

CONSUMER ALERT: HOW TO AVOID **SNEAKY FEES** p.99

PCWorld

100 BEST PRODUCTS OF THE YEAR

Laptops, Cameras, Sites,
Software, Phones, TVs, and
PCs We Can't Do Without p.74



The Best Big-Screen TVs

Lab Tested:
We Pick 10
Hot High-Def
Flat Panels p.89



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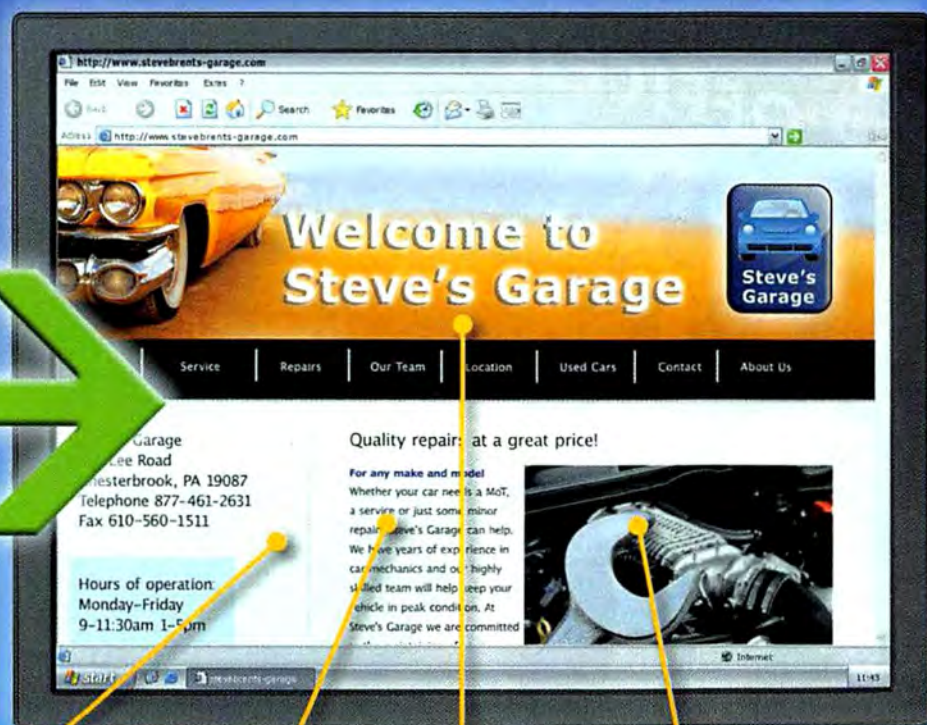


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A lot of outstanding hardware, software, and services passed before our eyes this year. Here are the very best ones—the products we most wanted to keep after testing and reviewing them.

89 The TV You Want Today

HDTV features continue to evolve rapidly, in areas that range from motion-smoothing technologies to 3D. We look at the changes and rank the best 40- and 47-inch sets.

99 Sneaky Fees

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We've Got a Little List, and a Surprise Winner

HUMANS ARE LIST-MAKING animals. Sure, plenty of other traits set us apart from the beasts of the field and stream (opposable thumbs and the related ability to use a TV remote spring to mind). But the willful desire to categorize, prioritize, and sequence stuff—making that satisfying list as a means of bringing order to chaos—is a defining characteristic of *Homo sapiens*.

As members of the species, and card-carrying tech editors to boot, we cobble together our fair share of lists, ranking products within their respective categories in an attempt to help you make sense of all the high-tech wares released every year. In this issue you'll find Top 5 charts of e-book readers (page 46) and

The PC World 100—a compilation of the year's top products—generates healthy debate and even an argument or two.

HDTVs (pages 91 and 94), and Top 10 charts of cell phones (page 57), inkjet multifunction printers (page 60), and external hard drives (page 66). We created these lists, and dozens more at PCWorld.com, after putting scores of products through extensive hands-on evaluations and lab testing.

But one big list in this issue—"PC World 100: Best Products of the Year" (page 74)—departs from the methodology we use to create our Top 10s. A compendium of the hardware, software, and services that made a difference in 2009, the PC World 100 is a labor of

love. In contrast to our conventional reviews-based rankings, the list of best products is subjective, with editors arguing, wheedling, and horse trading over the course of a long debate. We've been doing some form of this megalist for 27 years now, and it never gets dull.

In a political context, you could compare the process to a smoke-filled room. As no one smokes in offices anymore, the entire editorial staff gathers instead in a smoke-free room, where editors recommend their favorite products, offering reasons why each nominee is worthy of consideration. Passions run high, particularly over which gear will make it into the top 20. No one leaves until we've reached a consensus.

SPRUNGING UP THE CHARTS...AND MORE

SPRING CLEANING comes very early to PC World's Top 10 charts this month. In order to display more product information, we've widened the chart to take over the entire page. This added space means we can include photos of all 10 products, plus more data about their performance, features, and specifications.

