch Potato Keyboard-Mouse Combo

LENOVO'S MINI Wireless Keyboard N5901 ($60) crams a keyboard and mouse into a svelte shell. It's a compact unit that improves interaction with a home theater PC.

The N5901's black-and-orange motif is simple and elegant. Despite being lightweight, it feels solid and should hold up well even in a chaotic living room.

The device communicates with your PC via a tiny USB dongle. In my tests, I wandered into other rooms, at distances up to the 32-foot maximum Lenovo claims, with no break in connectivity.

TWO AAA BATTERIES power the Mini Wireless Keyboard N5901.

The N5901 readily connected to desktops running Windows 7, Vista, and XP without a hitch. It even worked with a MacBook Pro (OS X isn't officially supported).

Even for my large hands, typing on the N5901 wasn't too unpleasant. Touch-typing is impractical on the device, but the keyboard—with its raised keys of uniform size—was wide enough to keep my hands from cramping.

The N5901 is comfortable to hold with either one hand or two, but the keyboard's lack of a shortcut to Windows Media Center is a glaring oversight. The N5901 does offer volume and playback controls, and these buttons continued to function properly even when I tested them on OS X.

All in all, for a wireless device whose purpose is to help couch potatoes navigate their media, the N5901 does a reasonably good job.

—Nate Ralph

★★★★☆ VERY GOOD

Mini Wireless Keyboard N5901 | Lenovo

Compact keyboard makes any entertainment center more useful.

List: $60

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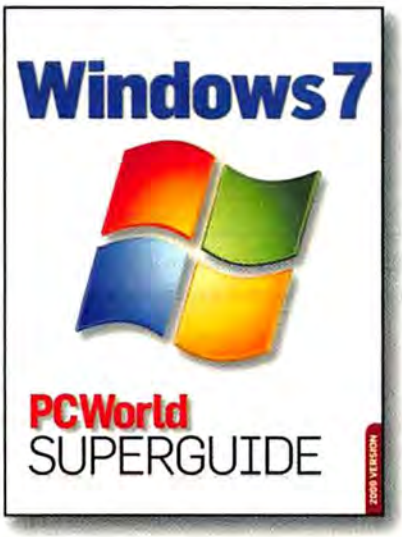

This superguide offers straightforward, hands-on instruction for all of Windows 7's most useful features.

- Speed up your system with our performance-enhancing secrets.
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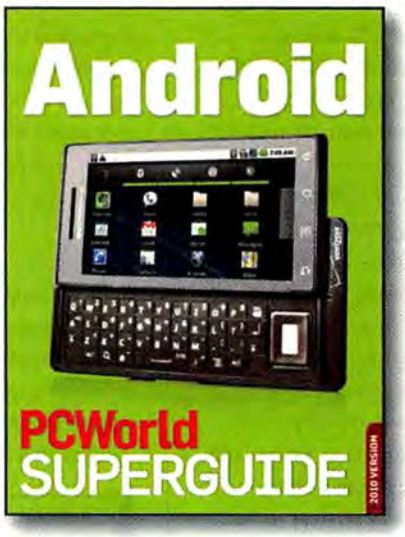
- Connect your Windows 7 PC to a wireless network.
- Share music, movies, and more with every PC in your house.
- Protect your data with BitLocker Drive Encryption.



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—Preston Gralla

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Free Programs Help You Restore Some Control

DON'T LET TECHNOLOGY stretch you thin. You can take control of your far-flung program windows, Internet journeys, and iTunes libraries by using these three free helpers. A handy utility called Minime minimizes windows to the system tray. JonDo, a security anonymizer, hides your Internet connections behind a proxy service. And if your music is scattered in disorder all across your network, corral it with MediaRover, an organizing tool.

JONDO USES a proxy service to hide your Internet travels from nosy Websites that want to track where you've been.

Minime

Having too many windows open can seriously impede multitasking. Trying to find the right window—whether you do it through the taskbar or through <Alt>-<Tab>—becomes an awkward juggling act. Minime permits you to easily hide windows that you don't want cluttering up your screen. When you press a customizable hotkey, Minime minimizes programs to the system tray. The program also provides a second handy hotkey, which you can use to quickly restore everything that you've previously minimized. Though Minime is an admirably small utility, it has the power to dramatically improve your productivity. find.pcworld.com/70368

MINIME UNCLUTTERS your desktop by minimizing programs to the system tray.

—Gabe Gralla

JonDo

JonDo anonymizes your connections using a proxy service, so that a Website or other Internet destination won't be able to see where you're really coming from. Though the software is free, using it will cost you a good deal of connection speed. JonDo is easy to install, and it includes a nice Assistant to help with first-time setup and testing. JonDo delivers maximum privacy for your surfing, with a minimum of fuss. Use it along with Firefox add-on JonDoFox to sweep a big broom across your online tracks—just remember that you'll be cruising about much more slowly. find.pcworld.com/70367

—Erik Larkin

MediaRover

Having multiple iTunes libraries on multiple computers can get pretty confusing. Wouldn't it be nice to have the same iTunes library with the same tracks on all your PCs? MediaRover helps you make sense of your iTunes libraries. Syncing files across your media devices is important, too: There's nothing worse than not being able to find a track that you know you purchased. Save yourself a headache and use this free tool instead. find.pcworld.com/70366

—Steve Horton

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What's Your PC IQ?

Think you've got geek smarts? Test your tech knowledge with our tricky trivia challenge—and learn a thing or two along the way.

Whether you're a DOS veteran or a Windows 7 newbie, there are basic PC facts you should know—what all those icons in your taskbar mean, for example, or how to troubleshoot and maintain a Windows machine. After all, the more you know about your PC, the easier it is to use (and fix).

But to rate as a PC guru, you have to know it all, from tech-quote blunders to Microsoft minutiae.

Think that you've got the goods? Then take our quiz to measure your level of PC erudition. You might even pick up a few tips, tricks, and trivia tidbits, too. Just answer the questions, check the answer key on each page, and add up your score to see how you did. Or take the test on our Facebook page at find.pcworld.com/70391 for automated scoring. »

BY PATRICK MILLER • ILLUSTRATIONS BY EDWIN FOTHERINGHAM

1 Your home DSL connection's advertised average download speed is 8Mb/sec. What does that mean?

a. 8 megabits per second
b. 8 megabytes per second
c. 8 molybdenum atoms per secant
d. 1 megabit per second
e. 64 megabytes per second

2 The Windows 95 marketing campaign featured the following Rolling Stones song:

a. "Start Me Up"
b. "Get Off of My Cloud"
c. "Beast of Burden"
d. "19th Nervous Breakdown"
e. "Sympathy for the Devil"

3 No well-appointed PC maintenance kit is complete without:

a. A Registry-cleaning utility and a hard-drive-cleaning tool
b. An emergency boot CD or flash drive
c. Moisturizers and exfoliants
d. Rubber bands, paper clips, and duct tape
e. All of the above

4 True or False:

The modern QWERTY keyboard layout originated in the 1870s, for a typewriter that tended to jam when a user pressed two neighboring keys in rapid succession.

5 You accidentally tipped your latte over your laptop—there's coffee everywhere. Your first move is to:

a. Unplug the AC adapter, and then pull out the battery
b. Get a straw, quick
c. Dump rice over the keyboard to help soak up the liquid
d. Throw your laptop away—it's pretty much a goner
e. Call 911 and tell them you have an emergency

6 You're at a café, typing an e-mail message, when you discover that your laptop's battery life is low—but there's no time to recharge the battery: You must send the message as soon as possible. Which of these moves will help you conserve the most battery life?

a. Turn off your PC's Bluetooth radio
b. Turn off your PC's Wi-Fi radio
c. Dim your laptop display
d. Unplug your external mouse and keyboard
e. Restore the default background

7 Which well-known apps do these icons correspond to?

- Adobe Acrobat
- WordPad
- VLC
- Dropbox

8 The Y2K bug caused a worldwide panic because many computer programs used only two digits (instead of four) to store the year for a particular date. What is the next year expected to cause similar computer-related havoc?

a. In the year 2525
b. 2038
c. Y3K
d. 10,000
e. It's irrelevant—the world will end in 2012, anyway

9 The best-selling PC game of all time is:

a. Doom (1993)
b. World of Warcraft (2004)
c. Myst (1993)
d. The Sims (2000)
e. Vice City: Peoria (2006)

10 You accidentally deleted a work presentation and your only copies of a 1978 Grateful Dead concert. So you...

a. Open an undelete utility (like Recuva) and restore your files
b. Stop smoking so much pot and listening to the Dead
c. Use Windows to revert to your most recent System Restore point
d. Re-create the presentation from scratch while singing "Dark Star" over and over
e. Start following Phish instead, because you've heard that lots of people with PCs are into them

11 When you turn on your PC, it loads a piece of software called the BIOS before loading Windows. The BIOS finds all of your PC's essential hardware components so that Windows can start up. What does BIOS stand for?

a. Built-In Operating System
b. Basic Input-Output System
c. Bifurcated Interlocking Oligopoly Server
d. Broad-based Integrated Optimetric Support
e. Big Important Overloaded Startup!

12 While installing a new app, the installer invites you to try a toolbar that can speed up your searches and make your life easier. What should you do?

a. Continue clicking 'Next'
b. Uncheck the opt-in box, thereby choosing not to install it
c. Grab the free toolbar from the advertiser, and don't look back
d. Write the app's manufacturer and insist on paying for the toolbar
e. Cancel installation

13 You need a printer, but you also need to save money. The first thing you should look at is the:

a. Retail price
b. Rebates
c. Cost of ink/toner
d. Cost per page
e. Warranty »

Subtotal Points:
Questions 1–13
One point for each question answered correctly.

+1 point if you do each of these...

EXTRA CREDIT: Keyboard Shortcuts

YOUR MOUSE IS GREAT, but your keyboard is faster. In this bonus section, you don't get any points just for knowing these common keyboard shortcuts—because if you aren't actually using them, you're wasting a lot of time clicking around.

☐ **Switch apps and tabs.** If you're not using **<Alt>-<Tab>** to switch through your open apps and **<Ctrl>-<Tab>** to switch through your open Web browser tabs, you might as well not own a keyboard. (One point if you use both.)

☐ **Use shortcuts to Copy, Paste, and Cut.** Whatever you're typing, you'd better be using the keyboard shortcuts for Copy (**<Ctrl>-C**), Paste (**<Ctrl>-V**), and Cut (**<Ctrl>-X**). (One point if you use all three of these.)

☐ **Close quickly.** Use **<Ctrl>-W** to close your windows and browser tabs. It's faster than hunting down the Close button. (One point.)

☐ **Issue Undo and Save commands fast.** The Undo button is even smaller and harder to find than Copy, Paste, and Cut, at least in Windows 7. So instead use **<Ctrl>-Z**. And use **<Ctrl>-S** in lieu of the Save button. (One point for using both.)

☐ **Cycle through text fields.** To hop from one input field to another while filling out a form, press **<Tab>** to move forward or **<Shift>-<Tab>** to move back. Use the up arrow and down arrow keys to cycle through options in a drop-down menu, and use the **<Enter>** key for checkboxes or radio buttons. (One point if you try to avoid using the mouse for forms whenever possible.)

☐ **Stop searching for Find.** It's easier to press **<Ctrl>-F** to find text in most apps than to hunt down the menu housing the Find command. (One point for using this shortcut; by the way, the command usually lurks in the Edit menu.)

☐ **Get at ease with the <Windows> key.** We're big fans of some lesser-known <Windows> key shortcuts—such as **<Windows>-D** (minimize all open windows and show the desktop) and **<Windows>-E** (open a new Windows Explorer window)—though not everyone needs them. But using the <Windows> key for instant access to the Start menu is universal, especially in Windows 7, where you can launch apps and open files by pressing **<Windows>** and typing the name. (One point for using three <Windows> key shortcuts regularly.)

Total ☐ + Extra Credit Score ☐ = SUBTOTAL ☐

ANSWER KEY 1–13:
1:a 2:a 3:b 4:True 5:a 6:c 7 (left to right): WordPad, Adobe Acrobat, VLC, Dropbox 8:b 9:d 10:a 11:b 12:b 13:d

14 **Match each quote to the corresponding American politician (one point per correct match):**

a. Senator Ted Stevens (R-Alaska)
b. Vice President Al Gore
c. President George W. Bush
d. Vice President Dan Quayle
e. Senator John McCain (R-Arizona)
f. Vice President Joseph Biden

i. "I hear there's rumors on the Internets that we're going to have a draft."
ii. "I'm an illiterate that has to rely on my wife for all of the assistance I can get." [when asked by a reporter whether he preferred Macs or PCs]
iii. "The Internet is...a series of tubes."
iv. "During my service in the United States Congress, I took the initiative in creating the Internet."
v. "Welcome to President Bush, Mrs. Bush...and my fellow astronauts."
vi. "You know, I'm embarrassed. Do you know the Website number? I should have it in front of me and I don't. I'm actually embarrassed."

15 **Microsoft Office's macro function lets you automate repetitive tasks with Visual Basic for Applications. This can be:**

a. A useful time-saver
b. Saved to individual documents
c. A vector for viruses
d. All of the above
e. None of the above

+1 point if you do each of these...

EXTRA CREDIT: Six Wholesome Habits

THIS SECTION AIMS to reward PC users who actually do what they should do. Knowing these six habits isn't enough; you have to do them to get credit (be honest).

☐ **Back up your data.** Backing up is the PC equivalent of flossing—a few minutes of tedium daily could save you hours of time in lost work, not to mention irreplaceable family photos. (One point if you could wipe your hard drive right now and not lose a single document, picture, video, or song.)

☐ **Keep your apps updated.** Windows, Adobe Acrobat, your Web browser, and your security suite should all have automatic-update options, and you should be using these to keep your PC safe. Are you using them? (One point if your system is current on all four automatic-update offerings.)

