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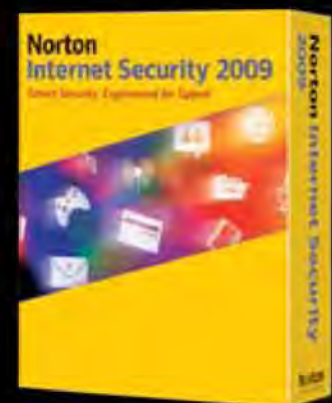
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Tech Support by Forum, Phone, and Replicant

ARE THINGS GETTING worse? Of course. You know that. Back in the day (some indeterminate era from childhood), the sky was bluer, people were more polite, and the air was sweeter—even if we did have to walk 10 miles through the snow to go to school. So I probably won't get any argument when I say (with all due respect to Fido) that customer service has gone to the dogs.

Except, of course, when it hasn't.

I bring this up because, in several recent encounters with tech snafus, I got my problem resolved with far less pain than I had anticipated. The common theme: I relied primarily on automated self-service fixes and peer-to-peer online forums, which have evolved into terrific resources for fixing everyday technical issues. If you need actual human intervention, however, you can expect a big bag of hurt.

The decline in live human tech support is due to economic pressures, of course: People are expensive; software less so. So companies shed staff while beefing up interactive voice response systems, automated online self-service offerings, and tips databases. They also make it harder for customers to reach their dwindling pool of support technicians, whether by throwing lengthy Web forms at customers before they can get to a techie or by making every effort to hide contact information.

Fortunately, most hardware and software problems aren't unique. So when iTunes suddenly refused to launch on my new PC, I put the symptoms and circumstances into Google—and found a solution quickly. A user forum provided specific instructions, and I was up and running in minutes, albeit following a slightly nerve-wracking journey into my system's Windows Registry.

Tech support from user forums and interactive phone systems has improved. But good luck if you want to talk to a real person.

My recent experience with a Wi-Fi router malfunction was perhaps more typical. User forums didn't have anything for me, and the company's help info was, well, no help. So I gritted my teeth and tried to scale the support line phone tree. Every branch seemed deter-



mined to funnel me into an automated mechanism to fix the problem, pointing me back to the Web (thanks!) or asking me to try things I had already tried. Whoever designed the phone response system had no intention of connecting me to a human being until I had exhausted every automated option.

Eventually I reached an unfailingly polite techie somewhere in India who solved my problem. But by then I had blown the better part of a Saturday.

Talk to the Bot

Other companies solve the challenge of supplying live support by programming their software to masquerade as a *Homo sapiens*. Just last week, for instance, I was

trying to buy a replacement laptop battery, and I stumbled on a promising site. The price turned out not to be all that good, but when I tried to leave, a pop-up window announced, "Wait! A live agent would like to talk to you about last minute savings." Wow! A flesh-and-blood human being wants to offer me a deal; I might as well listen. That's how I got to chat online with "Kelly."

Unfortunately, this particular "live agent" would have flunked her *Blade Runner* human-or-replicant interview within about three questions. Consider these verbatim excerpts from our conversation:

Me: You're not a real human, are you?

Kelly: If you order right now we can give a 10% discount on our already low prices.

Me: Is your name really Kelly?

Kelly: My name is Kelly and I am a chat representative here to tell you that if you order today we can give you a 10% discount on your order!

Me: Is it safe to drink expired milk?

Kelly: Our site is guaranteed secure and confidential.

Me: How much wood would a woodchuck chuck if a woodchuck could chuck wood?

Kelly: That depends on exactly what you get. What I can tell you is that if you order from us today we can give you a 10% discount!

Me: Thanks for the great conversation. I learned a lot.

Kelly: You're very welcome :)

So maybe things aren't getting worse. After all, back when I was a kid, software was never that polite. ●

Steve Fox is editorial director of PC World.



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July's "Master Software Updating to Protect Your PC" (*Here's How*) drew comments from readers who have their own favorite ways of updating. Add your thoughts by registering at our site and using the comments box at find.pcworld.com/63318, or visit forums.pcworld.com to comment on any issue.



Updating Software

The July issue carried a fine article on the necessity of keeping one's software updated, but it neglected to mention a particularly elegant tool for doing so: the free Secunia PSI utility. It scans all your installed programs and notifies you immediately if a new update is available. It then provides a simple interface to patch your system.

Secunia PSI is one of the most useful programs I have found—and have I mentioned that it's free?

Ched Baker, Orient, New York

Editor's note: Secunia PSI is available in our Downloads library, at find.pcworld.com/63302.

Regarding Robert Vamosi's article on software updating: For average users who for whatever reason are unwilling to maintain their computers manually, automating updating makes sense. But it comes at a performance price: Running all those automated processes in the background can slow your machine, especially if it is an older one.

For those of us who like snappy PCs and who are willing to spend a little time periodically in maintenance, there is another strategy. I turn off as many updater services (as well as other non-essential services) as I can find except

for Windows Update and backups, which I schedule to run during downtime when I leave the computer on (overnight on "Patch Tuesdays," say).

For most of the rest, I depend on Secunia (a free download and *PC World*-recommended utility) to identify software that needs updating or patching. I run it every two to four weeks, and fix whatever problems it identifies. If I learn about a critical patch off-cycle (through the computer press or otherwise), I'll install it off-cycle.

For things like device updates (all-in-one printer software updates, for example), I'll check for updates manually about once a month.

While such manual maintenance does require some time on my part, the benefit is having visibly snappier machines the rest of the time. To me, the performance trade-off is worth it, especially on older, slower machines. (On new, powerful machines, you may not notice much difference in performance).

John Yutzey, Columbus, Ohio

Does Tip Encourage Air Rage?

Your "Find the Best Seat on Any Plane" tip [in "Simplify Your Life," July] wasn't bad, especially the "bonus" on jamming a water bottle in the seat in

front of you to prevent a recline into your precious space while inconveniencing the other passenger.

I think you owe flight attendants an apology for suggesting something that encourages air rage.

Lance Naismith, Oakville, Ontario

Regarding the recommendation to rip your DVD to your hard drive before traveling, remember that if you cross the U.S. border, Homeland Security claims the right to search your computer for "illegal" material. Such a copy of a DVD you purchased qualifies as contraband, and your computer may be seized as evidence.

HumbleOpinion, PCWorld.com comments

So 'Royalties for Ringtones Is a Rock-Solid Idea' (find.pcworld.com/63315)? If ringtones are considered a public performance, how long before ASCAP infringes on our free speech by trying to charge us to hum?

*Boomshadow
PCWorld.com comments*

E-Books: Still Too Pricey?

Your focus on e-book readers [July's "Hands-On With the Kindle DX: A Guided Tour," *Forward*, and "A More Flexible Digital Book," *MashUp*] continues to miss the point. Before e-books become standard for the everyday person, three things must happen:

1. The breadth of content choices must approach that of regular books.
2. E-book pricing needs to be less than paperback pricing.
3. E-book reader pricing has to be less than \$100.

Once e-books gain critical mass, subscription newspapers would have a large enough audience to become even more available. And once that happens, e-books would become ubiquitous »»

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and the primary format for content.

Deward D. Blevins, Oakhurst, California

I have been reading about all the fancy new e-book readers. I use an older one from www.ebookwise.com, called the eBookwise-1150. A \$20 program that the site sells converts text files to the format for its e-book, allowing for a much larger selection of books. You can expand storage with a SmartMedia memory card, up to 128MB. While it's an older design, at \$110 for the basic reader it kicks the pants off the newer \$350-plus readers, in my opinion.

Michael Cull, Everett, Washington

Privacy Online

Regarding your site's article on Google's new phone management service, "Google Voice: 5 Reasons to Use It, 5 Reasons to Think Twice" (find.pcworld.com/63320): We've trusted cell carriers with our voicemail for how long? 15 years? The same goes for Webmail providers with our e-mail, and Internet service providers with our data. Now suddenly there is a privacy concern.

We have to trust those who hold or carry our information, just as we always have. I can understand some people are not comfortable with that, and my advice is not to use this service. For me, the benefits far outweigh the risk.

bstringy, PCWorld.com comments

Smartphone OSs

Some commenters on "Smartphone OS Smackdown: WebOS vs. the World" don't give the iPhone its due credit. I travel 48 weeks a year and rely totally on e-mail. The iPhone was my primary phone for six months, but I switched because of its short battery life and its inability to search for e-mail. Otherwise, it was great. The new 3.0 OS should plug such gaps, and I look forward to trying the phone again.

garment69, PCWorld.com comments

Editor's note: This story has been updated (with a revised title: "Smartphone OS Smackdown: iPhone OS 3.0 vs. Web OS vs. the World"); to read it, browse to find.pcworld.com/63321.

Facebook Security

Your article on Facebook disasters ["How to Avoid Facebook and Twitter Disasters," August] was interesting and timely. Last week my account was hijacked by someone who tried to scam money from my friends using my name. Facebook has several security flaws.

First, Facebook should fix its front door. The site does not redirect to a secure (https:) Web page. Users may unwittingly give their log-in information to crooks who are snooping for it.

Second, Facebook's security team asked me to answer a question relating to my account via e-mail. E-mail is not a secure communication method.

Finally, Facebook does not publish a telephone number for reporting security issues. I had to handle everything via Web forms and e-mail. This was very frustrating to go through while someone was actively attempting to steal money from my friends.

Facebook has grown into a Web site with millions of users who share vital information. It is time that its security team matures as well.

xraydoc, Ridgewood, New Jersey

Editor's note: See our Update box below.

PC World welcomes your feedback. We reserve the right to edit for length and clarity. Share your thoughts in the Comments area under each story on our Web site, or visit our Forums (find.pcworld.com/55165). Send e-mail to letters@pcworld.com. ●

UPDATE

AFTER OUR STORY "How to Avoid Facebook and Twitter Disasters" (August) went to press, Facebook announced sweeping changes to the privacy settings at its site. Some of the changes are now live, rendering certain of the tips out-of-date. Please refer to the story's online version (find.pcworld.com/63322), which has been revised to help you effectively use Facebook's revamped privacy settings.

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Forward

Google's Chrome OS: Game-Changing Failure?

Chrome OS may well redefine the desktop operating system but fall flat as it does so. Here's why—and why Google may not mind too much. Should PC users be worried?

BY TOM SPRING

GOOGLE SAYS IT is working on an operating system designed for netbooks that boots in seconds, is impervious to viruses, and is designed to run Web-based applications extremely well. What's not to like? Plenty—if you're the number one software maker, Microsoft. Expect a showdown.

Clearly, Google faces an uphill battle when it rolls out its operating system, called Chrome OS. The irony is, Google may not care whether Chrome OS succeeds or fails.

Amazingly, considering the scant details on Chrome OS currently available (see "FAQ: What We Know About Chrome OS," page 14), its announcement has



turned the computer and software industries on their ears. Those industries—and their customers—want to love it. Google says that chip makers Qualcomm and Texas Instruments, PC makers Acer and Hewlett-Packard, and software developers such as Adobe are collaborating to design and build Chrome OS devices.

Google's big bet for the Chrome OS is that it can spur a new market for software, such as Google Docs,

that can run entirely in a Web browser. The company hopes that users will rely on these Web services for storing and sharing work files, personal photos, and music on an always-on connected Internet. Want access to your photos or spreadsheets? Just turn on your netbook, and there they are. No longer will you be chained by an ethernet cord to a bulky Windows PC. The Chrome OS future will be dominated by lightweight mobile PCs

and devices that are always connected to the Web, giving you instant access to your data and applications in the so-called cloud.

Chrome to Ride Netbook Juggernaut

Chrome OS is hitching a ride on the computer industry's fast-growing netbook segment. Notebook sales have been flat over the past year, according to market research firm DisplaySearch, but netbook sales have grown

by 260 percent worldwide during the same period.

As yet, nothing has been announced, but don't be surprised if HP, say, is selling dirt-cheap Chrome OS netbooks next year married to a wireless service plan from Verizon Wireless. Sure, netbook makers and wireless carriers are already offering netbook giveaway promotions. But Google will have an advantage because its Chrome OS will be free and the hardware requirements for running it are expected to be minimal, enabling companies such as HP to build ultracheap computers.

In this way Google hopes to do with Chrome OS and netbooks what Apple has done with its iPhone OS and the iPhone: revolutionize the wireless industry by creating an operating system linked to an app source (like the iTunes App Store). Google's next stop after the netbook, it says, is the desktop.

But a lot could happen between now and late 2010, when Google says Chrome OS will be ready for final release to the public.

Challenges Face Chrome OS

First, Google will compete with another operating system, Linux, that has tried fruitlessly to replace Windows on consumer PCs. The Linux camp will make another attempt with a Linux variant called Moblin that has the backing of Intel and is headed for netbooks soon. (No specific partners or dates have been announced.) Dell has already said it prefers Moblin to Chrome OS.



Google's big bet for its Chrome OS is that it can spur a new market for software, such as Google Docs, that can run entirely in a Web browser. No longer will you be chained by an ethernet cord to a bulky Windows PC.

Another major challenge for Google's Chrome OS: Do consumers want bare-bones netbooks tied solely to Web applications? What happens when you're on an airplane or if you can't latch on to a wireless signal at the dentist's office?

Privacy issues will nag Google, too. How much do you want the company to know about your online and other computing habits?

Next, there's Google's archrival, Microsoft. Expect the giant from Redmond to lob propaganda grenades at Google's Chrome OS later this year, perhaps with a campaign espousing the virtues of desktop software. That will coincide with the rollout of Windows 7—an OS, Microsoft is sure to remind us, that will ship on netbooks as well as desktops.

Nor will the company stop there as it mobilizes to protect its Windows software empire. It will flex its industry might behind the scenes, forcing hardware makers and software developers to reconsider jumping aboard the Chrome OS bandwagon.

In addition, Microsoft will have its own brand of Web services to push. In July, it announced that it would release online versions of its popular Office software to consumers for free (see "Office 2010 Preview: Most Innovations Online," page 24). Microsoft won't reveal

any details about this Web-based suite, stating only that Office 2010 will be available months before Google's Chrome OS is set to launch.

Google's Unstated Goal With Chrome OS

Google's central ambition has less to do with building a new operating system than with keeping Microsoft on its toes. By promising to

deliver the Chrome OS, the search giant is challenging Microsoft to beat it in a race to a future where online programs can eventually surpass desktop software. Google is also using the threat of the Chrome OS to coax countless software developers to get serious about building Web services that run in the browser instead of the Windows operating system.

Does Google think it can topple Microsoft even on the netbook? That's probably wishful thinking, but if the company plays its cards right, it won't matter. Even if Google eventually gives >>

PLUGGED IN STEVE FOX



BOOB-TUBE DECLINE: Online video fans watch 20 percent less TV, study says.

Quick: Get Jon and Kate back together before the TV networks have to close shop entirely.



WELL DEFINED: Twitter to be included in the *Collins English Dictionary* as a noun and verb. Coincidentally, the definition for both forms comes in at just under 140 characters.



LITERARY INJUSTICE: Amazon deletes legally bought but "unauthorized" copies of *Animal Farm* and *1984* from users' Kindles. Who knew the *e* in *e-book* stood for *erasable*?



WHY THE RUSH? Google's GMail, calendar, and other apps have officially completed their beta apprenticeships, after just five years. Ah, impetuous youth—always in such a hurry.



ONE HOT PHONE: Overheating iPhone 3GS units are causing discomfort and the occasional toasted cheek. The upside: It's great for camping; leave that can of Sterno at home.



BILL GATES, GOD OF WEATHER: Microsoft founder tries to patent a way to stop hurricanes. Coastal residents pray it doesn't involve a combination of Vista and a SPOT watch.



up on Chrome OS, it will have forced Microsoft and the rest of the software industry to take giant steps toward deploying cloud services. By then, Google will be as happy to have users access a Google Chrome Web App Store via a Windows PC or a MacBook as via a Chrome OS netbook.

Ultimately, what's in this for Google? Is the company



Do consumers want bare-bones netbooks tied solely to Web applications? Will you be able to use such a netbook on an airplane? What if you can't latch on to a wireless signal while you're waiting at the dentist's office?

trying to make the world a better place with Chrome OS? Maybe, but above all Google wants to sell ads. Its Chrome OS could position it to become the ultimate

advertiser—and also to own nearly every aspect of your digital life, from the operating system you use to how you search and work online.

Don't expect Google to

sulk as it watches Microsoft, Apple, and others attempt to crush the Chrome OS with innovative Web-based services of their own. The company may shed some crocodile tears, but watch: As obituaries for the Chrome OS flash across browser windows, advertisements served by Google Ad Words may just be hawking the latest Web applications.

Q&A

FAQ: What We Know About Chrome OS

GOOGLE HAS PLEDGED to release more information on the operating system soon. Here's what we know now.

What is Chrome OS? It is a Linux-based operating system Google is developing. It will focus on Web applications while running a fast, simple interface.

Who will use it? It will initially target the netbook market, but Google plans to offer it for PCs up to full-size desktops. It may even be able to run some mobile devices.

What will it look like? Unknown, but Google says it will run a version of the Chrome browser with "a new windowing system"—perhaps browser windows fused with a dock of online apps.

What will become of my computer's desktop? Only Google knows. It's tempting to compare Chrome OS to Android, which in its mobile form stacks apps into rows and columns, but Google stresses that these are separate operating systems.

How will my computer stay secure? Google plans to design Chrome OS's security infrastructure so users "don't have to deal with viruses, malware and security updates." It seems likely,

then, that protection will be built into the operating system.

No computer is truly virus-proof. What will happen if mine gets one? Good question.

Chrome OS will raise the profile of Linux, making it a more attractive target for virus makers.

For now, Chrome OS's security measures are unknown.

Should I be worried about privacy? See the sidebar at right. Google is known for its intrusive data-collection practices on the Web, so privacy is a valid concern.

When will Chrome OS be released? It will reportedly reach the netbook market sometime during the second half of 2010.

—Jared Newman

WATCHDOGS WARY

Chrome OS: Privacy, Antitrust Concerns

PRIVACY ADVOCATES ARE concerned about the amount of personal data that Google will be able to collect via its forthcoming operating system, Chrome OS.

Google already collects private data through products such as its search engine and its Gmail e-mail service, as well as its AdSense advertising service. Chrome OS gives the company another avenue to collect and monetize personal information, privacy advocates say.

Google dominates many Internet services—"search, mail, video, online apps, and advertising," notes Marc Rotenberg, president of the Electronic Privacy Information Center.

Google has amassed data on a large number of Web users and has been reluctant to support some privacy safeguards, Rotenberg adds, such as proposals to require that online vendors receive opt-in permission before collecting customers' personal data.

Though Google does a good job of protecting privacy within individual products or services, the company has challenges with guarding privacy across its suite of offerings as a whole, says Ari Schwartz, vice president at the Center for Democracy and Technology, a privacy and civil liberties advocacy group.

Google's expanding online empire creates not only privacy questions, but antitrust ones as well, according to Steve Pociask, president of the American Consumer Institute Center for Citizen Research, a think tank that has been critical of Google.

"Given Google's dominance and near-monopoly position in a number of markets, when it leverages its power to other markets like this new one, policymakers and regulators need to take note," Pociask says. "They should be concerned."

—Grant Gross



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The 3G Wireless Speed Trials: 13 Cities' Results

This spring, we tested the 3G wireless services from AT&T, Sprint, and Verizon in numerous locations in 13 large cities across the United States. Our findings: Not all networks are created equal.

BY MARK SULLIVAN

ONLY AFTER OWNING a new smartphone for a few days do you begin to get a feel for the performance of the wireless service that accompanies it. And that wireless service—so often an afterthought for people buying a smartphone—is hugely important: After all, it is what connects your handset to the many fun and useful apps and services that made you lust after a smartphone in the first place.

Because independent research on the quality of wireless service is very hard to come by, *PC World*, along with our testing partner Novarum, a wireless networking consulting firm, conducted performance testing of the three largest 3G networks—Verizon Wireless, Sprint, and AT&T—in 13 major cities across the United States during March and April. Using industry-accepted Ixia ixChariot testing software, we measured both the speed and the reliability of those networks from more than 20 fixed locations in each city. In all, we ran 5443 individual tests

from 283 testing locations.

Before we discuss the results, a note about wireless testing: Wireless signal, by its nature, is extremely variable; that is, many things, such as obstruction by fixed objects (buildings, trees, and so on), weather, network load, cell-tower locations, and time of day, can affect the quality of the signal. Thus, because our testing took place one day only in each city, our results can't be called exhaustive, and your own connection speeds may differ from ours.

Verizon: Fast, Steady Results

In our tests, Verizon had the fastest average download speed of all the major carriers, at 951 kilobits per second. The network clocked an average upload speed of 428 kbps in our results.

In addition, Verizon's network demonstrated good reliability, operating at a reasonable and uninterrupted speed at 89.8 percent of our testing locations.

Verizon Wireless did best in our speed tests in the central and eastern parts of the country, especially in the cities of Baltimore, Chicago, Denver, New Orleans, New York, and Orlando.

Verizon achieved its fastest speeds in our testing in New Orleans, with averages of 1425 kbps for downloads and 550 kbps for uploads. Its poorest showing in our sample came in Portland, Oregon, where we saw



download speeds of 622 kbps and upload speeds of 410 kbps on average.

As of January 2009, Verizon's wireless network supported some 80 million subscribers, the company says.

Sprint: Dependable, Reasonably Fast

In keeping with its "most dependable" advertising claims, the Sprint network's strength in our testing proved to be its reliability. The network delivered a reliable connection (that is, the service proved to be available, uninterrupted, and reasonably fast) in 90.5 percent of our 13-city tests.

Sprint's network showed an average download speed of 808 kbps (at that speed, a 1MB file downloads in 10 seconds), and an average upload speed of 377 kbps across our testing in 13 cities. Sprint's speed results were competitive with those of Verizon's in most of the cities where we tested, espe-

cially in cities on the West Coast: Portland, San Diego, San Francisco, and Seattle.

Sprint's top speeds came in our Seattle tests, where it clocked an average download speed of 1005 kbps and an average upload speed of 469 kbps. Sprint's single fastest download speed in our results was a mark of 2.1 mbps in San Francisco. Sprint's worst average performance was in our New Orleans tests, with a download speed of 626 kbps and an upload speed of 251 kbps.

By way of explanation, Sprint's vice president of network development and engineering, Iyad Tarazi, says that Sprint simply has more base stations on the ground than its competitors do, a factor that leads to higher reliability.

"On the reliability side, you're seeing something very similar to our own [network testing] numbers," Tarazi says of *PC World*'s testing results. »

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AT&T Shows Fast Upload Speeds

The AT&T network's 13-city average download speed in our tests was 812 kbps. AT&T delivered relatively fast upload speeds (549 kbps on average) in the 13 cities we tested. Reliability was an issue in our experience of the AT&T network: Our testers were able to make a connection at a reasonable, uninterrupted speed in only 68 percent of their tests.

The network showed some of its best speed results in our tests in Boston and Chi-

cago. In Boston, AT&T's 3G network delivered an average download speed of 1259 kbps and an average upload speed of 708 kbps. In Chicago, we clocked the AT&T network with an average download speed of 1148 kbps and an average upload speed of 712 kbps.

In our New York tests, however, the company's network was slower, with an average download speed of 502 kbps and an average upload speed of 308 kbps.

In recent months, AT&T has announced plans for sig-



nificant improvements to its 3G networks. The company stated in March that it would invest \$17 billion to \$18 billion in its networks in 2009—"two-thirds of which," its announcement said, "will extend and enhance the

company's wireless and wired broadband networks to provide more coverage, speed and capacity."

And on May 27, AT&T announced plans to increase the speed of its 3G service by upgrading its networks to the faster High Speed Packet Access (HSPA) 7.2 technology, utilizing more radio-frequency spectrum, increasing backhaul capacity, and adding 2100 cell towers.

The company says that it will begin the upgrade this year and expects to complete the process in 2011.

TEST RESULTS FOR 3G NETWORKS

Verizon Shows Fastest Average Download Speed of the Big Carriers

Here are the download speeds, upload speeds, and reliability we measured for each provider's 3G network in our 13 testing cities, by region.

EASTERN	VERIZON			SPRINT			AT&T		
	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²
Baltimore	870 kbps	433 kbps	85%	692 kbps	382 kbps	80%	755 kbps	542 kbps	60%
Boston	957 kbps	407 kbps	90%	882 kbps	435 kbps	100%	1259 kbps	708 kbps	90%
New York	1041 kbps	400 kbps	100%	829 kbps	355 kbps	85%	502 kbps	308 kbps	65%
Orlando	1214 kbps	471 kbps	90%	794 kbps	286 kbps	90%	782 kbps	480 kbps	52%
CENTRAL	VERIZON			SPRINT			AT&T		
	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²
Chicago	1112 kbps	435 kbps	86%	790 kbps	282 kbps	91%	1148 kbps	712 kbps	77%
Denver	887 kbps	358 kbps	91%	755 kbps	405 kbps	100%	574 kbps	485 kbps	74%
New Orleans	1425 kbps	550 kbps	100%	626 kbps	251 kbps	87%	787 kbps	576 kbps	83%
Phoenix	750 kbps	415 kbps	87%	735 kbps	336 kbps	83%	805 kbps	702 kbps	78%
WESTERN	VERIZON			SPRINT			AT&T		
	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²	Download speed ¹	Upload speed ¹	Reliability ²
Portland	622 kbps	410 kbps	82%	905 kbps	425 kbps	91%	617 kbps	546 kbps	73%
San Diego	761 kbps	397 kbps	87%	831 kbps	391 kbps	87%	836 kbps	506 kbps	65%
San Francisco ³	851 kbps	433 kbps	87%	960 kbps	435 kbps	91%	851 kbps	433 kbps	61%
San Jose	1091 kbps	446 kbps	95%	713 kbps	463 kbps	90%	722 kbps	375 kbps	60%
Seattle	909 kbps	425 kbps	86%	1005 kbps	469 kbps	100%	745 kbps	660 kbps	82%

CHART NOTE: Fastest results are in bold. FOOTNOTES: ¹ Speeds are in kilobits per second. ² Percentage of 1-minute performance tests in which the service was available, uninterrupted, and faster than dial-up. ³ Testing of all services was repeated in San Francisco for results verification, doubling the number of tests.





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Will a Legal Pirate Bay Media-Sharing Site Thrive?

THE PIRATE BAY, the torrent site that has attracted millions of users by sharing its wealth of often illegal content—and, as well, lawsuits for doing so—is now at a turning point. With a \$3.8 million fine dangling around the owners' necks and a \$7.8 million offer of acquisition by Global Gaming Factory X (GGF) on the table, the site seems about to embrace a legal business model. (See find.pcworld.com/63423 for background.) How well will this new model work?

The Pirate Bay (TPB) has more than 6 million registered users who regularly

share multimedia content that would otherwise be impossible (or very hard) to get legally. A prime example: the *X-Men Origins: Wolverine* movie, which was available online almost a month before release in theaters (though the illegal copy was not a final edit).

TPB users also regularly record popular U.S. TV shows and make episodes available to fans around the world only hours after their initial U.S. broadcast.

Illegal music and recordings from films are on TPB, as are illegal software and



games, electronic books, magazines, and music videos. (Despite the fine, the site is still in full operation.)

GGF said, in a statement on the acquisition, that it plans to launch new business models allowing compensation to content providers and copyright owners.

The TPB acquisition is to be closed in August.

With TPB's high traffic volumes, GGF could generate revenue from advertising on the site. But it's unlikely that such money would cover the site's redistribution costs.

If copyrighted material on TPB (some 90 percent of the total files shared) does disappear, so, too, will most of the people who are now using the site. And although The Pirate Bay is the largest torrent tracker around, other, similar sites could quickly acquire TPB's user base.

—Daniel Ionescu

BETA WATCH EDWARD N. ALBRO



Shareflow: Riding Before the Wave?

In May, Google announced Wave, its e-mail-IM-collaboration project, but at press time only developers had seen it. Zenbe's Shareflow service is similar, but available now. With Shareflow, you create a "flow" for a topic or project. That flow can include documents (including images and videos uploaded to Shareflow's servers), comments, events, and maps. You can forward pertinent e-mail messages to a special address, and they'll show up in your flow too. Whether you're using the free or paid (\$80 per month) service, you can invite as many people as you wish to participate. www.zenbe.com/shareflow

TweetPsych: What Your Tweets Say About You

Even from messages of 140 characters or less, it's not hard to get a sense of someone's personality. TweetPsych aims to put some science behind the analysis. Give it a Twitter profile name, and it'll spit out a psychological dossier.

Mine told me that I like similes, not metaphors; that I'm obsessed with time; and that my social behavior is limited (like I don't hear that enough from my wife). TweetPsych tries to identify other Twitterers who think as you do, but if I do tweet like any of the people it pulls up, I'm shutting down my account pronto. tweetpsych.com

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A Push for More Online Video Begins

COMCAST and Time Warner are teaming up on an initiative to make more video programming available online, free of charge, for pay-TV subscribers.

The companies describe their "TV Everywhere" model as a framework for making more shows available over any broadband connection. A national technical trial of Comcast's On Demand Online service starts in July, carrying programming from the Time Warner-owned TBS and TNT networks.

The recent success of online video site Hulu, which provides on-demand viewing of many current network TV shows with no charge or sign-in, has increased pressure on cable operators, as have Apple's video-friendly iPhone and the Boxee system, which lets users stream online content to their TVs.

TV Everywhere is no giveaway. The national trial will test an authentication system for secured access by Comcast subscribers.

The trial will be the first step in a multiphase rollout of the service, the companies say, with more networks to participate as it expands.

—Stephen Lawson

GEEKTECH

Universal Phone Chargers! But Why Stop There?

STARTING NEXT YEAR, the big cell phone makers will begin producing handsets for Europe that all use a standard charger based on the micro-USB connector. Apple, LG, Motorola, Nokia, RIM, Samsung, and Sony Ericsson have all signed the agreement. Odds are good the United States will adopt the standard too.

The goal is to reduce the number of useless chargers we seem to accumulate and then store in our junk drawers and basement boxes.

To me, this is one of those tech milestones that should have been reached years ago. So while the European Commission and the handset makers deserve recognition, I ask the tech industry: Why stop at cell phone chargers?

Device chargers: How many chargers from old electronic gadgetry do you have lying around the house? Even if you reuse or (gasp) finally dump them, those orphan chargers wind up somewhere, often in a landfill or some toxic trash pile. It'd be great to see laptop makers follow the European cell phone example.

Memory cards: MicroSD, SDHC, Memory Stick ...ugh! The market for portable data storage has long been a nightmare of cryptically named puzzle pieces. How about a one-size-fits-all memory card? Again, we're seeing some progress here. Sony Ericsson recently said adios to the proprietary Memory Stick Micro and may switch to MicroSD, which is the closest thing we have so far to an industry standard. Then again, newer and faster memory card formats like SDXC are coming next year, so who knows what will happen then.

TV remotes: Is there a less friendly tech gadget than the TV remote control? Each has a different layout and requires an engineering degree to master. (Then again, engineers can't figure them out either.) Universal remotes? They're even worse. TV manufacturers should know by now that handheld devices aren't designed to hold 250 tiny buttons.

My suggestion: Have Apple design a TV remote, and make it a standard. The iPhone is proof that a user-friendly interface is possible, even on a small gadget with dozens of functions.

Wireless technologies: Sure, *PC World* readers know the difference between Bluetooth, Wi-Fi, WiMax, 3G, and 4G, but the average consumer

Standardized cell phone chargers are a good start. Here are five more standards that could really simplify our tech lives.

doesn't. To the uninitiated, Bluetooth and Wi-Fi can seem head-scratchingly similar, and the myriad of wireless data offerings is just as puzzling. (WiMax? Forget it. 3G? Try next year.)

My proposal: When 5G or 6G wireless broadband appears, we merge everything into one,



easy-to-understand spec. I even have a name for it: Universal Wireless. There, wasn't that easy?

Game controllers: Okay, this will never happen, but why can't game console controllers be more alike? In a perfect world, PlayStation 3, Wii, and Xbox 360 peripherals would work pretty much the same way. And there'd be world peace, too.

—Jeff Bertolucci

Strange but True: Windows 7 Installed on a Pentium II PC

No, "Pentium II" is not a typo. At The Windows Club (www.thewindowsclub.com), forum member "hackerman1" has put a working installation of Windows 7 on his extreme...ly old 266MHz PII desktop. Its other cutting-edge specs: 96MB of memory and a 4MB graphics card. Though he didn't say how long it took, other forumites say installation on a Pentium III-based PC takes about 17 continuous hours. And the boot time? 17 minutes. See find.pcworld.com/63402 for more.

—David Murphy

Panasonic recommends Windows Vista® Business.