We've also changed our scoring system, converting our ratings from a 100-point scale (0–100 score) to a five-star scale (including half stars). Behind the scenes, the new scores are based on the same rating methodology we've always employed. Now, however, they're on the same scale as all the reader reviews at PCWorld.com (which have always been based on five stars), allowing for head-to-head comparisons. Plus, as much as we'd like to believe that *PC World* is the only place to go for reviews, we know that people consult a variety of sources when seeking product advice. These days, the five-star system has emerged as the industry standard, and we want you to be able to compare our reviews head-to-head with the competition's—without having to do any math.

Finally, I'd like to introduce *The Back Page*. You can find it...well, you know where to look. Each month *The Back Page* will take the pulse of the tech world, and have some fun in the process. Check it out, and tell us what you think at letters@pcworld.com.

| Rank | Product | Price | Rating |
|------|-----------------|-------|--------|
| 1 | Apple iPhone 2G | \$199 | ★★★★★ |
| 2 | Motorola Droid | \$199 | ★★★★★ |
| 3 | Apple iPhone 3G | \$299 | ★★★★★ |
| 4 | Palm Pre | \$150 | ★★★★★ |
| 5 | BlackBerry Tour | \$199 | ★★★★★ |
| 6 | Motorola Droid | \$199 | ★★★★★ |
| 7 | Apple iPhone 3G | \$299 | ★★★★★ |
| 8 | Motorola Droid | \$199 | ★★★★★ |
| 9 | Apple iPhone 3G | \$299 | ★★★★★ |
| 10 | Motorola Droid | \$199 | ★★★★★ |

THE NEW TOP 10 charts feature photographs and a five-star scoring system.

Number 1 Not in Doubt

Surprisingly, our choice for the top slot on this year's list was a slam dunk. I say "surprisingly" because (1) it doesn't involve a technological breakthrough, (2) it's a product only in the broadest sense of the term, and (3) it's an Apple creation, and we're named *PC World*.

Still, we all agreed that the App Store, after 2 billion iPhone app downloads, was the story of the year, turning formerly uninterested civilians into highly involved tech geeks. The iPhone has arrived: Thanks to an army of app fans, it is now seen as a legitimate computing device, not just a cool cell phone.

Ultimately, that recognition should rub off on other smartphones, with BlackBerrys, the Palm Pre, and Android phones jockeying to steal market share from Apple. If that happens, we'll be there to cover the phenomenon.

Even better, we'll make a list. ●

Steve Fox is editorial director of PC World.

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|---|--------|
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| • Intel® Core™ 2 Quad Processor Q9550 | \$1299 |
| • Intel® Core™ 2 Quad Processor Q9400 | \$1269 |
| • Intel® Core™ 2 Quad Processor Q8400 | \$1244 |
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| | |
|---|--------|
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October's *GeekTech* stirred controversy by suggesting that people could save boot-up time, at little expense, by leaving PCs on Sleep mode when not using them—overnight, every night. Did writer Jason Cross miss the mark or ignore environmental issues? Add your thoughts at find.pcworld.com/63670.

Sleep Mode Every Day?

The October *GeekTech* column by Jason Cross says we should use Sleep mode every day. But the article exaggerates the typical savings. Here's why:

- My PC is off 12 hours a day, not 16.
- The hours my computer is off are mostly off-peak hours, and my kWh rate in Phoenix, Arizona, for night-time hours is closer to 2 cents, not 12.
- My computer's power-off usage is closer to 5 watts, not the extremely low 1 watt that Cross suggests.
- Put these factors together, and my annual savings is 12 hours times \$0.02 per kWh times 0.001 kW demand times 365 days, a savings of \$0.09 per year. (At Cross's stated 11.59 cents per kWh, the annual savings leaps to \$0.54. But even at 16 hours off per night, the savings would be less than \$1.00 per year.)

Add to the issue the fact that many computers suffer from memory leak; most PCs left on for more than a few days can see their performance improve significantly with a simple reboot.

Matt Metz, Phoenix

Jason Cross fails to mention that using Sleep mode does not allow the PC to clean out old files. After months of your using just Sleep mode, the PC is likely

to slow down and behave erratically. You really should turn off or restart a PC every two weeks (depending on use).

Bruce Andersen

Huntersville, North Carolina

I was shocked that Jason Cross would recommend having PCs sit and waste power. In this day and age, when businesses are going to great lengths to become more green and energy efficient, Cross actually advocates waste.

Here's a tech reason to do otherwise:

It is actually a good thing to cycle a desktop machine periodically, as so many apps (browsers particularly) do such a poor job at memory management. Leave your PC on for a week, and then perform a memory-intensive operation. Cycle the power, and repeat. Compare times (really a no-brainer).

Matt Krenz, Homer Glen, Illinois

Just Avoid Rebates

In Marla Miyashiro's "More Rebate Hassles" [*On Your Side*, October], she recommends "making copies—both physical and electronic—of any rebate forms, receipts, bar codes, and other documentation...and noting when and how you sent them." I agree that taking those actions should increase your

chances of seeing a rebate check. Of course, we all know that the game is for vendors to do everything they can *not* to send the money. So why fight it? I have adopted a strict policy of never buying anything that offers a rebate.