☐ **Use safe passwords.** Guidelines for what constitutes a secure password vary, but the basic rule is to use a different password (not found in a dictionary or on your Facebook page) of at least eight characters (numbers and letters) for each important account. (One point for doing this. Minus one point for using your name spelled backward, your pet's name, or "password.")

☐ **Avoid e-mail attachments.** You shouldn't open e-mail attachments (or load embedded images) from an unknown e-mail address. But not everyone can say that they've never done it. (One point if you're among the vigilant few.)

☐ **Lock down your Wi-Fi with WPA2.** Wi-Fi passwords can be a nuisance, but if you leave your network open to your neighbors, they can eat into your bandwidth, eavesdrop on your Internet traffic, and try to gain access to the devices on your network. WEP won't cut it, either—most modern PCs can crack WEP in less than 10 minutes, using readily available apps from the Web. (One point if your Wi-Fi has WPA2 encryption.)

☐ **Don't commit e-mail faux pas.** Under no circumstances should you (1) hit 'Reply All' in response to a company-wide message unless every single person needs to read what you have to say; (2) send messages with large attachments (5MB to 10MB is pushing the limit; instead, use a service like MegaUpload or YouSendIt for large files, share videos on YouTube, and post pictures on Flickr); or (3) SEND MESSAGES WRITTEN IN ALL CAPS. (One point if you don't commit any of these blunders.)

16 **The term "hot-swapping" refers to:**

a. Something that happens in "swinging" chat rooms
b. Connecting devices or components to a PC and disconnecting them from the PC without shutting off or rebooting the system
c. Bartering on black-market sites
d. Nasty code traded by hackers
e. Watching half an episode of *Battlestar Galactica* on one computer, and the other half on another one

17 **After you installed a cool new app, your PC has been crashing. To fix it, you:**

a. Run an antivirus program
b. Reinstall Windows
c. Revert to a System Restore point from before you installed the app
d. Place a call to Fred the Fixer
e. Erase and reformat your hard drive to ensure that your PC is safe

18 **You still don't know why your PC is crashing. What part of Windows 7 holds error message data and crash reports?**

a. Action Center
b. Windows Log
c. Device Manager
d. Windows Events Diary
e. Ask Clippy

19 **You're about to call tech support for help with your poor PC. What piece of information do you absolutely need to have before making the call?**

a. Your password
b. Your Social Security number
c. The exact error message(s) you got
d. Your PC's make, model, and year
e. Your credit card number

20 **The shield icon to the left of the Control Panel options below means:**

a. Only your company's IT department can make changes
b. Only administrator accounts can make changes
c. Microsoft recommends that you never change these options
d. These icons will never get viruses
e. Illustrative video clips from *Monty Python and the Holy Grail* are available for downloading

21 **The first recorded spam e-mail message was:**

a. A discount coupon for Hormel meat products
b. A personal appeal from a Saudi prince with a cash-flow problem
c. An invitation to a demo of a new DEC computer
d. An ad for Kozmo.com
e. A poorly spelled offer for erectile dysfunction pills

22 **Which celeb played a part in the Windows 7 "I Am a PC" ad campaign?**

a. Deepak Chopra, physician/writer
b. Rashad Evans, former UFC champ
c. Eva Longoria, actress
d. Pharrell Williams, rapper/producer
e. All of the above

23 **FAT16, FAT32, and NTFS are all...**

a. Different kinds of file systems
b. Hip-hop compression formats
c. Sexy acronyms for sexters
d. Linux networking protocols
e. Patient categories at high-end weight-loss clinics

24 **Which of these methods will wholly eradicate data from your hard drive?**

a. Overwrite files multiple times with a utility like DBAN, and then physically destroy the drive
b. Reformat the drive twice
c. Delete the drive's partition
d. Violently shake the drive like an Etch A Sketch for 30 seconds
e. All of the above

25 **You're browsing the Web during lunch break and see a few links tagged with "NSFW." What does this stand for?**

a. Non-Software Fire Wall
b. Nice Sexy Forward Winner
c. Not Safe For Work
d. New Software For Windows
e. Nova Scotia Fanged Walrus

26 **Windows' UAC security feature dims the screen and flashes a dialog** »

Subtotal Points:
Questions 14–25
One point for each question answered correctly.

Total [ ] + Extra Credit Score [ ] = SUBTOTAL [ ]

ANSWER KEY 14–25:
14: Speaker-quotation matches are (a)iii, (b)iv, (c)i, (d)v, (e)ii, and (f)vi 15:d 16:b 17:c 18:a 19:c 20:b 21:c 22:e 23:a 24:a 25:c

27 Which one of these was not a hidden Easter egg in Microsoft Office?

a. A Doom-esque mini-game called The Hall of Tortured Souls (Excel 95)
b. A flight simulator (Excel 97)
c. A Spy Hunter–inspired arcade game called Dev Hunter (Excel 2000 with Office Web Components)
d. A Magic 8 Ball sim (Access 97)
e. An animated paper shredder named Shreddy (Excel 95)

box when you try to install a new program or change PC hardware. In which version of Windows did it debut? (Bonus point: What does "UAC" stand for?)

a. Windows 98
b. Windows Me
c. Windows XP
d. Windows Vista
e. Windows 7

28 Doing everyday work in your PC's administrator account can be convenient on Windows XP machines if you need to install applications or make system changes frequently, but it's not a widely recommended practice. Why?

a. The administrator account's privileges leave you more vulnerable to viruses and malware
b. It's easier to make unintended and permanent changes to the system from the administrator account
c. The administrator account uses more system resources to run, making it slower
d. Both (a) and (b)
e. There's no good reason—any supposed drawbacks are a myth

29 You can perform all of these operations with the <Windows> key except:

a. Zoom in and out
b. Minimize all windows and bring yourself to the desktop
c. Switch display modes
d. Change Windows' color scheme
e. Launch apps (in Windows 7)

30 To safely install a new PC component, don the following item of clothing:

a. Antistatic socks
b. Antistatic ankle bracelet
c. Antistatic wrist bracelet
d. Antistatic beer-dispensing cap
e. Duct-tape belt

31 True or False: PC users running Windows Vista or Windows 7 need to defragment their PC's hard drive manually once every 30 days or so as a vital part of proper PC maintenance.

32 Identify the version of Windows corresponding to each Start menu button below (one point for each button):

33 Everyone remembers Clippy, the Microsoft Office assistant whose eager intrusions made Jar Jar Binks seem self-controlled. Which of these was not among the other assistants?

a. A globe named Mother Nature
b. A dot named The Dot
c. The Genius (Albert Einstein)
d. Sun Wukong, the Monkey King
e. A secretary named Peggy »

Subtotal Points: Questions 26–33
One point for each question answered correctly.

SUBTOTAL

ANSWER KEY 26–33:
26:d (Bonus: User Account Control) 27:e 28:d 29:d 30:c 31:False 32 (left to right): Windows Vista, Windows 7, Windows 95, Windows XP 33:e

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PC Professionals **Only**

WARNING: The following questions are not for the faint of heart. Give yourself two points for each correct answer, but take one away for every question you get wrong.

34 Who said this? "640K ought to be enough for anybody."

a. Hugh Hefner
b. Rush Limbaugh
c. Bill Gates
d. Ross Perot
e. None of the above

35 The spot on the Windows taskbar that houses various small icons, reports the correct time, and displays application notifications is officially known as:

a. The System Tray
b. The Notification Area
c. The Dock
d. Funkytown
e. The Place on Your Screen Where Your Eyesight Goes to Die

36 What is the name of the default Windows XP theme?

a. Blue Screen
b. Asteroids
c. Default Windows XP Theme
d. Expressions
e. Luna

37 Which of the following events did not feature a "Blue Screen of Death"?

a. Comdex Win 98 demo (1998)
b. Beijing Olympics opening (2008)
c. Nine Inch Nails concert (2008)
d. Super Bowl halftime show (2009)
e. Game Developers Conference (2010)

38 What is the name of the default Windows XP desktop image? (Two point bonus: In what state is the landscape shown in the image located?)

a. Abstract
b. Autumn
c. Bliss
d. Miss September
e. Subliminal Advertising Image #196

39 In 1996—according to IT legend—as flames engulfed a French bank, system administrators ran into the building to rescue backup tapes, because they:

a. Were still using magnetic tape
b. Didn't have up-to-date backups
c. Didn't back up off-site
d. Backed up on physical media only
e. Learned that the tapes weren't meant to be "bake-ups" after all

40 His mug shot is all over the Internet, because the following PC pioneer was arrested for reckless driving in 1977 (in Albuquerque, New Mexico, in a Porsche 911):

a. Steve Jobs
b. Bill Gates
c. Michael Dell
d. Chuck Thacker
e. Steve Wozniak

41 Fill in the blanks with the correct symbols for the following Windows file path: C:_Users_Public_Documents

a. - - -
b. / / /
c. : : :
d. \ \ \
e. :(:(:(

»

Subtotal Points: Questions 34–45

Add two points for each question answered correctly.
Subtract one point for each question answered incorrectly.

SUBTOTAL

ANSWER KEY 34–45:
34:e 35:b 36:e 37:d 38:c (Bonus: California)
39:c 40:b 41:d 42:True 43:c 44:a 45:c

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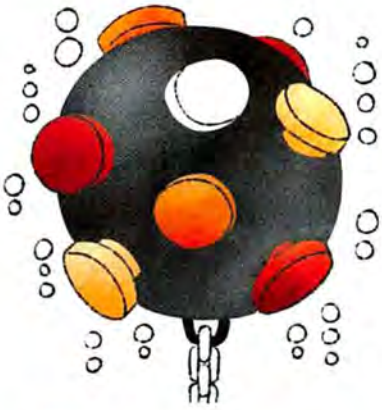
Total Points

Add all the page totals together to get your final score.



42 True or False:
Minesweeper came under fire from participants in an international protest, who deemed the game offensive to victims of land mines and to actual minesweepers.

43 The proper name for 1024 bytes of data is:

a. kilobyte
b. snakebyte
c. kibibyte
d. kiwibyte
e. kibblebyte

44 Due to security risks, the United States Computer Emergency Readiness Team encouraged users to avoid...

a. IE 6
b. IE 7
c. IE 8
d. IE for Microsoft Bob
e. None of the above

45 According to Microsoft marketing, the "NT" in "Windows NT" stood for...

a. Neutral Terminal
b. Not Terrible
c. New Technology
d. Noble Turkey
e. Ni-Tro

How Did You Do?

	+		+		+		=	
Page 73		Page 75		Page 76		Page 78		TOTAL

0–19: Newbie

You know enough to get your work done, check your e-mail, and update your Facebook status every once in a while, but you may not know what the word *newbie* means. Don't be shy—head over to our Website's How-To section (find.pcworld.com/70369) and start studying for the next quiz, pronto. And look on the bright side: You probably missed the worst PC years (Windows Me, anyone?).

Recommended reading: "How to Fix Anything" (find.pcworld.com/70370), "The Procrastinator's Guide to PC Maintenance" (find.pcworld.com/70371).

20–44: Talented Techie

You know a trick or two—we certainly won't expect any e-mail messages from you asking where the 'Any' key is. Chances are you can check your e-mail, fritter on Twitter, and bring up a blank spreadsheet when the boss walks by—all at once. But even so, our Website has all kinds of tips that you may not be familiar with to help you get your PC working faster, safer, and smarter. Dig down into the *Hassle-Free PC* archives (find.pcworld.com/70372) to turbocharge your PC skills.

Recommended reading: "Overclocking for Newbies" (find.pcworld.com/70373), "Automate Your PC's Media Library" (find.pcworld.com/70374).

45–59: PC Pro

Know your way around a computer? Psh—of course you do! You've clearly been in the biz for a while; in fact, you probably either work with PCs for a living or are a dedicated hobbyist (with a lifetime subscription to *PCWorld*, natch). When it comes to tech support, you're the go-to guy for your family and friends—so you might want to read up on "How to Fix Your Family's PC Problems" (find.pcworld.com/70375) for some practical tips on staying sane in that role. Since you're not quite ready to join the Geek Squad, check out our *Answer Line* archives (find.pcworld.com/70376) for additional troubleshooting tips.

Recommended reading: "Household Hacks" (find.pcworld.com/70377), "The Ultimate Guide to Home Networking" (find.pcworld.com/70378).

60+: Tech Guru

When it comes to computers, you have your antistatic wrist strap at the ready, and you probably coined the term "Blue Screen of Death" back in 1982. You know most of these tricks cold, you do everything you're supposed to do to maintain your PC properly, and you undoubtedly could have written a tougher quiz without even having to google anything. Our advice: Stop by our Web forums (find.pcworld.com/70379) and swap tips with other like-minded PC veterans.

Recommended reading: "Install a Touchscreen in Your Netbook" (find.pcworld.com/70380), "Tweak Your Graphics Card for Gaming" (find.pcworld.com/70381). ●

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SPEED 1
SPECIAL POWERS 6
SECURITY 6
STYLE 8
SPEED 4
SPECIAL POWERS 8
SECURITY 7
STYLE 9

Browser Blowout 2010

LAB TESTED

IE vs. Firefox vs. Chrome vs. Safari vs. Opera: Our lab tests reveal which browser is the fastest, the safest, and the most powerful tool for the Web. »

BY NICK MEDIATI
ILLUSTRATIONS BY GARY NEILL

Of all

the software on your PC, the Web browser may be the most important tool you use each day—but you may not give it much thought. The difference between a merely good browser and a great one, however, can be vast. The best browsers are those that stay out of your way: When you're in the right browser, you feel as though you're alone with your favorite site. The browser loads pages quickly, without crashing, and it can deftly handle any Web page you visit without prompting you to do anything extra.

But there's more to a browser than just that. To satisfy power users, it must support a multitude of add-ons and extensions. It must be customizable. And to protect you online, it should do a good job of catching and blocking potential security threats—such as phishing or cross-site scripting attacks—and be resistant to malware.