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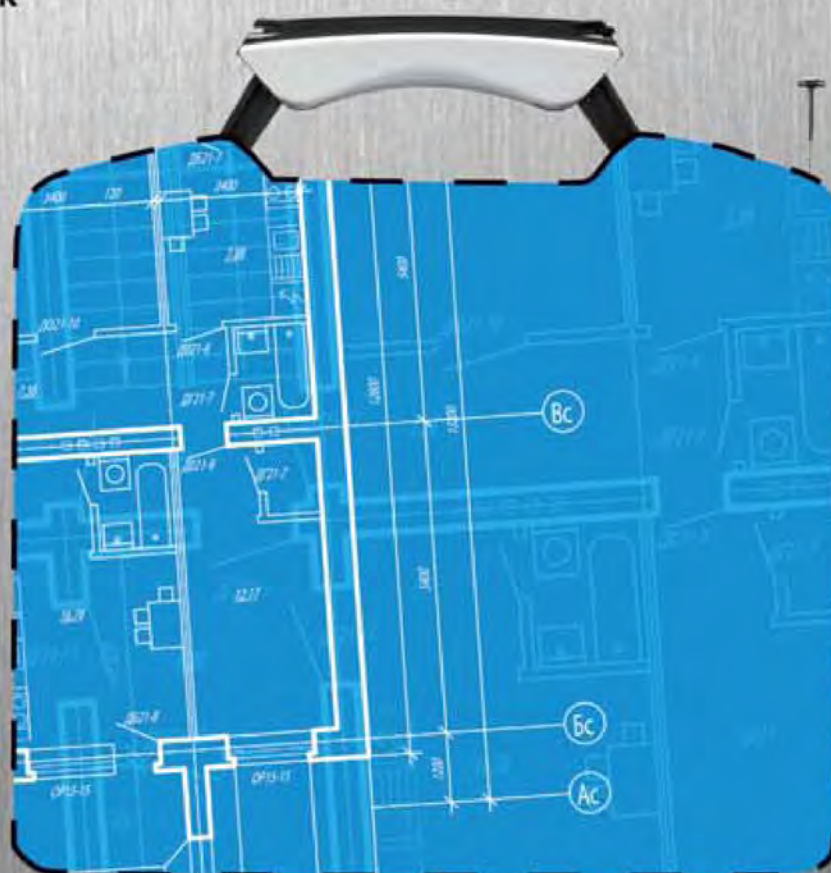
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By request of on-the-go professionals, all Panasonic Toughbook® models come standard with a built-in handle—just one of the many examples of how we constantly rely on customer feedback to create cutting-edge mobile solutions that keep you moving forward. In fact, every Panasonic Toughbook laptop, all powered by Intel® Centrino® 2 with vPro™ technology, is specifically designed to answer one very simple question: “How can we help you do your job better?” In our commitment to finding answers to this question, we’ve created the broadest array of advisory councils to give us the knowledge and understanding of what it’s like to be you, our customer. In fact, of all the amazing innovations we’ve brought to the industry, there’s still one thing we pride ourselves on most: We listen.

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Office 2010 Preview: Most Innovations Online

MICROSOFT'S flagship Office suite will go to the Web with Office 2010. It will come packed with improvements such as making the Ribbon

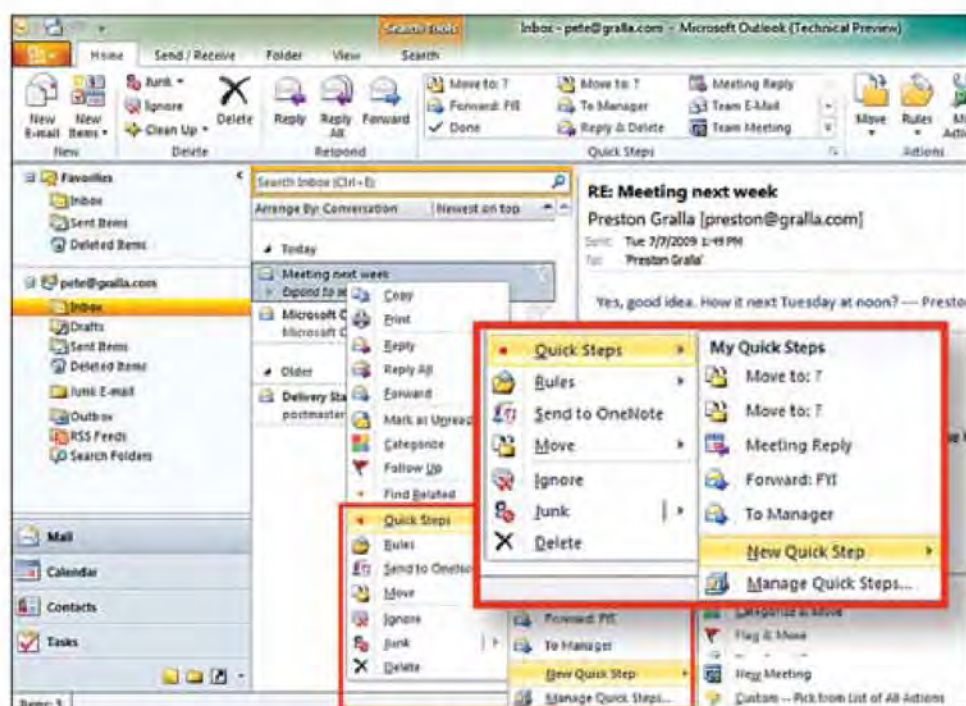
the default interface for each Office app, video editing in PowerPoint, and improved cut-and-paste in Word.

Office 2010 will add Office

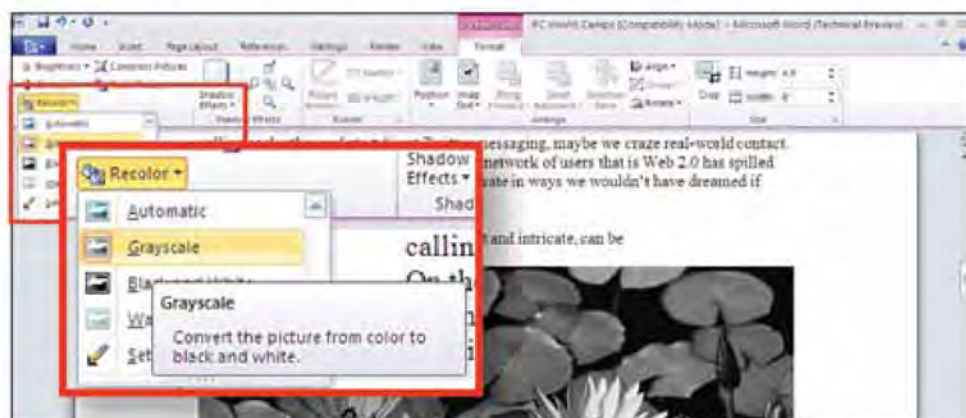
Web apps: slimmer versions of Word, PowerPoint, Excel, and OneNote accessible via desktop, mobile devices, and browsers. Final versions

are expected in the first half of 2010. Pricing has so far not been announced.

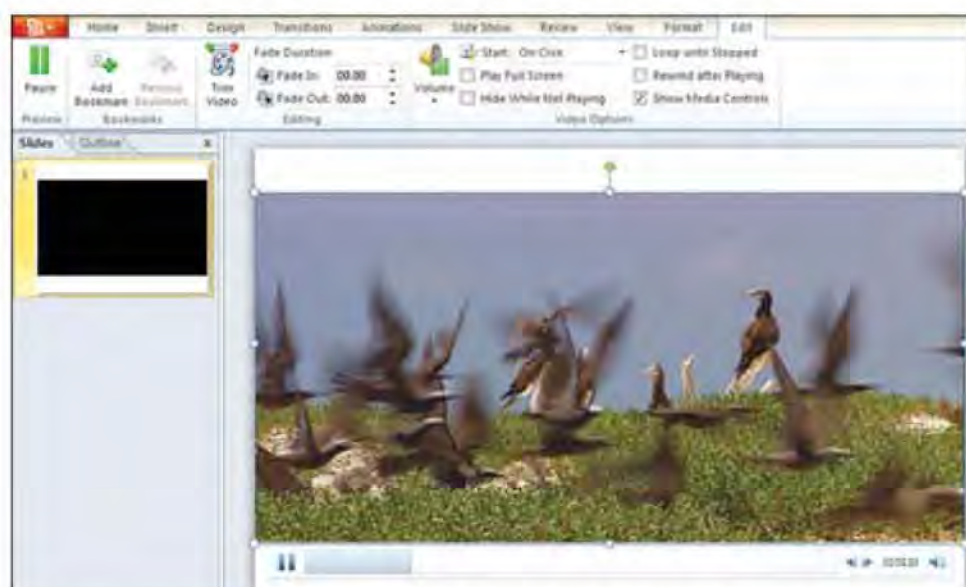
For additional details, visit find.pcworld.com/63419.



OUTLOOK 2010 GETS a major overhaul, with the Ribbon to be an integral part of the interface. Outlook will sport productivity tools, such as Quick Steps, which give you fast access to common actions.



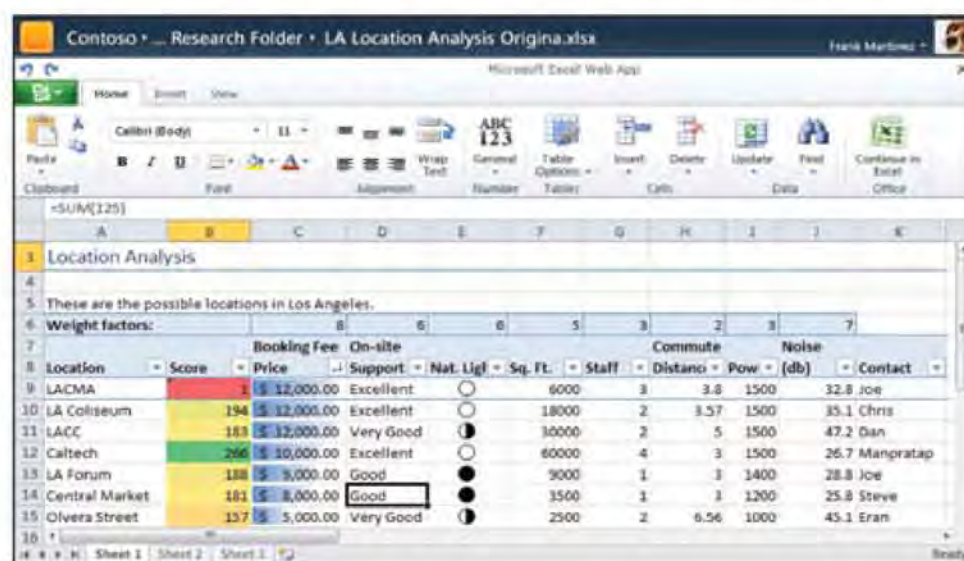
WITH WORD 2010, inserting images and editing them within the document will be easier. You can adjust the brightness and contrast, change the image to grayscale, add drop shadows, and more.



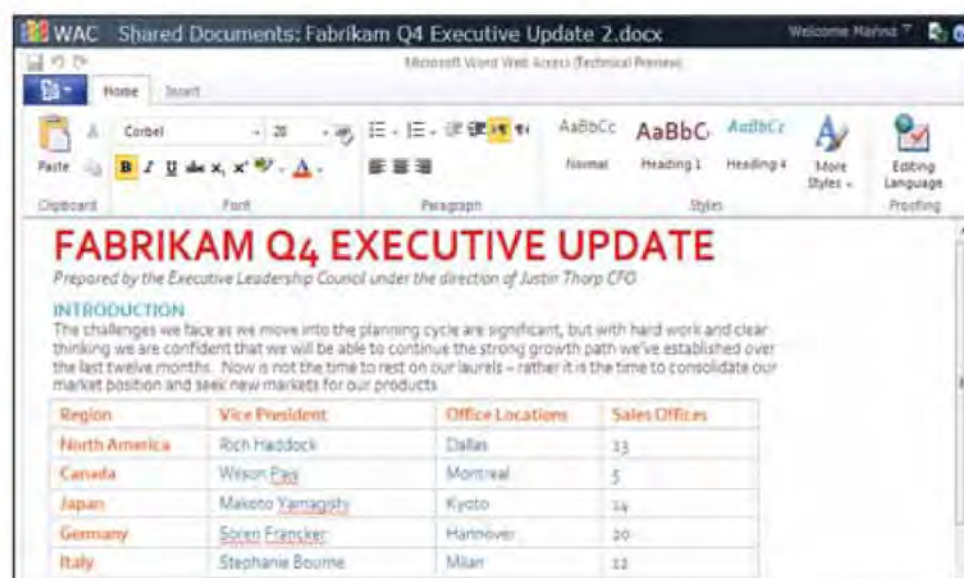
POWERPOINT 2010 WILL add a host of new video editing tools for common tasks such as trimming and compressing videos.



THE POWERPOINT WEB app will allow you to work online to create and edit presentations, giving you full control over picking a canned theme and adding features such as animations, graphics, and tables.



IN THE EXCEL Web app, you can create, edit, and save Excel workbooks through a Web browser. Online, you will be able to use the same Excel formulas that you use with the client (desktop) software.



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Consumer Watch

Hazards of the Other Digital TV Transition

BY MELISSA J. PERENSON

THE ANALOG-TO-DIGITAL broadcast-TV transition that occurred earlier this summer drew a lot of public attention. But a second, less-discussed digital transition under way among cable providers may cause you to lose TV channels you've come to expect, or it may force you to pay your cable provider higher monthly equipment fees to get the programming, or it may render useless some components of your precious home-entertainment setup.

Warning Signs

Have you tried to tune in to a cable TV station recently only to see a message announcing that it's no longer available? Or have you received marketing material from your cable provider warning that you'll need a cable box on each of your TVs to view certain channels? If so, analog stations that you know and love could become unavailable to you.

This less-publicized digital upgrade by some cable companies already affects various cable channels that typically fall between channels 20 and 90, including TV-addict essentials such as AMC, CNBC, CNN Headline News, ESPN, History, MSNBC, MTV, Spike TV, TNT, and the USA Network. Depending on your cable company, these channels may be available only if you have a cable box.

Before the digital upgrade, instead of renting such a box to view shows, most viewers could plug the coaxial cable from the wall directly into any of the following: an analog or digital television; an older digital video recorder such as a ReplayTV or

TiVo (Series1 or Series2); a DVD recorder or a VCR; a Microsoft Windows Media Center PC; or a TV tuner-equipped PC.

If you run your cable directly through any of these devices, you may be affected. Some cable users will need to obtain a cable box with an IR blaster attached to it so that their device can communicate with the box to change channels—but they

will still be able to view and record analog video.

Other users, though, may not be able to record or even view channels. In response, companies like TiVo are working closely with Comcast—the cable provider most widely deploying a digital upgrade—to make its legacy devices as compatible as possible.

Handling the Transition

Our survey of the top five cable operators—Cablevision, Charter, Comcast, Cox Communications, and Time Warner Cable—indicates that Cablevision and Comcast customers are the ones who will be most affected by this transition.

Cablevision: Cablevision will be the first big cable provider to offer new customers digital-only service for its expanded-basic channels. Broadcast and

local channels will continue to be simulcast in analog for the foreseeable future. Many expanded-basic channels will continue in analog as well (45 channels currently), but Cablevision has begun eliminating various duplicate analog feeds of stations that it carries in digital format. To receive these channels, you must attach a cable box to each television that you plan on using, at a cost of almost \$7 per box per month.

Charter: Charter will offer analog simulcast of broadcast >>

As cable companies move toward their own digital transition, your home theater setup may lose favorite TV channels and functionality.



ILLUSTRATION: GARY NEILL

PCWORLD.COM

See "FAQ: The Transition to Digital Television" (find.pcworld.com/63306) for Q&A coverage of the analog-to-digital conversion. For a discussion of TV converter boxes, visit find.pcworld.com/63316.

stations. Some regions have migrated to the digital tier, Charter says, but it's treating the digital migration as a gradual process and has no plans yet to go all-digital systemwide. Only a handful of channels have moved from analog to digital in expanded basic, a spokesperson says, but eventually all of them will do so: "We have tried not to make any sweeping changes for our customers."

Comcast: Comcast is pursuing its migration to digital full-throttle. The company began what it calls "Project Cavalry" back in 2005 (some markets, including Chicago and Philadelphia, have already undergone the transition). Once the migration is complete, customers must have a set-top box for every TV in the house (either a fully interactive box or what Comcast refers to as a "digital TV adapter") to receive Comcast's cable channels.

Comcast isn't charging extra for customers to change to an all-digital starter level of service. Existing analog customers making the switch will get a free set-top box, with video-on-demand and two-way communication between the box and Comcast (additional boxes will rent for \$7 a month).

Cox Communications: Cox isn't going all-digital yet. The company will continue to offer a strong lineup of analog channels, which means minimal to no impact on your current setup if you don't have a cable box. According to Cox, the signal will actually be down-converted from its digital format, so consumers will receive over-the-air digital programming and some digital cable programming in analog format.

Time Warner Cable: Time Warner plans to use switched digital to free up bandwidth. Some 67 percent of Time Warner customers already subscribe to digital packages; the company didn't say what number of those customers currently have boxes. Time Warner charges \$7 to \$9 per month for its set-top boxes, depending on the customer's location and on the type of box. If you live in an area where Time Warner has gone all-digital, you'll need a box.

SKEPTICAL SHOPPER GINNY MIES



Green Phones: Groundbreaker or Gimmick?

CELL PHONE manufacturers don't have the greatest reputation for environmental awareness, but now they

are jump-starting programs to improve their standing by lessening their carbon footprint. Perhaps the biggest leap is the introduction of green phones—cell phones composed of recycled materials and designed for greater energy efficiency.

But what features will you miss out on if you choose such a model? Let's look at three of the newest green phones: the Samsung Blue Earth, the Motorola Renew, and the Sony Ericsson C901 GreenHeart.

Samsung's Blue Earth, the only touchscreen phone of the bunch, has solar panels designed to harness the sun's energy and power the phone's battery. Made from recycled bottles, the Blue Earth features a built-in pedometer to track how much walking you've done and calculate the volume of CO₂ emissions you have avoided by not driving. Samsung hasn't disclosed any other details regarding the phone's specs, availability, or pricing. But the effectiveness of a solar-powered phone remains untested, and the Blue Earth seems unlikely to have special features beyond the environmental ones, since nothing else has been advertised.

Sony Ericsson's GreenHeart—the most feature-rich of the three new phones—has a pedometer, a 5-megapixel camera, a media player, and a NetFront browser. It ships with an electronic in-phone manual rather than a paper guide, and is made of recycled plastics. Though the GreenHeart delivers just about everything you could want in a basic phone, it has a small (2.2-inch) display and offers no touchscreen or QWERTY keyboard—so forget about sending e-mail or texting unless you're very patient. Sony hasn't announced pricing;

Environment-friendly phones may be the latest mobile trend, but they skimp on features. Is going green worth it?

the phone will be available in late 2009.

The Motorola W233 Renew is currently available (from T-Mobile). Reasonably priced at \$30, the Renew is made from recycled bottles and comes packaged in 100 percent recycled materials. The Renew doesn't have a camera, however, and its small, 1.6-inch, 128-by-128-pixel display isn't suitable for watching video.

Overall, these three phones are pretty single-minded: If you're looking for a handset that does more than make calls

and count your steps, they probably won't suit you. None of

them are smartphones (meaning that they don't run on a platform like Windows Mobile or Symbian), so you won't have access to a variety of apps and there's little room for customization.

If you're seeking something more full-featured but you

still want to be eco-conscious, a wiser decision may be to purchase a phone from a manufacturer with a good environmental track record. According to Greenpeace's "Guide to Greener Electronics," LG, Motorola, Nokia, Samsung, and Sony Ericsson have relatively successful recycling programs and have taken steps toward eliminating toxic chemicals in products and reducing factory CO₂ emissions. You can also purchase solar-powered chargers, such as the Solio charger, which works with most cell phones and smartphones.

Perhaps the best thing that you can do as a responsible consumer is be aware of your own usage. Unplug your charger when it's not in use. Recycle your old cell phone at a certified depository when you get a new one, and then reuse or recycle any packaging your new phone comes in.





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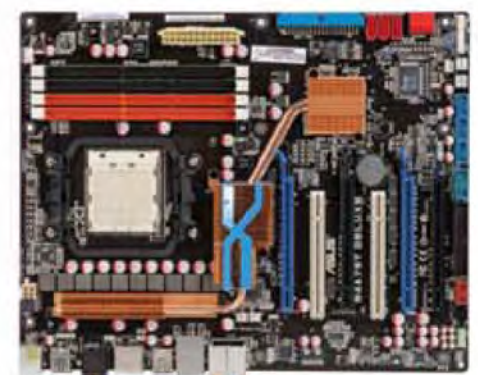
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ON YOUR SIDE

MARLA MIYASHIRO



I PURCHASED THE Vox N1, an external NAS hard drive, because it was advertised as a Digital Living Network Alliance-compliant product. A user should be able to stream media from one DLNA-compliant product to another. I wanted to use the NAS drive as a media server plugged into a router, but it worked only when plugged into a USB port of a booted, networked computer. Vox promised me a full refund if I sent the N1 back. Vox has my N1 now and has yet to refund me. Can you please help?

Rajah Chacko, Charlotte, North Carolina

OYS responds: We attempted to contact Vox Products (also known as Vox Inc. and Vox Digital Corp.) multiple times, but never received any response. We called the phone number on Vox's Web site and left two messages, but a full mailbox (most likely from other unsatisfied customers) prevented us from leaving more.

Vox Products has a history of being unresponsive: The Better Business Bureau has logged 69 complaints about the company over the past 36 months; of those, 30 have gone unanswered.

If you run into an unresponsive company like Vox, file a complaint with the BBB and with your state attorney general's office. We also recommend notifying your local district attorney office's consumer protection division and filing a complaint with the Federal Trade Commission.

To verify a vendor's claim that a product is DLNA compliant, check the list of such devices at www.dlna.org. Certification by the Digital Living Network Alliance ensures that a device has been tested and proved to be compatible with various consumer electronics designed to meet the DLNA Interoperability Guidelines.

Friends in High Places

Mark Stolzenburg of Chesterfield, Missouri, was generally happy with his Canon Faxphone L80's print results, but continual paper jams and partially printed documents led him to contact Canon tech support. Given the option of exchanging the unit, he clearly specified that he didn't want a used machine. Nevertheless, when Stolzenburg picked up the unit, he found that it was a used, remanufactured machine. Exasperated, he contacted Canon's president directly and



cc'd us. Canon sent Stolzenburg a new printer, which he says is working great.

We can't be sure whether including *On Your Side* in his e-mail got Stolzenburg better treatment, but it's worth a try. If you don't receive a satisfactory response from customer support, we recommend escalating your complaint to the customer service manager and cc'ing the company president and *On Your Side*.

HP Notebook Battery Recall

Hewlett-Packard, in cooperation with the U.S. Consumer Product Safety Commission, is recalling about 70,000 lithium ion batteries used in assorted HP and Compaq laptops. Product lines that may contain an affected battery include Compaq Presario, HP, HP Pavilion, and HP Compaq (see find.pcworld.com/63308 for a list of models and battery bar codes). There have been two reports of batteries overheating, but to this point no injuries have been reported. HP recommends that consumers immediately remove the recalled battery from their notebook and order a free replacement battery through the Web site mentioned above. Call HP at 800/889-2031 for more information.



Shop Smart Before You Buy

THE DECLINE IN big-box electronics retailers—where consumers could spend hands-on time with a tech product before buying—hasn't made the purchasing decision any easier. And given the frequency of faster/cheaper/better product introductions, knowing when to buy is a challenge, too.

One important issue for consumers is the ability to return products that don't work out. Retailers' return policies are all over the map, however. Some give you four weeks to return an unwanted or defective product. A few give you up to 90 days. Many charge a restocking fee—usually 15 percent—for return of a nondefective item. Whatever the details may be, it's important to pay attention to retailers' return policies.

Another good practice is to familiarize yourself with the product category. Even if the particular product you want to buy isn't available in a local store, go to the store and spend some time with similar products. This will help you get a sense of which features you like and don't like, leading to a better decision if you have to purchase online.

Before you buy a tech product, read customer evaluations as well as reviewers' opinions. Amazon does a nice job of presenting customer reviews: The "most helpful favorable review" is displayed next to the "most helpful critical review." Some users aren't happy with anything, and others may have a vested interest in giving a positive (or negative) review. Nevertheless, you'll find plenty of legitimate reviews.

—James A. Martin ●

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2
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Dennis O'Reilly
PC World, July 2006

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In today's tough economy, you can't afford to waste money on car repairs and maintenance—especially costly and often unnecessary diagnostics by professional mechanics when your "Check Engine" light is on.

An estimated 10% of drivers ride around with this light on—never a good idea, as it could indicate a serious engine problem. But professional automotive technicians charge up to several hundred dollars just to connect to your auto's on-board diagnostics computer (OBD2). Often they find minor problems such as a loose gas cap, but that doesn't make you feel better about wasting money for the information.

Now you can bypass the mechanic and obtain accurate diagnostics yourself with the easy-to-use, handheld CarMD®.

The CarMD device plugs into your car's standardized data port (usually found right under the steering column), giving you an instant display that all systems are go; there's a possible problem; or something's definitely wrong. If CarMD's light is yellow or red, you can connect it to your PC via a USB cable and log onto CarMD.com to discover the problem. If the problem requires service, CarMD's extensive database of diagnostic codes and likely repairs will arm you with accurate information about what the repair should cost, including fair parts and labor, in your region.

"Mechanics hate this tool!" says Dave A., a CarMD customer in Merrimack, N.H. "Ev-

ery time I had a 'Check Engine' light, CarMD diagnosed the problem ... they think they know better what is wrong with a vehicle because they are mechanics and I am not, but I walk in with my printed page of results and have the correct diagnosis. I love it!"

CarMD can make your car "greener" as well. The "Check Engine" light often indicates problems with the emissions system, such as a faulty catalytic converter. CarMD can diagnose problems that lower your mileage and pollute the environment.

CarMD is made and distributed by a leading manufacturer of sophisticated and more expensive scanning equipment used by nearly a million do-it-yourselfers and professional technicians across North America. CarMD uses similar diagnostic technology, but costs just \$98.99, and displays information that can be read and understood by anyone—no training necessary. It's also reusable and can be updated, which means that it will work on that car, truck, minivan or SUV you buy tomorrow.

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- Ever bought a used car wishing you knew more about its condition?
- Need peace of mind before a long road trip?
- Want to make your car "greener" and improve your mileage?
- Need to know if your car will pass an emissions test?
- Looking for a great off-to-college gift?

With the easy-to-use CarMD device, included CarMD software and your own Internet access, you can obtain an instant diagnosis right from home, saving you time and money—and putting you in control of your vehicle's diagnostics.*

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Business Center

Promote Your Business With Online Video

BY ALFRED POOR

WHETHER YOU'RE GENERAL Motors or the corner convenience store, you probably could use a little more business. But how to get the word out? Use short videos.

Consider the viral marketing success of the nerdy "Will It Blend?" videos of Blendtec. An overnight sensation on YouTube, they have increased sales, some sources say, by 500 percent. Not bad for a few minutes in front of a video camera and a little editing effort.

Real estate salespeople were among the first to take broad advantage of video clips on the Internet, giving prospective buyers an opportunity to walk through new homes. But video offers advantages that almost any business can use.

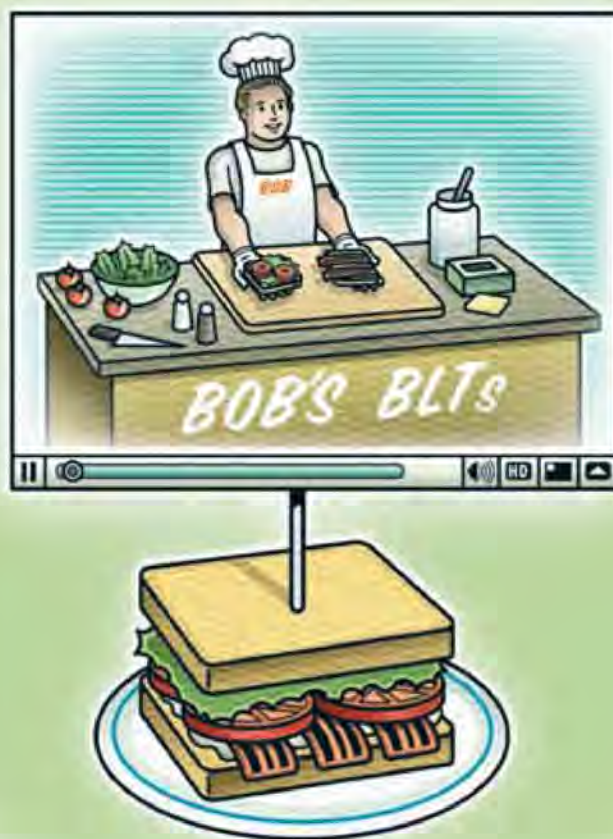
Why Video?

Internet video is still novel enough to be compelling in its own right. People routinely use the Web to search for information on products or services they want to purchase. But a typical Web site's traffic patterns show that an enormous percentage of site visitors click away in a few seconds. They scan the text and pictures and make a snap judgment about whether the site has anything to offer them. So it is extremely difficult to get visitors to read all the way down the home page, let

alone to click through subsequent pages to access further information.

In contrast, once they start watching a video clip, people are more likely to view it to the end than they are to read

Put your business in front of more customers on the Web—for free—with a digital camera and the power and reach of Internet video.



a whole Web page, which gives you a better chance to engage them and thereby get your message across.

What's Your Message?

The most important step is to determine what you want to tell your audience. Maybe you have a novel product or service that customers may not

understand. In this case, an "education sell"—in which you explain the category as a whole and the benefits that it offers—might be most appropriate. If the product or service is familiar to

your prospects—buying a house, say—then you want a "comparative sell" that showcases the advantages that your particular product or service has to offer. A "promotional sell" makes a special offer such as a discount or a bonus item for people who see the video.

Design Your Video Clip

Keep it short. Four or five minutes is a good limit; longer than that, and your audience may lose interest and click away. Also, the large size of longer videos makes them more difficult to manage.

If possible, create a wide-screen video in MP4 format. This is becoming standard in Internet video, and has efficient compression to keep files smaller. The widescreen format also matches the newer HDTV aspect ratio, thus giving your

video a more current appearance.

Create your video in 720p resolution (1280 by 720 pixels); many under-\$400 digital still cameras now record 720p video. In addition, many sites, including YouTube, support high-definition clips, and your video will look better.

One note on tone: Be cautious about using humor. What's funny to one »

ILLUSTRATION: PETER HOEY

PCWORLD.COM

If you want to make your own promotional video for posting on the Web, check out our online articles about camcorders (find.pcworld.com/63324) and digital cameras (find.pcworld.com/62704).

person can be seriously offensive to another. Unless you're appealing to an audience you know well, a straightforward approach is usually safer.

Distribute Your Video

You need to do more than just post a video. You need to put it in lots of places so more people can find it. Consider using an uploading service for distribution. TubeMogul.com is a free service that will post your clip to seven or more video sites including MetaCafe and Yahoo Video, as well as YouTube. It can automatically adjust your video to meet sites' requirements (all accept widescreen MP4 files, though). You just upload your file once to TubeMogul, and it will take care of the rest.

Keep search optimization in mind when you post. Choose your tag words carefully so that viewers will be more likely to find your clips.

Posting your clip to video-sharing sites makes embedding it on a Web page easy. YouTube creates HTML code that you can cut and paste to put both a player and your video on your Web page. Promote your clip by finding other sites that will link to the video's location on your site, or that will embed the video directly on theirs.

If appropriate, issue a press release announcing your video. Send it to local news outlets if you sell regionally. Or try low-cost services, such as PR Free (prfree.com) or SBWire (www.sbwire.com), that will deliver electronic press releases to a broad range of media outlets.

Also, take advantage of social networking sites to promote your video. Put it on your Facebook page. Get people to submit it to sites such as Delicious, Digg, Reddit, and StumbleUpon.

Finally, don't abandon your clip. If your products or services change, or the video clip otherwise becomes no longer current or accurate, take it down from the sites where you posted it.

A well-crafted video, promoted to your target audience, will deliver your message in a way that engages your prospects and boosts your business.

NET WORK DAVID STROM



How to Save Money on Overseas Cell Calls

IF YOU TRAVEL overseas, these tips can help you cut the cost of international cellular calls.

Travelers going abroad know that international cellular calls can be pricey. Here are some ways to reduce those costs.

- **BUY A PHONE CALLING CARD** once you reach your destination, and use it from pay phones or your hotel. Depending on where you are going and what your hotel charges for toll-free and local calls, this is usually a good option. (Some calling cards may not work with some foreign pay phones, however.)

- **BUY A NEW SIM** for your existing mobile phone—if you have an account with either AT&T/Cingular or T-Mobile. The SIM is the small circuit card inside your phone that gives the device its identity. Most of the



world's cell phones (except in Japan and a few other places) work on GSM networks that operate at either 900MHz or 1800MHz. GSM networks in the United States and Canada operate at 850MHz or 1900MHz. So if you have a phone that can work on at least the 850MHz, 900MHz, and 1800MHz frequencies, you should be set to roam abroad for your calls.

- **IF YOU'RE ON SPRINT OR VERIZON**, you'll have to buy a new SIM and a new phone. That's because those carriers' networks operate on non-GSM frequencies.

If you replace the SIM card that came with your phone with a card that works in the country you are visiting, you get several benefits. First, you don't pay roaming charges for local, in-country calls (but calls back to the States will have international long-distance charges). Second, if people in-country are trying to reach you, they won't pay any international charges. (Some overseas networks use the more enlightened method of charging only the calling party.) Third, you don't use any minutes on your U.S. cell phone accounts, which can be good if you have a limited

number of minutes—when you travel, you don't think about the time spent on calls.

The trouble is, if you are going to several different countries, then you need different SIMs and must keep track of the numbers too. That becomes onerous.