Lee Bakewell, Forest Lake, Minnesota

Cleaning a Dusty PC

In the October issue's "Heal Your Hardware," the section "Clean a Dusty PC" suggests blowing grime from inside the PC out through the power supply's fan.

A word of caution: Because a blast of compressed air can cause the fan to spin too fast and potentially damage the motor, it is best to insert a thin stick or straw between the blades of the fan before blasting it with air. This also applies to any other fans in the PC that need to be cleared out.

David Ostman, Glen Rock, New Jersey

Creativity run amuck ["10 Seriously Ridiculous Hacks," find.pcworld.com/63909]! Funny and interesting, and demonstrates what people with too much time on their hands can accomplish.

ClaudeD, PCWorld.com forums

Can Backups Last?

Lincoln Spector, describing criteria for archival storage in "The Best Ways to Back Up Your Data" [October], states, "The media must be ubiquitous: If everyone uses the medium now, chances are better that someone will be able to use it in the 22nd century—or at least later in this century."

Let's see, within the past 75 years we have seen come and go 8mm and 16mm cameras, wire recorders, ½-inch tape decks/recorders, Sony Betamax video recorders and players, Polaroid cameras, other film cameras, Ditto machines, 2400-foot reels of ¾-inch tape for main-frame computers, Toshiba's HD DVD (which just died in favor of Blu-ray)—and I have four boxes of 1.44MB »

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floppy disks that are probably unreadable now, even assuming I could still find a floppy drive to insert them in!

My employer once solicited ideas for items to put into a 100-year time capsule. One idea was to include a VHS tape containing newscasts, science reports, music videos, and so on. I suggested that they would need to include a brand-new, factory-sealed player with an instruction manual, because 100 years from now nobody will know what to do with a VHS cassette.

Bottom line: Whatever medium you choose for archival backup, make sure you keep operable equipment that can read it, and plan to roll the contents over to a new format in ten years.

Hank Jeffries, San Pedro, California

Printer Cartridges Expire

Check for expiration dates when purchasing ink cartridges. Not all stores rotate their stock. Because I periodically print hundreds of pages with my HP printer, I keep a couple of backup cartridges of each color on hand. I am not careful about keeping them in chronological order. Imagine my surprise when my printer software alerted me that the printer would stop when my magenta cartridge (75 percent full) expired in ten days—which it did.

The date on the packaging did not indicate whether it was the manufacturing date or the expiration date. (This has since changed, and you can actually see it if your eyesight is good.) HP was kind enough to replace one black and one magenta cartridge.

Gaye Lowe, Milford, New Jersey

Video Program Hard to Use

I have been looking for a program to record streaming video to a hard drive, so I was glad to see Steve Horton's favorable review of VideoLAN's VLC (*Reviews and Rankings*, October). I installed the program, but then my troubles began. For all intents and purposes, it has neither a manual nor a help facility, nor technical support staff, so I had to discover how to use the program by

trial and error. It took a while to find out how to start recording and how to specify where the recorded file should go: The many menus had (to me) incomprehensible options. I finally managed to record a YouTube clip (as a test case), only to discover on playback that the recorded file had video but no audio.

I am an experienced user, having worked with computers for the past 53 years. I generally have no problem using downloaded software, even without manuals (although they do help, sometimes). So I think VLC is not suitable for nonexperts in this field.

Yonathan Bard, Newton, Massachusetts

The Shovelware Headache

Regarding Darren Gladstone's *Mobile Computing* blog post, "Die, Shovelware, Die!" (find.pcworld.com/63946): By offering "free" software on your laptop, software vendors can reduce the overall cost of the machine because the "advertising" from such shovelware ultimately leads to sales. If they can increase revenue by adding inconvenient software to my computer, let them—as long as I can strip the software from the computer and still have it function.

Glenn J. Koster, Sr., Burrton, Kansas

I could not agree with Darren more. Waiting half an hour for a first-time boot just to have to uninstall preloaded software is ridiculous.

OmniUni, PCWorld.com forums

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CORRECTION

IN NOVEMBER'S "Go Virtual for Safer Online Shopping" (*Security Alert*), "Shop Shield" (two words) is the proper spelling of the virtual credit card service.



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Forward

Wireless Wars:

Will Consumers Be Collateral Damage?

As the mobile Web grows in popularity, carriers and the government struggle over who controls the wireless 'pipes.'

BY JARED NEWMAN

A BATTLE IS brewing between wireless carriers and the feds—and caught in the crossfire are all of the smartphones, netbooks, and bandwidth-hungry mobile applications that users are increasingly enjoying. Both camps claim to be doing what's right for consumers: One side says that it is heading off a mobile meltdown by enforcing rules on the types of devices and services that can access their networks, while the other says that the priority should be on giving users unfettered access to the wireless Web.

Depending on which side wins, if you're, say, an AT&T



Mobility customer, someday you might be prohibited from visiting certain Web-sites or using competing voice and television services on your iPhone or on a 3G-enabled netbook. Or, in an alternate scenario, the Federal Communications Commission might be able to force Verizon Wireless to

allow its customers to stress its cellular network through downloads of mammoth media files via BitTorrent.