We put the top browsers—Internet Explorer, Firefox, Chrome, Safari, and Opera—through lab tests and subjective examinations to see exactly how they stack up in terms of interface, security, extras, and speed. Here's what we found.

User Interface

Browser interfaces all follow the same basic formula. Within those constraints, though, browsers exhibit some notable differences. First off, you can tell quite a bit about a company's approach to product development just by its browser interfaces. Apple's Safari has a fair amount of fit and finish, for example. Google's Chrome is spartan and unadorned, and Mozilla's Firefox interface is usable but feels dated compared with newer competitors.

Slim is in. Most browsers now sport streamlined looks, with fewer, narrower toolbars—and in many cases on Windows, no menu bar to speak of. This sort of layout typically works well, since it usually includes drop-down menus in the toolbar that give you easy access to the browser's features.

Firefox, Chrome, and Opera all let you apply different skins to the toolbars. Generally I find it pretty simple to locate and change skins in each of these browsers. Google, for instance, has an online repository that lets you browse and apply themes for Chrome. Mozilla has a similar site for Firefox. One nifty part of Firefox's skins feature—called Personas—is that you can "try on" any of the skins simply by mousing over the thumbnails on the Personas site. In Opera, meanwhile, you browse themes from within a control pane in the app itself; that works okay, but the pane isn't quite as easy to browse as the Chrome and Firefox skins galleries are.

We based our evaluation here on the ease of use, polish, flexibility, and layout of each browser's interface. We also looked at whether the interface got in the user's way too much, or whether it allowed Websites to take center stage.

Internet Explorer 8 The leading browser on the market, Internet Explorer, sports a decent interface in version 8, but it feels cluttered next to newer rivals. Two aspects of its tabbed-browsing setup are useful, however. First, IE 8 groups related tabs together using color coding. If you open a link from PCWorld.com in a new tab, for example, it will open adjacent to the original tab, and the tabs themselves will have a matching color. You can move tabs from one group to another; but if you have, say, three unrelated pages open, you can't create a group out of them.

Chrome Outpaces Rival Browsers in Site Tests

	FEATURES							SPEED TESTS[1]		
BROWSER	Theme support	Add-on support	Bookmark/data sync support	Extra security features	Plug-in crash protection	Web page crash protection	RSS reader	Average load time, live sites (seconds)	Average load time, local network (seconds)	SunSpider JavaScript benchmark (milliseconds)
Internet Explorer 8 find.pcworld.com/70341	No	Accelerators, toolbars, Web Slices	None	URL domain highlighting	No	Yes	Yes	1.91	0.37	3903.2
Firefox 3.6 find.pcworld.com/70342	Yes	Extensions, toolbars	None	Plug-in update checker	Yes[2]	No	Yes	1.92	0.47	902.5
Chrome 5 find.pcworld.com/70343	Yes	Extensions	Google Bookmarks syncing	Sandboxing, URL domain highlighting	Yes	Yes	No	1.75	0.46	301.1
Safari 5 find.pcworld.com/70344	No	Extensions	MobileMe Bookmarks syncing	None	Yes	No	Yes	1.89	1.33	597.7
Opera 10.53 find.pcworld.com/70345	Yes	Widgets	Opera Link	None	No	No	Yes	2.19	0.57	575.4

FOOTNOTES: [1]Lower times are better. [2]Crash protection introduced with Firefox 3.6.4.

Second, IE 8 offers a tab thumbnail view: Click the thumbnail button (the one with four squares) in the tab bar, and up pops a screen with thumbnails of your open tabs' contents. It's a good way to see everything at once; whether it's better than Opera's mouse-over thumbnails is up for debate, though.

Firefox 3.6 Bearing the same basic look and feel as earlier releases of Firefox, version 3.6 seems dated. It has more "window chrome" (a window's toolbars, menus, title bar, and so on) than what the latest versions of Chrome or Safari have, which makes it look like something out of 2006, not 2010. In addition, its highly cross-platform nature means that it can feel a little out of place at times, even on Windows.

But there's nothing seriously wrong with Firefox's interface, and it has its share of niceties. For one thing, its Find bar makes searching for a specific word or phrase on any given page easy. And though Firefox isn't the only browser to have a URL-autofill feature, it does the job better than most other browsers do.

One note: Shortly before we went to press, Mozilla issued a beta of Firefox 4. Among the new features is a revamped interface that takes cues from rivals like Chrome and Opera. See PCWorld.com for our ongoing coverage of Firefox 4 as it nears its final release.

Chrome 5 With Chrome, Google applied its trademark minimalist style to its browser. The main window has only the basics (a tab bar, an address field, back/forward/reload buttons, and a couple of drop-down menu buttons), which lets the page you're browsing become the star of the show. You won't find a status bar, either; page-loading messages appear as needed in the bottom of the window. The overall result is a browser that's slick, speedy, and responsive.

Tabbed browsing is presented in a thoughtful manner. The tabs sit above everything else on the page, which makes for a logical flow of information in the window. As you open pages, the tabs shrink to fit the available space; and as you close tabs, they grow again.

Safari 5 Safari delivers all the standard options but throws in a bit of Apple flair. For example, the address bar doubles as the page-loading bar. The default homepage displays thumbnails of your most commonly visited sites against a glossy black background. The bookmarks manager is laid out well and lets you view thumbnails of bookmarked pages as you click through them.

New to Safari 5 is one of my favorite features in any browser: Safari Reader. When you read an article on a site in Safari 5, you can click the *Reader* button in the address bar, and up slides an overlay that displays only the article's text. The feature has caused contro- »

HTML5

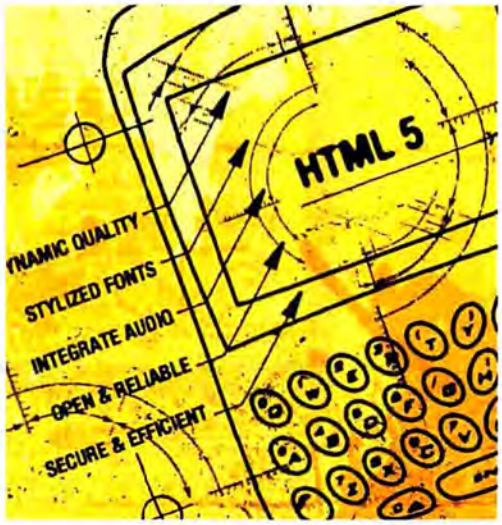
The Future of the Web

AS ANY WEB designer will tell you, getting a site to look right and work properly in all the major browsers can be very tricky. Doing so usually means settling for workarounds and compromises that can detract from the user experience. Fortunately, some upcoming Web technologies could help change that: The new HTML5 and CSS3 promise to give designers more flexibility so that they don't have to resort to hacks and tricks.

Plenty of areas within HTML5 still need to be hammered out—the specification won't get finalized for another 12 years or so. One of those areas is which format to use for Web video. Apple is backing the H.264 standard, but that's guaranteed to be royalty-free for Web use only through 2016. Other browser vendors, such as Mozilla, back Ogg Theora video since it's open source, but some parties have raised concerns about its quality.

Meanwhile, Google recently announced WebM (find.pcworld.com/70318), another possible contender in the Web-video format wars. And Microsoft, true to form, has stated that it will allow for support for all three formats in Internet Explorer 9.

That said, HTML5 is already sneaking into sites. Most of the current browsers provide some HTML5 support, and the upcoming IE 9 and Firefox 4 will improve HTML5 compatibility.



If you want to play with HTML5 demos, Apple, Google, and Microsoft have you covered. Try Apple's demos at www.apple.com/html5, Google's at www.html-5rocks.com, and Microsoft's at ie.microsoft.com/testdrive. For more on HTML5 and CSS3, see find.pcworld.com/70319. And for more on the future of the Web, read "Your Browser in Five Years" on page 10.

versy in certain circles—some site operators say that it hurts ad sales—but it makes reading an article easier. On the other hand, Safari foists several Mac interface conventions onto Windows users, so it may not be for everybody.

Opera 10.6 All of Opera's menu items reside under a single, small drop-down menu button—and the button vanishes if you hide the tab bar, in which case you have to press the <Alt> key to pull it up. I've got to hand it to the Opera folks for trying something different, but the result is perhaps a little too minimalist.

In part because of that aesthetic, Opera's interface is clean, polished, and attractive. It's also plenty flexible, with a healthy number of toolbars to choose from. Some of them, such as the favorites bar (Opera calls it the Personal Bar), take up more screen space than I'd like. Opera also gives you the option of displaying page thumbnails in the tab bar; it's a great way to distinguish one tab from another, and it's one of my favorite features.

BEST INTERFACE: Chrome
Chrome comes out ahead thanks to its clean, functional interface, but we also liked the polish of Opera and Safari. Which interface is "best" can be subjective, so this is largely a matter of personal preference.

Does Speed Still Matter?

IF WEB BROWSING performance is the most important factor to you, it really doesn't matter much which browser you use.

As our testing illustrates, any current Web browser is fast enough for anyone's purposes, despite what the browser vendors' marketing departments may claim. In our testing, we discovered that even though there was a striking difference in JavaScript handling (the one aspect of browser performance that most browser vendors seem to be touting above all others), in actual page-loading tests the differences we found were minuscule. Unless you run two browsers side by side on identical computers, you won't really notice if one loads a Web page in 1.5 seconds and the other loads it in 2.5 seconds.

And in reality, other factors, such as your PC's hardware, your operating system, and your connection speed, will likely affect your browsing speed more than your Web browser will.

Now that speed has essentially become a baseline standard, you should put more weight on the other aspects of a browser: interface, stability, security, ease of use, and add-ons. The good news, of course, is that all of the major browsers are free to download and try. If you don't like one, you can always switch to another until you find the browser that works best for you.

Security

Though some browsers are better than others at keeping you safe online, all of them have at least some security features. Phishing filters, for example, have become nearly universal. These filters typically connect to an online database of known phishing sites; when you encounter such a site, you usually get a warning. The downside is that they may not have brand-new phishing sites on their lists, so you'll still have to use your own judgment.

Typically browsers will also warn you before you open downloaded applications; the idea is to keep you from getting caught flat-footed opening malware disguised as an image file, for example. But since they can't distinguish bad software from good software, you still need a separate antivirus app.

Every browser we tested has some form of private browsing, too. Though such features are useful for preventing the next person who uses the computer from discovering what you've been up to, they won't stop online security threats—so don't let your guard down.

Internet Explorer 8 Historically, Internet Explorer has suffered a bad reputation when it comes to security, but IE 8 has some solid security features in its own right. IE 8 displays sites' domains in a darker text color, so you can more easily see whether you're actually visiting an ebay.com page, for instance, or, instead, a fake eBay page on a phishing site you've never heard of. Microsoft could still put a little more emphasis on the domain name (using a different-color background, for example), but the highlighting is a welcome addition, and Google Chrome has since picked up this little trick. In addition, IE 8 provides a cross-site scripting feature that can prevent various types of cyberattacks (see find.pcworld.com/70311 for more on cross-site scripting threats).

Internet Explorer's Best Feature:
TAB GROUPING
IE 8 groups related tabs together using color coding. If you open a link from PCWorld.com in a new tab, for example, it opens adjacent to the original tab, and the tabs themselves have a matching color.

Firefox 3.6 Firefox does a good job at keeping you informed about security. For instance, when it automatically installs an update, it also checks to see if any of your plug-ins need updating as well, and it warns you. You can run this check at any time in Firefox by visiting find.pcworld.com/70312. (Bookmark that page! Do it now!) The plug-in check seems to work in other browsers, too; but when I ran it in other browsers, it erroneously told me that I was using an up-to-date version of Flash when I wasn't (shame on me).

Another security feature: Firefox displays the name of Websites that provide "identity information" in a box located next to the address bar. When you click on that box, more details about the site pop up.

Opera 10.6 Opera uses color coding in the address bar to indicate whether a page is encrypted (and if so, whether it has any problems), or whether the site you visit a news site, Safari will accept cookies for just that site, and not cookies for the page's advertisements.

Firefox's Best Feature:
EXTENSIONS
Firefox has a vast library of extensions and add-ons, ranging from to-do lists to security add-ons to themes to Twitter assistants. Other browsers have followed Firefox's lead, but Firefox still has the widest selection of add-ons.

Chrome 5 Google took a novel approach to security with Chrome: Each open page is "sandboxed." If a site you visit has been hijacked by cybercriminals, sandboxing can help prevent malware implanted on that site from accessing the files you have on your PC. If you're interested in the technical nitty-gritty, you can read Google's blog post on the topic at find.pcworld.com/70313.

Safari 5 Though Safari has fairly standard security features—such as phishing protection, private browsing, and a "Reset" function—it's particularly good at handling cookies (small files that typically save preferences for a Website). Instead of merely letting you enable or disable cookies altogether, Safari permits you to enable cookies for the sites you visit but disable other cookies that are on the same page. For example, if

is flagged (based on AVG's database of fraudulent and malware-carrying sites).

Like Safari, Opera lets you accept cookies only from the site you visit, but on a per-site basis. To change this setting for a particular site, right-click the page and select *Edit Site Preferences*.

BEST SECURITY: Chrome
Sandboxing is great (and you'll never notice it). Chrome was the last browser remaining at this year's Pwn2Own hacking contest (find.pcworld.com/70314), too.

Extensions and Add-Ons

Some of the best browser features aren't even the work of the browser developers. Instead, independent programmers are creating amazingly useful add-ons that you can download and install for free. But not all browsers support all the same extensions—and some barely support them in general. When judging browsers, we looked at the types of add-ons each one allows, the selection of available add-ons, and how easy it is to find, install, and remove add-ons.

Internet Explorer 8 IE 8 permits you to install assorted browser toolbars—including those search toolbars that you either love or loathe. IE 8 also includes Web Slices and Accelerators. Web Slices are add-ons that allow you to keep tabs on information from around the Web without your having to visit the sites. For example, the eBay Web Slice tracks auctions, while the USA Today Entertainment Web Slice lets you quickly view the top showbiz stories. These usually live in your IE favorites bar, and open with a click.