One solution is to buy a SIM from a

vendor offering cheap international calling plans. Two that are well known are Maxroam (www.maxroam.com) and Teletial (www.teletial.com). Both have low per-minute rates no matter where you are. You don't have to sign a contract, the

SIMs are about \$50, and you can add minutes to your account easily over the Web and charge them to your credit card.

One catch: Chances are, your cell phone is locked to the carrier that you are currently using. This means that if you try to take out your SIM card and replace it with another card, your phone won't work. You might be able to receive calls, but not make outgoing calls.

So how do you get your phone unlocked? You can call your current cell carrier and ask for the unlock code—which may take some persistence. I had to call AT&T three times before mine could be unlocked. Alternatively, you can pay an unlock service \$25 or so and receive the code that way (check the Web and take your pick of over a dozen different vendors). If all else fails, you can buy a new phone (TigerDirect.com often has good deals on unlocked models).

Plan on taking a few weeks to negotiate these options. Also, you might want to bring along your current SIM card just in case, and so you can make calls while you are waiting in the airport to depart.

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Belkin Dual Auto Charger Juices Two Devices

BUSINESS TRAVELERS HAVE a thirst for power—electricity, that is, and lots of it. With smartphones, pocket projectors, media players, and other mobile devices practically spilling out of our pockets, we need all the juice we can get when we're on the road. That makes a good, compact car charger for those gadgets an absolute necessity.

The \$30 Belkin Dual Auto Charger for iPhone and iPod (find.pcworld.com/63325) is a near-perfect option for charging on the go. And don't let the device's name fool you; its two USB ports are in no way Apple-specific. In keeping with its name, the product does come with an



BELKIN'S DUAL AUTO Charger lets you power two USB devices while traveling.

iPhone/iPod charging cable, but you can nevertheless give any of your USB-powered devices the juice it needs with this slick little charger.

If you are in a hurry to have your phone charged up, plug it into the clearly labeled QuickCharge port. Secondary devices can charge from the

other USB port without hindering charge times on the fast port.

One caveat: The QuickCharge port produces a background hum if you plug your iPod into it while playing music, so be sure to use the device's standard port instead for music-related situations like that.

For a couple of weeks now, I've been using the Dual Auto Charger to keep my BlackBerry and my iPod fully juiced, and this simple charger hasn't let me down yet. Better still, it's slim and compact for easy transport, adding a scant couple of ounces—and very little bulk—to my hefty travel bag.

—Robert Strohmeier

Cut Costs When Controlling Multiple Computers

IN SOME SITUATIONS, you may need to use more than one computer at the same time—which means buying a new keyboard, mouse, and display, right? Not necessarily. Try these alternative—and cost-effective—approaches.

Virtualize: If you just need to check a Web site's design within different versions of Windows, for example, you could run those operating systems in virtual machines, using a single PC.

VMware Workstation is one way to create that virtual machine (find.pcworld.com/63326; pricing starts at \$189). You will need to provide your own OS installations. Once everything is set up, you can toggle between the two operating systems, or even use them at the same time.

Share a keyboard, display, and mouse: A simple KVM (keyboard, video, mouse) switch can toggle those devices between several PCs. An IT department might use such a switch to connect several PCs to a single monitor, keyboard, and mouse, for example.

These switches (see our video at find.pcworld.com/63323 for a demonstration) are usually reliable, though they're not as interesting as the following options.

Enable remote access and VNC: Instead of using a physical switch to trade screens and input devices, a virtual network computer (or remote-access) connection lets you control a remote PC within your current system. As with a virtual machine, you'll notice slower performance, since significant data has to flow through your network. But unlike with a virtual machine or a KVM option, you can control PCs anywhere within your office—or throughout the world. (Browse to find.pcworld.com/63328

and find.pcworld.com/63329 for more information on remote-access options.)

Bridge input devices between systems: You can use the same keyboard and mouse to run two side-by-side systems with their own displays. You'll save money on a second keyboard and mouse, but the biggest benefit is eliminating the hassle of constantly moving between two sets of devices.

Try Input Director (inputdirector.com) to control multiple Windows PCs, Teleport (find.pcworld.com/63327) to control multiple Macs, or Synergy (find.pcworld.com/60972) to control both. Install the utility, and when you want to swap to the other system, just move the mouse

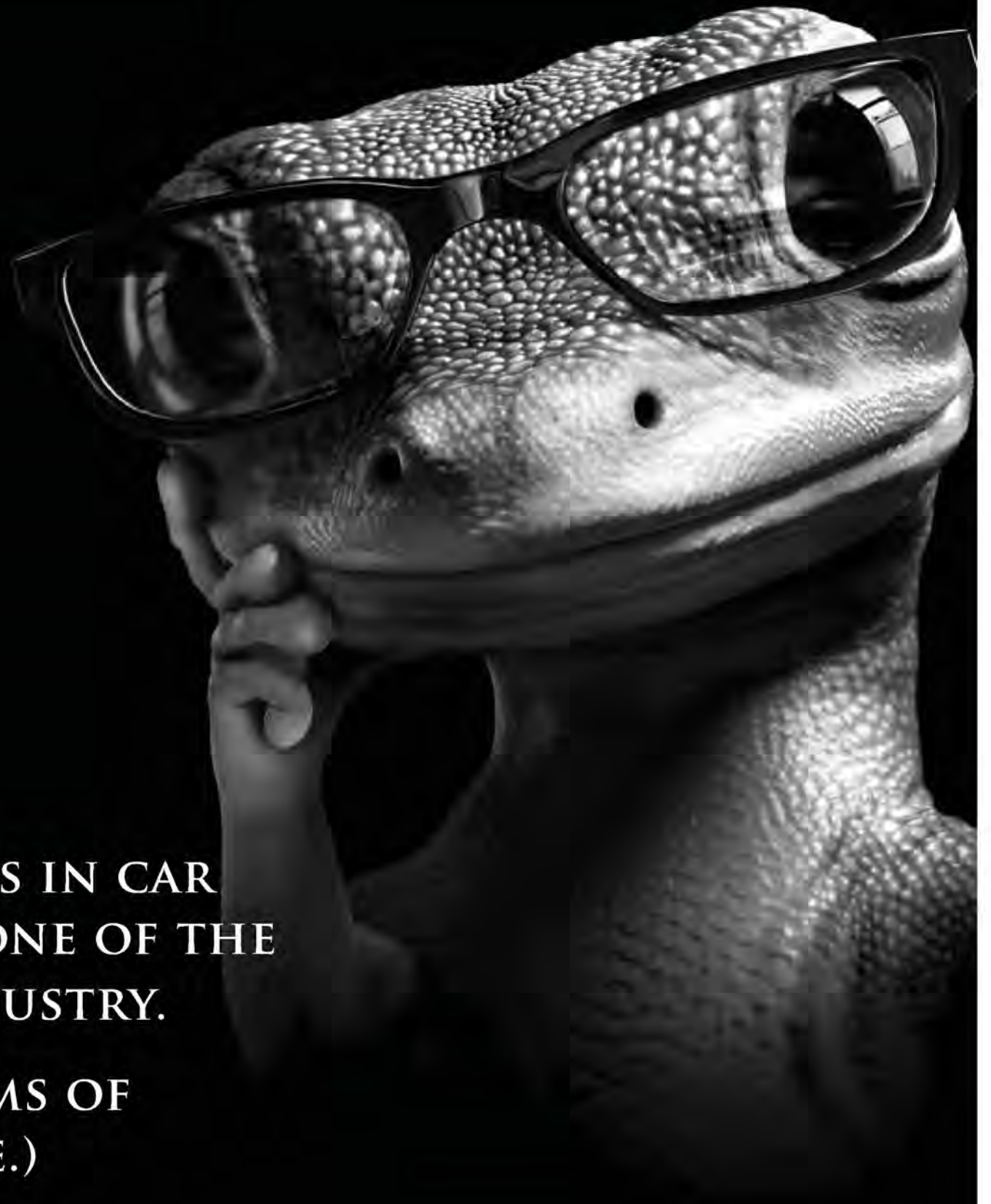
between the displays. It's a slick trick that outlasts its initial showmanship.

For quick links to all the products mentioned here, go to find.pcworld.com/63330.

—Zack Stern ●



A KVM SWITCH, like this two-PC model from logear, makes it easy to control multiple computers from one keyboard and monitor.



A NOTE ON 70 YEARS IN CAR
INSURANCE FROM ONE OF THE
GIANTS IN THE INDUSTRY.

(WELL, NOT IN TERMS OF
HEIGHT, OF COURSE.)

What the Gecko lacks in stature he certainly makes up for in ability. In fact, under the ownership of Warren Buffett's Berkshire Hathaway Inc., he's helped GEICO rise to become the nation's third-largest car insurance company. Of course, the fact that GEICO has been helping people save money on car insurance for over 70 years hasn't hurt either. And when it comes to financial security, GEICO is consistently ranked "excellent" or better by independent experts. But even though it's not common practice to have geckos in the highest levels of business, this one inspired three million drivers to switch to GEICO last year (and never missed a day of work). Perhaps proving that you can be both big and small at the same time.

GEICO.

A SUBSIDIARY OF BERKSHIRE HATHAWAY INC.

GEICO is the third-largest private passenger auto insurer in the United States based on 2008 market share data as reported by the National Association of Insurance Commissioners, March 2009. At December 31, 2008 Government Employees Insurance Company had admitted assets of \$12.5 billion, and policyholder surplus of \$4.1 billion (including \$33.4 million in paid up capital stock). Total liabilities were \$8.4 billion, including \$7.7 billion in reserves. Additional information is available at: <http://www.geico.com/about/corporate/financial-information>. Government Employees Insurance Co. • GEICO General Insurance Co. • GEICO Indemnity Co. • GEICO Casualty Co. These companies are subsidiaries of Berkshire Hathaway Inc. GEICO: Washington, D.C. 20076. GEICO Gecko image © 1999 – 2009. © 2009 GEICO



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Security Alert

Twitter: A Growing Security Minefield

BY ROBERT VAMOSI

IN JUNE, THE world watched as tweets from the streets of Tehran flooded Twitter. Frequent Twitter users—and people who hadn't even heard of the microblogging service—were suddenly and simultaneously witnessing its potential.

At the same time, antivirus vendors were warning of new phishing attacks that spread via Twitter. Using Twitter accounts, phishers would follow users and then infect them via a link to a fake profile page laden with malware. Like instant messaging, MySpace, and Facebook before it (see find.pcworld.com/63293), Twitter had come of age.

Twitter's meteoric rise in 2009 has been rough. Aside from scaling issues due to the influx of users, in January a hack (find.pcworld.com/63300) compromised the accounts of 33 high-profile users, including President Barack Obama, CNN anchor Rick Sanchez, and entertainer Britney Spears.

In April, a Twitter worm known as "Mikey" or "Stalk-Daily" surfaced. Twitter shut it down—plus a few follow-up viruses—fairly quickly. Cofounder Biz Stone wrote on the company blog, "Twitter takes security very seriously and we will be following up on all fronts."

Shortened-URL Dangers

Parallel to the growth of Twitter is the expansion of URL-shortening services. Fitting your thoughts into 140 characters takes practice; including full URLs is almost impossible. Usually URLs have to be truncated through services such as

Bit.ly and TinyURL.com, which also mask the true destination URL and can present their own security problems as a result.

In June, a wave of hidden poisoned URLs swept Twitter, using Bit.ly links to low.cc and myworlds.mp domains where users were asked to download a file to view a video. The file held mal-

ware. Bit.ly and TinyURL have been responsive; Bit.ly, for one, now blocks those low.cc and myworlds.mp domains.

At least one security product, ZoneAlarm, blocks access to TinyURL.com by default (you can unblock it). TinyURL has a preview feature, and Firefox has a Bit.ly preview add-on. Some Twitter apps, such as TweetDeck and Tweetie, also preview the URL before you click.

As we went to press, Aviv Raff of RSA had just announced "A Month of Twitter Bugs" (find.pcworld.com/63301), during which researchers plan to disclose a new Twitter vulnerability each day. Citing previous efforts focused on browsers and on Apple Mac OS vulnerabilities, Raff says his goal is not to break Twitter but to improve it and to address all social networking flaws: "I hope that

Twitter and other Web 2.0 API providers will work closely with their API consumers to develop more secure products." The first disclosed Twitter bug concerned cross-site scripting flaws in Bit.ly. Within hours of the disclosure, Bit.ly corrected them.

Follow Me, Please

A frequent goal of Twitterers is to build an audience; some people rate their profile a success if it has hundreds or even thousands of followers. A site called TwitterCut advertised »

As Twitter becomes more mainstream, the microblogging service is also becoming a bigger target for malware and scams.

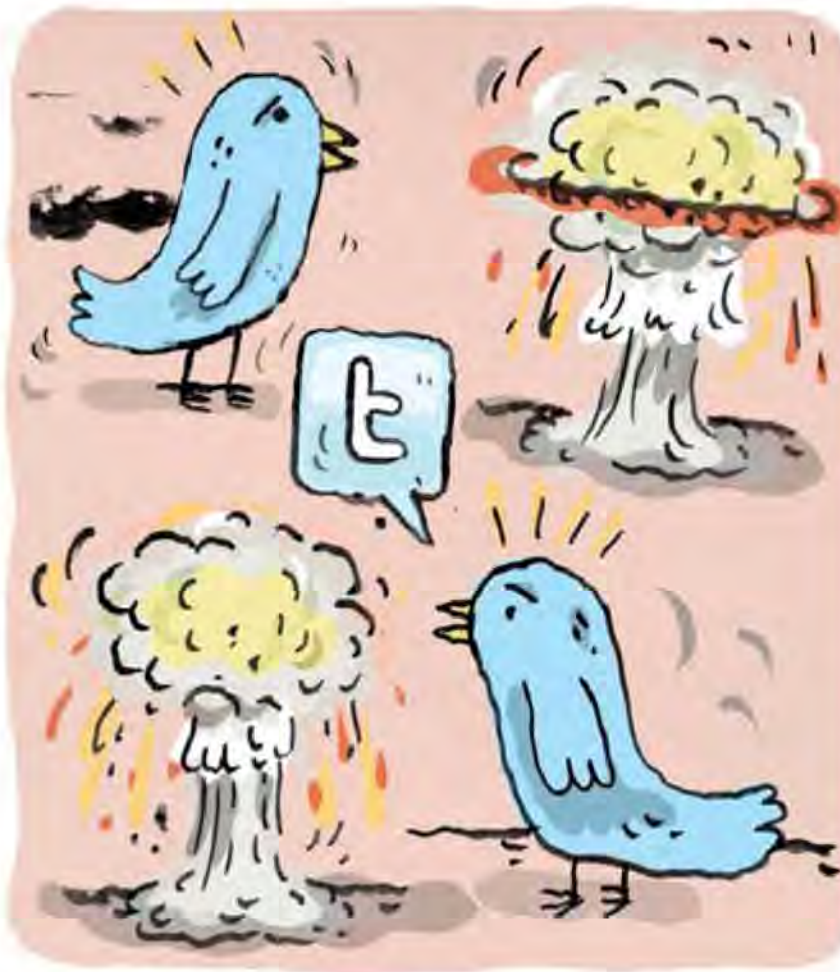


ILLUSTRATION: MARK TODD

PCWORLD.COM

You've heard all the arguments in favor of antivirus utilities and other PC protectors. But these days some security experts don't use an antivirus app. Surprised? Learn more at find.pcworld.com/63303.

that it would dramatically increase your base of followers—if you gave it your user name and password. Most security vendors deemed it a pay-per-click scam.

People who fell for the scam saw their Twitter accounts later used in a phishing attack, in which anyone who visited a link in the tweet wound up downloading a malicious PDF that then attempted to install a fake security product if the PC lacked the latest Adobe security update.

Gone Phishing

Most Twitter phishing attempts, however, are more straightforward. Twitter routinely notifies users of recent followers by e-mail, often with a link to the follower's profile. Recent phishing attacks spoofed that e-mail and held a link to a faux Twitter log-on page.

Another variation sent out the tweet, "Hey, check out this funny blog about you." Clicking the URL took the victim to a fake page (at twitter.access-logins.com/login/). No matter how good the site looks, examine the URL, and think twice about entering info—especially if you are already logged in to Twitter.

Bad guys have tried more-subtle tactics, too, such as the porn-name game (see find.pcworld.com/63299). According to the game, to create the name you'll use during your adult-film career, you take the name of your first pet and combine it with the street you grew up on, your mother's maiden name, or the model of your car. Recognize those things? They're common security questions. By tweeting your answers, you could give away access to your Twitter account—or to your bank account.

Some of the emerging security rules for using Twitter are common sense. Just as you wouldn't leave a phone message saying you'll be out of town, don't tweet your vacation plans. And please don't share your location if you're a U.S. congressperson going on a confidential overseas trip. Just ask Representative Pete Hoekstra (R-MI), who tweeted earlier this year: "Just landed in Baghdad. I believe it may be [the] first time I've had [BlackBerry] service in Iraq."

BUGS & FIXES ERIK LARKIN

Grab an Essential Fix for Internet Explorer

THIS MONTH IS packed with patches, including critical updates from several companies. For starters, Microsoft plugged 31 vulnerabilities. The most important update fixes flaws that could allow an attacker to take over your PC or steal data if you view a poisoned Web page. Collectively, the patches are critical for IE 5 on Windows 2000, IE 6 on Windows XP, and IE 7 on Windows XP and Vista. It's bad news for IE 8 as well, on both XP and Vista. IE 8 on the latest Windows 7 release candidate isn't affected. Run Windows Update to pick up the patch, and see find.pcworld.com/63286 for more info.

Plus: Close serious holes in Office, Reader, Shockwave, and Firefox.

threat is a bit less dangerous (rated moderate or important) for other versions of Windows. See find.pcworld.com/63291.

Shockwave, Reader Updates

Adobe shored up its Shockwave Player with a must-have fix. Without it, if you have Shockwave 11.5.0.596 or earlier, visiting a site with a rigged Adobe Director file could allow a "remote code execution" that puts an attacker in command of your PC. Adobe recommends uninstalling the older version and installing the latest one (see find.pcworld.com/63292).

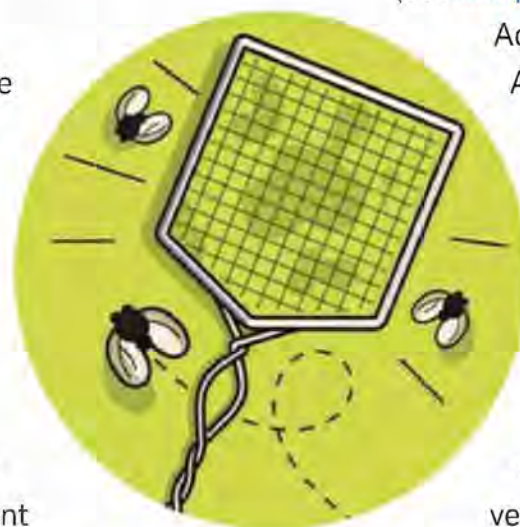
Adobe's critical Reader and Acrobat update, to 9.1.2 (or to 8.1.6 or 7.1.3 for older versions), closes holes that could permit a takeover if you open a poisoned PDF file. Click *Help•Check for updates* to make sure you have the latest version, which is available for Windows, Macintosh, and Unix; see find.pcworld.com/63289 for more.

Office Fixes

Two other patches close holes that could allow tainted Word or Excel files to trigger an attack. Office 2000 is most vulnerable, as the hole could permit an attacker to run any command. The flaws are rated important for Office XP, 2003, and 2007, as well as for Office for Mac (2004 and 2008). Run Windows Update to get the fix; see find.pcworld.com/63288 and find.pcworld.com/63287 for details.

A similar fix for Microsoft Works files and converters is critical for Office 2000, important for Office XP, 2003, and 2007, and important for Microsoft Works 8.5 and 9. Read more at find.pcworld.com/63290.

Windows 2000 users should nab a critical patch for three bugs in Windows Print Spooler that Internet attackers could hit if the PC isn't protected by a firewall. The



Foxy Upgrades

The Foxit Reader PDF app needs fixes for the 3.0 base program and the JPEG2000/JBIG2 Decoder add-on (if present). Click *Help•About Foxit Reader*; if you don't have at least version 3.0 build 1817, download the latest version from find.pcworld.com/63294. Run *Help•Check for updates* to see if you have the latest JBIG2 add-on.

Finally, Mozilla released Firefox 3.5. If you haven't installed that browser yet, get the latest 3.0 update to fix four critical bugs in JavaScript handling. Of those, two also affect the Thunderbird e-mail app and three affect the SeaMonkey suite; click *Help•Check for Updates* to see if you have at least Firefox 3.0.11, Thunderbird 2.0.0.22, or SeaMonkey 1.1.17.

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September, 2008
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PRIVACY WATCH ERIK LARKIN

Beware of Privacy-Policy Loopholes

"WE WON'T SHARE your information with third parties." You've no doubt seen that common phrase in

Web site privacy policies many times. You might think that the site in question won't divulge details about your visit to other companies. But according to a study by researchers at the University of California, Berkeley, sites have a huge amount of wiggle room with that promise.

The in-depth study (available at find.pcworld.com/63295) dug into the privacy policies and tracking practices of the 50 most visited Web sites as listed by Quantcast. The researchers discovered that loopholes such as affiliate sharing and tracking code allowed for much more data sharing than you might expect.

Sites often reserve the right to share your data with affiliates, including entities owned by the same parent, or even outside contractors. But you probably

don't know how many affiliates a site has. According to the researchers, News Corporation, the parent of MySpace and Photobucket, has 1578 affiliates; CBS (parent of Download.com) has 637 affiliates. Likewise, a site may not actively share data with an unrelated company, but it might let that company place a "Web bug" image or code on a site that can effectively track you.

Many sites do try to protect information, and some restrict the data that Web bugs can collect. For example, the study says Google does not automatically aggregate the data that its many Google Analytics trackers gather, though it does offer incentives to share that info.

You can take steps to guard your privacy. Internet Explorer 8's InPrivate Filtering monitors content from third parties

Don't assume your personal data is safe just because a site promises you it won't share that information with third parties.

that frequently appears on other sites (something that often, but not always, signals a tracker) and either blocks such content by default or allows you to select it for blocking. Click on *Safety•InPrivate Filtering* to enable it, and head to find.pcworld.com/63296 for more details. You'll need to enable the feature each time you start the browser.

Firefox users can try a wide array of privacy-protecting add-ons. BetterPrivacy gets rid of Flash cookies, which some advertisers use and normally can't be

deleted. TACO creates behavioral-advertising opt-out cookies (the good kind). CookieSafe allows for fine-grained management of all cookies.

The excellent Ghostery add-on alerts you to hidden trackers but doesn't

stop them. To block common JavaScript trackers, you can use NoScript, though it will prevent many sites from working properly until you manually approve them. One option is to set NoScript to allow all JavaScript, and then, when Ghostery reports a tracker, right-click on the NoScript icon to set the tracker source (which Ghostery also reports) as untrusted. Allowing all JavaScript nullifies NoScript's protection against potential JavaScript attacks from unknown sites, but it means far less hassle in your day-to-day browsing. You can also go to the advanced options to forbid Web bugs.

To pick up any of these add-ons, see my "Privacy Add-Ons" collection at find.pcworld.com/63297. And for a huge selection of privacy and security add-ons for Firefox, visit find.pcworld.com/63298. ●



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Reviews & Rankings



NOKIA N97



APPLE IPHONE 3GS



T-MOBILE MYTOUCH 3G



PALM PRE

The Hottest Smartphones of the Season

We delved into the Apple iPhone 3GS, the Nokia N97, the Palm Pre, and the T-Mobile myTouch 3G to see how their hardware and software stacked up.

PCW Test Center APPLE IPHONE 3GS. Nokia N97. Palm Pre. T-Mobile myTouch 3G. Of all the smartphones recently launched, these four handsets are the most closely matched—and the most desired. Which one comes out on top?

All four smartphones provide large touch displays,

slim and pocketable designs, and updated operating systems (in the Pre's case, a brand-new OS). Though the N97 has a matte backing and a sturdy body, it's a little bulky due to its slide-out QWERTY keyboard. I love the Pre's glossy (albeit easily smudged) back cover and its curved ergonomic shape, but its construction feels slightly cheap. The iPhone 3GS has the same elegant design as the iPhone 3G, except that the text on the 3GS's back is silver, not gray. The HTC-manufactured T-Mobile myTouch 3G has a pronounced curve at the

bottom, which makes for a comfortable thumb grip. Read on to see how the four handsets compare.

Note: Our initial impressions of the T-Mobile myTouch 3G, as described in this article, are based on the Google Ion, an unlocked developer version. Our experience with the shipping myTouch 3G matches what we found in using the Ion.

Under the Hood

As on the iPhone 3G, the Apple logo graces the back cover of the iPhone 3GS. In fact, the new handset's entire external design is the

same as that of the previous-generation iPhone, save for the more prominent labeling at the rear. The real changes are inside: The juiced-up processor and additional memory truly make for a speedier iPhone experience. Apple hasn't disclosed the exact specs, but according to Aaron Vronko, CEO of Michigan-based Rapid Repair, a teardown of the

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52 CANON POWERSHOT SX200 IS



54 APPLE MACBOOK Pro A1278



58 VILIV S5 Premium



59 MOTOROLA MOTOROKR S305

iPhone 3GS (find.pcworld.com/63408) showed an ARM Cortex A8 microprocessor running at 600MHz. Rapid Repair also found that the RAM had been boosted to 256MB. Last year's iPhone 3G carried an ARM 11 CPU running at 412MHz, and the unit held 128MB of RAM.

What about the other three handsets? The N97 offers an ARM 11 processor running at 434MHz with 128MB of RAM, the Pre has a TI processor running at 600MHz with 256MB of RAM, and the myTouch carries a 528MHz processor and 192MB of RAM. It's hard to gauge those specifications side by side, given the phones' very different operating systems and their varying processor classifications. In my usage, though, I found the iPhone 3GS and the myTouch 3G the most



PRESSING KEYS ON the N97's horizontal keyboard is a bit difficult.

responsive of the bunch.

Winner: Tie between iPhone 3GS and myTouch 3G

Hardware Keyboards

The Pre's vertical slide-out QWERTY keyboard disappoints: The keys are slightly recessed, and the bezel lip on the sides and bottom frequently interferes with typing. Furthermore, the top row is positioned a few millimeters too close to the edge of the slider screen, so you have to angle your fingers to press those keys. The keys also feel gummy (as those on the Palm Centro do), and they lack the clickable quality you find on RIM BlackBerry devices.

The N97's horizontal keyboard is superior to that of the Pre, though it isn't perfect. The edge of the display

is similarly too close to the top row of keys, and you can't adjust the display's angle or make it lie flat. I found pressing the keys difficult; they're simply not raised enough for comfortable typing. The keyboard's layout is somewhat counterintuitive, as well, with the spacebar placed in the lower-right corner. But even with all those gripes, I preferred,

on the whole, the N97's keyboard over the Pre's.

Winner: N97

Touch Keyboards

While I missed having a physical keyboard (as on the T-Mobile G1), I got used to the myTouch 3G's software keyboard fairly quickly. It was a bit too tightly packed, however, making it occasionally difficult to type on. The iPhone's portrait-oriented keyboard is slightly bigger, but it can still be hard to use. One benefit of the iPhone: The keyboard shows the key you pressed, which removes a lot of the guesswork and makes typing (and catching errors) easier overall. Previously restricted to use in Safari, the landscape keyboard is now available in all text-heavy applications, >>



THE KEYS ON the Pre's vertical slide-out keyboard feel gummy.



THE IPHONE 3GS offers a landscape keyboard in all text-heavy apps.

Reviews & Rankings

such as Mail, Notes, and Messages—a boon to the majority of users, who prefer that orientation's more widely spaced keys.

Winner: iPhone 3GS

Home Screens: Apple vs. Palm

The iPhone 3GS has a more traditional smartphone home screen, with icons for the applications in a grid. In contrast, the Pre has a completely different setup: A Quick Launch bar runs along the bottom, giving you fast access to frequently used functions such as e-mail, contacts, the calendar, or any shortcut you choose. You can see your wallpaper on the Pre's home screen, too; we have this small, albeit important, detail on our iPhone OS 4.0 wish list.

Winner: Tie between iPhone 3GS and Pre

Home Screens: Nokia vs. T-Mobile

The Nokia N97 has widgets that update your personal Internet feeds in real time on your home screen so that you don't have to open an app to access them. My



THE MYTOUCH 3G'S full menu is readily accessible.



THE PRE MAKES multitasking simple with its card view.

favorite, the Accuweather widget, takes advantage of the N97's built-in Assisted GPS. For example, when I traveled from San Francisco to the slightly different microclimate of the East Bay, the outdoor temperature on my home screen updated accordingly. Other widgets include Facebook, MySpace, your personal e-mail, the music player, favorite contacts, and the date and time.

The T-Mobile myTouch 3G, which runs the Android OS 1.5 update (aka "Cupcake"), also has a widget-based home screen. The myTouch 3G offers media-player, calendar, analog-clock, search, and picture-frame widgets. You can also pull up the phone's full menu (pictured at left) from the home screen. While the N97's live-feed widgets are useful, I like the overall look and customization abilities of the myTouch 3G.

Winner: myTouch 3G

Multitasking: Apple vs. Palm

The Pre's deck-of-cards visualization makes multitasking simple and engaging: You can view each of your open applications at once, shuffle

them any way you wish, and discard the ones you want to close. I noticed a slight drain on the Palm Pre's battery life in my hands-on tests, but not much more than on the iPhone 3GS.

Multitasking has been a hot issue for the iPhone: During the iPhone OS 3.0 announcement, Apple said that multitasking is a drain on battery life and performance. In response, the company is allowing third-party apps to utilize a push-notification system. In this setup, AIM, for example, can alert you to an instant message without your having to



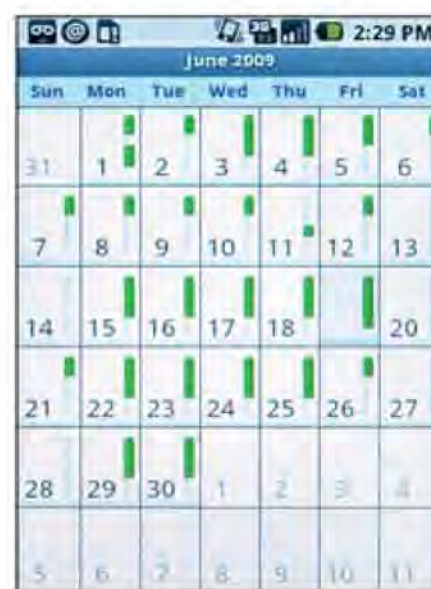
YOU CAN QUICKLY view notifications on the myTouch 3G.

exit out of your current open app. While push notifications are a step in the right direction for Apple, it just isn't the same as true multitasking, and therefore the Pre comes out on top.

Winner: Pre

Multitasking: Nokia vs. T-Mobile

Both the T-Mobile myTouch 3G and the Nokia N97 handle true multitasking in a simple and unobtrusive way, and very differently than the Palm Pre's WebOS does. Notifications pop up along the top of the myTouch's display, alerting you to a



THE MYTOUCH 3G supports Google Calendar natively.

new IM, e-mail, app update, or the like. To view all of your notifications, you simply tap and pull down the notifications menu. Nokia's handset doesn't provide a notification system (though some of your information, such as your Facebook account, does get updated in real time via the home screen's live-feed widgets). You can manage all of your open applications by pressing 'Options' in the lower-left corner and selecting 'Show open apps'.

Winner: myTouch 3G

Calendar Apps

While the iPhone calendar application doesn't get a huge makeover in the OS >>



THE COMPASS ON the iPhone 3GS has an elegant interface.

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3.0 update, it does receive some additional flexibility in terms of which calendars you can use. iPhone owners with the revised OS can now add subscription calendars

as well as those that support CalDAV servers, such as Google Calendar. Meanwhile, the myTouch 3G natively supports Google Calendar (obviously) and

allows you to set up reminders that will pop up on your phone's status bar through the notification system.

Winner: Tie between iPhone 3GS and myTouch 3G

Digital Compass

I haven't tested the digital compasses on the N97 and the iPhone 3GS side by side yet, but based on aesthetics alone, I like Apple's implementation better. Why? Well, for one thing, the N97's compass is a tiny blip in the corner of the Nokia Maps application (which is actually very well done). I love the iPhone compass's elegant interface, as well as its integration into Google Maps on the iPhone 3GS.

Winner: iPhone 3GS

—Ginny Mies

REVIEW

Apple's iPhone 3GS: An Enhanced Experience

ON THE OUTSIDE, the iPhone 3GS (\$299 for 32GB, \$199 for 16GB, with a two-year AT&T contract) looks and feels identical to the iPhone 3G. But inside, the fully redesigned 3GS has new core components, and together with iPhone OS 3.0, the iPhone 3GS stands tall.

The 3GS, with its CPU and its memory boosted over those of the iPhone 3G, is zippier than older models. Apps open and respond faster, over both 3G and Wi-Fi. The lags in accessing data or redrawing a screen are gone; viewing Web pages feels downright breezy.

Call quality and reception remain the mixed bag we've come to expect from AT&T. Calls sounded adequate but sometimes lacked clarity. How much of that is attributable to the AT&T network versus the phone is unclear.