The fight is about who controls the wireless pipes of tomorrow, and whether emerging wireless services will bloom or wither as a result. In other words, the conflict concerns network

neutrality—the idea that service providers must give equal treatment to all uses of the Internet—as it might be applied to the wireless industry. And just as the topic has caused a ruckus among cable providers, which have lobbied against FCC neutrality rules, in the wireless industry the debate is heating up.

PCWORLD.COM

For more on AT&T president and CEO Ralph de la Vega's comments about managing customer data usage—and for an analysis of what they might mean for iPhone owners—see find.pcworld.com/63957.

ILLUSTRATION: HARRY CAMPBELL

Wireless Service Comes With Warnings

The problem, wireless providers such as AT&T say, is that wireless bandwidth is a finite resource. AT&T and other carriers, as a result, restrict bandwidth-hungry services from running on their networks. One example is the mobile version of SlingPlayer, the streaming software for the Slingbox place-shifting device: AT&T says that if everyone could stream SlingPlayer data over AT&T's 3G network, the network would grind to a halt. Currently, users can run SlingPlayer only over Wi-Fi; 3G is off-limits.

AT&T says that it wants to keep a tight grip on its biggest bandwidth hogs. At the CTIA wireless-industry trade show held in early October, AT&T Mobility president and chief executive officer Ralph de la Vega remarked that AT&T needs to manage its network's most-intensive users, alluding to the Apple iPhone subscriber base.

De la Vega claims AT&T research shows that 3 percent of AT&T's smartphone customers (likely iPhone owners) use 40 percent of all the smartphone data on its network. He estimates that this 3 percent consumes 13 times the data of "the average smartphone customer," yet represents less than 1 percent of AT&T's total post-paid customer base. Is this disproportionate usage a harbinger of problems to come for other carriers?

AT&T, Sprint, and Verizon all deal with bandwidth hogs by limiting the total amount of data that a customer can



AT&T MOBILITY PRESIDENT and chief executive officer Ralph de la Vega says the carrier needs to manage its network's most-intensive data users "to make sure that the few cannot crowd out the many."

use each month to around 5GB for the 3G data service offered to laptop users. (AT&T doesn't cap data usage for iPhone customers.) If you go beyond the 5GB cap, the carriers either throttle your network speeds or charge overage fees. What's less clear is how they manage specific uses of their mobile networks before customers reach that bandwidth limit.

Matters are even less straightforward when it comes to services that could be competitive with carriers. "The number one concern any telecom has is about seeing their margins get eroded by new entrants with a different cost structure," says Joshua King, an industry veteran who has worked for AT&T Wireless and Clearwire. That new entrant might be a service like Google Voice or Skype, piggybacking on AT&T's network. And the pricing for Google Voice or Skype is, in many cases, free.

Recently, with Apple's rejection of Google Voice

on the iPhone, AT&T has found itself at the center of this issue. Though Apple has taken complete responsibility for rejecting the app, it's not hard to see how Google Voice's free text messaging and cheap international calls could ruffle AT&T's feathers. The company has shown a change of heart on Skype and other VoIP services, allowing them to run over 3G on the iPhone in exchange for AT&T talk-time voice minutes—but even so, using Skype over

3G as an alternative to traditional cell phone minutes isn't possible. All of this could change in an open wireless network, says King, who sees a proliferation of VoIP services in an age of regulated wireless Internet.

Is AT&T really worried about bandwidth, or is it just trying to keep a lid on competitive services? That remains under debate.

Bring in the Feds

Enter Julius Genachowski, chairman of the Federal Communications Commission. In a speech at the CTIA show, he acknowledged that with regulation one size doesn't fit all—but he also reaffirmed his commitment to an open Internet, regardless of how people access it.

Under Genachowski, the FCC has been playing a more active role in the mobile industry's business. When Google Voice was rejected on the iPhone, the feds demanded answers from Apple, AT&T, and Google (find.pcworld.com/63962). Although Apple has said >>



JULIUS GENACHOWSKI, CHAIRMAN of the Federal Communications Commission, says that the Internet should be open, and that consumers should be able to decide how to use their smartphones.

that AT&T was not involved with the decision, both companies had to admit that they do have a deal to block VoIP apps (which Google Voice is not, technically).

The FCC then announced a broader probe into the wireless industry that will entail an examination of everything from billing to competition to coverage in rural versus urban areas. The probe marks a major shift from the policies of the George W. Bush administration, which took a hands-off approach in enforcing regulations on the wireless industry.

Things really heated up in September, when Genachowski announced his desire to turn existing network-neutrality principles, plus two new ones, into hard-and-fast rules. He added that the Internet should be open however users reach it, subtly suggesting that the wireless industry would come under scrutiny. At the time, Genachowski was vague about what wireless network neutrality would look like.

In October the FCC took its first step toward creating formal rules, despite a huge lobbying effort from opponents. Under an FCC proposal, wireless broadband services would be included in the rules along with cable providers. The FCC is still months away from voting on the final regulations.

However, what these rules might mean for wireless carriers is still not clear. Speaking at the CTIA conference, Genachowski acknowledged that congestion issues and the competitive landscape of wireless pose "some difficult

questions...that remain open and will be considered in the FCC's proceeding." He did make it known, though, that wireless carriers won't escape his vision of an open Internet, which allows consumers to decide how to use their smartphones and 3G cards.