Accelerators are shortcuts for tasks that you perform in your browser. For instance, if you highlight a block of text, a blue icon appears next to it. If you click on that icon, you get a menu that lets you translate the selected text, search for the selected text, look it up on a map (if it's an address), and so »

forth. You can see the entire library of IE 8 add-ons at Microsoft's aptly named Add-ons Gallery (ieaddons.com).

Firefox 3.6 Firefox first championed extensions years ago, and though other browsers have caught up a bit since then, Firefox retains the add-on crown. Mozilla has a library (at find.pcworld.com/70315) of thousands upon thousands of add-ons and extensions, ranging from security add-ons to social networking tools to stuff for Web nerds. By going to *Tools•Add-ons* in Firefox, you can view and enable or disable installed extensions, themes, and plug-ins, and browse through recommended add-ons.

One gripe: Updating extensions can be more obtrusive than I'd prefer. I'd like to see Mozilla make updating extensions happen in the background.

Chrome 5 Chrome rolled out extension support late last year, and Google's extension library (find.pcworld.com/70316) already has a healthy selection of goodies such as toolbar icons, notifiers, and weather updates. Extension updates happen more seamlessly in Chrome than in Firefox, and the extensions are better integrated into the browser. That said, Chrome can't quite match Firefox's breadth and selection of add-ons.

Safari 5 Extension support is new to the latest Safari, and as of this writing extensions are few and far between. At least one blog (safariextensions.tumblr.com) posts about Safari extensions, though, and Apple plans to launch an extensions gallery in the near future—it may be up and running by the time you read this.

Opera 10.6 Opera takes a completely different approach with its widgets. Much like the desktop widgets in Windows 7 or on Mac OS X's Dashboard, these are mini-applications that can provide quick updates on news, weather, sports scores, or what have you. One thing to note is that Opera Widgets aren't add-ons in the classic sense—they don't run within the browser itself. Instead, they're separate, stand-alone applications that run alongside your other software. This means that they stay open even when you close Opera, which can be useful, but they do little to extend the functionality of the browser.

BEST EXTENSIONS: Firefox
Though there's a lot to like about the add-on support in other browsers, Firefox still takes the prize in this comparison, mainly because its extension support and library are already mature and well established.

How We Test Performance

LAB TESTED

WE TOOK a hybrid approach in our testing, which we conducted on a MicroExpress KHL9070 laptop running Windows 7 Home Premium.

First, we ran the SunSpider testing benchmark to get a read on how effectively each browser handles JavaScript, the programming language at the heart of modern Web-based applications.

Additionally, we pitted the browsers against a suite of eight live Web pages: PCWorld.com, PCWorld's YouTube channel, PCWorld's Twitter feed page, the English Wikipedia homepage, eBay, Amazon, the *New York Times* homepage, and Yahoo. We connected to the PCWorld office network via ethernet for our testing.

We also tested the browsers on a subset of Web pages saved to an Apple MacBook running Apache Web server software, into which we plugged our test PC directly.

In both cases we loaded up each of the browsers on the test PC, ran our speed tests in one browser at a time, and restarted the computer between tests. In the page-loading tests, we cleared the caches before each test run.

One last note: Web browser performance can vary greatly depending on your PC's hardware, the operating system, the browser version you're running, and the sites you visit. That one browser performs well on one system or on the particular sites we tested is no guarantee that it will perform well on every machine or on every site.

Speed

Browser developers are making a big fuss over their products' page-loading speed right now—after all, everyone likes to be the fastest. Though we saw some slight speed differences in our page-loading tests, our findings indicate that most browser speed claims are overblown. (For more, see "Does Speed Still Matter?" on page 86.)

JavaScript performance
According to the SunSpider browser benchmark, Chrome offers the best JavaScript performance, as it completed the suite of tests in »

Chrome's Best Feature:
ADDRESS BAR
Chrome's address bar doubles as a search field. In addition to performing basic Google searches, Chrome search can work with the search features of other sites you visit, and you can add your own.

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301.1 milliseconds on average. Opera and Safari followed in second and third place, completing the benchmark in 575.4 and 597.7 milliseconds, respectively. Firefox came in fourth at 902.5 milliseconds. Internet Explorer brought up the rear, finishing the tests in 3903.2 milliseconds (no, that isn't a typo; IE 8 really did lag that far behind).

As we were going to press, Opera Software released version 10.6 of the Opera browser. The new version came out too late to be included in our live-site testing, but I did have a chance to run it through the SunSpider benchmark. Although Opera claims that the new release offers a 50 percent increase in performance over version 10.50, it finished about even with Opera 10.53 in the SunSpider tests.

Since JavaScript is becoming so prominent in Web apps and even on regular Websites, it's a good metric to test. SunSpider is a useful way to gauge JavaScript handling, too. It isn't, however, a great indicator of overall browser speed, as plenty of other aspects contribute to browser performance.

BEST JAVASCRIPT HANDLING: Chrome Google's browser surpassed its four major competitors by a fair margin on this particular test.

Page-loading tests Though Chrome was the fastest of the group in our page-loading tests, the speed differences among the browsers were negligible.

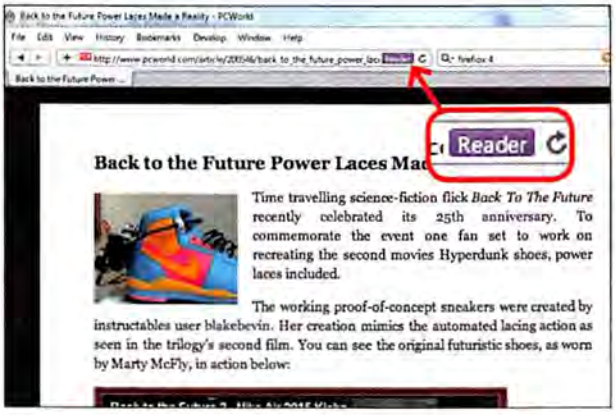
Opera's Best Feature:
THUMB PREVIEWS
When you mouse over a tab, Opera shows a pop-up preview of the page so that you can more easily tell pages apart—an especially useful feature if you open several pages with similar names.

Internet Explorer 8 put up a respectable showing overall and was the fastest browser in five of our tests, but Chrome's average page-load time of 1.75 seconds was the speediest of the five browsers we looked at. Safari 5 came in second overall at 1.89 seconds.

In many instances the page-loading speeds were close. For example, in our ebay.com test, four of the five browsers loaded the page in eight- or nine-tenths of a second; only Opera took over 1 second, and even then, at 1.09 seconds, its page-load time wasn't horrible.

That said, Opera was the slowest browser in three of our eight live-site tests. In two of those three tests (pcworld.com and en.wikipedia.org), Opera lagged significantly behind the rest of the pack, loading pages more than a full second slower than the next-slowest browser. In real time, a second isn't that big of a difference, but in terms of percentage, it's significant. On the other hand, in our internal-network tests, Opera came out ahead in two of the three tests we performed. We weren't quite able to explain why this difference exists—our live-site page-loading tests generated repeatable results, by and large—but it's possible that other browsers handle network latency better than Opera does.

In real-life use, browser speed claims are probably overstated. Though your results will vary depending on your computer, its operating system, and which sites you visit, among other factors, you likely won't notice the difference between browsers in regular Web surfing unless you perform tests similar to the ones we did. Ultimately, any Web browser you select will be fast enough. Other factors—such as features, security measures, the interface, and extensibility—should dictate your browser preference instead.



Safari's Best Feature:
SAFARI READER
When you're perusing a news article, you can click the Reader button in Safari's address bar. The browser then pulls out the article and presents it in an easy-to-read format.

BEST PAGE LOADING: Chrome In this speed test, Chrome enjoyed only a slight lead over the other four browsers we examined.

Which Should You Choose?

All five of the Web browsers we looked at for this roundup are free, so it never hurts to experiment with a different one. But jumping from browser to browser has one hidden cost: your time. It can take a while to set up a Web browser to appear and behave just the way you like it.

With that in mind, if we had to select only one browser, Chrome would be our top recommendation. We like Chrome for its clean and friendly interface, good performance, and strong security. It covers all the basics for most users, and it offers plenty of customization for power users. ●

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Save Money With These Penny-Pinching Printers

+ How to squeeze more pages from any printer

Even a printer that looks inexpensive can quickly blow your budget with its pricey ink or toner. Our 12 hand-picked bargain printers give you the lowest cost of consumables. »

BY MELISSA RIOFRIO
ILLUSTRATIONS BY DAN PAGE

Printers are money pits: You pay for the machine, and then you keep on paying more for the ink or toner it needs to produce your documents. With some lower-end models, your first set of replacement consumables may cost almost as much as the printer itself.

But you don't have to crack into your 401(k) just to run your printer. You can reduce your printing costs by buying the right printer in the first place—and keeping close watch on your printing habits afterward.

Before you buy a new printer, it's smart to find out how much replacement ink cartridges or toner drums cost for the machine you're considering and to look up how many pages each cartridge or drum will produce so you can calculate your cost per page. (Read "Ink and Toner Costs: Do The Math and Don't Get Reamed" on page 95 for more details.)

I've done some of the hard work for you, though. In this story, I'll give you my picks for the latest inkjet, snapshot, and color laser printers that save you money and still produce good results.

Even if you buy a printer that's relatively cheap to run, really saving money may require changing your own behavior. Make a habit of printing in draft mode to reduce ink or toner consumption, saving the nicest quality for customers or special occasions. Check your driver for "n-up printing" (also known as "2-in-1" or "4-in-1," for example), which lets you squeeze multiple pages' worth of content onto one sheet of paper. Print less, of course—which is easier now that sharing PDF files and other documents online is becoming commonplace.

Everyone knows that third-party, refilled, or remanufactured inks are cheaper than the inks sold by the original vendors. And many people go that route, despite vendors' efforts to coax, cajole, or scare them back onto the straight and narrow path. But what is it like off-road—are the horror stories from printer manufacturers true? Earlier *PCWorld* research (see find.pcworld.com/61892) indicated that the risks lie chiefly in print quality and reliability, which may not concern you if perfect prints aren't your priority. Serious penny-pinchers do the reloading themselves; in "Portrait of a Serial Refiller" (page 98), I profile a man who refilled the same cartridge for five years before it finally gave out.

Saving on printer costs starts with the printer itself, but it also pays to educate yourself about what you can do or buy to make it even cheaper to use over time. If you shop carefully, you can save a lot of money and still enjoy high-quality prints.

EPSON'S B-510DN INKJET, with its cheap inks and competitive speed, should make sellers of low-end color lasers worry. It also offers two input trays and automatic duplexing.

Inkjet Printers

The rule of thumb with inkjet printers is that the less expensive the printer is, the more the ink will cost you. The rule's origins lie in ink-cartridge configuration and capacity. Lower-end inkjets might have a configuration with a tricolor cartridge, combining cyan, magenta, and yellow inks into one package. Tricolor cartridges usually end up costing you more, because once a single color runs out, you have to replace all three. Inkjets that offer separate cartridges for each ink put an end to that problem; models that separate the ink tank from the print head can save you even more money.

One of the most inexpensive consumer inkjets to run is the $100 Canon Pixma iP4700 (find.pcworld.com/63619). It has a separate print head and five ink tanks, a full set of which ships with the printer. The pigment black (PGI-221) costs 4.3 cents per page, while each color costs 2.6 to 2.8 cents per page. A four-color page would cost about 12.2 cents.

Photo black, used only with images, lasts for 665 4-by-6-inch photos (about 2 cents per photo). On Canon's own paper, photos were accurate and sharp. Plain paper presented more challenges: Flesh tones appeared excessively pink, for instance, and text was black but slightly fuzzy.

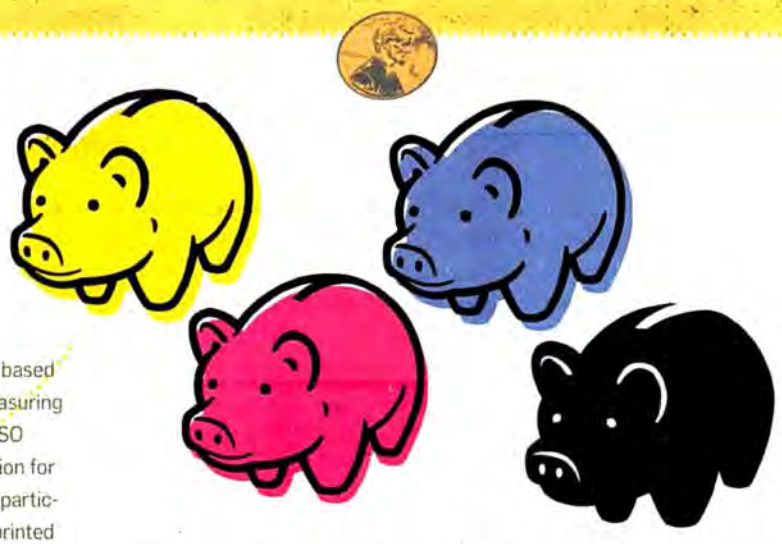
This model comes with an automatic duplexer, which can help you conserve paper, as well.

The most economical inkjets we've tested are business-oriented models. They carry higher price tags but offer high-yield cartridge options, with a lower cost per page compared to standard-size cartridges. As with anything you buy in bulk, make sure that you can use such cartridges in a reasonable period of time. If you print just a few simple pages per day, buying a cartridge that lasts for 1000 pages would be overkill.