In PC World Test Center tests, its average talk time was 6 hours, 12 minutes—34 minutes longer than the iPhone 3G. Still, I couldn't get through a full day of real-world usage without needing a charge. For data, the battery is rated at up to 9 hours over Wi-Fi, and 5 hours over 3G.

The camera is now 3 megapixels. The autofocus and tap-to-focus features were good; by selecting different focus points, I could change the image's exposure and composition. For some shots the focus select had little impact on what area of the image was sharp, but others benefited greatly. Unfortunately, sharpness was often impossible to determine on the iPhone's screen.

Some indoor shots looked decent, but others were barely passable and would have improved with a flash, had Apple included one. Software image stabilization would have been nice, also.

The big news is the inclusion of video capture and editing. The camera takes 30-frames-per-second, 640-by-480 video. Sending video is easy, too, as the 3GS has hooks into YouTube, Apple's



IPHONE OS 3.0 adds a long-awaited cut/copy/paste function, which starts by showing a magnifier over the text to be edited.

\$99-per-year MobileMe service, and e-mail.

The videos I took seemed better than typical camera-phone clips of the same resolution. But you can't easily find your videos, and you can't access them in the music and video player. And the much-ballyhooed built-in editing feature is limited: Once you make an edit, it's done.

I found that the voice controls for dialing and music playback were wonderfully handy, when they worked. On some names, the feature either got the wrong name or failed to recognize anything. I asked the 3GS to play REM songs, and it played ABBA; other times I didn't say a thing but suddenly it was dialing a number.

The 3GS's 320-by-480-pixel, 3.5-inch capacitive touchscreen still looks beautiful, but images aren't quite as vivid as on the iPhone 3G. Particularly in screens with white backgrounds, we saw a slightly greenish cast on the 3GS. I noticed a clear improvement in blacks, though, and text appears a bit sharper on the 3GS.

OS 3.0 brings cool features, such as a landscape keyboard and cut, copy, and paste. Available to all iPhone users, OS 3.0 could cause some people to decide not to upgrade to a new handset. But the iPhone 3GS, with all of its performance enhancements, is one of the best smartphones you can buy, despite its drawbacks.

—Melissa J. Perenson

89
VERY GOOD

iPhone 3GS (32GB) | Apple

Faster performance plus video recording keep the iPhone on top. List: \$299 (with AT&T contract) find.pcworld.com/63389

85
VERY GOOD

N97 | Nokia

Offers useful functions, but the Symbian OS feels outdated. List: \$700 (unlocked) find.pcworld.com/63399

88
VERY GOOD

Pre | Palm

The touchscreen and interface are appealing; the design flaws are not. List: \$200 (with Sprint contract) find.pcworld.com/63258

myTouch 3G | T-Mobile

Prerelease product; not yet rated. Android OS 1.5-based, HTC phone promises lots of customization. List: \$200 (with T-Mobile contract) find.pcworld.com/63406



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- Heather Clancy,
ZDNet.com

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New HP Officejet 6500 Breaks Canon Streak

PCW Test Center

HP'S OFFICEJET 6500 Wireless debuts in the top spot on our color inkjet MFP chart, displacing the Canon Pixma MX700 and ending that model's long dominance.

For just \$199, the Officejet 6500 Wireless offers speed, good print quality, and an excellent set of features including Wi-Fi, a 35-sheet automatic document feeder, and automatic duplexing. Its ink costs are average with standard-size cartridges and inexpensive in high-yield form—thanks partly to separate tanks for each color. A



THE HP OFFICEJET 6500 Wireless is our new number one MFP.

plain Officejet 6500, which comes without Wi-Fi and the duplexer, costs \$50 less.

Inkjet MFPs can be found in enough shapes and sizes to satisfy any home, school, or office. As always, check the ink costs and basics such as paper handling to make sure a model fits your printing, copying, and scanning needs—and your budget.

—Melissa Riofrio

MORE ONLINE

For more information, including testing details, on the color inkjet MFPs here, please visit find.pcworld.com/61882.

PC WORLD TOP 10 COLOR INKJET MULTIFUNCTION PRINTERS

MODEL	PCWRating	Performance	Features and specifications
1 BEST BUY HP Officejet 6500 Wireless \$199 NEW find.pcworld.com/62945	84 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Tested speed (ppm): 11.7 text/3.5 graphics 	<ul style="list-style-type: none"> 32 ppm text 31 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: This midpriced model offers solid performance, features, and print quality, with few compromises.			
2 Canon Pixma MX700 \$180 find.pcworld.com/59701	83 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Tested speed (ppm): 9.1 text/3.2 graphics 	<ul style="list-style-type: none"> 30 ppm text 20 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: Cheap ink and good speed are pluses; minuses include orangey flesh tones and a crowded paper-tray design.			
3 HP Photosmart C6380 All-In-One \$200 find.pcworld.com/61979	83 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Tested speed (ppm): 11.3 text/3.2 graphics 	<ul style="list-style-type: none"> 33 ppm text 31 ppm graphics 9600-by-2400-dpi maximum true color resolution
BOTTOM LINE: This home-or-school model prints good-looking text and photos quickly, and the ink prices are appealing.			
4 Canon Pixma MX7600 \$400 find.pcworld.com/60874	82 VERY GOOD	<ul style="list-style-type: none"> Text quality: Superior Graphics quality: Superior Tested speed (ppm): 9.8 text/3.7 graphics 	<ul style="list-style-type: none"> 28 ppm text 23 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: Good speed, great print quality, and features galore make this Pixma worth the price; it lacks only Wi-Fi.			
5 Canon Pixma MX860 \$200 find.pcworld.com/62466	82 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 8.4 text/2.2 graphics 	<ul style="list-style-type: none"> 8.4 ppm text 5.6 ppm graphics 9600-by-2400-dpi maximum true color resolution
BOTTOM LINE: You get nice print quality plus Wi-Fi and automatic duplexing, but the MX860's speed is just average overall.			
6 HP Photosmart C5280 \$100 find.pcworld.com/58163	82 VERY GOOD	<ul style="list-style-type: none"> Text quality: Good Graphics quality: Very Good Tested speed (ppm): 7.3 text/2.4 graphics 	<ul style="list-style-type: none"> 32 ppm text 24 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: This basic unit has one standout feature—CD/DVD printing—that helps overcome its mediocre speed.			
7 Canon Pixma MP620 \$150 find.pcworld.com/61884	82 GOOD	<ul style="list-style-type: none"> Text quality: Superior Graphics quality: Good Tested speed (ppm): 7.6 text/2.2 graphics 	<ul style="list-style-type: none"> 26 ppm text 17 ppm graphics 9600-by-2400-dpi maximum true color resolution
BOTTOM LINE: Cool features include Wi-Fi and dual inputs; this model's speed is so-so, however, and some parts feel cheap.			
8 Canon Pixma MX330 \$110 find.pcworld.com/62467	81 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 7.7 text/2.2 graphics 	<ul style="list-style-type: none"> 7.5 ppm text 4.5 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: Decent features and output speed for the price, but the inks are costly and photos can look pale.			
9 Epson Workforce 600 \$200 find.pcworld.com/61880	80 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 18.2 text/5.0 graphics 	<ul style="list-style-type: none"> 27 ppm text 19 ppm graphics 5760-by-1440-dpi maximum true color resolution
BOTTOM LINE: This business-centric model is superfast, but its pricey inks are just one of its drawbacks.			
10 HP Photosmart C8180 All-in-One \$300 find.pcworld.com/59702	80 VERY GOOD	<ul style="list-style-type: none"> Text quality: Good Graphics quality: Good Tested speed (ppm): 7.0 text/2.7 graphics 	<ul style="list-style-type: none"> 34 ppm text 33 ppm graphics 4800-by-1200-dpi maximum true color resolution
BOTTOM LINE: Complete digital photo-processing features include a LightScribe drive for etching and burning.			

CHART NOTES: Ratings are as of 07/07/09. Speeds are in pages per minute (ppm); resolutions are in dots per inch (dpi).



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Darkroom 2 Adds Photo Browsing to Its Editor

WHEN YOU'RE LOOKING for one particular picture out of hundreds, or even thousands, it can feel as if you're sifting through all of them. That's why you need a program to help you catalog, organize, sort, and find your

pictures more easily. The new version of Darkroom, Arcsoft's photocentric image editor, adds a browser that tries to do the job for you.

The well-designed interface has three modules: Browser, Process, and Layout. Navigating among them is intuitive, but the deeper you dig into the program, the likelier you are to consult the disappointingly superficial Help menu.

The Browser module can sort and search your pictures, based on such criteria as star ratings that you assign; the date a photo was



ARCISOFT'S PHOTOSTUDIO DARKROOM 2 has some great editing tools.

taken or imported; and keyword tags that you create. But the ratings system and calendar search won't work if you store your photos on another PC in your network.

Darkroom is reasonably priced at \$100, considering that the Process module

alone offers just about all the photo editing tools of a much pricier program. But the Layout (or print) module is limited, with just seven templates, and you can't create custom layouts.

—Sally Wiener Grotta and Daniel Grotta

85
VERY GOOD

PhotoStudio Darkroom 2

Arcsoft

Photocentric image editor's new browser adds little to a good value.

List: \$100

find.pcworld.com/63310

Canon PowerShot SX200 IS Offers 12X Zoom Power

PCW Test Center

FOR \$350, CANON'S PowerShot SX200 IS serves up a heaping helping of camera. Its marquee feature is a 12X optical-zoom lens, which reaches from 28mm on the wide-angle end to 336mm on the telephoto end. It also offers excellent image quality.

This high-zoom point-and-shoot is a bit bigger than the average compact camera but still stowable in a bag, purse, or large pocket. The body is big enough to accommodate

a roomy, 3-inch LCD screen on the back, and it's sufficiently bright for composing shots in sunlight.

The "IS" stands for image stabilization, a must-have in a high-zoom camera. This model's optical image stabilization did a good job of keeping shots steady, except when I zoomed in to the full extent and shook the camera hard. It handily corrected normal jitter; shots were clear and sharp.

Of the point-and-shoot cameras we've tested so far in 2009, this PowerShot was among the best performers in image quality, earning particularly high marks for lack of distortion, for exposure quality, and for color accuracy. In flash-exposure quality, it outscored almost every other point-and-shoot



CANON'S POWERSHOT SX200 IS can capture high-def video clips.

we've tried this year. Overall the SX200 IS earned an imaging score of Very Good.

Battery life also rated as Very Good, running 324 shots on a single charge.

The PowerShot captures 1280-by-720 HD video at 30 frames per second (it also shoots standard-definition

clips). You can't use the zoom while shooting video.

The SX200 IS is as easy and fun to use as it is versatile, thanks to intuitive controls, the big-time zoom lens, addictive in-camera features, and stellar image quality. All in all, it's a great buy.

—Tim Moynihan

82
VERY GOOD

PowerShot SX200 IS | Canon

Megazoom point-and-shoot does HD video; has other fun features.

List: \$350

find.pcworld.com/63311

Toshiba's NB205-N310 Tops the Netbook Field

PCW Test Center

ABOUT A DOZEN years ago, Toshiba made a name for itself with its ultraportables (remember the Libretto?). The company now picks up where it left off with its stylish new Mini NB205-N310 netbook.

Its name may not be memorable, but the NB205-N310 crunched the competition—including three other new machines—to take the top spot. Pluses include a huge mouse pad, a passthrough charging USB port, and an amazing 9-hour, 53-minute battery life, as measured by the PC World Test Center.



THE TOSHIBA NB205-N310 tops our netbook chart this month.

That time runs marathons around the competition.

Performance is good but not outstanding, with a WorldBench 6 score of 36. Nevertheless, weighing just under 3 pounds and boasting a large, comfortable keyboard, the NB205-N310 looks perfect for the budget-minded businessperson or aspiring academic ace.

—Darren Gladstone

MORE ONLINE

Visit find.pcworld.com/62944 to see in-depth reviews, full test results, and detailed specs for each netbook in our chart.

PC WORLD TOP 10 NETBOOKS

MODEL	PCW Rating	Performance	Features and specifications
1 BEST BUY Toshiba Mini NB205-N310 \$399 NEW find.pcworld.com/63332	89 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 36 Very Good Overall design: Superior Tested battery life: 9:53 	<ul style="list-style-type: none"> 1.66GHz Intel Atom N280 10.1-inch widescreen 2.9 pounds
BOTTOM LINE: Toshiba's NB205 is a great value, packed with fantastic features and an extremely long battery life.			
2 Asus Eee PC 1000HE \$399 find.pcworld.com/62536	85 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 35 Good Overall design: Very Good Tested battery life: 7:09 	<ul style="list-style-type: none"> 1.66GHz Intel Atom N280 10-inch widescreen 3.2 pounds
BOTTOM LINE: Asus delivers a more refined take on its Eee PC line—and manages to do so while keeping the price under \$400.			
3 Asus Eee PC 1008HA \$430 NEW find.pcworld.com/63343	84 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 38 Very Good Overall design: Very Good Tested battery life: 4:55 	<ul style="list-style-type: none"> 1.66GHz Intel Atom N280 10.1-inch widescreen 2.4 pounds
BOTTOM LINE: The Asus Eee PC 1008HA comes with smart design choices, good performance, and solid battery life.			
4 Samsung N120 \$459 NEW find.pcworld.com/63335	84 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 35 Good Overall design: Very Good Tested battery life: 7:43 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10.1-inch widescreen 2.8 pounds
BOTTOM LINE: Generally similar to Samsung's N110, the N120 offers bigger keys and (on some tests) better performance.			
5 Samsung N110 \$470 find.pcworld.com/62937	83 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 36 Very Good Overall design: Very Good Tested battery life: 8:23 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10.1-inch widescreen 2.7 pounds
BOTTOM LINE: The N110 took everything we liked about the Samsung NC10, and then fixed its biggest weakness: the mouse.			
6 Acer Aspire One AOD150 \$349 find.pcworld.com/62938	82 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 35 Good Overall design: Good Tested battery life: 6:38 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10-inch widescreen 2.9 pounds
BOTTOM LINE: This bigger Aspire One improves on its predecessor, most notably with a larger screen and longer battery life.			
7 Lenovo IdeaPad S10 \$449 find.pcworld.com/62406	80 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 41 Superior Overall design: Very Good Tested battery life: 2:35 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10.2-inch widescreen 2.7 pounds
BOTTOM LINE: The IdeaPad S10 has a number of perks—including speed—but pays for them in unimpressive battery life.			
8 Fujitsu LifeBook M2010 \$449 NEW find.pcworld.com/63333	77 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 34 Good Overall design: Good Tested battery life: 2:05 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10.1-inch widescreen 2.5 pounds
BOTTOM LINE: With so many outstanding netbooks costing less and running longer, it's hard to recommend the M2010.			
9 HP Pavilion dv2 \$749 find.pcworld.com/62831	76 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 45 Superior Overall design: Very Good Tested battery life: 2:58 	<ul style="list-style-type: none"> 1.6GHz Athlon Neo MV-40 12.1-inch widescreen 3.8 pounds
BOTTOM LINE: The dv2 carves a niche between netbook and notebook, delivering good performance at a reasonable price.			
10 HP Mini 1000 \$540 find.pcworld.com/62940	75 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 30 Fair Overall design: Very Good Tested battery life: 2:47 	<ul style="list-style-type: none"> 1.6GHz Intel Atom N270 10.2-inch widescreen 2.25 pounds
BOTTOM LINE: HP's netbook features sleek lines and a large keyboard, but some problems hold the Mini 1000 back.			
CHART NOTE: Ratings are as of 7/7/09. Battery life is expressed in hours:minutes.			

Apple's 13-Inch MacBook Pro A1278

PCW Test Center THE NEW 13-INCH MacBook Pro A1278—available in two standard configurations—comes with lower pricing than earlier models in this line, and brings back FireWire connectivity. The por-

76
GOOD

MacBook Pro A1278 | Apple
Comes with FireWire 800 port, SD Card slot, and long battery life.
List: \$1199 or \$1499 (depending on configuration)
find.pcworld.com/63342

table also offers a longer-lasting, nonremovable battery, an improved display, and an SD Card slot. All in all, an impressive package.

The \$1199 version has a 2.26GHz Core 2 Duo processor, 2GB of 1GHz DDR3 RAM, and a 160GB 5400-rpm hard drive. The \$1499 version features a 2.53GHz Core 2 Duo processor, 4GB of 1GHz DDR3 RAM, and a 250GB 5400-rpm hard drive. Both versions have an nVidia GeForce 9400M graphics chip. Each laptop also has a glossy, widescreen, 1280-by-800-pixel-resolution display

and an iSight camera—but no option for an antiglare screen. (Apple does offer certain hard-drive and RAM options, but they cost extra.)

Other features include a MagSafe power connector, a gigabit ethernet port, a Mini DisplayPort, and two USB 2.0 ports. A headphone port replaces the audio-in/out

THE MACBOOK PRO A1278, sold in two configurations, regains FireWire and has a long-lasting battery.



ports of earlier models.

In our WorldBench 6 testing, the MacBook Pro A1278 earned a score of 76 (Good), so it's not the fastest laptop on the block. In *Macworld* testing, the 2.53GHz version proved to be just over 12 percent faster overall than the 2.26GHz version.

—James Galbraith



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THE ACER TIMELINE is a slick-looking, out-size netbook with good performance.

Meet Acer's Timeline (aka Aspire 3810T)

PCW Test Center THE ACER ASPIRE 3810T—also known as the Acer Timeline—is one of the first laptops to carry an Intel CULV processor (in this case, the 1.4GHz U9400). It also has a sharp style that's sure to grab attention.

In WorldBench 6, the \$799 Timeline got a mark of 68, rivaling some expensive ultraportables. While it has 4GB of RAM, it lacks a discrete graphics card. As a result, though it sailed through 64-bit Windows Vista Home Premium, don't expect it to be a multimedia marvel. It lasted a long 8 hours, 21 minutes on a single charge in our battery tests.

I liked the keyboard, but its flat, pseudo cut-out keys aren't for everyone. The glossy 1366-by-768-pixel display has colors that pop. The Timeline also offers a reasonable number of ports and a nice bundle of helpful apps.

The Timeline is a solid deal as a netbook, and a decent-looking machine.

—Darren Gladstone



Aspire 3810T | Acer

Netbook delivers performance, style, and long battery life, rivaling some ultraportables.

List: \$799

find.pcworld.com/63317

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Buying Guide: What to Look for in a Digital Camera

MEGAPIXELS matter, but a camera's other features are important, too. Here are the key criteria to consider when buying a digital camera.

Megapixel count/resolution: If your pictures are destined for e-mail attachments or snapshot-size prints, pretty much any resolution will do. Even so, a model with more pixels gives you greater flexibility: You can print sharper



CANON'S SLIM point-and-shoot, the PowerShot SD780 IS.

pictures at larger sizes, or crop and print small sections of pictures. Most cameras today offer a resolution of at least 8 megapixels—enough for a sharp 11-by-14-inch print. A 10-megapixel camera can produce acceptable 13-by-19-inch prints, though they may lose some detail. Images from a 13-megapixel camera look good at 13 by 19 inches and can be pushed to 16 by 24 inches. Many digital single-lens reflex (SLR) cameras exceed 13 megapixels.

MORE ONLINE

For the latest digital camera news, reviews, and how-to articles, browse to our [Cameras Product Center at find.pcworld.com/63430](http://Cameras.Product.Center.at.find.pcworld.com/63430).

But not all megapixels are created equal: Cameras with larger sensors and lenses tend to take better shots, regardless of their megapixel count.

Optical zoom lens: In a low-end camera, a more-powerful optical zoom lens beats one with more megapixels: With it, you won't have to magnify your subject and then use software to crop the image (losing some of the resolution in the process). Another point-and-shoot feature to look for if you're a landscape photographer is a wide-angle lens (about 30mm or lower on the wide-angle end).

Don't confuse digital zoom (which simply magnifies captured pixels) with optical zoom (which moves the lens to magnify the subject). Optical zoom preserves the camera's full maximum resolution and lets you focus in tight on faraway action.

With digital SLRs, you can buy any lens you need. To determine a lens's effective focal length, multiply its nominal focal length by the camera's sensor size.

Batteries: Cameras may use plain alkaline AA batteries (\$5 for four), rechargeable nickel metal hydride (NiMH) AA batteries (about \$14 for four), longer-lasting lithium AA batteries (\$10 for four), high-capacity disposable CRV3 batteries (around \$10 apiece), or proprietary rechargeable batteries (\$25 to \$65 to replace).

Movies and sound: Many digital cameras can capture still shots and short video clips. Even digital SLRs now shoot

video—in high definition. Most point-and-shoot cameras capture video at 640 by 480, but high-def video is becoming more common.

Exposure settings: All digital cameras let you shoot in a fully automatic mode. Most models also offer aperture- and shutter-priority modes, so you can adjust how large the lens opening is or how long the shutter remains open, while the camera controls the other settings.

Photographers use aperture priority to control an image's depth of field—say, to blur the background of a shot but keep the foreground sharp. Shutter-priority mode helps capture fast-moving subjects. A camera set on full automatic would try to keep both foreground and background in focus, causing a moving subject to blur.

Most cameras that offer



THE NIKON D5000 is an entry-level digital SLR camera.

priority modes also permit full-manual exposure control, in which you select values for both variables.

Scene modes: Many cameras try to entice prospective buyers with an array of scene modes, such as those for the

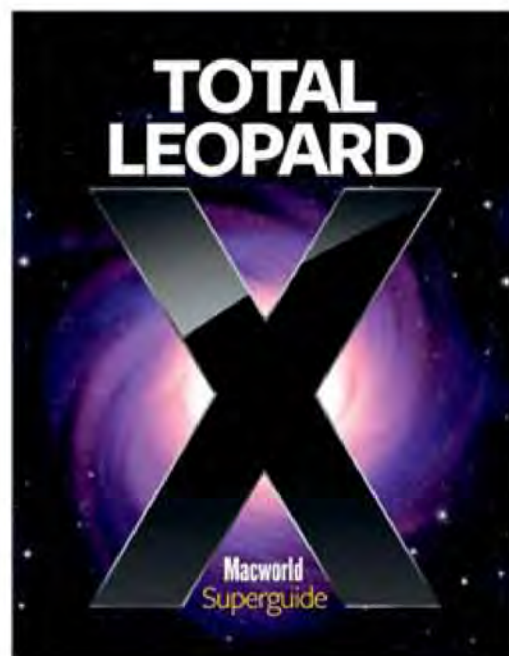
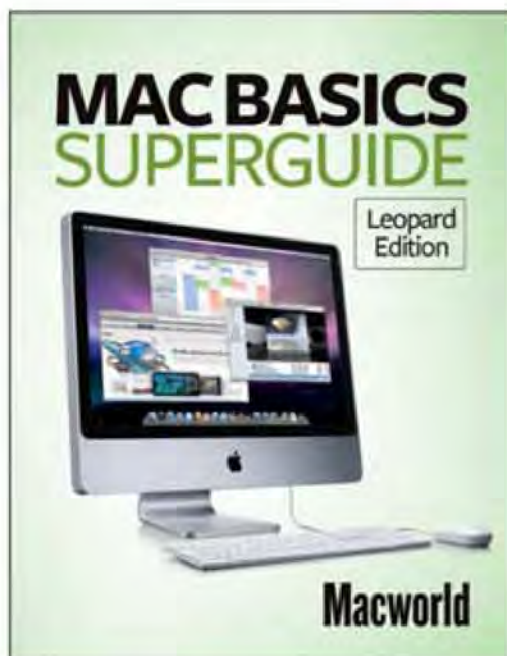
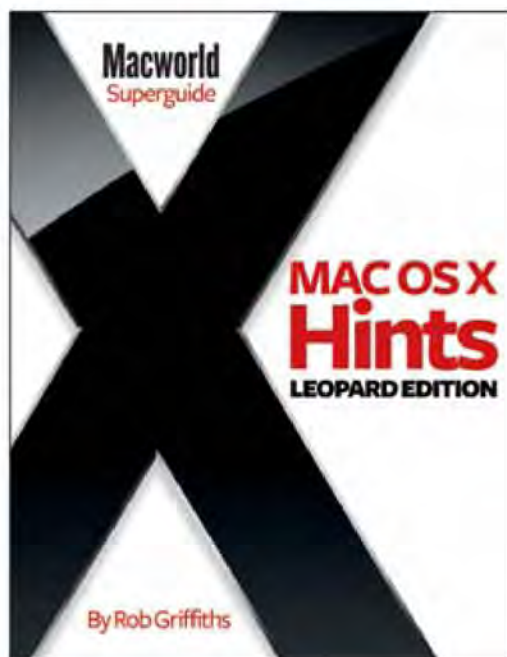
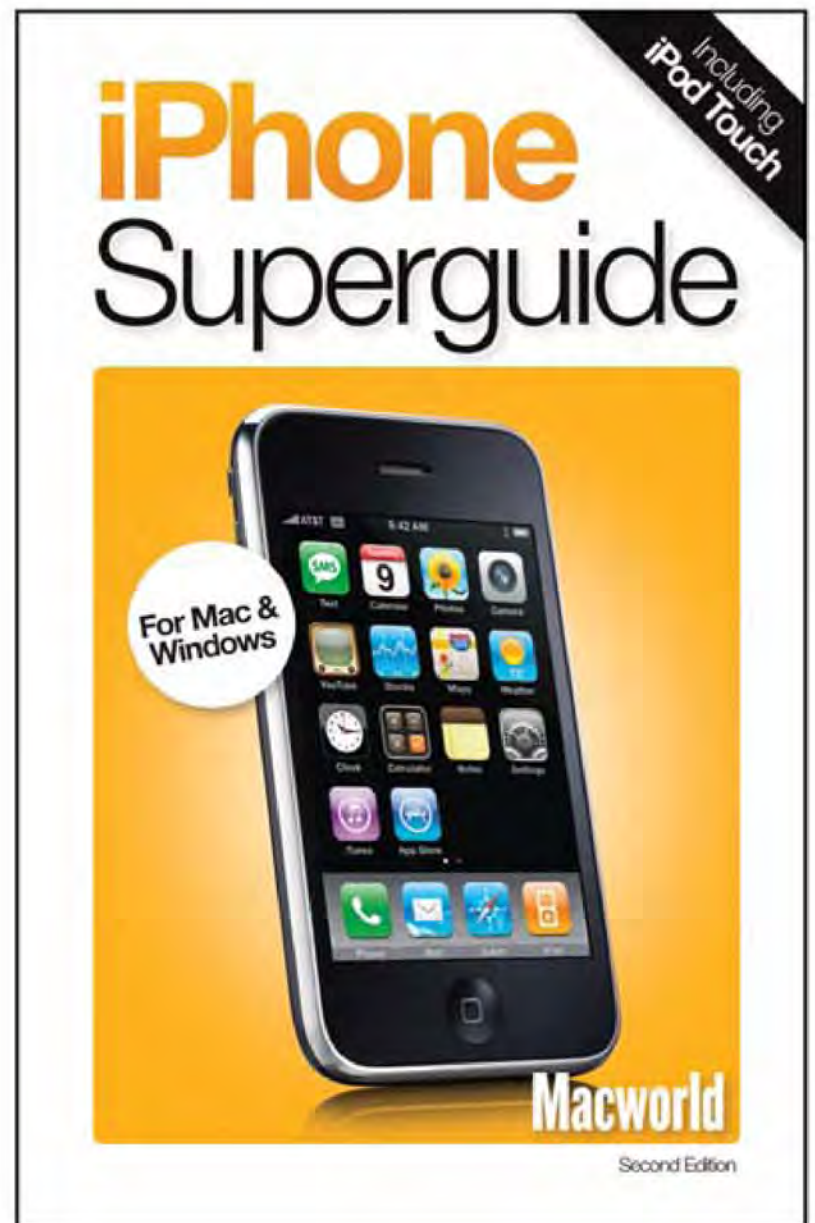
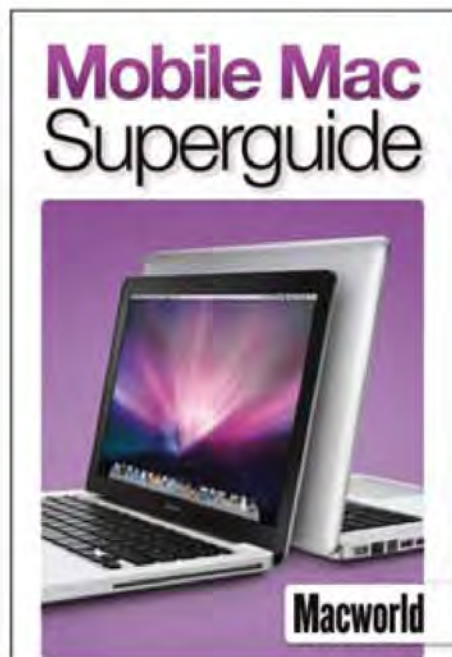
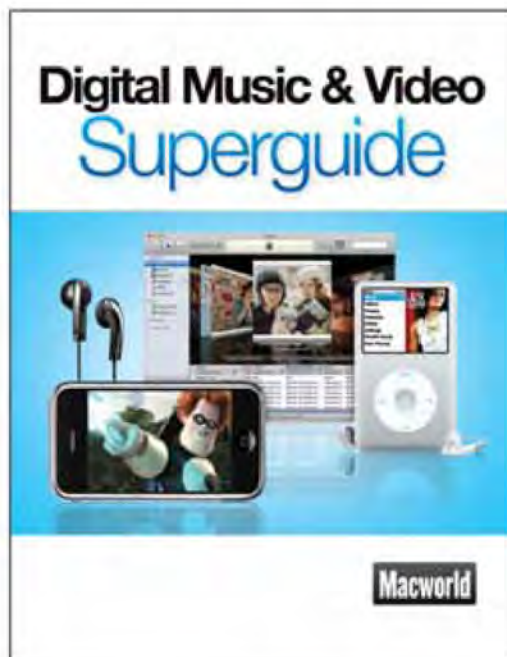
beach, fireworks, or underwater. Some cameras let you reassign a preset mode—or a customized mode of your own—to a position on the control dial, for easy access. Some digital SLRs set aside positions on their control dial for storing customized settings; many have scene modes, too. Some point-and-shoots let you store customized settings as a mode within the scene-modes menu.

Face detection: Nearly all new point-and-shoot cameras now offer face detection, a feature that attempts to optimize both focus and exposure for the subjects. Some new cameras also have smile recognition, which will automatically take a picture when someone in the frame smiles; this feature is great for baby pictures.

Image stabilization/anti-shake: Some cameras offer antishake (or image stabilization) as a shooting mode or as a feature that you can toggle. It's helpful in low light and in other difficult shooting situations, but you can't use the feature in conjunction with any other scene mode. More-advanced cameras, including SLRs, may employ optical image stabilization (in which an element in the lens adjusts to compensate for movement) or sensor movement (in which the camera's sensor moves to compensate for the shaking). Both arrangements are more effective than digital image stabilization.

—PC World Staff

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Trailblazing Ultramobile PC Still Rough in Places

LOOKING FOR A handheld that bridges the gap between netbook and iPhone? Viliv's S5 Premium straddles that divide, with mixed results.

A "portable media player," the tablet-style Viliv S5 is a small, loaded touchscreen Windows XP Home Edition



S5 Premium | Viliv

Speedy, well-connected UMPC has an inconvenient software keyboard.

Street: \$599, \$699, \$799

find.pcworld.com/63418

ultramobile PC (UMPC) that combines a 1.3GHz Intel Atom CPU with Wi-Fi, Bluetooth, and GPS capabilities.

Measuring 6.0 by 3.3 by 0.9 inches and weighing about 14 ounces, it comes in three configurations. A \$599 model packs a 60GB hard drive but lacks a 3G slot. A \$699 version offers a 32GB solid-state drive and again no 3G slot. The \$799 model I tested has a 32GB solid-state drive and a 3G slot.

The 4.8-inch, 1024-by-600-pixel display is crisp, bright, and responsive. You get a four-way joystick, but no



THE VILIV S5 Premium has a crisp, bright 4.8-inch display.

mouse or keyboard—and on the tiny Windows display, precise fingertip touches are a challenge. To help, a stylus that looks like a guitar pick is strung onto the hand strap.

The translucent software keyboard occupies the full width and half the height of the display, which makes for large keys but too often puts the keyboard on top of the

field or line you're typing. (You can supply your own USB keyboard and connect it to the Viliv's USB port.)

Disappointing 3G performance and an awkward software keyboard will deter some buyers, especially at a price (\$599) equal to that of a nice, lightweight netbook.

—Yardena Arar

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84
VERY GOOD

Motorokr S305 | Motorola

Low-cost stereo headset delivers solid audio and a comfortable fit.

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The S305 sports a behind-the-ear design. I rotated the earpads until the earhooks nestled against the tops of my small ears. The nonadjustable neckband hovered above the back of my head, without bopping against my neck.

Even after 2 hours, the headset felt secure yet not cumbersome, thanks to its cushiony foam pads.

Phone calls through the S305 were usually good or great, but at times my voice sounded far away, slightly muffled, or robotic to call recipients. They sometimes heard background noise in

my immediate vicinity, too. Incoming voices were clear but on occasion a bit muffled.

Music sounded fairly good, with warm, bright tones and a solid bass, even near the limit of the headphones' 33-foot Bluetooth range.

The S305's controls are housed on the right headphone, with a ridged symbol to help you find each one by feel. These ridges are tiny, though, so you might take a while to get used to them.

MOTOROLA'S S305 headphones deliver good sound quality.

The volume rocker was less accessible, but offered well-defined tactile feedback with a solid, punchy mechanism.