What do wireless carriers want from the FCC? First, they want the ability to manage their networks as they see fit. "We have to manage the network to make sure

antennas or femtocells. He also discussed reallocating unused or obsolete frequencies, but acknowledged that "there are no easy pickings on the spectrum chart."

Max Hailperin, professor of computer science at Gustavus Adolphus College, says that as both sides continue to push for their interests, the definition of wireless network neutrality will become quite narrow. "The FCC will prohibit a few very



that the few cannot crowd out the many," said AT&T's de la Vega at the CTIA show.

Second, carriers want the feds to free up more wireless spectrum; the CTIA trade group has formally requested that the government provide it. Spectrum, the array of radio frequencies that mobile Internet uses for transmission, is the key factor in determining how much data a carrier can handle at a time. Opening spectrum widens the "pipes," allowing more bandwidth-reliant services through. Even Genachowski has acknowledged that without freeing up more spectrum, a crisis looms. At the CTIA conference, he proposed offloading traffic onto Wi-Fi networks via smart

narrowly defined, egregious behaviors, such as Comcast was found to have engaged in," he says, referring to how Comcast was caught blocking peer-to-peer file sharers over wired Internet.

Wireless's Future

Some industry watchers, such as Alex Winogradoff, a wireless expert with the market research firm Gartner, see the feds' meddling bringing an end to flat-rate pricing. As applications become even more bandwidth hungry—and if the FCC forces carriers to offer new apps—the carriers will switch to tiered billing to discourage bandwidth hogging, the argument goes.

Chris Guttman-McCabe,

CTIA vice president of regulatory affairs, says that even such tiers won't help when a lot of users are consuming bandwidth at the same time, causing congestion although they are staying within their individual limits. Other experts wonder whether strict bandwidth caps will repel potential customers; Pablo Perez-Fernandez, a senior wireless analyst for MKM Partners, says that the reason data has become so popular on smartphones is that users don't have to meter themselves with it as they do with voice minutes.

It's more likely, analysts say, that carriers will receive some leeway to throttle bandwidth-intensive uses. What remains to be determined is how much control carriers will have over specific services, such as VoIP.

A few recent developments have seen carriers embracing openness voluntarily. Google and Verizon announced in early October that they will collaborate to develop apps on the Verizon network, including Google Voice. As for AT&T's allowing of VoIP apps on the iPhone for use over 3G, "I think that's exciting for consumers," says Michael Tempora, Vonage senior vice president of product management, adding that he expects AT&T to become more open on its own.

These are baby steps, but they put carriers in a tough position: They'll either have to continue opening up networks or face an FCC that is not shy about imposing regulation. Either way, it seems to be a win for consumers.

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Will Streaming Video Put an End to DVDs?

WATCHERS of streaming-video trends have been buzzing ever since Netflix CEO Reed Hastings remarked in an early-October Motley Fool podcast that DVDs may lose their number one spot in the company's video-distribution service after two years.

Although Hastings didn't explicitly say what he thinks will replace DVD, a few of his statements seem to agree with what many other experts have been declaring since the end of the format war: It won't be Blu-ray.

Hastings said many Netflix subscribers are switching to lower-priced plans that allow

only one DVD to be out at a time but still offer unlimited streaming.

Steve Swasey, Netflix director of corporate communications, clarified his boss's comments a few days later. The reality is that all of Netflix's services are growing—including DVD rentals, Swasey says.

"Streaming video is growing fast because there is no base for before two years ago [when the service debuted]," he says. "You can't say one format is going out or down, all are growing."

Still, an increase in streaming video makes sense when



subscribers can instantly watch videos on their computers, broadband-enabled HDTVs, Xbox 360 consoles, and set-top boxes. After all, the convenience beats a few days of waiting and multiple trips to the mailbox.

Where does this leave Blu-ray? According to a March post on the Netflix Blog

(find.pcworld.com/63971), which Swasey confirms is still fairly accurate, Blu-ray is attracting only about 10 percent of subscribers.

Netflix will continue to ship both DVD and Blu-ray media far into the future, Swasey says.

The company's approach is to continue offering bundled service, in which subscribers can choose how they want to watch movies.

Besides, putting an exact date on DVDs' demise would be like putting a date on when hybrid cars will outnumber regular ones, he says.