The $180 HP Officejet Pro 8000 Wireless Printer (find.pcworld.com/64133), for example, comes with two standard input trays and one optional one, plus automatic duplexing and Wi-Fi support. It uses two print heads and separate ink tanks that load easily into a front bay. Among the standard-size supplies, black costs about 2.6 cents per page, and each color about 2.2 cents. A typical four-color page would cost about 9.3 cents. The high-yield cartridges are an even better deal: Black costs about 1.6 cents per page, and each color about 1.9 cents per page. That pegs a normal four-color page at just 7.2 cents. Overall, the Officejet Pro 8000 Wireless produced very good print quality. Text was crisp and suffered virtually no defects, while grayscale graphics showed a level of detail in darker areas that many printers miss. Color images had a rich (albeit somewhat dark) cast that we often see in output from HP printers. Flesh tones tended to be orangey.

Last and least (in ink costs) is the recently introduced Epson B-510DN (find.pcworld.com/70395). This $599 inkjet printer's consumables are cheaper than those of many lasers we've tested. Its standard-size supplies cost 1.3 cents per page for black and 1.4 cents for each color. A full-color page would cost just 5.6 cents. The high-yield colors each cost 0.9 cent per page. Epson offers high-yield and extra-high-yield black inks, priced at 1.2 cents and 0.87 cent, respectively. Built for maximum efficiency, it offers two input trays and automatic duplex- »

Ink and Toner Costs: Do the Math and Don't Get Reamed



BEFORE YOU BUY a printer, it makes sense to look not only at its price tag and reviews, but also at its cost of operation. For many printers—especially inkjet models—the price of replacement ink or toner can quickly outstrip the machine's initial cost. Here's how to find out what you're in for before you buy.

A little shopping: We get the current price of each cartridge from the vendor's own Web site. If the vendor doesn't sell the cartridges directly, we average the prices collected from three or more major online retailers. The price differences can be surprising, so it pays to shop around.

A little research: All printer vendors publish yield data for their ink or toner cartridges—how many pages a cartridge can print before it runs dry. Most vendors' yields are based on industry-standard measuring tools developed by the ISO (International Organization for Standardization), using a particular suite of documents printed at specific settings, so that the results are comparable among different models. Finding the yields can sometimes be difficult, but don't hesitate to bug the vendor for guidance if you can't find the data easily.

A little math: For each color, we divide the cartridge's price by its page yield to get the cost per color per page. If a vendor offers high-yield cartridges as well as standard-size ones for a particular printer, we gather the prices for both kinds of cartridges. The resulting costs per color per page will give you an idea of how much the printer is going to cost you in ink or toner.

Based on current prices, the cheaper inket printers and MFPs should have a cost per color per page of 5 cents or lower; walk away if it's more than 6 cents. For a color laser, the ideal cost per color per page should be 3 cents or lower; above 5 cents is pricey. For a snapshot printer, 25 cents per print is the best price currently. Your mileage will depend on what and how much you print day-to-day. Highly color-saturated pages—especially photographs—will cost more than these representative prices can illustrate.

A few tricks to watch out for: Vendors sometimes charge more for black (because it's used more), or they may lowball black to distract you from higher costs for other colors. Check for "starter-size" cartridges, too: Printers may ship with these lower-capacity supplies rather than full-size ones. It's not unusual for lower-end laser or LED printers to come with starters; and some snapshot printers give just a few shots' worth of ink, forcing you to buy a full set right away. It's getting harder to avoid starters, but at least you should be aware of them.

ing, plus record-breaking speed rivaling that of some lower-end color lasers. Its print quality is very good, too, just fuzzier on plain paper—which is acceptable for text, worse for photos.

Inkjet MFPs

There's no real difference in cost per page between inkjet multifunction printers (MFPs) and their single-function cousins, but there are more competitors among MFPs. The integrated scanners on these models can save you more ink by converting documents into PDFs or other electronic formats, which you can then distribute electronically instead of printing.

The $200 Kodak ESP 7250 (find.pcworld.com/70030) is one of many models that use Kodak's notably cheap inks. The tricolor cartridge costs only 4.28 cents per page, and the black cartridge costs just 2.35 cents per page. A page with all four colors would cost about 6.6 cents. Kodak also sells a high-yield black, but this cartridge offers only a slightly lower cost per page: 2.2 cents. Ink savings aside, however, Kodak's multifunction products tend to be average, with plodding speed, fuzzy output quality on plain paper, and mediocre scanners.

Another cheap standout is the Hewlett-Packard Officejet Pro 8500 Wireless All-in-One Printer (find.pcworld.com/62494). This $400 business-oriented model comes with everything you need—Wi-Fi support, a touchscreen, automatic duplexing, and an automatic document feeder—plus lots of paper capacity. Its standard-size inks cost 2.6 cents per page for black, and 2.2 cents per color per page (9.3 cents for a four-color page). The economic picture gets even brighter with the high-yield cartridges: 1.6 cents per page for black, 1.9 cents per color per page; a page containing all four colors would cost a mere 7.2 cents. Text output looked black and fairly crisp. Photos and graphics appeared grainy but had natural colors on plain paper. On HP's own paper, the images tended to be slightly dark but very smooth.

THE HP OFFICEJET Pro 8000 Wireless comes with everything you need: Wi-Fi support, a touchscreen, and automatic duplexing, plus inks that are cheap at both standard and high-yield sizes.

Canon's Pixma MX870 (find.pcworld.com/69542; $200) is a recent favorite whose inexpensive inks are just one of its fine attributes, which also include Wi-Fi support, automatic duplexing, and two 150-sheet input trays. The Pixma MX870 has a separate print head and five ink tanks. The pigment black (PGI-220) costs $15 and lasts for 524 pages, or 4.62 cents per page. The cyan, magenta, and yellow CLI-221 cartridges cost $13 each and should last for 510 to 535 pages each, which works out to about 2.5 cents per color per page; a page with all four colors would cost about 12.4 cents. The CLI-221 photo black will last for about 814 standard 4-by-6-inch photos, by Canon's reckoning. Color prints on both plain and photo paper had rich, smooth colors, while text pages looked black and sharp. It's also worth noting that a slightly older consumer model from Canon, the $150 Pixma MP560 »

FOR THE EPSON PictureMate Show PM 300 snapshot printer, a 150-print paper/ink pack works out to about 25 cents per print—economical compared with its rivals.

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(find.pcworld.com/63600), operates with similarly low costs.

A final note on this category: Three Lexmark MFPs—the $300 Pinnacle Pro901 (find.pcworld.com/70031), the $400 Platinum Pro905 (find.pcworld.com/63602), and the $280 Prestige Pro805 (find.pcworld.com/70393)—can use Lexmark's 105XL high-yield black cartridge, which costs just $5 and lasts for 510 pages, or a scant penny per page. But the 100XL high-yield black, which also fits these models, is extremely expensive—as are the standard-size 100 cartridges. So be careful what you buy.

Snapshot Printers

Designed simply to print photos at one or more sizes, snapshot printers appeal to convenience, rather than to economy. No longer must you upload images to an online site and wait for them to come back in the mail, or schlep your media card to a local store for one-hour printing—though both of those options cost less per print. Just put your media card into one of the slots, select a few layout or editing options, and out »

Portrait of a Serial Refiller

THE BULK INKS used for refilling cost significantly less per milliliter than the ink in OEM cartridges. The manual labor is the tradeoff.

THEY WORK IN the privacy of a garage or bathroom. Their tools are simple but effective. Serial refillers buy their own ink and pump it into the same cartridge, over and over again. They wouldn't dream of buying brand-name ink cartridges, or even third-party refilled or remanufactured ones. They know that the cheapest way is to do it themselves. I met a serial refiller; this is his story. (Note: He requested anonymity.)

My serial refiller could be anyone's next-door neighbor: A mild-mannered fellow, living in a neatly landscaped house in a peaceful suburb. He has been refilling not one, but two printers: an HP DeskJet 880Cxi that he purchased in 1998, and a Canon Pixma iP4000 that he bought seven or so years ago.

He told me exactly how he became a serial refiller. First he searched online for bulk ink and refill kits for his specific printer models. Once he got the kits, he just reordered as needed. For his Canon printer, for instance, he can buy a one-pint bottle of ink for about $25. Since the typical ink cartridge costs anywhere from $10 to $25 but holds an amount of ink measured in milliliters, that bottle represents a huge savings.

The kit for the HP included a small hex wrench and screw. The hex screw replaces the ball bearing that originally sealed the fill hole in the cartridge. My refiller removed the ball bearing by forcing it into the cartridge, using the tip of a ballpoint pen. He then finagled the filled syringe into the hole and added more ink. He refilled the same cartridge for many years using this method, until the print head finally gave out. Unfazed, he bought another cartridge and started over.

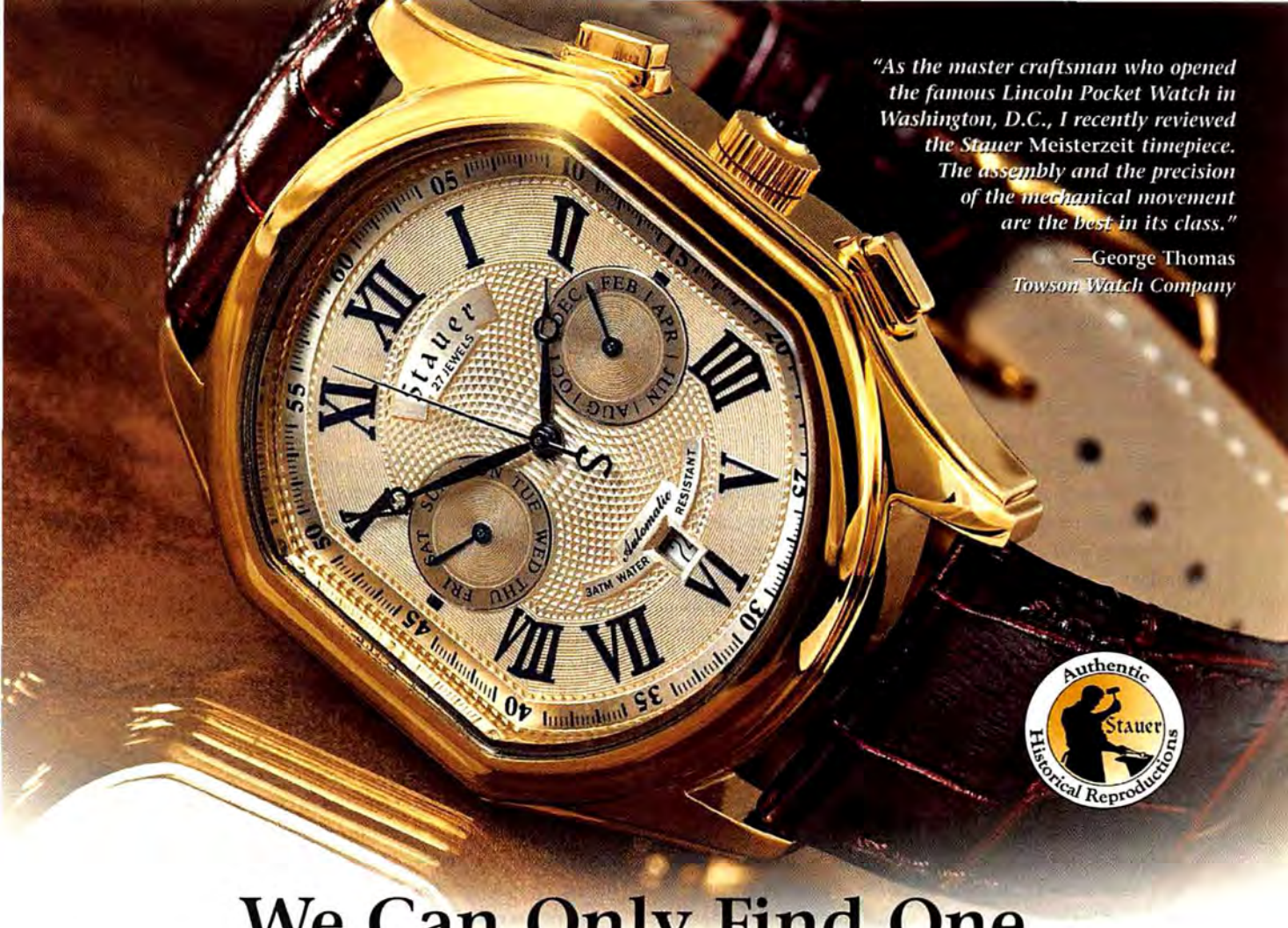
To refill the Canon unit, he had to drill a small hole into the top of each of its five tanks so he could fill them via syringe; then he sealed each hole with a screw. The kit provided a small, manual drill, but he said it was easier to use his electric drill. Occasionally, he switched to a slightly larger screw, as a tank's access hole expanded with reuse. He covered the tank's ink spout with electrical tape during a refill to prevent ink from leaking. He removed the tape carefully afterward and kept tissue ready to dab away any ink.

What about print quality? Vendors warn that it will suffer if users stray from brand-name inks. My serial refiller did not care, saying that what he got sufficed for the letters, invoices, and labels he printed. He also used draft mode most of the time to save even more ink. He took his digital photos to a local Walgreens store, paying a dime or so per print, versus 25 cents or more using an inkjet printer.

Could you become a serial refiller? How badly do you want to save money on ink?

Refilling may not be pretty; but it is very, very cheap.

SOME TOOLS OF the refiller's trade: ink, an access tool (in this case, a hex wrench), and a syringe for squirting ink into the cartridge (at left).



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comes a finished print. Most snapshot units print just 4-by-6-inch shots, but Hewlett-Packard sells some models that can print on 5-by-7-inch and 4-by-12-inch paper as well.

Among the snapshot printers we've reviewed, Epson's inkjet-based models have the lowest cost per print. Its $150 PictureMate Charm PM 225 (find.pcworld.com/63989) and its $300 PictureMate Show PM 300 (find.pcworld.com/64259) both ship with a starter ink cartridge that prints up to 20 images. A replacement pack containing a 150-print cartridge and 150 sheets of paper costs $38, which works out to about 25 cents per print—very economical compared with rival units. Both Epsons also produce quite nice-looking prints.