For stereo Bluetooth headphones that can manage calls and play music, \$60 is a terrific price. If you aren't sold on earbud models, the earpad-based S305 is a fine choice. And if looks matter to you, you'll like the set's handsome black and silver hues.

—Aoife M. McEvoy



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Widescreen LCDs Step Up Their Image Quality

PCW Test Center

THE FIVE MONITORS on this month's chart range in diagonal screen size from 20 inches to 22 inches. They also reflect the diversity of LCD monitors available today. One is designed for multimedia enthusiasts; another will appeal to users who favor recycling and energy conservation. All of the monitors that we tested delivered solid image quality, though we detected some slight differences here and there between the models.

Our Best Buy, the 21.5-inch Lenovo L215p, provides great image quality; it also has a built-in Webcam at the top of the screen and

a speaker bar that runs along the bottom. Such extras make it ideal for people who are looking for a monitor with multimedia capabilities. Only the L215p's lack of a DVI port may limit its appeal (it has HDMI and VGA connectors, only).

The NEC P221w, a 22-inch widescreen LCD, showed the best image quality of the bunch with impressive handling of both text and graphics. Colors in several of our test photographs looked especially realistic. Though it's pricier than most competing models, the P221w justifies the extra cost for users who need high-end image quality.

Two HP monitors make the



THE LENOVO L215P gives graphics the full-HD 1080p treatment.

list as well: the HP LP2275w, a 22-inch widescreen LCD; and the HP 2009m, a 20-inch widescreen LCD. The larger

unit performed well in our subjective tests, but showed unusually high contrast in some photos, which might be off-putting to some users. Meanwhile, the 2009m demonstrated nice image quality, and its 20-inch screen size might appeal to customers interested in a slightly more compact display.

The energy-conserving Dell G2210t rounds out our chart. Dell reports that it manufactured the G2210t using recycled materials, and that the monitor's cabling is free of PVC and other harmful chemicals. Its three energy modes allow you to scale the unit's brightness and energy consumption to the level that you wish to work with. Its appealing green-oriented features aside, the G2210t faltered slightly in our image quality tests: Its text looked sharp, but it displayed some slight dullness when showing photographs.

—Kalpana Ettenson

PC WORLD TOP 5 20- TO 22-INCH WIDESCREEN LCD MONITORS

MODEL	PCW Rating	Performance	Features and specifications
1 BEST BUY Lenovo L215p \$254 find.pcworld.com/63336	82 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Motion test: Very Good 	<ul style="list-style-type: none"> HDMI and VGA ports Tilt and swivel adjustments 1920 by 1080 native resolution
BOTTOM LINE: This 21.5-inch, full-HD 1080p model showed fine text and nice colors, but it lacks a DVI port.			
2 HP LP2275w \$350 find.pcworld.com/63338	81 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Motion test: Superior 	<ul style="list-style-type: none"> DVI and VGA ports, DisplayPort Tilt, height, and swivel adjustments 1680 by 1050 native resolution
BOTTOM LINE: For users seeking a monitor that lets them perform basic tasks, this 22-inch widescreen should fit the bill.			
3 NEC P221w \$499 find.pcworld.com/63337	81 VERY GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Motion test: Superior 	<ul style="list-style-type: none"> DVI and VGA ports Tilt, height, swivel, and pivot adjustments 1680 by 1050 native resolution
BOTTOM LINE: This attractive, well-designed, and adjustable 22-inch widescreen LCD offers impeccable image quality.			
4 HP 2009m \$200 find.pcworld.com/63339	79 GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Motion test: Good 	<ul style="list-style-type: none"> DVI and VGA ports Tilt and swivel adjustments 1600 by 900 native resolution
BOTTOM LINE: Hewlett-Packard's affordable 20-inch widescreen display delivers impressive text and graphics.			
5 Dell G2210t \$240 find.pcworld.com/63340	74 GOOD	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Motion test: Very Good 	<ul style="list-style-type: none"> DVI and VGA ports Tilt adjustment 1680 by 1050 native resolution

BOTTOM LINE: With energy-saving modes and a great price, this 22-inch monitor rewards thrifty and conscientious buyers.

CHART NOTE: Ratings are as of 7/9/09.

MORE ONLINE

Visit find.pcworld.com/63428 for in-depth reviews, full test results, and detailed specs for all desktop monitors.

Google Voice: One Number to Manage Them All

GOOGLE VOICE, NOW in a wider beta version, delivers on its promise of elegant, comprehensive phone line management. And at least for now, the service is free.

Google Voice assigns one phone number for managing all your phone numbers, and



it lets you manage your voice services online. The number is tied to you, not to a geographical location, a specific handset, or an IP address.

The service lets you route incoming calls to specific phones, record greetings, and update contact information internally or in other Google tools. Google Voice has a few quirks, but a service that manages the multiple phone lines in our lives should have universal appeal.

—Jeff Bertolucci

Google Voice | Google

Beta service, not rated
Phone management service is powerful, flexible, and very cool.
Free

find.pcworld.com/63422

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HAS YOUR LIFE moved to the Internet? If so—or if it only seems that way—these three free downloads will help keep you safe, informed, and in touch online. A smart security tool eliminates irritations with the built-in firewalls of newer Windows OSs, making caution less onerous. A browser add-on helps you keep and tag information from the ever-changing Web. And a beautifully simple video calling program lets you chat face-to-face with your less tech-savvy friends—without having to walk them through a painful installation process.

Windows 7 Firewall Control Free

Do you want to be able to exercise fine-grained control over the firewall built into Windows 7 and Windows Vista—especially over the way it blocks outbound connections? Good luck. Even if you manage to unearth the controls buried deep in Windows menus and applications, you'll be baffled. Luckily, Windows 7 Firewall Control Free solves the problem.

With Windows 7 Firewall Control Free, you can tell the Windows firewall to forbid applications to make outbound connections to the Internet, or you can customize how they make those connections. When you run the program, anytime an application tries to access the Internet, a screen will pop up, with the application's name, its publisher, and similar details about it, as well as its path and file name. You can then enable or disable the inbound or outbound connections it tries to make, either permanently or just that one time. find.pcworld.com/63405

—Preston Gralla

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—Erik Larkin

Logitech Vid

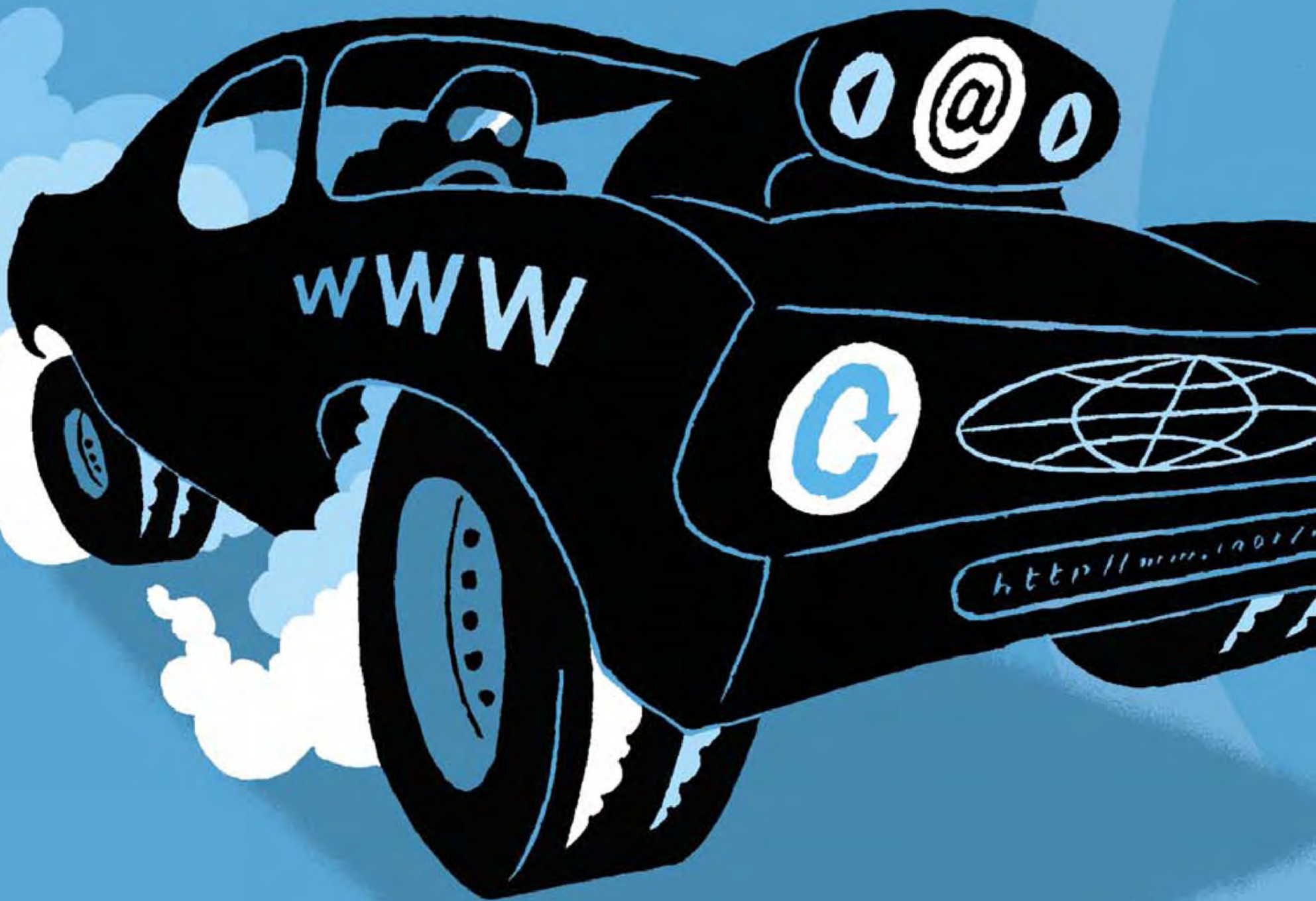
When you think of Logitech Vid, think of a version of Skype that is easier to use and delivers superior quality. The upgrade in ease of use is due to your being able to choose people to chat with on the basis of their e-mail and a photo they submit when they sign up, not some potentially obscure screen name. The on-screen interface is simple but intuitive.

You have relatively few settings to tweak—just options for automatic call answering, noise reduction, included devices, and volume. That's a good thing, as the goal Vid is aiming for is to make video calling a simpler process.

Vid is easy to use, and it's a free download for anyone who either owns a Logitech Webcam (any vintage) or has a Logitech Webcam owner on their contact list. find.pcworld.com/63403

—Jon L. Jacobi

The Web



Accelerated

Need to zip around faster on your favorite sites?

These insider tricks—some from the site developers themselves—will help you get things done in no time on Amazon, Gmail, Google, Wikipedia, and six other popular sites. >>



BY ADAM PASH
ILLUSTRATION BY ADAM McCAULEY

You work with

Internet sites and tools like Amazon, Gmail, iTunes, and YouTube every day, and you're probably fairly adept at using them. But today you'll become an expert. For each of these essential Web resources, we identify tips, tricks, and shortcuts that will help you use them better and more efficiently.

Amazon

Organize your gift-giving: If you want to make your gift-giving more structured, Amazon's Gift Central (find.pcworld.com/63348) has you covered. This site offers gift ideas for all occasions, organized by price, relationship, age, and even personality. Desperate to find something original? Gift Central even has a page of suggestions For the One Who Has Everything (find.pcworld.com/63349).

Buy an item when it's available (or when you can afford it): Ever come across an item that you're dying to buy—but it is not in stock, or you just can't afford it right now? The BuyLater Firefox extension (find.pcworld.com/63425) adds a Buy This Later button to Amazon pages and alerts you when the item becomes avail-

able or its price falls.

Find deep discounts:

If you're a serious big-deal hunter, plan a trip to JungleCrazy (www.junglecrazy.com). This clever Web site rounds up deeply discounted Amazon items (everything is reduced in price by at least 70 percent). The goods here aren't all gems, but you'll occasionally find a diamond in the rough. You can dig for items by using the search box or by clicking through on the tag links, or plumb the depths of cheapness in the one-cent bin (find.pcworld.com/63350).

Get books for less: Amazon's low prices

and fast shipping are well known, but sometimes you can save money by buying elsewhere. Book Burro (find.pcworld.com/63426), a Firefox extension, integrates with Amazon and searches your local library and other online bookstores to pinpoint the cheapest price—which, if it finds the book at your library, is most likely zilch.

Comparison-shop from your phone:

When you're out shopping, you may be tempted to grab the first item you see on the shelf just because it's there. If you have a touch more patience, however, the Amazon Mobile App for BlackBerry (find.pcworld.com/63351)

or the Amazon Mobile App for iPhone (find.pcworld.com/63352) can be the perfect shopping companion. Snap a photograph of the item you want to buy, and Amazon Mobile will automatically recognize the product and show you how much it costs on Amazon (and let you buy it).

Find the best products: Buying a product on Amazon is easy when you already know exactly what you want, but it can be trickier when you have only a more general idea. That's where SavvyGraph (www.savvygraph.com) comes in. Run a search of your keywords (for example, "50" HDTV") at this handy site, and it will return a chart that graphs products based on their Amazon rating and their number of reviews received (presumably the more reviews a product has, the more accurate the rating will be). For a quick glance at the cream of the crop, look for items located in the top right of the graph (highest rated and most reviewed).



BuyLater notifies you when the price of an Amazon item you want drops.

DEVELOPERS' CHOICE

Matt Edwards

AMAZON SENIOR
SOFTWARE DEVELOPMENT
ENGINEER



Amazon Universal Wish List

"Universal Wish List [find.pcworld.com/63382] allows customers to add any product from any Web site to their Amazon Wish List. It takes customers only a few seconds to install the 'Add to Wish List' button on their browser's toolbar. Once it's installed, customers can go to any online store, and when they see something they want, click the 'Add to Wish List' button—and that's all it takes to add it to their Amazon Wish List. We designed the Universal Wish List to offer customers a convenient and easy way to create a Wish List that contains everything they want, making it the only wish list they'll ever need!"

Craigslist

Watch a search via RSS: Craigslist doesn't offer e-mail alerts when someone lists an item you're looking for. So instead, grab the RSS feed of any search (the link is at the bottom of the page), and add that to your newsreader.

Search all of Craigslist: Though Craigslist emphasizes local classifieds, you may want something so badly that you're willing to go anywhere to get it. The free Craigslist Reader (find.pcworld.com/63354), a Windows application, searches the entirety of Craigslist in one fell swoop (in addition to supplying a host of other useful features).

Be a better seller: Listing items for sale on Craigslist couldn't be easier, but you can improve your chances of closing a sale by taking just a few simple steps. Rule #1: When you can, take a picture. Nobody wants to buy something sight unseen. Rule #2: Don't be stingy with details. Buyers want to know what an item is all about, and the more info you offer them at the outset, the less time you'll spend answering e-mail queries.

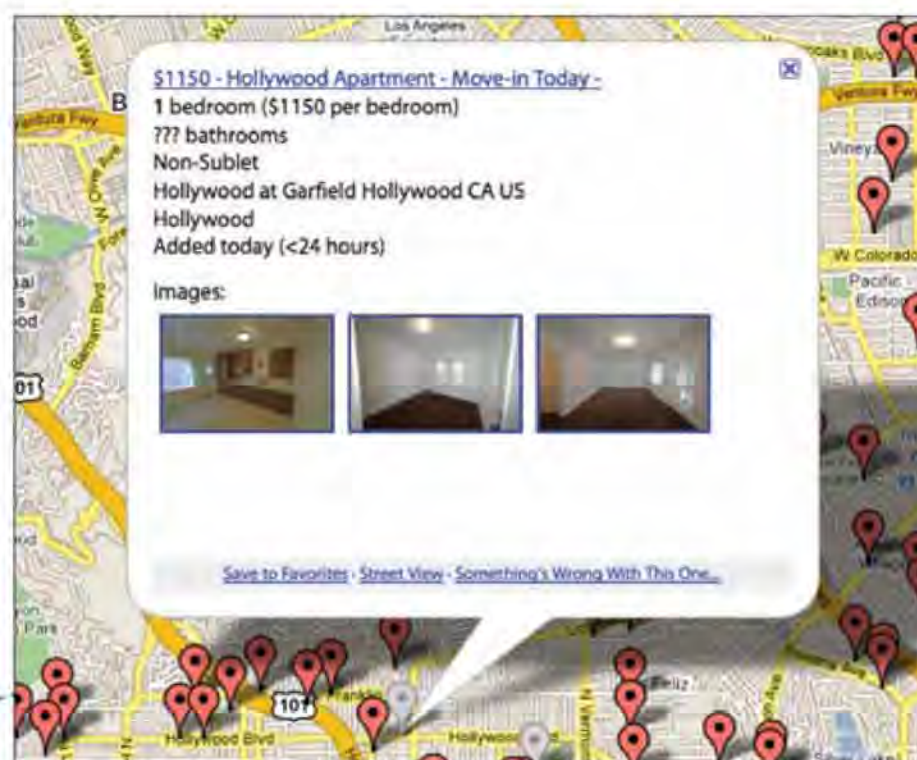
View apartment listings on a map: Location is everything when you're looking for a new place to live, and Craigslist's spartan interface offers little help in locating listings on a map. Enter PadMapper (www.padmapper.com), a Web site that searches Craigslist and plots rentals on a Google Map. That's easy apartment hunting!

eBay

Bring eBay to your desktop: eBay may have lived out the first 10+ years of its life in your browser, but today the best eBay experience comes in the form of eBay Desktop (find.pcworld.com/63416), the auction site's free desktop applica-

tion. Not only is it faster than the eBay you're used to, but also it supplies a real-time auction counter (so you don't have to reload item pages to see how much time is left), built-in item reminders, and alerts when you've been outbid. And eBay Desktop updates automatically, so you never have to refresh your browser.

Get a great deal on misspelled items: The most important thing a seller can do is to make sure that potential buyers can find the item being auctioned. But for buyers, a misspelled auction title spells G-R-E-A-T D-E-A-L. The Typo Buddy site (www.typobuddy.com) searches eBay (and Craigslist) for all possible misspellings of your search term—so if



PadMapper maps the locations of the listings from a housing search run on Craigslist.

you're lucky, you may discover a mislabeled auction that eludes everyone else.

Get cash back on Buy It Now purchases: Micro-

soft's new search engine Bing (www.bing.com) is doing everything it can to attract new users from Google, even

paying people to use it. Right now if you search for an eBay item through Bing, you can get up to \$200 cash back (see find.pcworld.com/63353) on qualifying Buy It Now items. You have to click through to the eBay item from Bing, keeping an eye out for a gold cash-back icon, so it's a little more complicated than just buying straight from eBay, but under the right circumstances the savings may be worth it.

Find rare items as soon as they are listed: If you're looking for something specific and your searches come up empty, give eBay's saved searches (in the My Account section) a try. Once you set up a saved search, eBay will e-mail you daily for up to one year when new

items that match your search appear.

Automate last-minute bidding: As eBay veterans know, due to the phenomenon known as "sniping," the only bidding that matters in an online auction happens during the final moments. Free app JBidWatcher (find.pcworld.com/63427) tracks multiple auctions and submits your maximum-offer, last-minute

DEVELOPERS' CHOICE



Jim Griffith
EBAY MARKETPLACE
EXPERT

eBay Refine Your Searches

"[O]ne of the best tools for refining searches is the 'Refine Search' box on the left side on the first page of search results. This box provides drill-down options for lower-level categories where the item you seek may be located, reducing the need to scroll through long lists of items that may not be related directly to the item for which you search."

»

DEVELOPERS' CHOICE

Kellan Elliot-McCrea
FLICKR HACKR



Flickr Metadata Editor in Organizer

“In Organizer [available at find.pcworld.com/63383], double-clicking on a photo will bring up a “photo metadata editor” (title, tags, dates, permissions, and whatnot). If you need to edit a large number of photos, get

them into the Organizer pane, check the *Go to next item when you save* check box, and start editing!

Organizr will remember which tab/field you were editing. It’s the fastest way to do this kind of work outside of a desktop client and/or the API to batch-edit.”

bids in sequence automatically. You can also tell it to refrain from bidding on any remaining auctions in a series of related auctions the moment you win one.

Track your profits and losses: If selling on eBay is more of a vocation than a hobby for you, head over to ProfBay (profbay.com), a Web site that tracks and graphs your eBay profit margins after subtracting your listing, shipping, and other selling fees from the equation.

Flickr

Find free-to-use photos: If you’re looking for art to use in your personal blog, but you’d rather not receive a cease-and-desist letter for misappropriating a copyrighted photo, head to Flickr’s advanced search page and check the *Only search within Creative Commons-licensed content* box. Any photos that this search turns up are free for you to use on your site (often with the proviso that you include an attribution). It’s a lot easier—and cheaper—than hiring a lawyer!

Download the appropriate tools: Using Flickr is much easier with its accompanying desktop application, Flickr Desktop Uploadr (find.pcworld.com/63355).

Besides making drag-and-drop batch uploading of your pictures a breeze, it allows you to tag, title, set privacy levels, create sets, and more—all from one quick, convenient desktop app.

Upload your videos in high definition: The central concern at Flickr is still photography, so you may not have noticed last year when Flickr activated a video-sharing feature for Pro users, or earlier this year when the site enabled video sharing for all users. Pro users can even upload high-def videos with a file-size limit of 500MB—though all Flickr videos are limited to a

maximum length of 90 seconds, so be sure to choose your moments wisely.

Upload pics on the go via e-mail: When you signed up for Flickr, the service assigned you a top-secret @flickr address for you to use in sending your pictures

to Flickr via e-mail (it’s convenient for uploading images to Flickr from your iPhone, for example). To take advantage of this feature, just open your account’s e-mail settings (find.pcworld.com/63356) and copy the Flickr upload e-mail address to your contacts. When you e-mail an image to Flickr, the message’s subject becomes the photo’s title and the body becomes its description.

Spice up your PC with your photostream: As a photo enthusiast, you’ve undoubtedly put a lot of work into organizing and uploading your pictures to Flickr, so why not show your handiwork on your desktop? Free application Flickr .Net Screensaver (find.pcworld.com/63358) displays Flickr images as your screensaver. You can specify the included images based on such criteria as tags, groups, or the user who generated the image. To add a little flair to your desktop wallpaper, try John’s Background Switcher (find.pcworld.com/63357), a free app that rotates your desktop wallpaper by pulling photos from Flickr.

Find a great camera: Like the look of some Flickr pics and wish you could get the same results? Flickr can’t teach you the skills of an expert photographer,

but it can tell you what camera took the picture. Check the ‘Taken with’ section of any pic’s Additional Information panel, or head to the Flickr Camera Finder

(find.pcworld.com/63359) for a look at the most popular cameras used on Flickr and the pictures that they have taken.

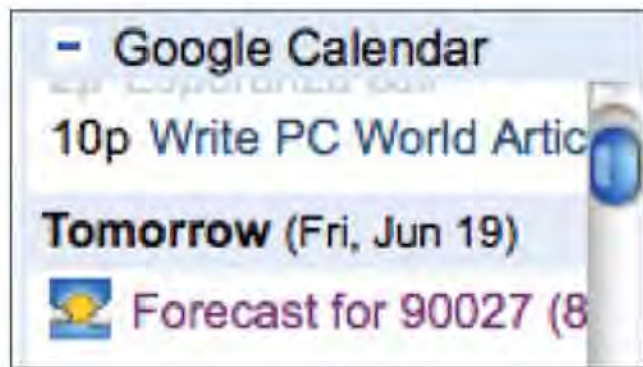
Protect your privacy: Flickr is great for sharing pics with friends

and family, but you may not want prospective employers to see last year’s Mardi Gras set. Go to Flickr’s Privacy page (find.pcworld.com/63360) to designate who can see your photos (you can adjust privacy settings on any individual photo

Flickr’s ‘Taken with’ data reveals when a photo was taken and with what camera.

Additional Information

- ⊙ ⊙ Some rights reserved
- ⊙ Anyone can see this photo
- Taken with a Nikon D70. [More properties](#)
- Taken on March 12, 2005
- 150 people call this photo a favorite
- Viewed 17,103 times



so no one, friends and family only, contacts only, or anyone can see it) whether the pics should show up in search results, and which privacy settings Flickr should apply when you upload new photos.

Add a dynamic list of your Google Calendar appointments to your Gmail sidebar.

Gmail & Google Calendar

Turn on keyboard shortcuts: Why waste time moving your hand to the mouse every time you want to open, compose, search for, or label an e-mail message? Gmail's keyboard shortcuts keep your hands on the home row and your inbox clean. To activate them (they're not enabled by default), open the *General* tab of your Gmail settings, click *Keyboard shortcuts on*, and then press the ? key while anywhere in Gmail to see a full rundown of your shortcuts at any time. Google Calendar shares many of the same shortcuts (including the '?' query) and enables them by default.

Make them better with extensions: Gmail and Google Calendar are a great pair of productivity apps, but if you want to squeeze even more functionality out of them, try the Better Gmail 2 add-on (find.pcworld.com/63361, Firefox only), which adds a handful of excellent features to Gmail, including hierarchical labels and file-attachment icons. Meanwhile, Better GCal (find.pcworld.com/63362, also Firefox only) completely redesigns the Google Calendar skin.

Integrate Gmail and Google Calendar: Gmail knows when you've been invited to a meeting, and it offers to add the meeting to Google Calendar automatically. You can make the two even closer friends by enabling the Google Calendar

gadget from Gmail Labs. This gadget creates a handy daily agenda tracker in your Gmail sidebar that pulls scheduling data directly from your Google Calendar.

Automate your inbox: Gmail's lack of folders throws some users for a loop initially, but most people don't take long to fall in love with labels as an organizing tool. Use the Labels drop-down menu to label any e-mail message, or just press L if you have enabled shortcuts and then start typing the label you want. If you find that you're constantly labeling and archiving the same type of e-mail, though, try creating a filter that archives, marks as read, stars, labels, forwards, or deletes any message that matches your criteria. Simply click *Create a filter* next to the Gmail search box, enter your filter criteria, and start automating your inbox.

Take advantage of Labs: Gmail Labs is

(Google's budding to-do list app). The Gmail team is constantly adding new Labs features, so enable Labs and start digging for great new functionality.

Google

Navigate results from your keyboard:

Google's Experimental Search page (find.pcworld.com/63365) is full of fun experiments from the search giant. One of the best is the keyboard shortcuts experiment, which adds Gmail-like keyboard shortcuts to Google search results; for example, pressing 'J' or 'K' moves up or down, respectively, between results.

Get to know search operators: Google made its name by delivering powerful search results in response to queries of any level of sophistication, but learning to use Google's search operators can really hone your Google-fu. The Google Help Cheat Sheet (find.pcworld.com/63366) rounds up some of the finest, such as

DEVELOPERS' CHOICE

GMail Quick Searches With a Keyboard Shortcut

"The Gmail feature I can't live without is search operators. I'm a huge fan of keyboard shortcuts, so when I need to find something quickly, I hit '/' to get to the search box and type 'from:keith' plus a keyword in the mail from Keith that I'm looking for. Make sure you have keyboard shortcuts turned on for the '/' shortcut to work. There's a list of other tips and tricks for becoming a Gmail ninja here: www.gmail.com/tips."



Todd Jackson
GMAIL PRODUCT MANAGER

Google's playground for testing provisional features like Forgotten Attachment Detector (helps you avoid the obloquy associated with forgetting to include an attachment), Offline Gmail, and Tasks

define: (for quick dictionary lookups), site: (to return results from a specific Web site), and OR (as in 'pc OR world').

Convert nearly any measurement: Aside from working as a simple calculator, »

Google is also a great tool for converting units of measure. Need to know how many ounces are in a cup? Enter **ounces in a cup** in Google. Or try something exotic, like how many furlongs are in a league. Google can handle it.

Narrow down your results: Usually you can find what you're looking for on the first page of Google results, but if you need something very specific—say, a page that was published in the last 24 hours—click the new *Show Options* link above your search results. Among other features available is the interactive Wonder Wheel, a spidering graphical representation of queries related to yours.

Square your results: If you're a hard-core data nerd, give Google Squared (find.pcworld.com/63368) a try. This new search tool returns results as structured data in a spreadsheet to help you get a

scans your music, uncovers messy or incomplete metadata, and automatically fixes it, figuring out where all of your tracks by that versatile and prolific figure currently known as Unknown Artist really belong. Missing album art? TuneUp can take care of that, too. The limited program is a free download, but if your library needs a lot of work, you'll probably want to upgrade to TuneUp Gold, for unlimited metadata cleaning.

Drop your duplicates: iTunes does its best to let you know when you have



TuneUp tidies up messy iTunes data and finds missing album cover art.

you should ditch. Then click the *Delete checked tracks* button to remove them.

Find free

music: Though

the iTunes Music Store isn't big on handing out free tunes, the Free on iTunes page (find.pcworld.com/63367) hosts a regularly refreshed lineup of tracks, music videos, TV shows, and other

special content for free downloading.

Remote-control iTunes: If you have an iPhone or an iPod Touch, you also have the best iTunes remote control money can buy. Download Remote (find.pcworld.com/63370) to your iPhone or Touch (it's free); pair it with your iTunes library (run Remote on your iPhone, tap *Add Library*, and follow the pairing wizard on the next screen); and then use it to control your iTunes playback, make playlists, and adjust the volume from Remote's iPod-like interface.

Let iTunes be your DJ: Want to listen to music selections that have something in common, without building a playlist of your own? iTunes' Genius feature creates playlists based on songs that it thinks (binarily speaking) sound good together or share a similar mood; and iTunes' DJ feature lets any guest with an iPhone or iPod Touch request, add, reorder, or remove songs from the DJ playlist on the fly, using the Remote application (mentioned above).

Automatically sync any iTunes folder: If you're like most folks, much of your iTunes library's music originated from ripped CDs and, ahem, unspecified online resources. Instead of adding new tracks to iTunes manually, point iTunes Folder Watch (find.pcworld.com/63372) at any folder(s) on your hard drive, and this free app will automatically add new tracks to iTunes as soon as it sees them.

Get to know your smart playlists: Smart playlists do a great job of slicing and dicing your music into playlists without requiring you to spend hours sift-

DEVELOPERS' CHOICE

Jim Muller
GOOGLE SOFTWARE
ENGINEER



Google Search Quick Local Searches

"I'm really happy with how easy it is to use local search on Google. Just search for the kind of store you want—for example, restaurants (www.google.com/search?q=restaurants). We guess your location, and show restaurants near you. It's one of my favorites among our lesser-known search tips: www.google.com/landing/searchtips."

bird's-eye view of the data contained in the results. Search for 'DSLR cameras', for example, to compare and contrast prices and resolutions for digital SLRs.

iTunes

Clean up your metadata and album art: You could painstakingly correct every mislabeled track in your iTunes library, or you could let TuneUp (find.pcworld.com/63417) do the job. This clever application

duplicate tracks in your library (you can search for them by selecting *File•Show Duplicates*), but it's best simply isn't good enough. Free application Meta-iPod (find.pcworld.com/63369) quickly digs up and clears out your dupes like a pig hunting truffles. Fire it up, and click the *Start* button to let it analyze your library; if it finds repeat entries, click the *2x* button to view the duplicates, with Meta-iPod's best guesses for which ones you should save and which ones

DEVELOPERS' CHOICE

MapQuest MapQuest 4 Mobile (iPhone)

“A free application for iPhone that allows easy access to Directions, Maps, and Local Search as well as access to saved maps from your My Places account. The app [find.pcworld.com/63384] became the #1 free navigation app on launch and has remained there. The Landscape mode feature of the MapQuest 4 Mobile for iPhone application creates calm and easy viewing when driving. A simple swipe moves you to the next maneuver quickly and easily. It then shows you what to do next. My Places integration is also tremendous. I love the ability to save maps/routes/searches on MapQuest.com and easily bring them up on the iPhone.”



Carl Edwards
MAPQUEST TECH
MANAGER

ing through every song yourself. Just set your criteria and let the smart playlist create itself. Make a best-of playlist from your most-played tracks added in the last year, for example, or rediscover songs with a smart playlist that looks for songs with a low play count.

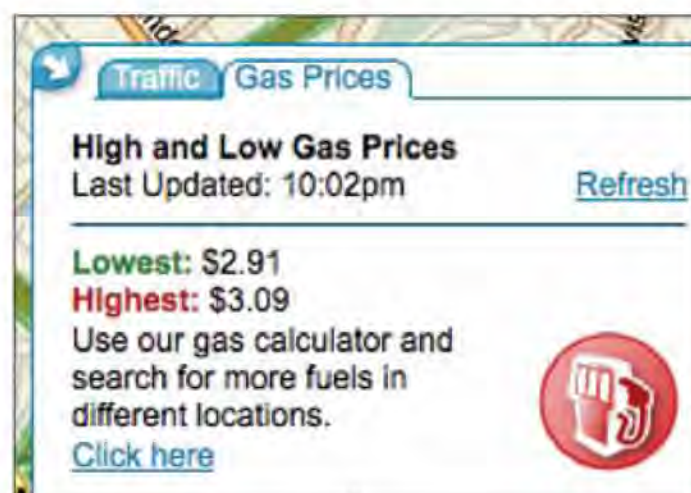
MapQuest

Avoid traffic jams: Once you've mapped out where you're going, plan your best route by ticking the Traffic box at the top of your map. Where possible, MapQuest displays current traffic conditions, including traffic flow (normal to stop-and-go), accidents, and construction. You can still use “bad traffic” as an excuse for being late, but not if your boss is the trust-but-verify type.