—Paul Suarez

BETA WATCH EDWARD N. ALBRO



Fuze Meeting: Elegant Collaboration

One of the last hurdles for remote workers is how to collaborate on visual projects such as artwork and videos. Merely talking about something visual can be frustrating, and trading versions is time-consuming. With Fuze Meeting, you can invite someone to a meeting immediately and upload the picture or video you're working on. You can draw and write on the artwork, pass that power to attendees, or share your desktop. Attendees don't need to download software; they just enter a URL. You can meet with two other parties online and store 1GB of data for free. fuzemeeting.com

Twirl TV: Create the You Network

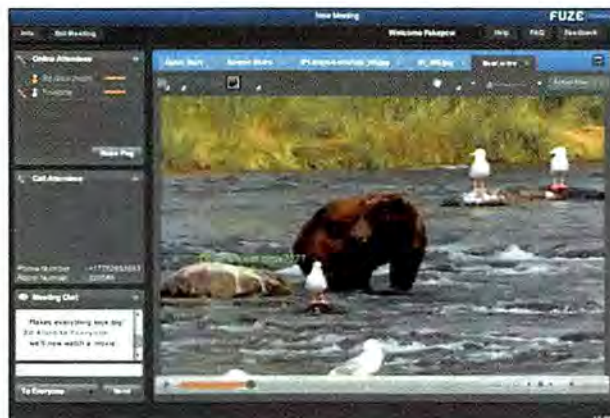
I've never yearned to run a TV network—but I've frequently thought that if I did, there would be a lot less crap on the boob tube. With Twirl TV, you can create your own network with only your favorite shows (as long as those shows are available to stream on the

Web). One of the fun things about the free service is that you can choose both current shows and classics like *MacGyver* and *Perry Mason*. You can sign up for the service through Facebook Connect and can discover what your friends are watching. twirltv.com

Local Dirt: The Cabbage Next Door

The local-food movement preaches that eating food from farms in your area is better for you and for the environment. But once you

leave the supermarket behind, how do you find your food? Local Dirt, which is free for consumers, allows you to search for suppliers of any kind of food in your area. When I tried the service, it clearly needed more participating farmers—my search for apples yielded no results, even though I'm next door to a great apple-growing region. But if you don't find results, you can set an alert, and Local Dirt will e-mail you when it locates the food that you want. localdirt.com



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Pull your ear upward and outward to straighten out the ear canal. If using foam sleeves, gently compress the foam with your fingers and insert the earphone.

Create a Personal Fit

The sleeves must create a good seal to get the best sound quality. Try the various sleeve size options to find a comfortable fit.

Connect To Listening Devices Carefully

Turn down the volume of your listening device. Connect the plug from your earphones into the device's output jack. Insert earphones into your ears using suggested fit techniques. Slowly raise the volume to a comfortable listening level.

Maintaining Your Earphones

Clean your sleeves periodically. Avoid getting moisture in the nozzle, and do not strike or drop the unit. Clean the nozzles using the wax removal tool when buildup is noticeable.

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Forward

GEEKTECH

Need a Graphics Card? Here's Some Advice

THE GRAPHICS PROCESSING unit (GPU) in modern PCs is responsible for everything you see on screen. Both Windows 7 and Vista, for example, can take advantage of the GPU's 3D-acceleration features to create smooth window movement, transparency, and other effects. A GPU also renders all of the 3D graphics in games, educational titles, and other apps. (For more details, see the full version of this article at find.pcworld.com/63935.) Those reasons make finding the right graphics card for your needs critical. Here are a few things to consider before you buy.

Discrete or integrated? This is probably the biggest question you'll have to answer. Do you go with a discrete graphics board (in either a desktop or a laptop) or integrated graphics? If you want to play games, even just a little, you'll have a better experience with a discrete board.

If you just want to browse the Web and work on some light word processing or e-mail, integrated graphics should be enough. Intel's offerings aren't as good as ATI's or nVidia's; if you care about video quality (say, for viewing DVDs or downloaded video), get an ATI or nVidia chip. And if laptop battery life is your top concern, go with integrated graphics, or at least buy a notebook with "hybrid" or "switchable" graphics that use an integrated GPU to save power, but can change to a discrete board for improved performance in games.

How much should I spend? As a rule of thumb, don't spend less than \$100. Boards in the \$99-to-\$149 range offer a lot of bang for the buck and can run almost all modern games well. At prices lower than that, the performance drops rapidly—if you buy such a board, you'll just need to upgrade sooner.

If you're a gamer, look for cards priced at \$179 to \$229, which offer great performance. You don't need to spend more than that if you're reading this article;

A graphics processor has a huge impact on your computing experience. Follow our tips to pick the right board or integrated GPU.

high-end boards are for hard-core graphics fans who don't require basic advice.

How much memory do I need? You'll see a lot of cheap boards with 1GB of memory. But cards in the \$100 range that have more than 512MB don't offer much extra benefit; a faster GPU chip on the card is more important. In the \$149-and-up range, however, pick a card with 1GB of RAM. If you choose integrated graphics, that technology will use system memory and you don't need to think about it (but this memory sharing is one of the reasons integrated GPUs are so slow).