Color Laser/LED Printers

If you think laser printers are always cheaper than inkjets, think again. Our familiar rule of thumb applies here: The less expensive the printer, the more expensive the consumables. The most economical color laser or LED printers are those designed for high-volume use, which accommodate consumables that may last for tens of thousands of pages.

Kyocera Mita's FS-C5300DN (find.pcworld.com/63237) is very fast, and its operating costs are by far the lowest among color laser models we've tested, but it carries a steep list price of $1739. The photoconducting drums (one for each color) and toner supplies are separated to minimize waste. The drums last 200,000 pages apiece, so you'll take a while to exhaust them. The starter-size toner supplies last an impressive 6000 pages for black and 5000 pages for each color. A full-size, 12,000-page replacement supply of black ink costs 0.9 cents per page, while each 10,000-page color toner supply costs 1.5 cents per page. Color image quality was adequate but unsophisticated. Solid blocks of color, as in pie charts, looked fine, but color photos tended to appear grainy or fuzzy, with a yellowish cast. Grayscale images struggled with subtle gradations and looked too dark overall.

Following close behind the FS-C5300DN is the $699 Oki C610dtn (find.pcworld.com/70297), an LED model. The printer's output speed is impressive, but you might need to tone down the color palette, which produced ruddy flesh tones and dark or lurid colors. We also noticed grainy or fuzzy qualities in solid-color areas. Its consumables are very economical, though: Separate drums are built to last 20,000 pages each. A full set comes with the printer; replacing them costs about $71 to $77 apiece (per Oki's estimates—the company does not sell them directly), adding about a third of a cent per color per page to your costs. The starter-size cyan, magenta, yellow, and black toner supplies have a mere 2000-page yield, but the replacements are economical: Black toner costs about 1.1 cents per page; and each color, about 2.6 cents per page. A four-color page would cost just 9 cents—a bargain.

The $1549 Dell 5130cdn Color Laser Printer (find.pcworld.com/64136) costs a wee bit more per page than the Oki, but it compensates with far better speed and print quality. It also ships with standard-size supplies (versus the Oki's paltry starter sizes): a 9000-page black cartridge ($107 to replace) and 6000-page cyan, magenta, and yellow cartridges ($195 each to replace). That's about 1.2 cents per black page and 3.3 cents per color—or 10.9 cents for a four-color page. High-yield supplies offer greater savings: The 18,000-page black cartridge ($137) costs less than 1 cent per page, and the 12,000-page color cartridges ($245 each) cost about 2 cents per color, adding up to a superlow 6.9 cents for a four-color page.

By now you've figured out the pattern in printer economy: The more you pay for the printer up front, the less you'll pay per page for ink or toner later on. Unfortunately this means that home and student users, who generally have smaller budgets, are signing on for higher per-page expenses in the long term, assuming they stick with brand-name cartridges. ●

WITH THE KYOCERA Mita FS-C5300DN, even starter-size toner supplies last many thousands of pages. The separate photoconducting drums take 200,000 pages apiece to be exhausted.

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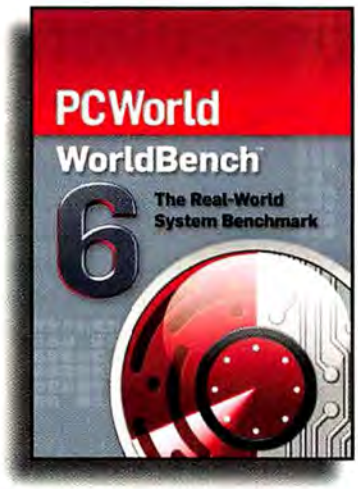

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You can purchase one of three different licenses for WorldBench 6, according to your needs:

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- **A Small Business license** ($999) allows you to install and use the software for your internal business purposes on up to 5 computers at a time.
- **A Corporate license** ($2499) allows you to install and use the software for your internal business purposes on up to 25 computers at a time.

www.worldbench.com

Your company's bottom line depends on the performance of its PCs.

To assess and compare system performance across your organization, use the benchmarking software developed by the experts at PC World Labs.

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From Web browsing to file encoding to general tasks, the automated test scripts that run in WorldBench 6 are designed to deliver a tough evaluation of today's top computers. Although multicore processors and larger amounts of RAM are appearing even in budget PCs, it's important to have benchmarks that can accurately assess—and challenge—systems with a wide variety of configurations. WorldBench 6 delivers.

Since it's automated, the suite can report errors and restart failed tests without user input. It then records the results, including the final WorldBench 6 score as well as the individual results of each application's workload, in both text and graphs.

Refined over the past decade, WorldBench is currently used in over 30 countries by Fortune 500 corporations, government agencies, and international media outlets.

Visit www.worldbench.com today and secure your DVD of WorldBench 6.

Here's How

Set Up a Secure Web Connection

Worried about wireless security while you're working on the road? Here's a way to ensure that your confidential data is safe.

BY STEVEN ANDRÉS

IF YOU WORK on the go, you've probably hopped on a public wireless network at least once or twice. You should know how to keep your data safe when you're on such a network, by taking precautions such as using your company's virtual private network or an encrypted Web tunnel like Hotspot Shield. (For advice, see page 94 in the July issue or visit find.pcworld.com/70270.)

If you don't have a company VPN and you don't want to deal with Hotspot Shield's banner ads, however, you can still set up your own private, encrypted Internet connection free from eavesdroppers.

Tunneling Your Traffic

Whether the wireless network you use is password-protected or pay-per-minute, anyone in the area who connects to the same network could spy on your Web traffic.

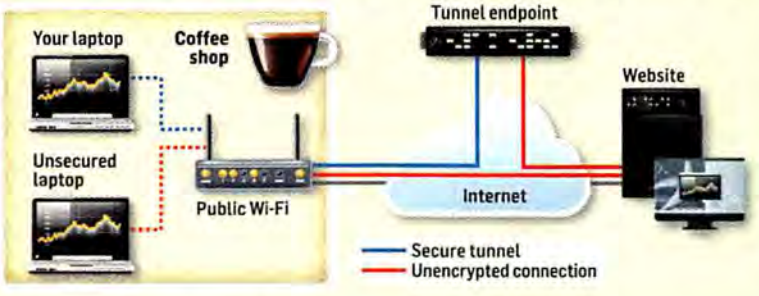
You can fix this problem by creating an encrypted tunnel through which you can send traffic that originates at your laptop and ends at a known location (the tunnel "endpoint"). From there, the tunnel routes your Web requests to the Internet. Of course, once the traffic leaves your tunnel, it's subject to the usual potential scrutiny—from ISPs, law enforcement, and the like—but while your data is moving through the public-access Wi-Fi hotspot, your surfing is secure.

Easy, Cheap Security Through SSH

The easiest way to set up your own secure Web tunnel starts with paying a monthly fee for a hosting company to do all the difficult work of obtaining a server, installing an operating system, and making sure the server stays online 24 hours a day with plenty of backup generator power. I prefer this approach because you don't have to fuss with firewalls at home, and you don't have to leave a computer running when you're on the road.

Any inexpensive shared-hosting provider will do for your purposes, as long as it offers access to a secure shell (SSH) server. SSH was created as an encrypted version of Telnet, one of the Internet's original protocols, used to send character information between computers.

Secure Web-Tunnel Setup Through a Hosting Company



ORDINARILY, WHEN YOU use the wireless hotspot in a coffee shop or other public location, you take a direct route to a Website (solid line in red). An encrypted tunnel (in blue), however, shields you in the hotspot network. Beyond the tunnel endpoint, your traffic travels over the Internet by regular unencrypted methods (again, in red) to the destination Website.

ILLUSTRATION: ANDY POTTS; COMPUTER ICONS: TELES2/SHUTTERSTOCK.COM

You should be able to find a provider that offers a basic hosting package with SSH access for about $5 per month, so for some three nickels per workday you can have your own secure tunnel.

Once your hosting provider creates your account, you receive your login information and your assigned server. From there, you can set up an impromptu Web proxy by issuing SSH commands. I'll demonstrate both OS X and Windows versions; Linux users can follow along and make minor adjustments where necessary.

Use an SSH Client

OS X has a command-line SSH client, so all you need to do is open Terminal (in the Utilities folder within your Application folder). The command prompt has your username and your computer's name, followed by the $ symbol. All of the commands in the following sections will be things that you type beside that symbol.

On Windows, you need to download a client. One popular freeware client is PuTTY (find.pcworld.com/70271).

Using the login information from your hosting provider, you can open an SSH session on OS X by entering the portion shown below after the $ symbol:

$ ssh username@servername.example.com

On a Windows PC, start PuTTY and enter the server name that your hosting provider gave you. Select the *SSH* radio button under 'Protocol'. The Port field should be set to 22 (the default SSH port). Click the *Open* button.

Since this is the first time you're connecting to this server, either client will display an alert and ask you to confirm the host's fingerprint. (This should happen only once; thereafter, your client will confirm that the fingerprint hasn't changed. If it does change, that could mean that your connection has been tampered with.)

Once you confirm the fingerprint, PuTTY will prompt for your username and password. OS X will request the password only, because you gave your username on the command line already.

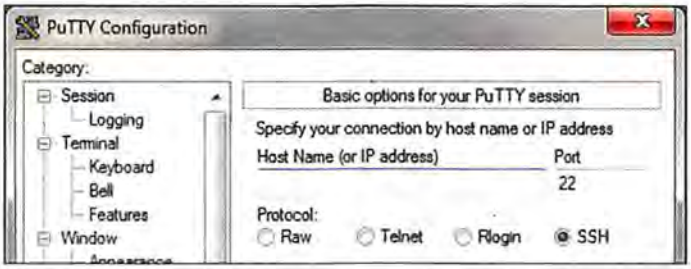
After you're logged in, you should see a prompt showing that you are now connected to the command line of the remote server; notice that the server name preceding the $ symbol has changed to reflect the remote system.

Now that you know you have a working SSH server, you can set up your tunnel. Type the command **exit** to close your SSH session.

Local Listeners and Remote Endpoints

Here's where things get a bit confusing. You need to configure a port on your local computer (a "listener") that will take any packets you throw at it and stuff it into an SSH encrypted session. At the other end of the tunnel, the traffic will dump out on your SSH server. I'll show you how to configure your Web browser to proxy traffic through this local listener. Even though it seems that you would want to point your browser to the remote server, you will technically be pointing it at "localhost," which is a special name for your local PC.

You'll need to tell your SSH client to open a tunnel that begins on your laptop (localhost) on port 8888 and terminates at the SSH server, where the data will then be forwarded to the Website you want to visit.



IN THE PUTTY SSH client for Windows systems, enter the server name from your hosting provider and select the SSH radio button for the protocol.

The process is straightforward on OS X, and you can handle it in one command:

$ ssh -ND 8888 username@servername.example.com

The 'N' option tells the SSH client that you do not want an interactive session (a command prompt). The 'D 8888' option tells the client to set up a "dynamic" port-forwarding tunnel on port 8888. The tunnel should be dynamic because the destination site will change during your Web surfing; other port-forwarding tunnels have static rules, but for browsing you want the dynamic version. After issuing the command, you will be asked for a password, and then... nothing will happen. Actually, if the command works, the port will be open, but you will not receive any confirmation in Terminal.

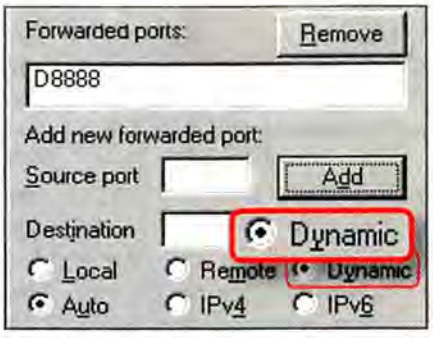
In Windows, start PuTTY, scroll down the 'Category' listing to 'Connection', and expand 'SSH' to select *Tunnels*. Select the *Dynamic* radio button, enter **8888** for 'Source port', and click *Add*.

Now click the *Open* button. After you enter your password, your tunnel should be created. No confirmation will display in the command prompt.

Try Out Your Tunnel

Now it's time to test things. First, fire up your Web browser, visit www.whatismyipaddress.com, and take note of the IP address displayed. »

POINTING YOUR WEB browser to "localhost" sends traffic to a port (called a listener) that is configured to open a tunnel from your laptop to the SSH server, where the data will then be forwarded to the destination Website.



WHEN SETTING UP your port-forwarding tunnel in PuTTY, be sure to select the Dynamic option.

This is the public IP address that the rest of the world sees when you connect from your current location (home, work, school, or the café).

To change that, Internet Explorer users should go to *Tools•Internet Options*. In this dialog box, select the *Connections* tab and then click *LAN Settings*. In the pop-up dialog box, select the checkbox for *Use a proxy server for your LAN*. Click *Advanced*. Next to 'SOCKS' enter **localhost** for the address and **8888** for the port; leave all the other fields blank. Click *OK* three times.

Firefox users on Windows should go to *Tools•Options*; OS X Firefox users should click *Firefox•Preferences*. Afterward, on either platform, select the *Advanced* category (a gear icon) and then choose the *Network* tab. Click the *Settings* button.

Select *Manual Proxy Configuration*. Next to 'SOCKS Host', enter **localhost** for the address and **8888** for the port; leave the other fields blank. Choose the *SOCKS5* radio button if it isn't already selected. In Windows, click *OK* twice; in OS X, simply close both preferences windows.

OS X Safari users should go to *Safari•Preferences*. Select the *Advanced* category (a gear icon) and then click the *Change Settings* button next to 'Proxies'. This will open System Preferences for your current network connection. On the Proxies tab, select the checkbox for *SOCKS Proxy* and enter **localhost** for the address and **8888** for the port. Click *OK•Apply* and then close System Preferences.

Regardless of your browser and platform, once you change your Web proxy settings, return to What Is My IP Address to verify that the Internet sees you as visiting "from" your SSH server, confirming that your browsing is secure from snooping by other Wi-Fi hotspot users.