Find a nearby coffee shop: You used MapQuest to figure out how to get where you're going, so why not let it help you figure out what to do once you get there? After you've mapped an address, use the Search Nearby form or the MapQuest sidebar toolbox to find a nearby coffee shop, restaurant, movie theater, bar, dry cleaner, or pawn shop.

Streamline full-address lookups: You may

occasionally look up an address by manually filling in each field of MapQuest's traditional address/city/state/zip search form; but more often than not, you just copy and paste the whole address from an e-mail message or from a source on the Web. So rather than tediously copy-



Find the cheapest gasoline available nearby with MapQuest's gas tool.

ing the address, city, and zip code piecemeal into each field, click the *Use Copy & Paste Forms* link in MapQuest and then paste the entire address into the text area in one block.

Find cheap gas nearby: MapQuest's Search Nearby feature will find the gas station closest to you; but if you point

your browser to the site's Local Gas Prices page (gasprices.mapquest.com), you can also see the price of gas at each station, sorted by price. And for a tool to calculate the total cost of a trip, click the *Gas Calculator* link.

Find places of note: Besides handling popular local business searches, MapQuest's sidebar toolbox has a big Where It's At icon that, when enabled, displays places of note on your map.

Send directions to your phone or car: Rather than printing out travel directions, try using the 'Send to Cell' feature to send your MapQuest map to your cell phone. Better yet, if your car is equipped with GM's OnStar GPS technology, you can beam your directions directly to your car—just click the *Send to OnStar* link.

Wikipedia

Carry Wikipedia on your iPod: Free application Encyclopodia (find.pcworld.com/63371) puts the world's largest online encyclopedia in your pocket. And if you have an iPhone or an iPod Touch with an Internet connection, let Wikipanion (find.pcworld.com/63374) optimize Wikipedia for your device's touchscreen.

Learn from your screensaver: Screensavers usually display pretty pictures when your computer is inactive, but why not use the space to dish out a little old-fashioned learnin' instead? Rectangle Red's aptly named Wikipedia Screen Saver (find.pcworld.com/63375) displays new random pages from Wikipedia at regular intervals.

Download Wikipedia to your computer: Wherever you have an Internet connection, Wikipedia's wealth of knowledge is just a quick search away. But when you aren't connected, try Wikipedia for Schools (schools-wikipedia.org), a downloadable selection of Wikipedia articles that you can burn to a DVD and carry with you everywhere. For an alternate version of Wikipedia that you >>

can install on your laptop, give Pocket Wikipedia (find.pcworld.com/63373) a try.

Learn to edit Wikipedia entries: Wikipedia is built on user-contributed submissions and edits. To participate, whether by supplementing an article or correcting a typo, click the *Edit this page* link above any section—no membership required. Read Wikipedia's 'How to edit a page' (find.pcworld.com/63376), and you'll soon be an editing pro.

Track Wikipedia edits: The dark side of a collaborative, anonymous online encyclopedia is wiki-vandalism. To track changes to Wikipedia edits inside Wikipedia, click the *History* link at the top of any page; but to turn those sometimes confusing edit trails into an easier-to-understand chart, visit Web site WikiDashboard (wikidashboard.parc.com). Another safeguard is WikiAlarm (wikialarm.com), a free service that tracks Wikipedia articles of your choosing and e-mails you when someone edits them.

Get a daily dose of Wikipedia in your inbox: Web site DailyLit (www.dailylit.com) delivers bite-size chunks of the classics to your e-mail inbox every day. If you prefer nonfiction, subscribe to DailyLit's Wikipedia Tours section (find.pcworld.com/63377) for a daily dose of Wikipedia articles covering everything from masterpieces of Western art to Wine 101.

YouTube

Hide inane comments: When you stop in at YouTube, you'd appreciate a little civility. Unfortunately, many YouTube commenters have the manners—and the writing skills—of a marmoset. The YouTube Comment Snob (find.pcworld.com/63380), a Firefox extension, filters comments to hide those containing too many misspellings, all caps, no caps, excessive punctuation, or profanity.

Play back high-quality videos by default: It's great to be able to watch virtually any YouTube video in high quality, but it's a pain to switch each one to 'HQ'. If your connection is fast enough, make



Anyone can edit Wikipedia entries. Simply click the 'edit this page' link and get to work.

high-quality playback the default setting. Log in to YouTube, and change your playback settings (find.pcworld.com/63381) by select-

ing *I have a fast connection. Always play higher-quality video when it's available.*

Download videos for your portable device: If you have an Internet connection, YouTube delivers videos reliably. But when it comes to watching a YouTube video on your iPod, things get dicier. Here's how to ensure a smooth transfer: Add 'kick' to the beginning of the URL of the

YouTube-viewing strangers. To avoid becoming the next Star Wars Kid, keep a close eye on the Privacy setting (public or private) when you upload a new video. For fine-grained privacy options, point your browser to www.youtube.com/account#privacy/search. There you can control who may see your YouTube channel (your channel is like your user home page), what browsing activity YouTube displays in the Recent Activity section of your channel, and how other users can find and contact you.

Make and share QuickLists: To optimize your YouTube viewing, get to know the service's QuickList feature (find.pcworld.com/63379). With it you can queue up video after video for a continuous flow of YouTube goodness. You can even save a QuickList and share it with a friend. To get started adding videos to a QuickList, click the + icon on the bottom left of any video thumbnail.

DEVELOPERS' CHOICE

YouTube YouTube Subscriptions

"The yellow 'Subscribe' button is on almost every YouTube page but still falls under many folks' radar. It's the way savvy YouTubers find out about the newest videos from their favorite video makers before anyone else—and before the vids go viral. My most essential subscription: thelonelyisland."



Brian Glick
YOUTUBE PRODUCT
MANAGER

video you'd like to download (for example, kickyoutube.com/watch?v=ZEigvdbzia8). When you get to the site, select the file type your device supports, and let the KickYouTube Web site (kickyoutube.com) take care of everything else.

Protect your privacy: Every so often, through a cruel turn of Internet fate, a seemingly private video becomes the object of amusement for millions of

Streamline your uploads: Uploading a video to YouTube is easier than ever, but uploading high-quality videos can take hours. To avoid delays in your Internet browsing, save your YouTube uploads until you're ready to hit the sack. You can upload multiple videos simultaneously, and when you wake up in the morning, your new video masterpieces will be live on the site. ●

PowerShot SD1200 IS

PowerShot camera's 10MP resolution makes it a breeze to print large images with clarity and detail

Photo equipment features a large 2.5-inch LCD screen

Smart Auto Mode intelligently selects settings for the camera based upon 18 predefined shooting situations

Digic 4 Image Processor with evolved face detection technology that tracks the faces of moving subjects



All Canon cameras shown on this page include Canon USA, Inc. one-year limited warranty/registration card.

Text the word **Canon**
to the number **797979**
& receive **\$10 off**
a purchase of \$100 or more.

Offer expires 12/31/09.

PowerShot SX200 IS

Experience the unprecedented image quality and point-and-shoot convenience of Smart AUTO, along with enhanced operability and an intuitive new menu

HD shooting at 1280 x 720 pixels with HDMI output lets you see all the beauty of your HD images and movies on your HDTV

SX200 IS captures close-up, wide-angle shots with stunning 12x optical zoom

3" Active Matrix TFT Color LCD Screen



PowerShot A1100 IS

Digital camera's 12 megapixels mean clear, sharp images even at poster size

Canon's 4x optical zoom camera gets close enough for all the details

High-quality 2.5-inch LCD screen with optical view finder

Optical image stabilization to reduce blur



FS10 Flash Memory Camcorder

Audio and video device boasts 48x advanced zoom

Camera features 2.7" widescreen LCD display

Dual flash memory

8 GB built-in memory



Your whole order ships for just **\$2.95**.
Spend less on the **brand names** you love.
Shop more **Canon** products at **Overstock.com**.

Canon



LENOVO'S IDEACENTRE A600 has a distinctive design and is packed with extras. It's also far more upgradable than rivals.



DELL'S STUDIO ONE 19 is the fastest all-in-one PC sized 19 inches or smaller. It displays easy-to-read text and nicely saturated graphics.



all in one PCs

**with a
touch of
style**

**PCW Test
Center**

Power, good looks, cool touch interfaces: All-in-one PCs have come of age. Our exclusive lab testing picks the best of breed. »

BY DANNY ALLEN & DAVID MURPHY



LEFT: Sony's speedy VAI0 VGC-LV180J can serve as a TV. Its ExpressCard reader lets you make laptop-style upgrades.

RIGHT: HP's slick TouchSmart IQ816 offers a huge, 25.5-inch screen, and can easily transform into an HDTV as well.



BOTH HAVE SLOT-LOADING Blu-ray drives.

W e'll say it up front:

The iMac is no longer the final word in all-in-one PCs. Though Apple's latest aluminum iMacs were the performance champs in our tests, new competing all-in-ones are changing the game.

Makers now emphasize design and style, and touchscreens are becoming the norm. Some models have multitouch displays, which let you use two fingers to pinch, push, rotate, and scroll items. Several big-screen units have Blu-ray drives and act as Media Center HDTVs.

Also on the rise are budget all-in-ones with netbook-like specs. Though they almost always run Windows XP instead of Vista, their single-touch displays and low price (roughly \$500) are attractive.

To reflect those differences, we split our chart of 11 all-in-one PCs—and the corresponding reviews—in two parts. Our top pick among those sized 20 inches or larger is Lenovo's IdeaCentre A600. If you're willing to accept a system with a screen measuring 19 inches or less, our choice is Dell's Studio One 19.

All-in-One Pros and Cons

All-in-ones struggle to equal the performance of good value desktops, in general tasks and in games. Their compact size creates heat and power limitations that usually require the use of a laptop CPU. Even the fastest all-in-one here,

Apple's high-end 24-inch iMac, can't match new desktops like Dell's \$999 Studio XPS 435, whose WorldBench 6 score of 125 was 12.6 percent better than the iMac's mark of 111.

If all you want is one simple package, you might be better off with a laptop. Convertible touchscreen laptops and Internet tablets are available; even some netbooks have touchscreens. Most Atom-based netbooks, sold for about \$500, perform on a par with "nettop" all-in-ones. The multimedia-minded might like a desktop-replacement laptop with a roomy screen of at least 17 inches.

All-in-ones do have benefits, such as wall-mounting options and touch interactivity. The PCs integrate add-ons, too, such as speakers, Webcams, and Wi-Fi. But you're usually stuck with the screen and the parts. HP's TouchSmart PCs and Sony's VGC-LV180J let you upgrade only the memory and hard drive. iMacs allow easy RAM upgrades, but anything else involves a 21-screw ordeal. Shuttle's X50 also accepts memory upgrades—noteworthy because every other small all-in-one is closed. In the end, we gave Lenovo's A600 big points because users can upgrade its hard disk, optical drive, memory, and fans.

1 Lenovo IdeaCentre A600

Sharp, angular, and ultrathin, the 21.5-inch IdeaCentre A600 stands

out. At \$1149, it's seriously competitive, especially since it's so upgradable.

Its score of 87 in WorldBench 6 puts it in good company, but 28 percent shy of the leader, Apple's 24-inch iMac.

Though lacking in touch functionality, the display is strong, delivering powerful saturation and good contrast for gaming and Blu-ray viewing. Rivals produced slightly more contrast and richer black levels. Darker scenes on the A600 seemed brighter than they should be.

The system has six USB ports, a FireWire 400 miniport, a six-in-one card reader, and an HDTV tuner input. We would have liked to see some kind of next-generation connectivity. At least files will stream quickly over the PC's gigabit ethernet or 802.11b/g/n Wi-Fi.

The useful Bright Vision utility employs the 2-megapixel Webcam to gauge your surroundings and adjust the display for optimal, no-eyestrain conditions.

The keyboard and mouse (a laptop-style touchpad) are integrated into a single device. Also bundled is a combo VoIP handset, air mouse, motion game controller, and media-center remote that's awesome in its functionality.

All-in-One PCs:

Lenovo's A600 leads the pack with great looks and lots of extras.

20 INCHES OR LARGER		PCWRating	Performance	Features and specifications	Bottom line
1	Lenovo IdeaCentre A600 \$1149 find.pcworld.com/63262	87 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 87 Good Overall design: Very Good Gaming: Poor 	<ul style="list-style-type: none"> 21.5-inch widescreen 2.13GHz Core 2 Duo P7450 4GB DDR3-1066 RAM; 1TB storage Blu-ray drive 	A lush display, unmatched upgradability, and extras such as an HDTV tuner, a four-in-one remote, and a 2-megapixel Webcam make the A600 hard to resist.
2	HP TouchSmart IQ816 \$2100 find.pcworld.com/63003	85 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 81 Good Overall design: Good Gaming: Fair 	<ul style="list-style-type: none"> 25.5-inch dual-touch display 2.1GHz Core 2 Duo T8100 4GB DDR2-667 RAM; 750GB storage Blu-ray drive 	Slick all-in-one PC provides a giant 25.5-inch display and doubles as an HDTV, but its performance is starting to slip in comparison with new rivals.
3	HP TouchSmart IQ500t \$1650 find.pcworld.com/63270	85 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 87 Good Overall design: Very Good Gaming: Fair 	<ul style="list-style-type: none"> 22.0-inch dual-touch widescreen 2.26GHz Core 2 Duo P8400 4GB DDR2-800 RAM; 1TB storage Blu-ray drive 	A vibrant, responsive multitouch display and very good performance make the IQ500t a competitive option; the bundled health and security utility is useful.
4	Sony VAIO VGC-LV180J \$1999 find.pcworld.com/63002	84 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 96 Very Good Overall design: Very Good Gaming: Poor 	<ul style="list-style-type: none"> 24.0-inch widescreen 3GHz Core 2 Duo E8400 4GB DDR2-800 RAM; 600GB storage Blu-ray drive 	Sony's speedy all-in-one offering can also serve as an HDTV. The system is ready to handle any external device you might want to connect to it, as well.
5	Apple iMac (24 inches) \$2199 find.pcworld.com/63268	82 VERY GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 111 Superior Overall design: Good Gaming: Superior 	<ul style="list-style-type: none"> 24.0-inch widescreen 3.06GHz Core 2 Duo E8435 4GB DDR3-1066 RAM; 1TB storage DVD±RW drive 	Our top performer runs both Windows and OS X, but lacks built-in extras such as a touchscreen, a Blu-ray drive, a media card reader, and a TV tuner.
6	Apple iMac (20 inches) \$1199 find.pcworld.com/63267	76 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 101 Superior Overall design: Good Gaming: Poor 	<ul style="list-style-type: none"> 20.0-inch widescreen 2.66GHz Core 2 Duo E8135 2GB DDR3-1066 RAM; 320GB storage DVD±RW drive 	The 20-inch iMac offers terrific general performance but basic graphics. iMac diehards might consider paying an extra \$300 for an entry-level 24-inch iMac.
19 INCHES OR SMALLER		PCWRating	Performance	Features and specifications	Bottom line
1	Dell Studio One 19 \$944 find.pcworld.com/63266	75 GOOD	<ul style="list-style-type: none"> WorldBench 6 score: 93 Very Good Overall design: Good Gaming: Poor 	<ul style="list-style-type: none"> 18.5-inch dual-touch widescreen 2.5GHz Pentium Dual-Core E5200 4GB DDR2-800 RAM; 320GB storage DVD±RW drive 	Better than a budget all-in-one but not quite high-end either, Dell's 19-inch model could be a good fit if your needs are somewhere in the middle.
2	MSI Wind Top AE1900 (OISUS) \$529 find.pcworld.com/63264	60 FAIR	<ul style="list-style-type: none"> WorldBench 6 score: 39 Poor Overall design: Fair Gaming: Poor 	<ul style="list-style-type: none"> 18.5-inch single-touch widescreen 1.6GHz Intel Atom 230 (dual-core) 1GB DDR2-533 RAM; 160GB storage DVD±RW drive 	The Wind Top AE1900 provides the netbook-like performance you'd expect at this price, but sweetens the deal with a large touchscreen.
3	Averatec All-in-One D1130 Series \$529 find.pcworld.com/63263	60 FAIR	<ul style="list-style-type: none"> WorldBench 6 score: 39 Poor Overall design: Fair Gaming: Poor 	<ul style="list-style-type: none"> 18.4-inch widescreen 1.6GHz Intel Atom N270 1GB DDR2-667 RAM; 160GB storage DVD±RW drive 	This all-in-one's 18.4-inch display doesn't support touch; but especially on text, its 1680 by 945 resolution is sharper than that of its main rival, the MSI.
4	Asus Eee Top ET1602 \$500 find.pcworld.com/63265	60 FAIR	<ul style="list-style-type: none"> WorldBench 6 score: 41 Poor Overall design: Fair Gaming: Poor 	<ul style="list-style-type: none"> 15.8-inch single-touch widescreen 1.6GHz Intel Atom N270 1GB DDR2-667 RAM; 160GB storage 	The Eee Top ET1602 was among the first low-cost touchscreen all-in-ones to debut, but it now feels undersized compared with newer competitors.
5	Shuttle X50 \$550 find.pcworld.com/63005	58 POOR	<ul style="list-style-type: none"> WorldBench 6 score: 41 Poor Overall design: Poor Gaming: Poor 	<ul style="list-style-type: none"> 15.8-inch single-touch widescreen 1.6GHz Intel Atom 330 (dual-core) 1GB DDR2-667 RAM; 160GB storage 	Despite the X50's upgradable RAM, this all-in-one PC is hard to recommend when newer rivals provide larger screens and built-in DVD writers for less money.

CHART NOTES: Ratings are as of 7/2/09. Apple iMacs tested using Boot Camp and Windows Vista Home Premium 32-bit. Browse to the Find-It URLs for expanded, complete reviews.

2 HP TouchSmart IQ816
Though the general performance of the 25.5-inch TouchSmart IQ816 is slightly weaker than that of competitors (let alone cheaper

desktop rigs), this PC offers a huge multitouch display and some extras.

Judging by its WorldBench 6 score of 81, it will do fine on everyday tasks. But that is the lowest mark we obtained from any all-in-one 20 inches or larger.

High-def content looks good. Viewing the display from above, however, blows out whites; glancing at it from below darkens images considerably. And you can't use the touchscreen to select a movie's Blu-ray features; in- ➤



LEFT: Apple's high-end 24-inch aluminum iMac beat all of the systems we tested for this story, both in general performance and in gaming graphics.

RIGHT: HP's TouchSmart IQ500t, more slender than the company's IQ816, has good performance. It displays attractive text and visuals on its glossy, responsive dual-touch screen.

stead you must tap a virtual remote.

You get five USB 2.0 ports, a mini-FireWire 400 port, an MMC/SD/SDHC card reader, a slot-loading Blu-ray reader and DVD burner, a gigabit ethernet port, 802.11b/g/n wireless, an S-Video output, S/PDIF audio, and a standard coaxial input. We especially like how the IQ816 can transform into an HD-ready TV with the press of a few buttons.

HP's tweaks separate this PC from its peers. In particular, the awesome TouchSmart Center software lets you drag and throw giant icons to make easy-to-access app listings, manage and play multimedia, and launch programs at a touch.

3 HP TouchSmart IQ500t

The TouchSmart IQ500t is a faster, slimmer version of the IQ816. Even with a speedier CPU than the Lenovo A600's, the 22-inch IQ500t earned an identical score of 87 in WorldBench 6.

We saw excellent contrast and impressive saturation. Text is extremely readable, and touching the display elicits a crisp response. Watching movies on the Blu-ray drive is a treat; however, the glossy screen is both a blessing and a curse. It livens up images with vivid color and increases the richness of blacks, but you can't help but see yourself in dark scenes or backgrounds.

Five USB ports, a Webcam, gigabit ethernet, 802.11b/g/n Wi-Fi, a five-in-

one card reader, a TV-tuner input, an analog audio input, S-Video, and a coaxial S/PDIF output grace the PC. While S/PDIF is great for home theater integration, HDMI would have been better.

The bundled PC-health and security utility is terrific for checking performance and connections, and it can help you plan backups and evaluate storage capacities. We like it almost as much as we enjoy HP's TouchSmart Center.

A Media Center remote is part of the package. But why couldn't HP put such functions on the keyboard or mouse?

4 Sony VAIO VGC-LV180J

The VGC-LV180J is somewhat sleek, but it's still an ugly duckling compared with some rivals. It's fast, however, and it works as a TV, with a 24-inch nontouch screen that can produce high-def at a native 1920 by 1200 resolution.

Its WorldBench 6 score of 96 is the third-best all-in-one result we've seen, but on modern games it produced barely playable frame rates. On HD content, the display fared better, but its viewing angles weren't generous, and we didn't find the saturation strong enough. In darker scenes, we noticed the bleeding of the LCD backlight on the edges.

The ExpressCard reader allows for laptop-style upgrades like a solid-state drive, network card, TV tuner, sound card, or FireWire 800. The PC also has

five USB ports, 802.11b/g/n Wi-Fi, a gigabit ethernet port, a slot-loading Blu-ray reader and DVD burner, Memory Stick and SD Card readers, a mini-FireWire 400 port, an optical-out for your audio, and inputs for S-Video, HDMI, digital cable, and analog cable.

The wireless keyboard packs controls for volume, mute, sleep, and jumping to Media Center. A touchpad is built in, as well, though Sony also includes a boxy, four-button mouse in the package.

5&6 20- and 24-inch Apple iMacs (Aluminum)

Apple offers four standard configurations of its 2009 iMacs: three 24-inch (1920 by 1200) models, and one 20-inch (1680 by 1050) version. We tested the 20-incher and the high-end (3.06GHz) 24-inch model using Boot Camp and Windows Vista Home Premium 32-bit. They turned out to be the fastest all-in-ones we've tried to date. The 24-inch iMac led the way with a result of 111 in WorldBench 6, and the 20-inch unit had a score of 101. As for gaming graphics, while the smaller unit struggled to reach playable frame rates, the 24-incher returned the very best results we've seen from an all-in-one.

A USB 2.0 port replaces the FireWire 400 port, bringing the USB-port total to four. The FireWire 800 port remains.

A Mini DisplayPort replaces the mini-DVI port for an external display.

The compact wired keyboard lacks a numeric keypad, as well as the <Home>, <End>, <Page Up>, <Page Down>, and <Delete> keys. A full-size keyboard is a free option if you order on Apple.com.

The 20-incher is good for the price, but spending \$300 more for the entry-level (2.66GHz) 24-inch model buys more RAM, twice the storage, and better performance. If you want top graphics, the 3.06GHz iMac is the one to get.

1 Dell Studio One 19

The Studio One 19 is by far the fastest of the smaller all-in-one PCs we've tested. But its design...well, we could do without the fabric trim (no matter which of five colors it is).

In WorldBench 6 it had a mark of 93. But its 320GB drive is far smaller than those of heftier all-in-ones, and the screen's 1366 by 768 native resolution limited it to our 1024 by 768 gaming tests, where it scored just under a barely playable 30 frames per second.

Text is easy to read and graphics are saturated and strong in contrast. You'll see your reflection in dark scenes due to the glossy surface, but the sheen looks nice. The multitouch response lags, as the mouse pointer delays a little before springing to the location of your finger.

Dell's TouchZone software seeks to

offer an iPhone-like, scrollable program launcher, but you can't add programs or modify the applications it displays.

The connection options are woeful: You get six USB ports, a seven-in-one card reader, a too-slow 10/100-mbps ethernet port, and only 802.11b/g Wi-Fi, not the faster 802.11n.

Our test system's included keyboard had ten buttons for launching apps and controlling media, plus a volume dial.

2 MSI Wind Top AE1900 (01SUS)

The AE1900 has an 18.5-inch, single-touch display and standard net-top specs. We tested the entry-level AE1900; MSI also sells a version with a better CPU and more memory.

The AE1900 managed a mark of 39 on WorldBench 6. Its integrated graphics failed to complete our gaming tests.

The display is acceptable, but the 1366 by 768 native resolution is low for a screen this size; text wasn't crisp. We also saw too much red saturation in the high-definition trailers we watched.

MSI's software tries to encourage you to poke the screen via the use of large icons for launching apps. Also included are a couple of games that you control with the 1.3-megapixel Webcam.

The cramped keyboard manages to fit in eight media and program-launching buttons. The mouse is basic. Seeing

wireless options for both would be nice.

The PC has four USB ports; but aside from a gigabit ethernet port and a four-in-one card reader, that's all you get. At least 802.11b/g/n Wi-Fi is integrated.

3 Averatec All-in-One D1130 Series

A generous 18.4-inch display is the best feature of Averatec's All-in-One D1130 Series system.

Its score of 39 in WorldBench 6 puts it alongside its similarly priced and configured peers; its integrated graphics couldn't finish our gaming tests.

Its resolution of 1680 by 945 is far greater than the MSI's. Text is crisp and easy to read, even though the display suffers from backlight emanating from the bottom. Colors are more faded and plain here than on other all-in-ones.

The flimsy keyboard is annoyingly thin, and the keys are mashed together. Neither it nor the mouse is wireless.

Five USB ports join a four-in-one card reader and a VGA output. The network connections (10/100-mbps ethernet and 802.11b/g wireless) are anemic.

4 Asus Eee Top ET1602

The 15.6-inch ET1602, with its glossy white chassis and transparent plastics, resembles an Apple design. A carrying handle is integrated into the angle-adjustable foot. >>

AVERATEC'S D1130 SERIES has an 18.4-inch display, a generous size for the price. Text is crisp and easy to read.



MSI'S WIND TOP AE1900 offers an 18.5-inch screen. **DETAIL** The software encourages touching by presenting large icons.

SHUTTLE'S X50 has a stand that doubles as a carrying handle. Its 15.6-inch screen supports single-touch interactivity.



ASUS'S EEE TOP ET1602 almost looks like an Apple product. **DETAIL** Touch-based apps come bundled.

Its 1366-by-768-resolution single-touch screen is adequate for basic tasks; colors are bright and vibrant. Beyond a large-icon program launcher, you get a few touch-friendly apps, such as games, a media viewer, and a sticky-notes tool.

The Eee Top got a WorldBench 6 score of 41, comparable to similarly priced netbooks. For the basics, it will do.

You get six USB 2.0 ports, two of which occupy the left side (along with an SD Card slot) for easy access. The headphone and mic jacks, however, are inconveniently placed on the rear. Asus omits an optical drive, but includes 802.11b/g/n Wi-Fi and gigabit ethernet.

5 Shuttle X50 In both screen size and specs, the X50 is almost identical to the Asus, aside from a better CPU (a dual-core 1.6GHz Atom 330). Even with that faster processor, the X50 merely matched the ET1602 in WorldBench 6.

The X50 has no touch-customized programs or interface tweaks. Its stand doubles as a carrying handle (which also detaches to reveal standard VESA mounts). The connectivity is average, consisting of six USB ports, a gigabit ethernet port, a DVI connection, and a four-in-one media card reader.

The PC's front is attractive; a bright, blue bar of light shoots from the bottom. Propping up the X50 in the rear is a single bar that you can adjust to modify the angle of the display. The included stylus is hidden near the power button (which meant we often bumped the button when reaching for the stylus).

Our X50 test machine didn't come with a mouse or a keyboard. Have no fear, though: Shuttle promises to offer input-device options on its Web site, should you order the PC from there.

Roman Loyola and Nick Mediati also contributed to this story. ●

PHOTOGRAPH (BOTTOM): DANNY ALLEN

Coming Soon: Windows 7 Touch Gestures, nVidia Ion Graphics

Acer's Aspire Z5600 and Gateway's One ZX6800 (both 23 inches). In Windows 7 you'll be able to use iPhone-like pinches, flick forward and backward, hold down one finger then tap another for a right-click menu, tap two fingers to zoom, and more. Clearly, single-touch all-in-ones won't be able to support the multifinger gestures; we don't know yet whether upcoming single-touch models will run the new OS or stick to Vista. Asus is updating its lineup with the Eee Top ET2203T (21.5 inches) and the Ion-equipped ET2002T (20 inches). MSI has two 20-inchers in the works.

If you want the new OS on the Lenovo A600, HP IQ500t or IQ816, Sony VGC-LV180J, or Dell Studio One 19, you don't have to wait until October. Each model should qualify for its respective maker's free Windows 7 upgrade program. —*Danny Allen*

WHEN WINDOWS 7 officially launches on October 22, expect to see it on new multitouch all-in-ones. Look for MSI's 21.6-inch Wind Top AE2201 (equipped with nVidia Ion graphics), as well as



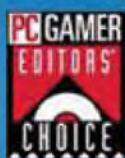
MULTITOUCH CONTROL: The 21.6-inch MSI AE2201 running Windows 7 at the Computex Taipei 2009 trade show.

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HOW TO GET THE BEST FROM YOUR HDTV

BY BECKY WARING • ILLUSTRATIONS BY JASON SCHNEIDER

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To walk you through the setup process, here are 23 tips on everything from arranging your new TV in your home theater, to placing your speakers for the best sound, to calibrating your picture to obtain the best images.

Note: To find links to products and services mentioned throughout this article, please see the box on page 86.

And if you haven't yet decided which HDTV model to purchase, check out PC World's comprehensive HDTV buying guide at find.pcworld.com/63378.



SET UP YOUR HDTV

When installing your new set, you will need to keep several things in mind: where and how to place it for the best viewing experience, and how to keep the HDTV safely mounted and clean.

Find the Right Distance

If you were planning to mount the HDTV over the fireplace, stop right now. Not only will you develop a permanent crick in the neck from looking upward, but you'll likely be seated too far from the set to see all the pixels you paid for.

The experts vary in their recommend-

ed HDTV seating distance, but in general it will be closer than you think. For a 42-inch 1080p TV, the pros at entertainment technology company THX recommend a viewing distance of 4.2 to 6.5 feet, or 5 to 7.5 feet for a 50-inch screen. At the HDGuru.com site, the calculations are similar—it suggests 5.5 and 6.5 feet, respectively.

The closer you sit to your HDTV, the wider your viewing angle will be, and the more immersive your experience—the same as it is in a movie theater. THX's distance recommendations are based on a viewing angle of about 40 degrees.

For HDTVs, you also need to consider the distance at which you will start to see the pixel structure or scan lines on your TV, which will limit how close you can get. The lower the overall resolution of your picture, the farther away you should sit to avoid seeing the lines. For this reason, it's best to sit farther away from the screen

when viewing 480i, 480p, or 720p sources on your HDTV than when you are viewing 1080i or 1080p.

Wherever your set goes, consider speaker positions as well (see page 87).

See Eye to Eye With Your TV

Whether you choose a wall mount or a stand, keep your screen at eye level, and away from direct sunlight or light fixtures that can cause reflections or picture washouts. When buying a wall mount, consider how well it extends, tilts, turns, fits between the studs in your house, and manages cables. Also make sure that the mount can support the weight of a large-screen set.

Articulating mounting arms such as

the OmniMount UCL-L allow the TV to move in and out, up and down, and side to side, so you can view it from a variety of seating locations. This type of wall mount is also perfect for sets installed in deep bookcases or armoires, as you can pull the TV clear of the sides of the cabinet when viewing.

If you rent or you just don't want to make holes in your walls, you can find pedestals that look like wall mounts. This sort of mount fits behind your existing furniture. Most online sellers have configurators that tell you which mounts will best support your TV.



THE OMNIMOUNT UCL-L lets your HDTV move from side to side for the best viewing.

If you choose to buy a stand, consider its design, access, and ventilation, as well as its allowances for height and cable management. Make sure that all your components (including future additions) will fit with plenty of air circulation in between. Doors help to control dust, but hold in heat. Better stands include passive or silent ventilation. Finally, anchor the TV so that it can't tip over and fall if an earthquake occurs or if your child runs into it.

Combat Power Fluctuations

Unless you have very poor electrical wiring, an expensive line conditioner (or voltage regulator) is unnecessary to protect your new TV. What you do need is a good audio/video surge protector (preferably with insurance) to protect against voltage spikes from lightning and other power surges that can damage your electronic equipment.

If you have more to spend, invest in

an uninterruptible power supply (UPS) for your DVRs, game consoles, media servers, and other devices storing data on flash or hard drives—data that could be corrupted or lost in an outage or power surge. These secondary drives are just as vulnerable to sudden power loss or surges as computer drives are.

Keep a Clean Screen

Flat-panel screens are magnets for dust. Clean your screen (and the rest of your home theater components) regularly with a barely damp microfiber cloth to avoid leaving streaks. You'll be amazed how much brighter and more colorful your HDTV screen will look.

Don't use glass cleaners containing alcohol or ammonia. They will damage plastic coatings. Similarly, don't vacuum or brush the screen—doing so can leave fine scratches. To remove greasy fingerprints or crayon marks, use a bit of mild dish soap and then wipe clean with the microfiber cloth. Don't use sprays; the chemicals could enter crevices or vents in your equipment.

GET THE BEST VIDEO SIGNAL

With your new set in place, you now need to make sure all the sources that will feed video to it—whether your DVD player, DVR, or cable box—are HD-ready. These tips will help you manage that process. We also include advice on finding the best over-the-air HD content and setting up your own free DVR.