Recommended Picks

Which board is for you? Here are some suggestions (current at the time of writing): Among low-cost options, consider

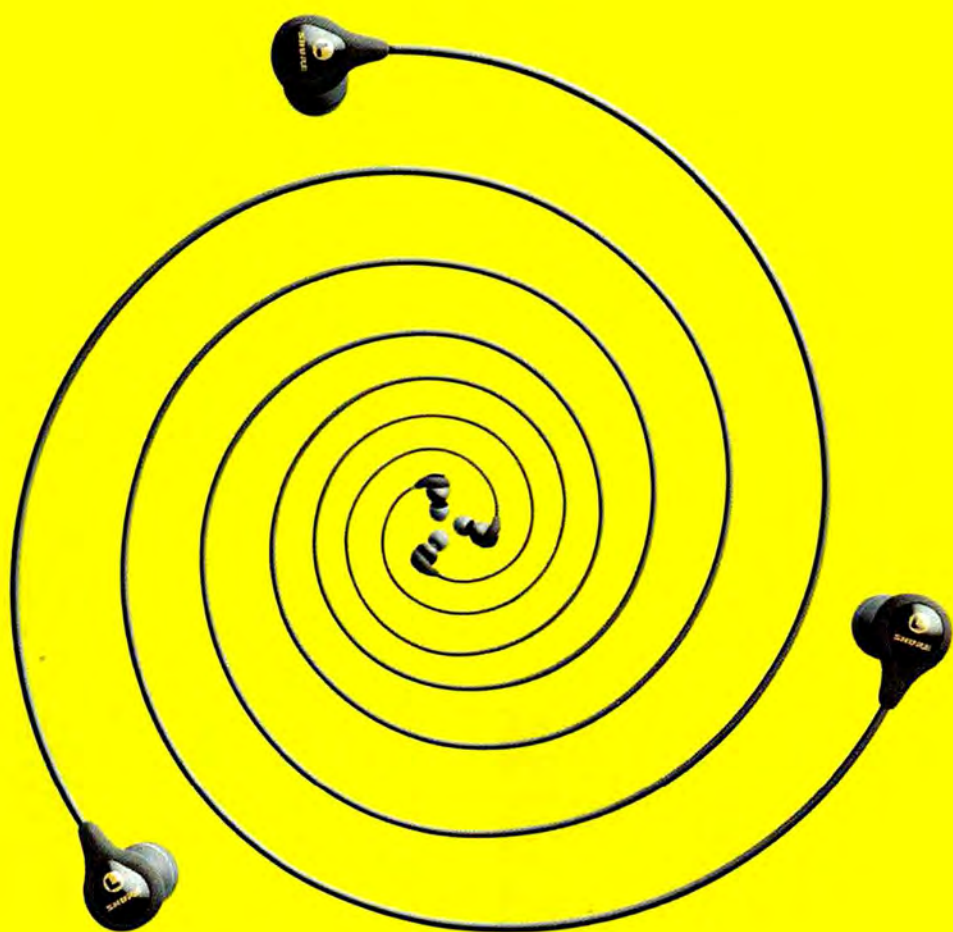


ATI'S RADEON HD 5850 board is a top choice.

the ATI Radeon HD 4850 or nVidia GeForce GTS 250. If you're an enthusiast, try the Radeon HD 4890 or GeForce GTX 275. And for top results, there's no substitute for ATI's DirectX 11 cards, the Radeon HD 5850 and 5870, which offer unmatched performance and features.

—Jason Cross

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Hot Holiday Handsets

Whether you're shopping for someone on your gift list or looking to treat yourself to a phone, here are the most promising models of the season.



Samsung Moment (Sprint)

The 3.2-inch AMOLED display of the Android-based Moment (\$180 with a two-year contract) offers bright and accurate color, smooth animation, and crisp details during video playback. Its wide viewing angle will let you view distortion-free video, even when you put the phone on a flat surface.



HTC Tilt 2 (AT&T)

The Windows Mobile 6.5-based Tilt 2 (\$300 with a two-year contract) has a terrific full-QWERTY keyboard. Other perks include a 3.6-inch widescreen WVGA display, dual speakers and microphones for extra noise cancellation, and HTC Straight Talk for conference calling.

HTC Pure (AT&T)

The sophisticated HTC Pure (\$150 with a two-year contract) has only a few physical buttons. A gorgeous 3.2-inch WVGA touchscreen dominates the face. The Pure runs Windows Mobile 6.5 with HTC's TouchFLO 3D overlay, and its 5-megapixel camera snaps great-looking images both indoors and out.



Samsung Behold II (T-Mobile)

Sporting a 3.2-inch AMOLED screen, the Behold II (pricing and availability not yet announced) has a slick-looking cube menu with shortcuts to multimedia. The Android-based phone provides Samsung's Touch Wiz interface, Wi-Fi, and a 5-megapixel camera with autofocus and a flash.



HTC Imagio (Verizon)

Offering a 3.6-inch touch display, the Imagio (\$200 with a two-year contract) is an attractive handset. It's Verizon's first smartphone to support the V Cast video and music services, as well as V Cast Mobile TV. This Windows Mobile 6.5 phone also comes loaded with assorted business-focused features.