Run an SSH Server

What if you don't want to pay a monthly fee to a hosting company? You can run your own SSH server. This approach isn't for everyone, though—don't continue with the following steps unless the previous sections were easy for you to understand. Also, you need to know how to allow a connection through your home DSL/cable router (or, if you want to do this at the office, how to adjust your firewall).

This method makes your connection interesting to network scanners that look for open ports on the Internet. You will have to keep the computer you use for the server running all the time back at home, too.

If you truly understand the risks involved and you want to run your own SSH server, continue reading. The diagram below illustrates how the configuration looks.

An SSH server is built into OS X. Open *System Preferences•Sharing*. On the *Services* tab, select the *Remote Login* (aka SSH Server) checkbox.

For Windows, a number of free and inexpensive SSH servers are available (sometimes referred to as SSHD—the "D" is for *daemon*, a way of saying "server" in geek-speak). The one I'll use here is WinSSHD version 5 (find.pcworld.com/70272); it's available at no cost for personal use. Run the installer and select the Personal Edition.

The control panel will show the Easy Settings wizard. All of the defaults are fine for your purposes, so click *Cancel*. Click the *Start WinSSHD* link to start the SSH server.

Test Your SSH Server

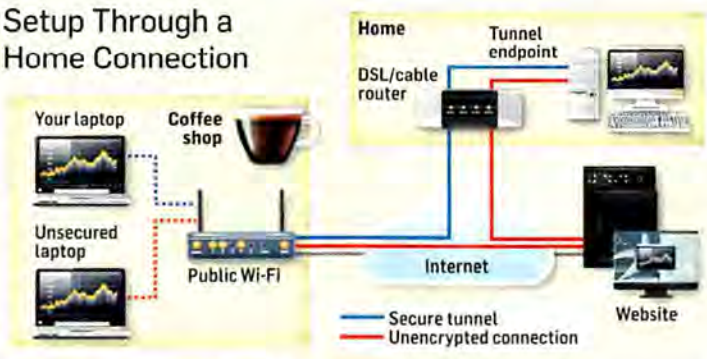
I won't elaborate on properly disabling your local laptop firewall or your network firewall to allow port 22 to get incoming connections—if you've read this far, you're an advanced user who knows how to do that. Your next step is to test your SSH server, so you'll use some of the commands described in previous sections.

OS X users should enter the following command:

```
$ ssh username@localhost
```

In Windows, start PuTTY and enter **localhost** for the server address. You can use the password that you normally use to log in to your laptop. Since this is a new connection, you'll likely see a fingerprint-verification prompt. If it doesn't work, check your firewall or other security software that may be blocking your connection.

Next, try to connect from the outside back to your SSH server. Create a test account on your local computer and ask a friend to test the connection using the password for this test account. Your friend should follow the same steps in configuring the SSH client and his or her Web browser as described earlier.



INSTEAD OF CONNECTING directly to Websites (in red), you can send your laptop traffic via a secure tunnel (in blue) to an SSH server that you maintain on a PC at home.

9 Ways to Spice Up Office 2010 Documents

Business doesn't have to be boring. These simple tricks can turn plain-vanilla text and images into alluring, evocative communication.

EVEN IF YOUR work is humdrum, your documents shouldn't be. The latest version of Microsoft Office makes it easier than ever to create handsome documents, thanks to some new tools for dressing up text, displaying images, and embedding video. (For a review of the Office 2010 suite, see find.pcworld.com/70269.)

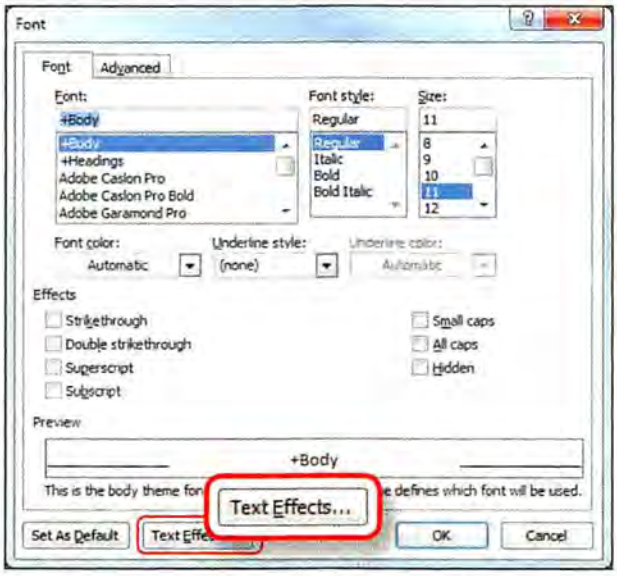
You don't have to be a graphics pro to take advantage of these features, and the suite's Live Preview and Undo commands encourage experimentation by letting you painlessly ditch looks that you don't like. Try these nine uncomplicated features to add a little eye candy to any document you create.

(Note: You must save files in an Office XML format, such as .docx or .xlsx, for the new features to work.)

Fun With Fonts

Apply Text Effects to your documents (Word, PowerPoint, Excel): In Office 2007, Microsoft introduced WordArt, which let users create text that incorporated decorative fonts with effects such as reflections, glows, and outlines. But WordArt text was essentially a type of image; it didn't behave like text.

Office 2010's Font group (aka the Home tab) adds a Text Effects button that



THE NEW TEXT Effects button in the Font section of Office 2010 lets you apply WordArt effects to text without turning it into a graphic.

enables you to apply WordArt effects to text without transforming it into a graphic. You can still edit the text, run a spelling check on it, change the underlying font, and do everything else that you can do with regular text.

To get a complete set of effects that doesn't appear in the pop-up Text Effects gallery, click the lower-right corner of the Font group to launch the Font dialog box, and then click the *Text Effects* button at the bottom.

The WordArt feature in Word and other Office apps still appears in the Insert tab. It creates a text box in which anything you type supports Text Effects. The same effects are available as WordArt in both PowerPoint 2010 and Excel 2010.

Create your own calligraphy (Word, Publisher): Want to give text an elaborate copperplate handwriting look? Click the lower-right corner of the Font group; in the Font dialog box, select the *Advanced* tab to access settings for custom kerning (spacing between characters), ligatures, and stylistic sets, which create the extended swirls that give some fonts a calligraphic appearance.

By default, 20 stylistic sets are listed; but not all OpenType fonts have that many different styles, and some fonts change very little in response to the style set you use. Experiment to figure out which ones work best. Microsoft recommends trying out style sets with a new font, Gabriola, or with Calibri, Cambria, Constantia, or Corbel—four fonts that were also in earlier Word versions.

Some of the OpenType features in Word 2010 are also available in Publisher 2010.

THE IMAGE-EDITING TOOLS in Office 2010 allow you to perform common processing tasks, such as sharpening or adjusting contrast.

Quick Pix Tricks

Crop and edit on the fly (Word, Excel, PowerPoint, Outlook): With Office 2010's robust image-editing tools, you may not need to process images in a third-party app before adding them to documents. Place your cursor where the image should go, and click the *Insert* tab and the *Picture* button in the Illustrations group. Now browse to the picture that you want to use, click it, and click *Insert*. This procedure places the image in the document and activates the Picture Tool ribbon, which lets you try out effects via Live Preview (simply hover over an effect to see how it will look).

Click the *Correction* button to try any of a huge range »

of exposures and sharpening changes. Click the *Cropping* button to crop the photo, in place, while graying out the areas you would be cropping; alternatively, you can specify a fixed size or shape. Finally, click the *Remove Background* button to automatically create a cutout of the main subjects in an image; if this tool doesn't get the edges right, you can use the buttons in a pop-up ribbon to add or remove areas.

OFFICE 2010'S REMOVE Background button automatically creates cutouts of the main subject in an image.

Try an artistic effect (Word, Excel, PowerPoint, Outlook): Bored with garden-variety photos? To experiment with effects that make them look more like paintings or drawings, click the *Artistic Effects* button in the Picture Tools ribbon and hover over any effect. (Be prepared to wait a few seconds to preview some effects.) To try out intensities and transparencies, pick an effect and click *Artistic Effects Options* at the bottom of the preview gallery.

Insert a screenshot instantly (Word, Excel, PowerPoint, Outlook, Publisher, OneNote): In Office 2010 you can insert a screenshot of any open nonminimized window on your desktop with a couple of clicks. In the Insert tab, click the *Screenshot* button in the Illustrations group to get a pop-up window that shows all open windows. Just click the one you want, and the screenshot appears in your document, ready for editing with Picture Tools.

You can even insert part of a screen. Minimize your Office app and maximize the screen you want to use. Then maximize your Office app, and click *Screenshot* in the Illustrations group of the Insert tab—but this time click *Screen Clipping* at the bottom of the pop-up window. You will return to a view of the desktop the way it was when you last saw it, except that it will be frosted over; use your cursor to select the area to capture, and it will appear in the document.

New Video Tools for PowerPoint

If you've ever used a video clip in a PowerPoint presentation only to have it vanish when you run the presentation on someone else's PC, you'll appreciate PowerPoint 2010's new video tools. By default, any local video file that you insert is embedded in the presentation, so you don't have to worry about bundling extra files with your .pptx file.

Compress as needed: Of course, embedding video files can swell the size of your PowerPoint file. To avoid such problems, compress videos to reduce their size. Click the *File* tab to access the Backstage View of your presentation; by default, you'll see the Info page, with 'Media Size and Performance' as the top section in the center.

Click the *Compress Media* button to see options for reducing the file's size (and video quality). Be sure to play back the compressed file; if you think you've surrendered too much in video quality, you can always revert to a larger file size.

Easily play Web video: If the video you want to use is on a Website, PowerPoint 2010 makes the video easier to play back—if you run your presentation on an Internet-connected PC. Copy the embed code from the site, open the *Insert* tab on the ribbon, and click the *Video* button in the Media group. Then click *Video from Web Site* in the pop-up menu, and paste in the embed code. (This feature isn't available in the 64-bit Office, because Adobe hasn't made a 64-bit version of Flash to support the video playback.)

YOU CAN EMBED, compress, and edit movie clips—as well as play Web video—with the new tools available in PowerPoint 2010.

Edit video within PowerPoint: The video editing tools built into PowerPoint 2010 let you work on your movies inside the application.

When you insert a clip into a slide, two new Video Tools ribbon tabs—Format and Playback—appear. Format has tools for adjusting exposure and contrast, for displaying the video within geometric shapes such as stars or circles, and for creating frame effects such as soft edges, glows, and bevels.

Under the Playback tab you can trim the clip (it works on a copy of the file—the original remains unchanged), add bookmarks so that you can start playback anywhere, insert fade-ins and fade-outs, and specify whether to loop a video or rewind it.

Quickly access transitions and animations: In PowerPoint 2010, Transitions has its own tab, which makes discovering, sampling, and applying transitions easy. Live Preview applies here, too: To see a Live Preview, navigate to any transition.

New to animations is the Animation Painter, which lets you quickly copy an animation and then apply it to objects in other slides.

—Yardena Arar

Turn a PC or an iPhone Into a Kid-Friendly TV

CALLING ALL PARENTS: YouTube is a mighty popular destination for kids, but not all of the video offerings there are child-appropriate.

Send your toddlers and tweens over to Kideos (www.kideos.com) instead. The Website serves up thousands of child-friendly videos, from *Animaniacs* to Pixar shorts to *Sesame Street* to *Word Girl* (a personal favorite).

All you do is click an age group (0-2, 3-4, 5-6, and so on) and then choose a "featured video" to watch, or click into any of the dozens of available "channels." The site also has a search option.

When you click a video, the site presents you with a simplistic player—and none of the often-disturbing user comments frequently found on YouTube pages.

My favorite Kideos feature? The free iPhone companion app. Whenever you need a 5-minute break from the screaming in the car or whenever the kids are getting restless at a restaurant, bring it up, and presto: child-friendly video on the go.

One warning: Avoid that insidious "Gummy Bear" song at all costs. You will never get it out of your head!

—Rick Broida

ON THE KIDEOS Website, you can browse through a wide selection of videos grouped by topic as well as by age-appropriateness.

ANSWER LINE — ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

How do I set a Web-based e-mail service to be my default?

—Patrick, via e-mail

IN FIREFOX, YOU can set either Gmail or Yahoo Mail to be the browser's default so that clicking a mailto link on a Web page brings you to it. But that won't do you any good when you click Windows Explorer's E-mail button or use Word's Send Email option. Mailing from those sorts of programs is a Windows issue. If you want to send a document from Word, for instance, the app creates the message through Windows' default e-mail program—and I have yet to see a browser that can be installed as Windows' default e-mail program.

My solution: Use the free Affixa (find.pcworld.com/70276), which can install as Windows' default e-mail app. Tell Windows Explorer, Word, or WinZip that you want to send a file, and Affixa uploads the file and creates a message in the Draft folder of Gmail or Yahoo Mail.

When you first load Affixa, a dialog box asks about the system tray application. Uncheck both options; the tray app doesn't do much. Affixa then asks if you want it to be your default mail program. You do.

Next it shows the Options window, for setting up your account. This will lead to the Account Settings dialog box. One option you should definitely select is *Launch [your service] after creating a draft message*. If you use Gmail, that option is on the *Preferences* tab; for Yahoo, it's on the *Account* tab. Why do this? As I noted, Affixa creates the message in Gmail's or Yahoo's Drafts folder. With this option checked, Affixa will show the message in a browser window for addressing, editing, and sending. (I've found that it does this more reliably in Gmail.)

You can upgrade to the full version of Affixa for an annual subscription of £2 (about $3 as I write this). You can then use the tool for more than one account, and to zip files before you send them.

Firefox users may want to augment Affixa by setting their browser to handle mailto links directly. It's faster, and it doesn't interfere with Affixa's handling of Windows apps' mail tools. Within the browser, select *Tools*• *Options*. Click the *Applications* tab. In the mailto line, select the appropriate choice.