Upgrade Video Sources to HD

If you are upgrading from a standard-definition TV, chances are most of your existing video sources—such as your cable box, DVR, DVD player, or VCR—are also SD. While your HDTV or AV receiver will try valiantly to scale everything up to HD, they will inevitably exhibit pixelation and jaggies, especially with motion. SD video from your cable provider or VCR typically looks



APC'S AVJ10BLK DOES triple duty as a surge protector, line conditioner, and UPS.

worse on an HDTV than on an SD set.

The exception is DVDs, which usually offer widescreen modes. A good upconverting DVD player can deliver a very nice-looking HD picture to your TV, at minimal cost. Full 1080p DVD players



can be had for as little as \$50 to \$75.

Make sure to upgrade your other video sources, including your cable or satellite box and/or DVR, to native HD as soon as possible. You'll see the benefits immediately, and make proper use of all those pixels on your new TV.

Moving to HD won't be free. Cable and satellite companies tack on an additional charge for HD channels and equipment. And you'll definitely need an HD set-top box of some sort unless

you have a TV or DVR (like the TiVo HD) that accepts CableCard tuners, or that supports Clear QAM, which lets you tune basic digital channels (usually the same as those over the air) without a decoder. If you're a satellite subscriber, you may need a new dish, unless you have a recent one. You can usually get free installation of an equipment upgrade to HD if you agree to extend your service contract.

Consider Switching Providers

To discover which providers have your favorite channels in HD, check out AVSForum.com's nationwide HD lineup comparison. Double-check the channel lineups for the providers you are considering (this is easy to do on TVGuide.com), as some local and regional variations are not covered in the AVSForum list, although its chart will give you the big picture.

AT&T U-verse and Verizon FiOS are tops for HD content. If you live in their service areas, these two fiber providers are great choices. They deliver high-speed Internet and phone services along with a host of HD channels. Picture quality is better than that from cable or satellite—they have so much bandwidth that they don't need to compress the HD signal as much.

Watch Over-the-Air HD for Free

You might consider dumping your TV provider altogether. Free over-the-air HD broadcasts make that possible—and all HDTVs sold since March 2007 have built-in digital tuners. You just install an antenna to pull in crystal-clear >>



THE TIVO HD DVR can let you receive basic digital channels without an HD decoder.

programming, with none of the snow or interference of analog. Over-the-air HD signals are usually better than cable or satellite signals, as those must be recompressed to fit providers' pipes.

At AntennaWeb.org, you'll see which over-the-air digital channels you can receive, and what type of antenna you'll need. (You may not be able to receive all networks in your location.) Not all digital channels will be HD, or they may be HD only for certain prime-time programs. Most digital TV is still 480i. TitanTV.com has listings that provide a quick guide as to which programs are in HD format.

You won't find any cable channels—such as the Comedy Channel, ESPN, or MTV—over the air. However, many of these channels provide online streams of popular shows, which you can send from your PC or set-top box to your TV (see “Stream HD Video From Your PC and Other Devices” on page 85).

Set Up a Free DVR

You don't have to give up using a DVR to switch to over-the-air programming. Both the TiVo HD and Windows Media Center PCs can record off the air, and with a PC, you won't even have the \$13 monthly TiVo charge (if you don't want TiVo's Netflix and Amazon streaming). Browse to find.pcworld.com/63385 for a guide on how to use a USB tuner to turn your PC into a free HD DVR.

CONNECT THE HDTV

Now you have the task of hooking all the pieces together. We'll show you how to choose the best HDMI cables for your set, how to make sure all the wiring doesn't take over your living room, and how to pick the best universal remote to manage your new home theater.

Connect via HDMI

For the best picture quality, you should connect all HD sources via HDMI. (With some older components,



you can use an HDMI converter cable plugged into a DVI port, along with a separate audio cable, since DVI carries only video.) Multiple HD sources, though, may put a strain on your TV's available HDMI ports, as most new HDTVs have only three such ports.

To work around that limit, you can add an external HDMI switcher box, like those from Gefen, Iogear, and OPPO, or an AV receiver. If you will be adding a surround-sound speaker system (as you should), an AV receiver makes the most sense (see “Pick the Right AV Receiver” on page 87). If all you need is a switcher, get one that supports the latest version of HDMI. At this writing, the standard is HDMI 1.3a Cat 2, which supports the Dolby TrueHD and DTS-HD Master Audio bitstream audio formats in Blu-ray discs as well as the deep color features of the latest HDTVs.

Coming soon, however, is a new standard, HDMI 1.4; look for HDMI 1.4 products to start trickling out late this year. This standard adds support for major new features such as digital cinema 4Kx2K resolution; a 100-megabits-per-second ethernet channel between HDMI-connected devices; an audio return channel; extended color spaces; and 3D. Being ready for HDMI 1.4 will

help future-proof your setup. In any case, it's important to check the version number on HDMI cables—this is not always specified clearly, and you won't get the added benefits of connecting HDMI 1.3 devices if you're using an HDMI 1.2 cable.

If you still have video sources that lack HDMI ports, such as VCRs or older game consoles, use the highest-quality connection available. For example, some of your analog sources may have hooked up to your old TV through composite cables. In your new system, switch to an S-Video or component connection if possible. In order of preference, video connection options are: HDMI, DVI, component RGB, S-Video, and composite.

Choose the Right Cables

Expensive cables don't necessarily give you a better picture. Inventory your system to determine what cables you need to hook up all your sources at their maximum resolutions. Then go online to buy them; you'll pay a fraction of retail prices. Hands down, our favorite such site is MonoPrice.com, which sells top-quality cables for relative peanuts. Even better, this online merchant has a huge selection of lengths and colors. When you're shopping for HDMI cables, keep an eye out for high-speed HDMI 1.3a Cat 2 specs, at least until HDMI 1.4 cables become available.

Tame the Wires

Buying cables of just the right length is a good start on taming the growing mass of wires behind your home theater, but there's more you can do. For running ethernet, speaker wire, or coaxial cabling along baseboards and picture rails, try using paintable systems like Wiremold Cord-Mate, which can blend into your decor. Techflex sleeving can round up the wires dropping behind your system, and plain old zip ties can work miracles in keeping cords in their place.



THIS IOGEAR SWITCHING box gives your HDTV setup additional HDMI ports.



In addition, label both ends of all your plugs and connectors so that you can identify them quickly and reconnect everything more easily. Our favorite labels for such jobs are Hosa Technology's 60-pack of stick-on vinyl labels (about \$12), and Kableflags' 50-pack of reusable plastic flag labels (about \$25).

Bring the Net to Your Home Theater

Almost all current home theater components can now connect to the Web, including DVRs, Blu-ray players, audio-visual receivers, game consoles, media players, and Slingboxes—as well as many of the TV sets themselves.



LINKSYS'S PLK300 NETWORK kit connects four home theater devices to the Internet.

Some of these devices may have wireless connectivity options, but we recommend making a wired network connection to your home theater. Multiple devices competing for wireless band-

width is a recipe for poor performance, even with 802.11n, and nothing is worse than watching a movie that stops and starts due to signal dropout.

A single ethernet cable that runs from your router to an inexpensive five- or eight-port switch in your home theater can connect all your devices. And flat ethernet cables are available to minimize the damage to your walls. Powerline networking is another good option.

The main difference between an ethernet and a powerline connection is bandwidth. You'll divvy up approximately 100 mbps among your devices with a powerline connection, com- >>

STREAM HD VIDEO FROM YOUR PC AND OTHER DEVICES

WITH SO MANY free online video sites popping up, from Hulu to Joost to the sports-oriented ESPN360, not to mention YouTube, your PC can be a great source of free HD programming to supplement your regular channels. To watch PC-based video on the big screen, all you need to do is connect your computer to your TV. Many newer PCs, both desktops and laptops, have HDMI outputs, so you can hook them up directly to your TV, if the PC is close enough.

Use a Media Player Box

If such a direct connection isn't possible, a media player box will grab video (and music and photos too) from your PC over your home network and then deliver it to your TV via HDMI. The Apple TV is one such option that streams whatever video you have in iTunes, as well as YouTube and even Hulu, if you install the Boxee Apple TV add-on. My current favorite media player is the Netgear Digital Entertainer Elite, which can play most any video on your PC, download BitTorrent videos directly to the built-in hard drive, and access Netflix Instant movies using PlayOn PC software.

Upgrade Your Game Console to High Definition

If you own a Sony PlayStation 3 or a Microsoft Xbox 360 Elite, you already have an HD-capable console. However, you'll need to upgrade from SD cables to HDMI versions to see the extra pixels in games such as Halo 3. The PlayStation 3, with its built-in Blu-ray drive, doubles as a native HD movie player, while the Xbox 360 Elite can act as an upconverting DVD player.

While you're at it, be sure to change the video output setting of these consoles to 720p or 1080p, depending on your TV's maximum resolution. The PlayStation 3 has a second setting for 24Hz Blu-ray movie playback, where you can choose Automatic, Off, or On. If you have a TV capable of 24Hz 1080p playback, the setting should be *On*. You must use HDMI cables and specify HDMI in the various PlayStation 3 display settings for this to work.



THE NETGEAR Digital Entertainer Elite can play just about any video you have stored on your PC.

Nintendo Wii owners are out of luck, as the Wii outputs only 480p—higher quality than SD, but not full HD. (Your AV receiver or TV can upscale the signal, however.) Original-Xbox owners have it better. While they don't have HDMI ports, they can get 1080i output by using component cables, which carry analog HD video.

Optimize Netflix, Amazon, and iTunes Video on Your HDTV

To get the best results when viewing video from streaming sources such as Netflix Instant, Amazon Unbox, and iTunes on your HDTV, follow three basic rules. First, make sure your source device (Apple TV, Roku box, TiVo, Xbox, PC, and so on) is set up to output at the maximum resolution your HDTV can support, such as 720p, 1080i, or 1080p, and that it is connected via HDMI if available.

Second, for PC sources, use the 1:1 pixel mapping mode on your TV (variously called PC mode, Full Pixel, Pixel for Pixel, or some similar name), and check that your PC is set to output at the native resolution of your HDTV, such as 1920 by 1080 for most 1080p displays or 1366 by 768 for many 720p plasmas. This setting will ensure that scaling doesn't distort the pixels.

Finally, for all types of streaming sources, make sure you have a rock-solid Internet connection. If your wireless connection is not up to the task, you'll soon know it from all the dropouts and glitches in your video. In that case, the solution is to switch to a wired connection such as ethernet, powerline, or coaxial.

pared with nearly 1000 mbps on a gigabit ethernet connection. The choice depends on how many network operations you expect to run at one time. If you want to download torrents to your media server while simultaneously streaming out from your Slingbox or watching movies streaming in from Netflix, invest in ethernet.

Escape Remote Control Hell

By the time you install your TV, cable box, DVR, DVD or Blu-ray player, AV receiver, and media player (plus your old VCR), you can end up with an impossible number of remotes. Most flat-panel TV sets have capable universal remotes that you can program for basic control of your peripherals; but their functionality may be limited, and you will probably have to do a lot of pointing and clicking to set it up.

Happily, one remote can indeed rule them all: the Logitech Harmony One. This is the gold standard in universal remotes, with a great combination of touchscreen and buttons, all programmable from your PC. But plenty of less-expensive options are available. One good strategy is to keep the custom remote for the device you use most often, such as your DVR, and program a universal remote for everything else.

Finally, if you want to hide your components in a cabinet, add an infrared repeater such as the Salamander Chameleon Kit to capture signals from your remote and send them to your devices.

IMPROVE PICTURE AND SOUND

Your new HDTV is set up and connected, but you still have a few more tasks remaining, such as calibrating your set for an optimal picture. And you will need to place your speakers properly to ensure immersion in high-quality au-



LOGITECH'S HARMONY ONE universal remote is numero uno.

dio. The following tips will walk you through those final steps for your home theater.

Calibrate Your Picture

The right color, contrast, and brightness settings can vary widely depending on your viewing environment; they also depend on your source material, such as DVD movies, games, or TV. Using standardized test patterns can help you optimize these settings.

For quick and easy "free" calibration, you can use pretty much any disc with a movie recorded in THX audio. THX DVDs and Blu-ray discs have calibration tools in the DVD setup area. Just click on *THX Optimizer* and follow the on-screen instructions. Before you start any calibration, however, adjust the room lighting to your normal viewing level; turn the screen sharpness down to normal; and make sure the color temperature is set to 6500 degrees Kelvin (the video standard, aka D65). Some TVs offer Warm, Normal, and Cool color temperature options; your manufacturer can tell you which comes nearest to 6500K. For example, on Panasonic plasma HDTVs, Warm is the closest setting.

The THX Optimizer will then lead you through five test patterns for adjusting settings. On-screen instructions will tell you what to look for, and what parameters to adjust. It's best to go through this procedure while standing close to the screen.

For professional-level calibration, hire a consultant (Best Buy's professional calibration service runs about \$300; independent AV consultants can be found online) or do it yourself with a high-end setup disc such as Joe Kane's Digital Video Essentials (DVE). DVE comes in both DVD and Blu-ray versions. Get the latter if you have a Blu-ray player, as the disc includes 1080p

and 720p test patterns. Both versions come with a set of red, green, and blue filters that you can hold over the screen to aid in color corrections, which are hard to make by eyeball alone.

Eliminate Judder

Most new 120Hz and 240Hz LCD HDTV sets promise to use their fast refresh rates to smooth out motion blur, which can occur at normal 60Hz refresh rates. Such smoothing or "de-juddering" technologies are variously called Motion Flow (Sony), Motion Picture Pro3 (Panasonic), Movie Plus (Samsung), and TruD (Sharp), but all of these approaches basically interpolate additional frames to reduce motion blur.

Some people love the effect, which gives a very smooth and stable image. Others hate it, saying it looks unnatural, especially for film sources; film's lower native refresh rate gives it a feel different from video. So you may want to turn off or reduce smoothing for film sources, and maintain smoothing for video sources. Experiment with the smoothing setting and different sources to determine what looks best to you.

See Every Pixel

Even if your TV has a native resolution of 1920 by 1080, you may not see every pixel of your Blu-ray movies. Many HDTVs use overscan, which means that

WHERE TO FIND WHAT YOU NEED

ON PCWORLD.COM, you can see this article as a four-part package and get links to the products and services that we've mentioned here. For "Set Up Your HDTV," browse to find.pcworld.com/63396; for "Get the Best Video Signal," visit find.pcworld.com/63397; for "Connect the New HDTV," go to find.pcworld.com/63398; and for both "Improve Picture and Sound" and the sidebar "Stream HD Video From Your PC and Other Devices" (on page 85), jump to find.pcworld.com/63391.

the set first upscales the original image slightly (typically 2 to 10 percent) and then cuts it off at the edges. Overscan helps eliminate the edge noise common to standard definition, but it's bad for true HD signals, reducing resolution and introducing interpolation artifacts.

If news tickers on the screen's edge are cropped off, you likely have overscan deployed. Check your set's manual for a mode called Zero-overscan, Full Pixel, 1:1 Pixel, Pixel for Pixel, or Dot by Dot. Use this mode, as well, when displaying an image from your computer; otherwise, small type may be distorted and unreadable. Set your PC's output resolution to match that of your TV.

Invest in Surround Sound

Just ask George Lucas (who helped usher in THX)—nothing will enhance your HD viewing experience more than great sound.

The important thing here is to get dedicated speakers, rather than relying on the ones built into your TV. With flat panels becoming skinnier and bezels smaller, most HDTVs don't have room for anything but rudimentary sound. If the idea of running wires and setting up a surround-sound system turns you off, try a sound bar, a long horizontal speaker system that provides virtual surround sound with just one easy connection (or two if you add a subwoofer). Sound bars are great for small rooms, and good ones can be had for as little as \$200. If you're more ambitious and want to go for 5.1- or 7.1- channel surround sound, read on.

Pick the Right AV Receiver

Unless you buy a home theater in a box—a package that includes both speakers and a receiver (and sometimes a Blu-ray or DVD player too) in one integrated system—you will probably need to buy an AV receiver to decode sound and power your speakers. Surround sound comes in umpteen flavors, from

companies such as Dolby, DTS, and THX. Your DVD or Blu-ray box will list the surround-sound formats offered for a particular movie; usually it has several. The most important are the venerable 5.1-channel Dolby Digital (found in most DVDs) and Blu-ray's lossless 7.1-channel Dolby TrueHD and DTS-HD Master Audio encoding formats.

You'll want a receiver that decodes all of those (unless your Blu-ray player has



built-in lossless decoding), has sufficient power to drive speakers big enough for your listening room, and has sufficient HDMI and other inputs for your video sources. It should also provide 1080p upscaling of analog sources to HD and HDMI output. Other features, such as multiroom support, are optional. Onkyo, Pioneer, and Sony have excellent receivers priced for different budgets.

Place Your Speakers Correctly

For a 5.1 system, you should place the center channel just on or under your TV, with the left and right channels on

either side of the screen, and two surround speakers to each side of your seating area, at ear level. You can position the subwoofer anywhere in this sound field, although usually you'll place it along with the center channel for ease of cabling, so that the long wires run only to the surround-sound speakers. For a 7.1 setup, place two more surround speakers behind the seating area. Good locations to hide speaker wires include along or behind baseboards, and on top of picture rails.

Once you've placed your speakers and connected them to your receiver, you will need to run through the receiver's speaker setup and calibration routine. (The THX Optimizer mentioned earlier includes surround-sound setup tests.) This involves placing a microphone at certain points around the room to send feedback to the receiver, which will then correct any imbalances in the sound field and set the crossover frequency for the subwoofer. The process may also include a check to make sure you've wired all your speakers in phase.

You don't need to have 7.1 speakers to enjoy the Blu-ray Dolby TrueHD and DTS-HD Master Audio formats. Both of them allow for 5.1-channel playback as well, by either combining or ignoring the two extra channels.

Hook Up Those Pesky Rear Speakers

If you're cable-shy, use a sound bar, or get wireless surround-sound speakers. Many newer home theater systems, including models from Panasonic and Sony, include wireless speakers by default, and you can convert

almost any wired surround-sound speakers by using a wireless transmitter kit (one from RocketFish costs \$100).

But for best results, try to wire your surround-sound speakers. Flat, paintable speaker wire such as DeCorp's

Invisible Wire hides the evidence.

Now sit down and enjoy the HDTV. ●



ONKYO'S TX-SR607 AV receiver has six 1080p HDMI 1.3a inputs for your devices.

Here's How

Give Hardware New Life With Firmware Updates

You can update your hardware without buying anything new. A simple firmware update can add features, stability, and functionality.

BY DAVID MURPHY

UTTER THE WORD *firmware* to the average computer user, and you'll likely elicit a blank stare in return. But the concept isn't really that hard to understand, and once you grasp it, you can quickly improve your PC and any number of other devices, making them faster and more stable, and supplementing them with features that they didn't have out of the box.

Firmware is a set of permanent instructions on a piece

of hardware, stored in the device's read-only memory. It's analogous to an embedded driver, providing the hardware identical information each time it powers up. While you can modify the hardware's interaction with your operating system via software drivers, certain lower-level functions remain constant and unchangeable. That's firmware.

But even though we call it "unchangeable," it isn't necessarily so. Some firmware, located in the device's PROM or EPROM (programmable read-only memory or erasable programmable read-only memory), can be altered, or *flashed* (the technical term for upgrading firmware). You do this by running software from the device manufactur-

By Socket	Model	
GA-73PVM-S2 (rev. 1.0)	GA-73PVM-S2H (rev. 1.0)	GA-73UM-S2H (rev. 1.0)
GA-73VM-S2 (rev. 1.0)	GA-8AE0XP Dual Graphic	GA-8AE0XP-D
GA-8AE0XP-DW	GA-8ANXP-D	GA-8GNXP-D
GA-8GP0XP Dual	GA-8B45QE775-G	GA-8B45QVM-775
GA-8B4BP775-G (Rev 1.0)	GA-8B4BP775-G (Rev 1.1)	GA-8B65G775-G
GA-8B65G775-G-RH	GA-8G65GM-775	GA-8B65GME-775

YOUR MOTHERBOARD MANUFACTURER might force you to hunt for firmware by model name. Make sure that you have the correct file.

er; such programs load new firmware onto the device to extend its feature set, life span, or performance, and to correct significant errors.

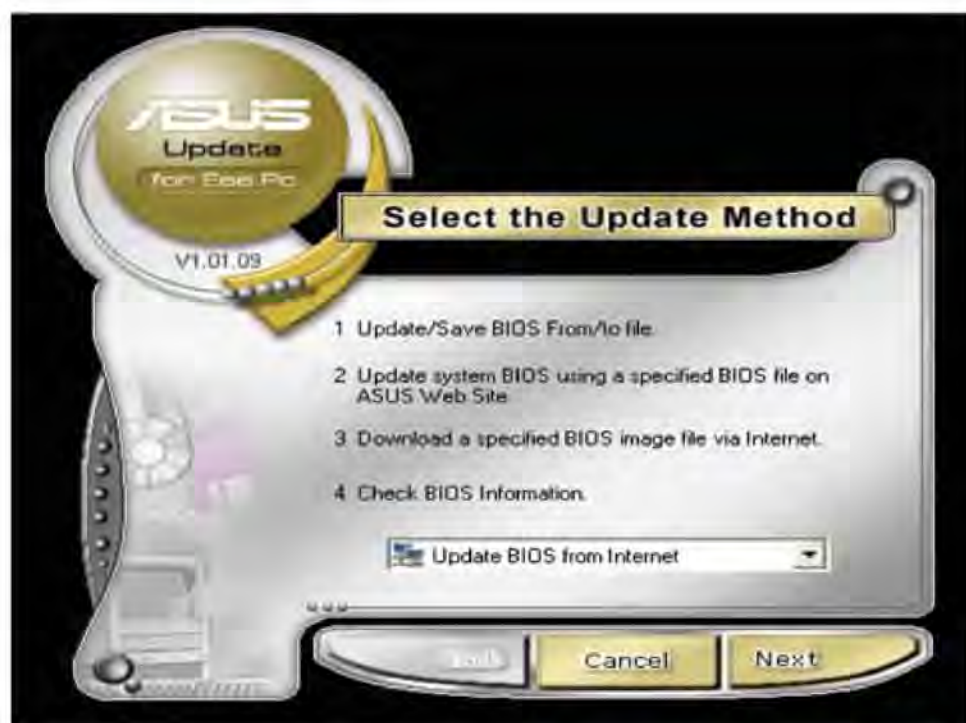
Firmware isn't a PC-only concept. You can (and you should) update the firmware in external devices such as network-attached and external storage hubs, as well as wireless routers and portable media players. You can even upgrade the firmware for your phone, depending on the model. (That's how people hack the iPhone—and how Apple attempts to outsmart them. Firmware updates from Apple overwrite the customized firmware that some people use to jailbreak and unlock the devices, sending hackers back to the drawing board.) Other products—like Microsoft's Xbox 360 console,

which gained features such as native 1080p HD support and a new interface via a single download—can also benefit from firmware updates.

The frequency of such updates varies by manufacturer and product. Though you shouldn't expect to find updates on a weekly basis, you should perform a firmware search for all of your PC-related devices at least once per quarter.

Manufacturers often stress that you should ignore firmware updates unless you're having a problem with your hardware; but we recommend that you run your hardware on the most up-to-date firmware you can find, since the increased stability (as well as the potential to gain features) is worth it.

Unless you're an expert, you probably don't want to



SOME MOTHERBOARD MAKERS offer a Windows-based interface for updating the firmware, and all you have to do is follow the directions.

use third-party firmware like the iPhone hacks mentioned above. Such offerings are typically more complicated to install—and more likely to cause problems—than are manufacturer-supplied firmware updates. They can also void a warranty. Unless you know what you're doing and you don't mind the risks, stick to official firmware.

The Benefits of New Firmware

What can you update with new firmware? It varies. Few devices receive zero firmware updates over their lifetime—CPUs benefit from motherboard firmware updates, but are not upgradable themselves. Components such as hard drives and optical drives are open to firmware updates, but the device manufacturers tend not to release fixes unless they correct a specific, disastrous problem.

You'll find the real meat of firmware upgrading in three areas: your motherboard, your networking devices, and your portable media devices. But what will you get for your meddling? In all three cases, firmware updates can provide stability and access to features that didn't exist out of the box. You could potentially increase the ability to overclock your motherboard, integrate advanced utilities such as BitTorrent downloading into your network-attached storage, or, in the case of a device like Apple's iPhone, improve the response times and signal strength of your mobile gear. Firmware updates may not revolutionize your digital experience, but



MANY WIRELESS ROUTERS include an option to download and install a firmware update from within the Web-browser interface.

they will improve it, and are often necessary for new driver updates or additional device compatibility.

Before you hit your search engine of choice and start downloading every firmware update you can find, it's important to consider a few points. For starters, even though firmware upgrading isn't very difficult to do, it has the potential to cause catastrophic damage if you fail to follow the instructions that the manufacturer provides. A firmware update isn't like a device driver—

you can't uninstall it and reinstall it on a whim. Compared with driver installation, rolling back firmware if your initial installation gets botched is much harder.

Check, double-check, and triple-check that you're grabbing the correct firmware for your device. Some companies make that easy; plug your iPhone into your computer, for instance, and Apple will automate the entire process for you.

Other companies, particularly motherboard manufacturers, might force you to

wade through drop-down menus of their entire product line to find your model's unique ID. Most devices won't let you install a different product's firmware, but on the off chance that yours does, the last thing you want to do is flash your product with the wrong file.

Finally, firmware upgrades can act as a reset switch. While some flash utilities let you save and restore your settings before and after the update, a typical update will revert your device to its factory defaults. If you've spent time setting up custom networking configurations on a router, for instance, you should save those settings prior to a firmware update.

Unless your router offers some settings-backup functionality, you should copy your router's pertinent settings (such as port forwards, access controls, and wireless network configurations) into a text document.

Flashing Firmware

How easy it is to flash your firmware depends on the type of device and the kindness of the manufacturer.

I've illustrated a few scenarios here, but what you'll do depends on what your device maker provides to you.

The easiest way to update your motherboard's firmware is to use the manufacturer's Windows-based flashing application. If your manufacturer offers such a program (and that's a big if), just follow its instructions.

If the device maker doesn't have such a program, it may provide a bootable CD in the form of a download- ➤



SIMPLY PLUG YOUR iPhone into your computer, and Apple's utility handles the firmware-update process for you.

Here's How

able .iso file (a CD or DVD image). With luck, double-clicking that file will launch your disc-authoring software and prompt you to insert a CD. But if Windows doesn't know what to do with that .iso file, download and install the freeware ImgBurn (find.pcworld.com/61194), and then double-click the file. Reboot with the new CD in the optical drive; now the firmware-flashing process should start immediately.

Update Firmware With a Bootable USB Drive

Unfortunately, not all manufacturers make flashing that easy. Some offer only a DOS-based flashing utility that you're supposed to run from a bootable floppy disk. Once you prepare the floppy, you reboot with the disk in the floppy drive, run the flash utility, and then remove the floppy and reboot again.

If your PC is less than a few years old, you're probably asking, "What floppy drive?" If spending money on an external floppy drive for a single firmware update isn't your cup of tea, you'll need to get creative and make a bootable flash drive instead. To do so, grab the HP USB Disk Storage Format utility (find.pcworld.com/63282). You will also need the HPUSBFW_BOOTFILES.zip archive. You should be able to find it at 4shared (find.pcworld.com/63283); if it isn't there, track it down by typing the file name in a search engine.

Unzip and run USB Disk Storage Format (if Windows refuses to run this program because it requires adminis-



THE FREE IMGBURN app burns .iso files to disc. Use it to turn your device maker's downloadable file into a bootable firmware-update CD.

trator rights, even though you're logged on as the administrator, right-click the file and choose *Run as administrator*. Select your flash drive as the device and pick the option to format it as a FAT32 file system. Click the check box that says *Create a DOS Bootable Disk* and select the folder containing the unzipped files of the HP-USBFW_BOOTFILES.zip archive. Once the utility is done, drag and drop whatever files the manufacturer of your device wants you to put on the "floppy."

The flash drive is ready, but is your PC ready to boot it? Try leaving the drive plugged in while you reboot. If Windows comes up normally,

you'll have to tell your PC to boot from the flash drive. To do so, restart your PC and watch for a message (it will be one of the first things to appear) telling you which key to press for the boot menu, or which key to press for setup. Press that key immediately. (If you see both, press the boot-menu key.) If you pull up the boot menu, set the computer to boot from its USB ports. If you get the setup screen, hunt for a section called Boot Options or Boot Order; there, make sure USB devices are listed before the hard drive in the boot order. Save the settings and reboot.

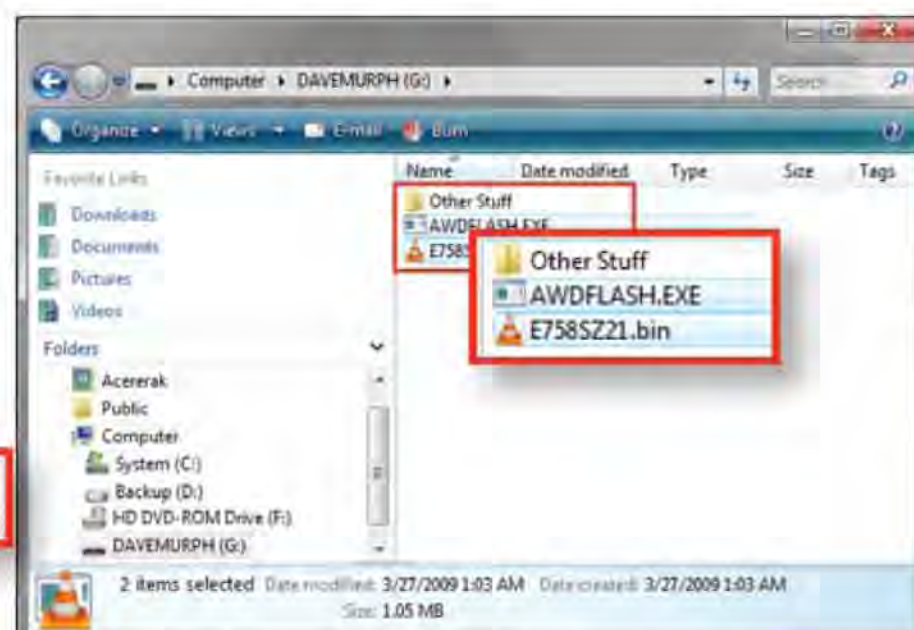
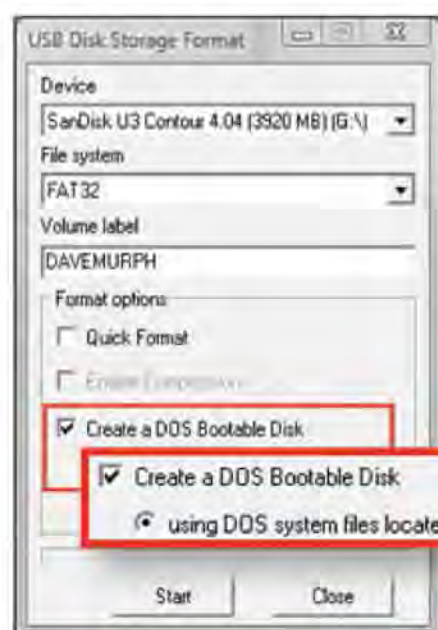
When you boot from the flash drive, watch the screen;

you might have to press a key to activate the boot from your USB device.

Network-Device and Mobile-Gear Updates

NAS boxes, routers, and mobile devices are much easier to update than motherboards. On most network devices, you access the configuration screen by typing its IP address into a browser. There, you should be able to find the firmware-update option, likely accompanied by a large browse button. Click that, select the firmware file you downloaded, and click to update.

We could fill an entire *PC World* issue with the exact means for flashing half the devices open to firmware updates. What's most important is the safety of your devices. Save your settings and, whenever possible, follow the manufacturer's instructions to the letter, using the correct firmware. Take these steps to prevent mishaps, and you'll quickly find that updating firmware can be one of the easiest—and best—upgrades you could possibly make.



THE USB DISK Storage Format utility (left) will help you create a bootable USB drive to run your firmware update. Once the drive is prepared, drag and drop your device maker's firmware-flashing files to it.

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Learn to Master Wolfram Alpha for Online Research

Wolfram Alpha isn't your average search engine. These simple tips and secrets will help you put this resource to work.

I WAS BORN 5 hours, 17 minutes before a full moon began to rise over Minneapolis. The sky was nearly cloudless, and the temperature outside was 46°F.

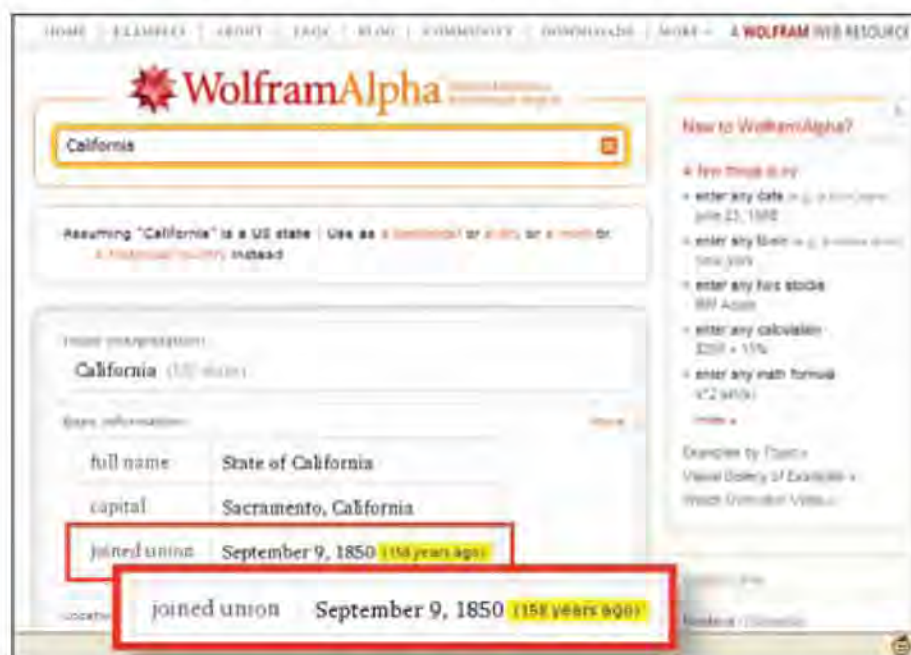
I got those facts from Wolfram Alpha (www.wolframalpha.com), the new “computational knowledge engine.” Sure, that’s just a party trick: I told the site when and where I was born, and it produced those details. But its power comes from comparing all kinds of data on its servers.

Instead of crawling sites, Wolfram Alpha has employees enter and scrutinize data, applying both manual and automated methods. It makes comparisons, overlays stock charts, creates tables and graphs that report similarities and differences in data, and otherwise helps you draw conclusions from intersecting details.

You have to think differently to begin tapping into Wolfram Alpha’s abilities. Here are some tips on how to get started with this unique comparison engine.

Start With Small Queries

Though Wolfram Alpha has been in development for five years, it often misunderstands queries. If you encounter problems with your search string, begin small. Try a search for a place; type



SEARCHING ON A simple term, such as the name of a state, produces useful information, sometimes relating it to the current date.

in ‘California’, for instance. Already, you can see how the tool dynamically incorporates the current date, as it reports that the state joined the union on September 9, 1850, which was (as of June 2009) 158 years ago.

Then pick another term that will produce overlapping or comparative results. Try ‘California income’. Simple enough. Each result includes a pop-up window that identifies its source, in case you ever want to dig into the origins of Wolfram Alpha’s information.

Now try another overlapping term, such as ‘California New York income’. The site generates a simple table for comparing income in the two states. Are you beginning to see its potential?

The site is young, and so far is versed in only certain topics. Thus, a query on ‘San Francisco income’ comes up empty. If you cut a search back to its core and the site still has nothing to offer, that entire topic might be missing from the current

database. Browse some of the provided examples (www.wolframalpha.com/examples/) to find out whether a similar subject is available.

See If Wolfram Alpha Understands

After you enter a query, Wolfram Alpha provides feedback about its comprehension. If you enter several similar terms, such as company names, the input interpretation line should show them all. If you’re modifying a search, as in ‘1984 Apple IBM’, the interpretation

shows that you’re getting the stock closing price over that full year for both companies. If you want a single day, revise your search to specify, for example, ‘January 24 1984 Apple IBM’.

Take Advantage of Location Awareness

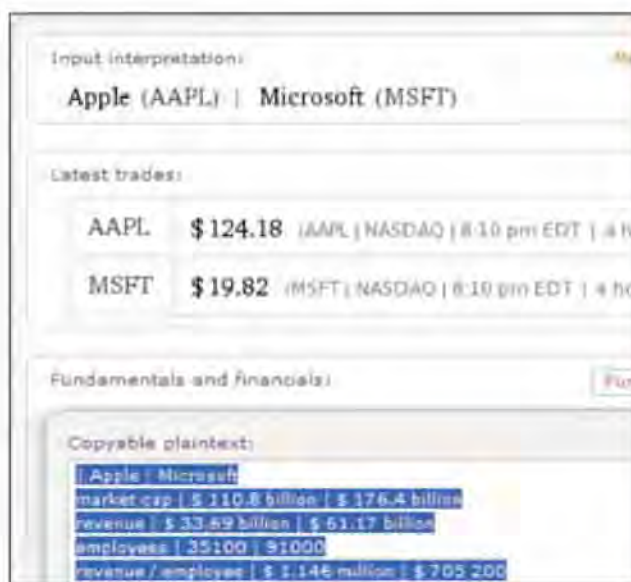
Wolfram Alpha already knows something about your search before you type a single letter. By using your IP address details, it estimates your location, thereby making contextual results possible.

Suppose that you’re in Austin, Minnesota, and searching for info about that town; the engine knows to report those results instead of the data for Austin, Texas. However, pop-up menus allow you to correct the tool in case you do want the other city—or if you want results for the first name “Austin.” (If you meet someone named Austin, by the way, chances are fairly good that he’s about 15 years old.)

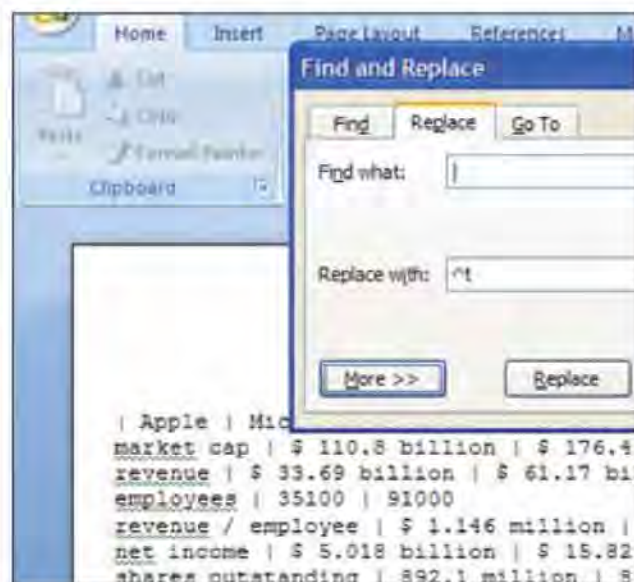
Your location plays a role in other searches, too. For example, if you type ‘7-4-



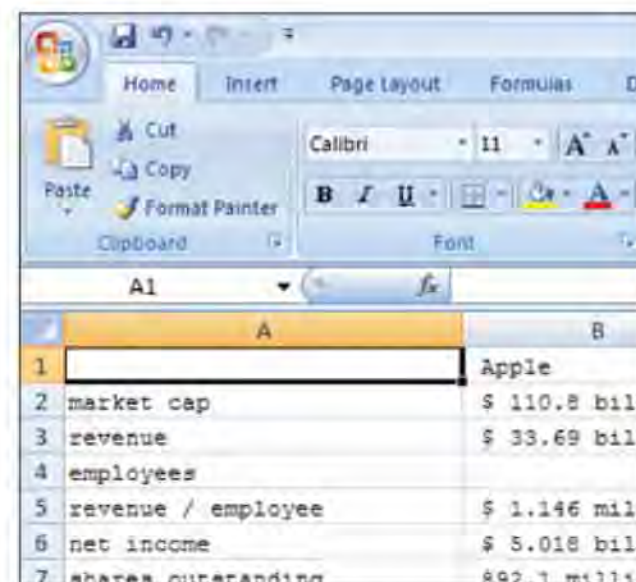
TYPING IN A particular date plus two company names calls up a comparison of the companies' stock prices for that single day.



TO USE THE site's data in Excel, first copy the plain-text version of the information.



PASTE THE UNFORMATTED text into Word and then replace the vertical bars with '&t'.



FINALLY, COPY that text and paste it into Excel, where it will sort neatly into cells.

2009' within the United States, the engine will treat the 7 as the month of July. If you were in Europe, Wolfram Alpha would treat the 4 as the month of April.

Stick to the Facts

Steer toward topics that can be distilled into facts: city population, movie box-office draw, and Web site visitor statistics, for example. Wolfram Alpha computes in factual terms. But watch the right sidebar for links off-site; for more narrative, you can jump to Wikipedia and other sources.

Export the Site's Results to Excel

Wolfram Alpha's results are impressive in a Web browser, but they don't easily convert into Excel spreadsheet data or into database content. The tool exports strictly as a Live Mathematica file or as a PDF (click the download links in the lower right of the results to get the files).

Even text results are rendered as images, so you can't copy cell data and paste it into Excel either. You can temporarily turn the images back into text; but if you do, they will lose their cell formatting. Do it anyway—I'll show how to

move the data into Excel.

Paste the text into Word. Use 'Find and Replace' to convert the | characters into tabs: Click the *Replace* button in the upper right and then enter the | character in the find field. Enter &t in the replace field. Click *Replace All*.

Copy the text again and paste it into Excel. It will automatically distribute itself into cells. If you're using another spreadsheet or database that lacks this feature, import the tabbed text file; nearly all database apps recognize tab breaks.

Wolfram Alpha Professional will have direct Excel export. A spokesperson told me that the paid edition will be "released in the next few months," with a price to be determined. Another extra feature of Professional will be the option to cross-reference your private data with the engine results.

Enter Math Queries

Since it's built on Mathematica (find.pcworld.com/63284), another computational tool, Wolfram Alpha is an excellent math aid.

It understands many equations and terms from chemistry, engineering, physics, and other sciences. Try typing point values, such as '1, 1, 2, 3, 5, 8, 13 ...' (with that space and ellipsis), and the tool will plot the points and offer its suggestion as to the source equation.

Compare Medical Results

Employing its medical and socioeconomic data, Wolfram Alpha can provide useful medical baselines, as well. Suppose you just had a cholesterol test, as I did, and you have no idea what the numerical result means.

Start with a simple query, 'cholesterol 153'. (Note that, as we went to press, '153 cholesterol' didn't work,

another example of the engine's limited initial understanding.) That query yields a distribution across the U.S. population. Add your gender and age for more-specific results.

Find Nutritional Totals

The database stores details about food, too. Search for 'banana' to get full results about a banana's dietary contents. But try a search for '2 bananas and .5 Snickers bar' for results that add both of those items. Note that the "and" operator is important here; without it, the engine will think that you want a comparison, not a sum.

Explore, Experiment

Wolfram Alpha's database catalogs even more topics, such as (at random) astronomy, color theory, music, and conversions. Just start playing with searches in an area that interests you to gain further insight into the engine. If you have difficulties, consult the site's video introduction (find.pcworld.com/63285) or examples page.

—Zack Stern



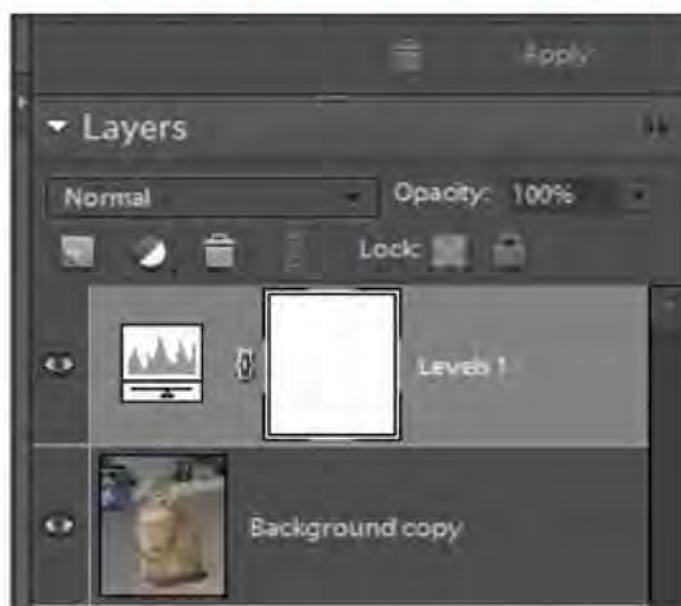
WANT TO KNOW how healthy your snacks are? Enter what you eat (plus 'and') for combined nutritional data.

Use Adjustment Layers to Tweak Your Photos

THE ABILITY TO edit photos in layers is what separates digital photography from film photography. For layers basics, see find.pcworld.com/63281. Here, I'll show how to edit a photo by adjusting some aspect of it in a layer. I'm using Adobe Photoshop Elements, but any editor with layer support will do.

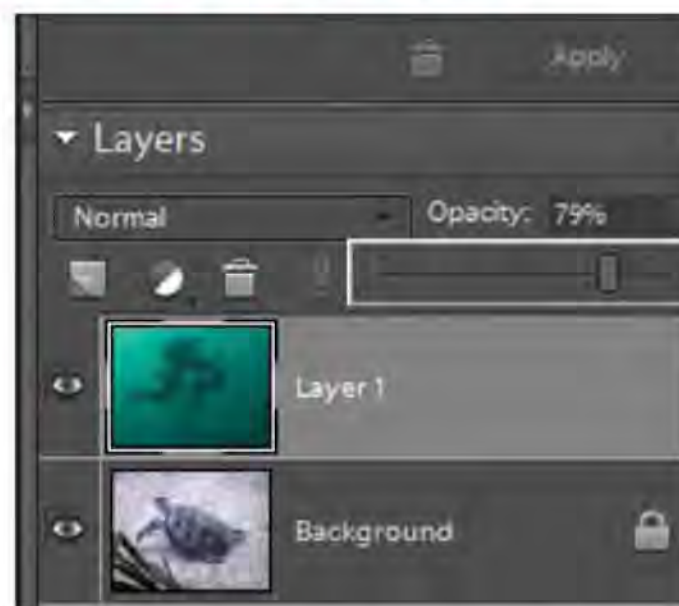
Open your photo. Choose *Layer•New Adjustment Layer*, and note the options. To improve exposure, use Levels or Brightness/Contrast. To change color saturation (or even bleach the photo into a nearly monochromatic image), try Hue/Saturation.

For our example, choose *Levels* and click *OK* in the New Layer dialog box. In the Levels control, adjust the white point, black point, and gamma, and click *OK*.



KEEPING ADJUSTMENTS in a separate layer from the original gives you flexibility in applying effects.

Thanks to layers, you have not affected the original. The technique lets you go a little too far and then fine-tune the result. You can now blend the original with the adjustment layer. Click *Opacity* in the Layers palette and back off from 100 percent until you find a good combination.



TO BLEND THE adjustment layer with the original, lower the opacity until you get an attractive result.

What if your photo editor has no adjustment layers or no option for a certain kind of adjustment? Suppose you wanted to sharpen an image in Elements. Open the photo, and choose *Layer•Duplicate Layer*. With the top layer selected in the Layers palette, click *Enhance•Unsharp Mask*

and set the sharpness. Once you've made an adjustment like this in a layer, you can use the Eraser tool to selectively remove the effect; you might want to erase sharpening from people's faces, for instance, while leaving the background sharpened.

—Dave Johnson

LINUX LINE

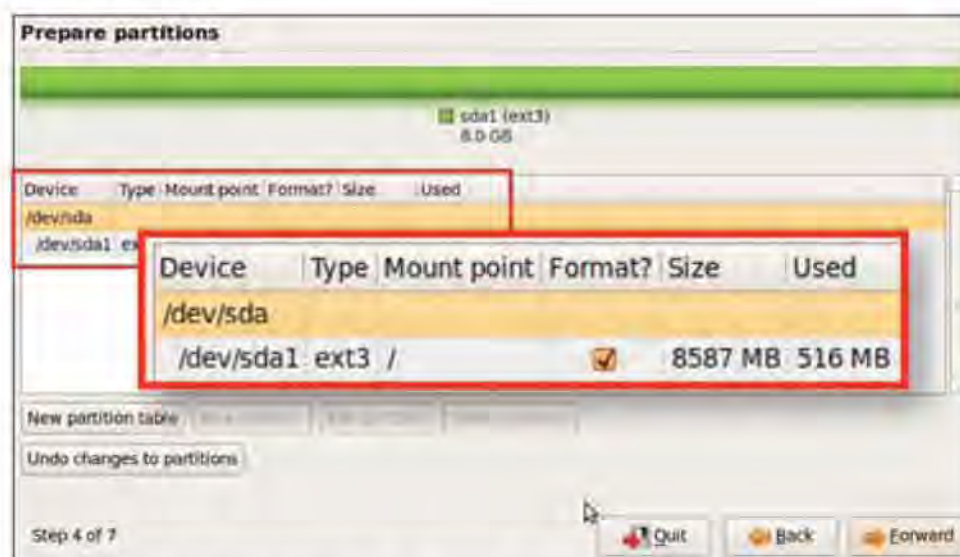
Maximize Netbook Storage

UBUNTU 9.04 is well suited to netbooks, since it not only works well on most of them but also has ultraquick boot-up. That removes the need to hibernate or suspend the netbook each time you're finished with it, which also removes the need for a large swap partition (where a hibernate file is stored).

By electing to partition manually during installation, you can avoid setting up a swap partition and make one big root partition—extremely useful if your netbook has a small hard disk (4GB or less). Ubuntu will issue a warning, but it will let you continue. When you boot into your new installation, you can create a swap file that lives in the root partition. A swap file won't allow hibernation, but it will otherwise act just like a standard swap partition.

These instructions, taken from my book *Ubuntu Kung Fu*, are for a 1GB swap partition; alter the numbers to make a smaller one.

1. Open a terminal window, and create an empty file in the root of the file system using the command **sudo dd if=/dev/zero of=/swapfile bs=1M count=1024** (be sure to adjust the 'count=' figure to at least match the size of your netbook's memory).
2. Format it as a swap file, by entering **sudo mkswap /swapfile**.
3. Finally, you need to make Ubuntu mount the new file at boot.



TO MAKE THE most of a small netbook hard drive with Ubuntu Linux installed, manually create a single partition using the entire disk.

To do that, type **gksu gedit /etc/fstab**, and then make a new line at the bottom of that file, adding **/swapfile none swap sw 0 0** to it.

You can align the entries on the line under the column headings in *fstab*, but it doesn't matter so long as you have at least one space between each entry on the line. Once done, save the file and reboot. Type **cat /proc/meminfo | grep Swap** to test your new swap file.

—Keir Thomas

Create and Store Remote Data Backups on the Cheap

BACKUPS ARE ONLY as good as how you make and store them. For best results, you need redundant backups, including one that resides off-site. But instead of paying monthly charges to a specialized backup service, you can set up nearly the same level of protection with no ongoing fees.

First, form an exchange plan with another business or a friend: You host their backup files, and they host yours. This criss-cross should be sufficient for most small businesses and many medium-size organizations.

And instead of trying to upload everything to an off-site location, make a local backup in a matter of hours,

and then physically move that device or media to the off-site space. Even including the time to ship or drive the disk over, the process will be faster—and less taxing on bandwidth—than uploading hundreds of gigabytes.

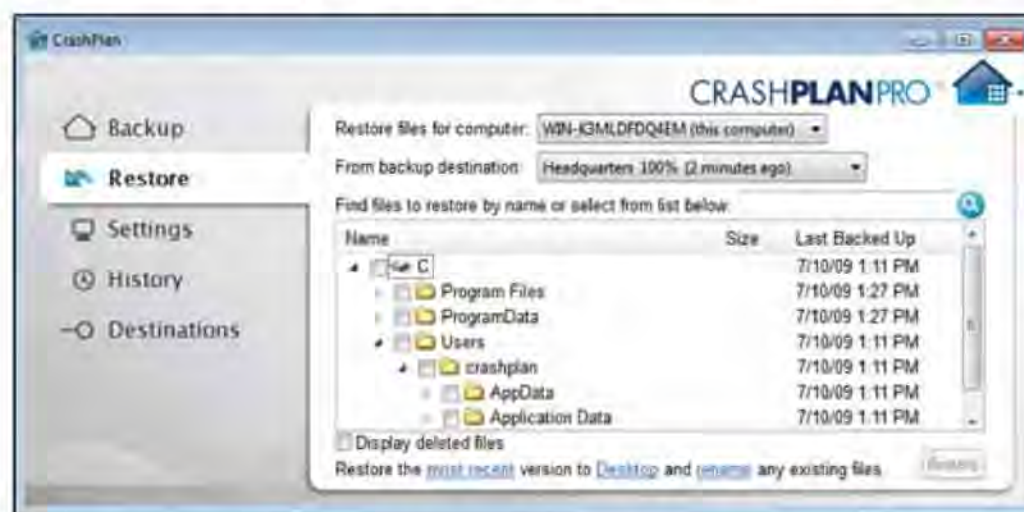
CrashPlan (www.crashplan.com) offers one way to build

the system. If you have ten or fewer computers—PC, Mac, or Linux—to back up, you buy a \$60 license for each one and provide your own storage space, either network storage or an attached drive for ongoing, local backups, plus a drive for storing off-site.

You run the backup software twice, and it makes archives to both destinations. Then you move the external drive to whoever you made the exchange arrangements with. Once they install software, you'll be able to keep incrementally backing up to the off-site drive for no monthly cost.

Though do-it-yourself methods can save you ongoing fees, CrashPlan also offers upgrades, including a monthly storage option; kick the tires on the free trial to see if it fits your needs. Or, if you have more than ten systems, try CrashPlan Pro, which is mostly the same as the small-office version.

—Zack Stern



WITH THE EASY-TO-USE CrashPlan software, you can make ongoing backups to two destinations, sending files both to local storage and to an off-site drive.

ANSWER LINE

? My laptop has about 20 missing or corrupt drivers. How do I fix them?

—pinkston32, via the PCW forums

START BY RESTORING your system to a point before the problems began. Select *Start•All Programs•Accessories•System Tools•System Restore* and follow the prompts.

If that works, sigh with relief—but consider the fact that you may have addressed only a symptom. Scan your hard drive with SuperAntiSpyware (find.pcworld.com/62312) or Malwarebytes (find.pcworld.com/62315), or both, to make sure it isn't infected. You might also want to run CCleaner (find.pcworld.com/63017), which can sweep away other, not intentionally malicious, problems.

But what if System Restore doesn't do the trick? In that case:

1. Go to Device Manager: Select *Start•Run*, type `devmgmt.msc`, and press **<Enter>**.
2. Uninstall all of the corrupted drivers, by right-clicking each one and selecting *Uninstall*.
3. Reboot the computer.

Windows will find and reinstall whatever drivers it can. They won't necessarily be the most up-to-date versions, and some will be generic ones that can run your hardware only in limited ways. But your computer will be working, and you'll be able to install the

ASK YOUR QUESTION AT FORUMS.PCWORLD.COM



SCAN YOUR PC with a utility like SuperAntiSpyware to make sure that a malware infection isn't the cause of your driver troubles.

other drivers from CDs, manufacturer Web sites, and so on.

Thanks to all the folks at the PC World forums who contributed to this answer on the original thread (find.pcworld.com/63280).

—Lincoln Spector ●



RICK BROIDA'S HASSLE-FREE PC

Three Easy Solutions to Common PC Annoyances

SOMETIMES, WHAT SEEMS like a big computing hassle can turn out to be an easy fix—such as when your aging, abused laptop keyboard stops working because you've beaten it beyond all recognition. This month I'll tell you how to cure that horrible hardware headache. In addition, I'll show you how to save the layout of your desktop icons to make your files and programs easier to find, and I'll point you to a free spelling checker for Outlook Express.

Save Your Desktop Icon Layout

You know the routine: Some game or application alters your computer's screen resolution, and when the screen changes back afterward, your carefully crafted desktop icon layout is completely messed up. Not cool, Windows. Not cool.

Fortunately, I've discovered a little gem of a utility, called DesktopOK (find.pcworld.com/63314). This nifty freeware lets you save and restore icon layouts. Just set your icons the way you like them, save the layout, and then restore it later when the need arises.

You're not limited to one layout, either: You can save as many arrangements as you want, which is great if you need different layouts for use on, say, your laptop with and without an external monitor. DesktopOK works with Windows XP and Vista.

Replace a Laptop's Sticky, Broken Keyboard

Keyboards generally don't age very well. My cousin just presented me with a vivid example of this: Her Dell Inspiron 9400 laptop's keyboard was missing its <F5> key. And the keys that remained intact weren't in good shape; many were sticky, while others failed to register presses. A lot of the letters had worn off, too.

Fortunately, a laptop with a rotten keyboard is not necessarily destined for the scrap heap (or even for Craigslist). In fact, if you're handy enough with a screwdriver to know which end drives screws, you can probably replace the entire keyboard in about 5 minutes.

In the case of the Inspiron, my search began and ended on eBay. A quick search for 'Inspiron 9400 keyboard' revealed plenty of



FOR OUTFITTING YOUR workhorse laptop with a brand-new keyboard, \$11.89 is a small price to pay. And shipping is free on this one.

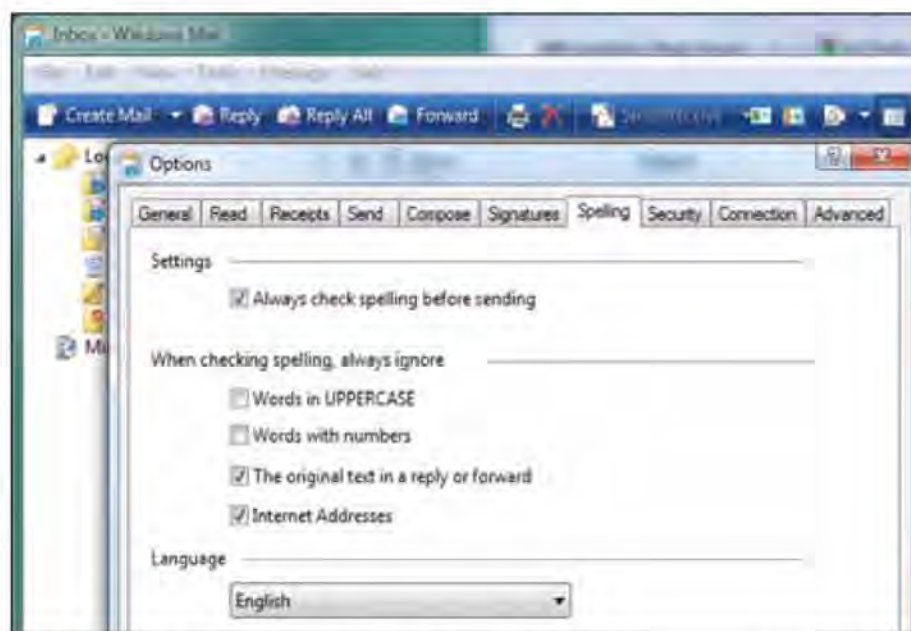
Keep icons organized, replace a laptop's keyboard, and run a spelling check on your e-mail.

options, including a brand-new replacement for all of \$12. Shipped.

Then I googled 'Inspiron 9400 replace keyboard' and found how-to instructions in a matter of seconds. (See, you may think I'm a soopah-genius—which I am—but in many instances it's just a matter of knowing how to find the information you need.)

Turns out, it's crazy-easy to swap in a new keyboard on most notebooks: Simply pry up the laptop's bezel, remove a pair of screws, and unplug the old keyboard. Put the new keyboard in its place, close up the machine, and, presto, you're finished.

Your mileage may vary, of course, depending on your particular model of laptop. But if you're suffering with an old, cruddy, gunked-up keyboard, it may cost you as little as \$12 and 5 minutes to swap it out. Pretty worthwhile investment, no?



MICROSOFT'S FREE WINDOWS Live Mail, a replacement for Outlook Express, has a built-in spelling checker and other new features.

Add a Spelling Checker to Outlook Express

Reader Karl wrote asking for help with his spelling. Specifically, he needed a spelling checker for Outlook Express, because the method he was using was the very definition of "hassle." Karl said that he composed new messages in WordPerfect, ran the spelling check there, and then exported the text for import into Outlook Express.

Fortunately, that painstaking procedure can end right now. One option is to install and run a free third-party add-on, such as the aptly named Spell Checker for OE (find.pcworld.com/63312).

But instead of that, I recommend upgrading entirely to Windows Live Mail (find.pcworld.com/63313). This free Outlook Express replacement from Microsoft offers a more streamlined interface and provides several much-needed new features, including dynamic search (results appear as you type), spam filtering, and a calendar that can synchronize with your online Windows Live calendar.

Oh, it has a spelling checker, too. ●

Back up today or call us tomorrow

The grim reality is that sooner or later all digital media—from hard drive to flash memory—will fail. When this happens there are only two things you can do:

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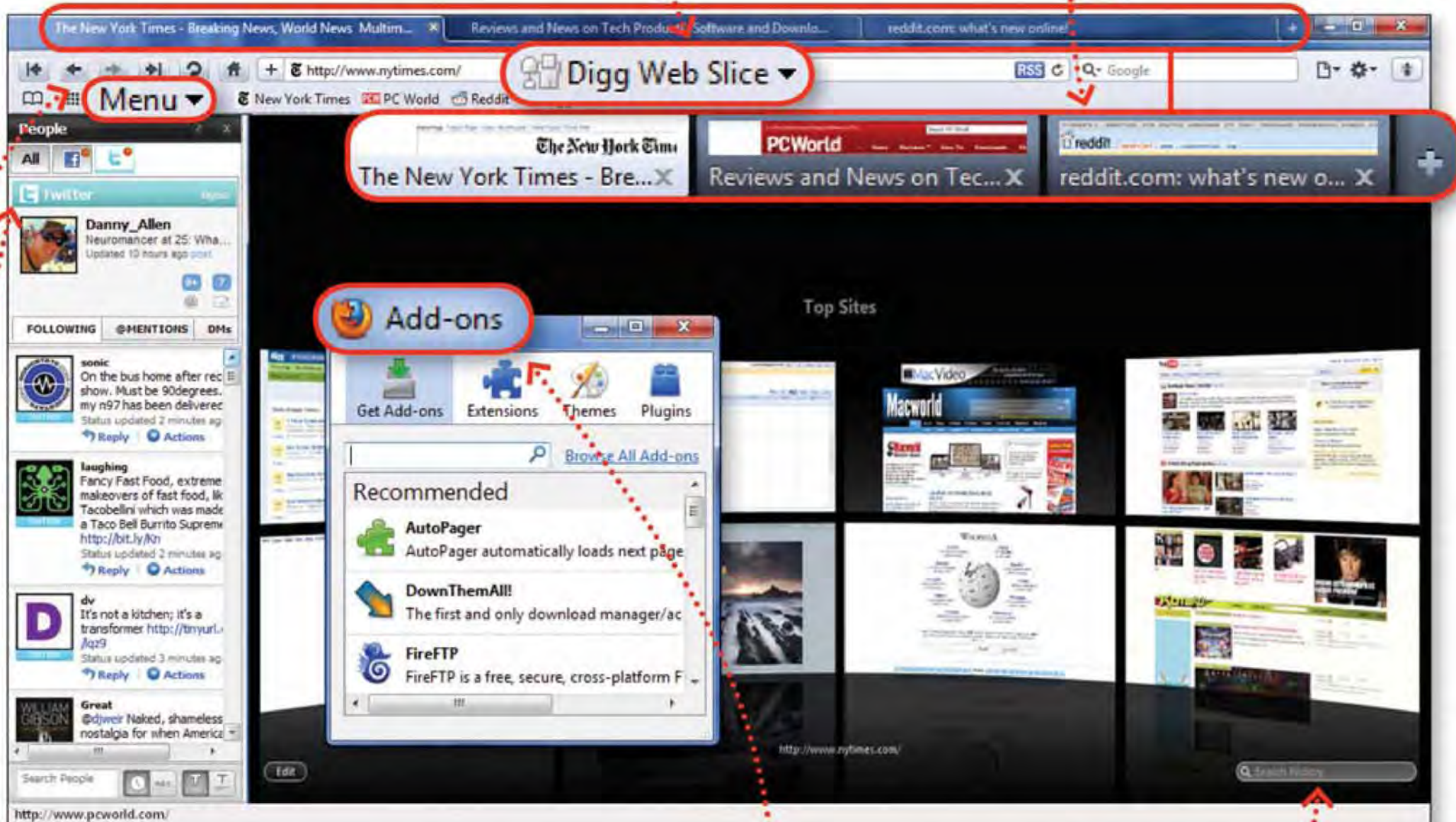
Choosing a Web browser is like picking a car: It comes down to design, familiarity, reliability, and speed. Plus the creature comforts. Our ideal browser begins with the speed of Chrome, Safari, and Opera mixed with Internet Explorer 8's Web Slices (page snippets that are viewed from the Favorites bar), and Accelerators (time-saving selection-based search).

WHAT WOULD YOU WANT?

Go to find.pcworld.com/63387 and brainstorm with us.

PAGE TABS WITH PREVIEW

Chrome/Safari title-bar tabs (which maximize screen space) can expand to show thumbnails (as in Opera 10).



SOCIAL NETWORKING, STREAMLINED NAVIGATION

We stole social networking tools from Flock, which is built on the same code as Firefox. Also in are Opera's toolbar (with next-page fast-forward) and its mouse gestures (hold the right button and move left to go back a page, for example). To save screen space, we made our menu bar a drop-down.

ADD-ONS

Firefox's killer feature: 6000+ free extensions. If Firefox lacks it, you can add it. Many support the Mozilla-based Flock and SeaMonkey browsers, too.

PAGE HISTORY

We love Safari's Top Sites and searchable Cover Flow history views. But we'd also list such details in a left frame for when we're not feeling quite so fancy.

PARTS LIST



Firefox 3.5 | Mozilla

What we took: Add-ons, 'Google I'm Feeling Lucky Search' from URL bar.

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Safari 4 | Apple

What we took: Title-bar tabs, speed, Top Sites, Cover Flow for history and bookmarks.

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Chrome 2 | Google

What we took: Tab-crash protection (as in Internet Explorer 8), speed, title-bar tabs.

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Opera 10 | Opera Software

What we took: Tabs with page thumbnails, mouse gestures, navigation toolbar, extensibility.

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