If you use Gmail and Chrome, you might wish to supplement Affixa with ChromeMailer (go to find.pcworld.com/70277 for the 32-bit version; grab the 64-bit version at find.pcworld.com/70278). It makes Gmail the mailto default, without affecting Affixa's work outside of the browser. And it too is faster than using Affixa for this job.

—Lincoln Spector

WHEN YOU HAVE Affixa installed, sending e-mail in Word or Explorer creates a message in your Webmail's Drafts folder, ready for editing.

Customize the Welcome Screen in Windows 7

WHEN YOU START and shut down Windows 7, the operating system briefly displays a rather bland welcome screen. Hey, we don't do bland around these parts!

Allow me to introduce WinBubble (find.pcworld.com/70273), a free Windows-tweaker utility that, among other things, allows you to swap in a fancy wallpaper or just about any other image you prefer. In other words, it lets you customize the Windows 7 welcome screen. Here's how to use it.

1. Download, install, and run the WinBubble program.
2. Click the *Windows 7* tab.
3. Scroll through the available Logon Backgrounds (which the utility draws from Windows' available wallpapers) and click the one you want. You can also click *Browse* and choose any .jpg image on your hard drive.
4. Click *Set* to lock the new image in place, and then select *View* to get a preview of how it will look. Not happy with the results? Choose something else or click *Restore* to bring back the original background.

IN WINBUBBLE, YOU can select an image for Windows 7's welcome screen from the given assortment—or use one of your own images.

Now, every time you start or shut down Windows, you'll get the new background. It may appear for only a few seconds, but at least it's the image you want to see, not the one that Microsoft sticks you with.

By the way, WinBubble gives you the ability to tweak about a zillion other Windows settings, too. Feel free to poke around the various tabs, but keep in mind that this application is something of a power user's tool. So proceed with caution.

—Rick Broida

ANSWER LINE

ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

I can't access one particular site on the Web. What can I do to get to it?

—Frankt316, PCWorld.com forums

ANY NUMBER OF issues could be the cause. The problem might be in your router. Or your PC. Or your browser. Or it could be something affecting the site, a matter that's entirely out of your control.

The first thing you should do is try another browser. If you generally use Firefox or Chrome, try Internet Explorer—it's already on your PC. If you use only Internet Explorer, maybe this is a good time to install and try something else.

Rebooting everything is another good idea. Shut down the PC, unplug the router from the AC power, and then unplug the DSL or cable modem's power. Wait a minute, and then plug the modem back in. When the lights indicate that it's working properly, plug in the router and wait for its lights. Then boot your PC and try again.

If that doesn't do the trick, see if using the IP address rather than the domain name will work. Every domain name is just a pointer to an IP address, and somewhere down the line, your PC may be getting bad information about the IP address for that page.

The easiest way I know to find a domain's IP address is to visit Self SEO's IP finder (find.pcworld.com/70274). Simply type in the URL, press **<Enter>** or click *Get IP*, and up it comes. Then paste the IP address into your browser's address bar.

If the site still doesn't come up, relax—the site is probably down, and there's nothing you can do about it. On the other hand, if the site comes up via the IP address but not the URL, something is

TRYING TO ACCESS a Website through its IP address may help with troubleshooting. Self SEO's tool can provide this information.

giving out wrong domain-name information. It just might be your hosts file, which affects any browser you use. Click *Start* (*Start*•*Run* in XP), type **notepad C:\Windows\System32\drivers\etc\hosts**, and press **<Enter>**. Look for the domain name in the resulting text file. If it's there, add a pound sign (#) to the beginning of the line that contains it. Save the file, restart the browser, and try again.

If that doesn't work, try another computer to see if the problem is limited to your PC. Or take your laptop to a nearby café to see if the problem is with your router or ISP. Or combine both tests by using one of the public computers at your local library. If the site is accessible everywhere except in your home, complain to your ISP.

For more, read the forum discussion at find.pcworld.com/70275.

—Lincoln Spector

Reduce Workday Annoyances With the Help of a Few Fast Fixes

SEEMINGLY MINOR HASSLES can become a major irritation over the course of a busy day. This month, I have tips for tailoring e-mail and calendar views to suit your needs, as well as a suggestion for effortless networking between Windows XP and Windows 7 PCs.

Quick adjustments help you improve the view in Windows Mail and Google Calendar, and an easy-to-use utility simplifies cross-OS networking.

Add Columns to Your Windows Mail Inbox

Reader Claire uses Windows Mail (aka Windows Live Mail) to manage messages from her Gmail account. (Smart—sounds just like what I recommended at find.pcworld.com/70279.) When she clicks Sent Mail, however, the message list shows only that she sent each e-mail, not who she sent it to. In other words, the screen has no column that shows the recipient's name for each message.

Fortunately, changing what columns appear in Windows Mail, and in what order they do so, is a simple matter.

1. Run Windows Mail and then go to your Inbox, your Sent Mail folder, or whatever view you want to modify.

2. Right-click anywhere in the column header above your messages and choose *Columns*.

3. Check the box next to any column(s) you want to see in that view. In Claire's case, she'd need to check *To*.

4. Before clicking *OK* to exit, note that you can also change the display order of the columns. Just select a column and then click *Move Up* or *Move Down*, keeping in mind that the top-to-bottom order in this list corresponds to left-to-right order in the mail view.

Change the Default View in Google Calendar

Another reader, Rob, loves Google Calendar, but he's tired of the default view, which presents the entire month. What's more, though the view toolbar has a '4 Days' option, he wants five days.

How can he get a five-day view and make it appear every time he visits? Easy. All it takes is a trip to Google Calendar's Settings page.

1. Open Google Calendar in your Web browser, and then click *Settings•Calendar settings*.

2. Click the 'Default view' setting and choose *Custom View*.

3. Look for, and click, the drop-down that's called, aptly enough, 'Custom view'. Choose *5 Days*. (Notice that the field immediately above, the one you changed in step 2, automatically adjusts from 'Custom View (4 Days)' to 'Custom View (5 Days)'.

4. Scroll to the top or bottom of the Settings page and click *Save*.

IF GOOGLE CALENDAR'S default layouts don't fit your needs, you can easily change the view that it displays whenever you visit.

Streamline Windows XP and 7 Networking

Finally, I heard from reader Nayana, who has two PCs on her home network—one with Windows XP, the other with Windows 7. Curiously, the Windows 7 PC won't let her access shared folders on the XP one, but she can reach the Windows 7 folders from the XP machine.

Windows networking has been a nightmare for as long as I can recall. Windows 7 solves a lot of the headaches—but only if all your PCs use it. If you have an XP box too, problems are inevitable.

THE EASY-TO-USE NETWORK Magic Essentials utility can help you link up your Windows XP and Windows 7 systems with little fuss.

As much as I like DIY fixes, tinkering with Windows' networking settings (especially XP's) is so confusing, frustrating, and frequently fruitless that I'm going to suggest a different (and much simpler) solution. Install Cisco's fantastic Network Magic Essentials utility (find.pcworld.com/70280) on both of your PCs, and in no time you'll be swapping files, sharing printers, and so on. Trust me: It's the path of least resistance. The software costs $30, but Cisco offers a free seven-day trial. If your main goal is simply to migrate files and data from an old system to a new one, that should be plenty of time.

One word of caution: For reasons I don't fully understand, Network Magic's system requirements make no mention of Windows 7. The software is compatible with that OS, but I suspect that Cisco may have halted or abandoned its development—probably because of networking features in Windows 7 such as HomeGroups.

In any case, before you spend a lot of time trying to troubleshoot networking settings manually, give Network Magic a try. ●

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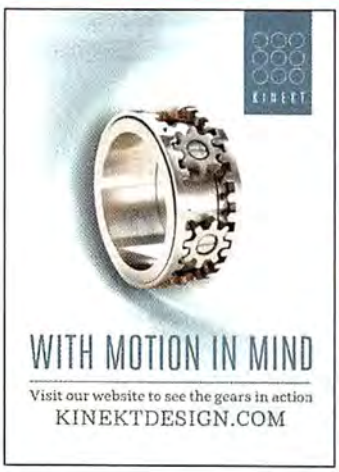

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The Back Page

FROM OUR READERS

When Real-Time Protection Goes Back in Time

Reader Michael Tedjasukmana was impressed to receive a notification that the Ad-Watch Live module in Ad-Aware (find.pcworld.com/70390) had detected a "latest event" in 1969—before the first PC was created. Now that's advanced protection!

New Power for Widows

Bernard Goldentyer was perusing a local newspaper when he came across an advertisement for bargain-priced laptops. Nothing unusual about that, except that these machines appear to run on "Widows" power. "All I can add," says Goldentyer, "is 'Never underestimate the power of a woman.'"

That Dell Is Smokin'

Timothy Pierce was having driver problems while setting up dual monitors on a Dell workstation. But when he opened System Information for Windows (aka SIW; find.pcworld.com/70353) to determine the driver version, he learned that his PC was running a bit hot—as in hotter than the sun. "Guess it's a good thing that we got our air conditioning fixed at our house last month," he notes.

BIOS Date	09/05/06
Core Temperature	4473775 °C (8052826 °F)

Plugged In

Sony Smells Sony starts scenting its stores with vanilla and mandarin (for women) and bourbon (for men). Next up: a combination of dark chocolate, sandalwood, and Budweiser.

No Next of Kin Microsoft kills the Kin phone just weeks after its launch. Does this mean that the long-awaited matching passion-pink Barbi phone will be scrapped from development?

Kremlin Gremlin Secret agent Alexey Karetnikov, since deported to Russia, had worked as a Microsoft software tester. So much for Windows' built-in spyware detection.

Disaster Plan BP buys Google search ads for terms like "oil spill" and "oil spill claims." Proving once again that it's easier to manage a PR disaster than a natural one.

Left Out Some lefties are getting poor iPhone 4 reception because of an antenna design flaw. But it's not true that Apple CEO Steve Jobs responded, "Who cares? I'm right-handed." ●

—JR Raphael and Steve Fox

Have an idea for a Back Page item, from an offbeat screenshot to a wild Windows hack? Submit your suggestion to TheBackPage@pcworld.com. You'll earn a small slice of fame, our undying gratitude, and a nifty PCWorld mug.

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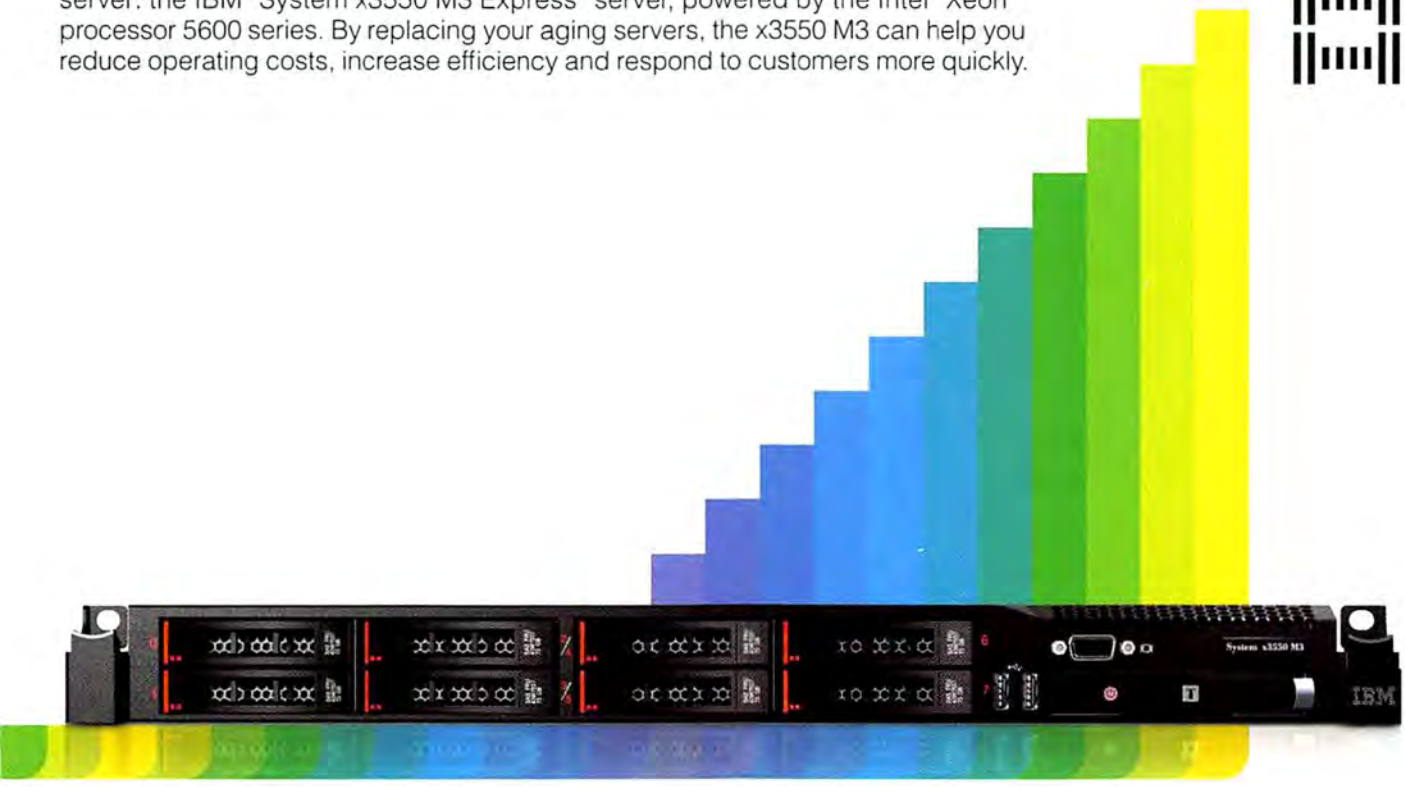

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