Motorola Cliq (T-Mobile)

The Cliq (\$200 with a two-year contract) has both a keyboard and a touchscreen. It's the first model from Motorola to showcase Motoblur, the company's skin for Android. Motoblur has a lot of cool features, such as a Happenings widget that gives you instant access to your social networks from the home screen. —Ginny Mies ●



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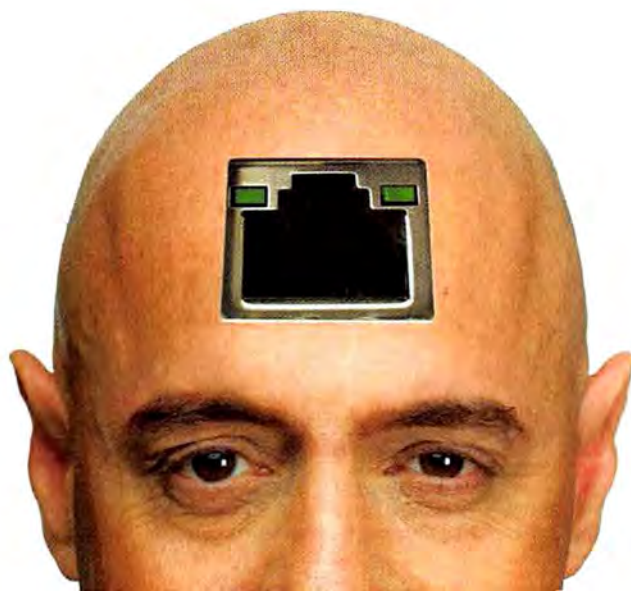


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Consumer Watch

Five Ways Wireless Carriers Try to Gouge You

BY YARDENA ARAR

ARE YOU PAYING too much for your cell phone and services? Even if you stick to your monthly allocation of minutes and messages, you might be paying more than you have to.

The only way to tell is to take a cold, hard look at your plan, and how you actually use it.

Here are five ways your carrier might be milking you for extra bucks—and what you can do to stop it. Also, check out the “Sneaky Fees” feature on page 99 for more tips on how to fight unwanted charges.

Texting fees: I’ve never understood why these are broken out from the data plan, but that’s the reality. Two obvious possible overcharging scenarios: Either you’re not using anything close to the number of messages that your plan allows, or your carrier is hitting you with overage charges because you underestimated how often you’d use text messaging. If you’re sending tons of one-word messages, you’re building up your monthly message count with a lot of empty air. Try to send fewer messages that actually say something—you might find that you really don’t need an unlimited plan.

On the other hand, if text messaging is the communications medium of choice in your circle, then perhaps it’s time to move up to a plan that includes unlimited texting. While you’re at it, look at your voice plan—if you’re doing all that texting, maybe you don’t need so many voice minutes.

The two-year contract: iPhone lovers can skip this section (since no one can buy an iPhone without signing a two-year

contract). To everyone else: Consider how much value you’re getting on a new phone when you sign that deal with the wireless-telco devil—you’re making a two-year commitment in exchange for a couple hundred dollars’ savings on the handset of your dreams. Are you sure you’re going to want that handset at the end of one year, much less two?

The solution, of course, is either to choose a shorter contract (shop for one that offers prorated handset subsidies) or to avoid a contract completely and pay top dollar for an unlocked handset. You might also want to look at some of the prepaid services, which are starting to offer some very slick handsets; with a prepaid service, be sure to check out its area of coverage first.

If you’re trying to get out of an existing contract, note that carriers will prorate it based on how long you stuck with the company. Learn about a carrier’s early-departure policy before you sign up.

Overseas calling charges: An AT&T or T-Mobile handset can accompany you to Europe and other regions that support GSM/GPRS smartphones. But if you don’t plan ahead, you’re

likely to be blindsided by a huge bill for roaming charges.

AT&T customers can bring down their rates for voice calls by paying \$6 a month for the company’s World Traveler Service. Voice calls overseas vary in price, but AT&T normally charges \$1.29 per minute for calls made to and from France, whereas its World Traveler subscribers pay 99 cents a minute.

One tip to minimize voice roaming charges: Power down your handset, or put it into airplane mode, when you can’t >>

Carriers are notorious for slapping consumers with unexpected fees. But a few simple tricks can help you keep your monthly bill down.



See page 28 on how Microsoft subsidiary Danger lost Sidekick users’ data. The data is returning (find.pcworld.com/63941), but victims have yet to learn exactly what happened (find.pcworld.com/63942).



SKEPTICAL SHOPPER GINNY MIES

pick up calls. Once an incoming call hits the overseas network in pursuit of your handset, you'll be charged at overseas rates even if the caller just winds up leaving voicemail. In fact, you could incur a double charge: When the unanswered call bounces back to voicemail in the States, the overseas carrier may charge for sending the call back. But if the network can't find your phone, the call will go straight to voicemail, incurring no foreign roaming charges.

Making calls using Skype or another Voice-over-IP service can save you money if you can find a Wi-Fi network.

Overseas data charges: Unlimited data plans from U.S. carriers don't apply to data services on overseas networks: AT&T's basic charge for international data roaming is 1.95 cents per kilobyte of data sent or received. That's (almost) a whopping \$20 per megabyte!

Fortunately, AT&T offers international data roaming packages that, while still expensive, significantly undercut the pay-as-you-go rate. Consider buying one before you leave if you plan to use your smartphone for e-mail and Web browsing. The packages range in price from \$25 for 20MB to \$200 for 200MB—and even if you exceed your allotment, the overage rate of half a cent per kilobyte is still cheaper than the usual rate of 1.95 cents.

iPhone users who want to keep an eye on data use while roaming should go to *Settings*•*General*•*Usage* and look under Cellular Network Data. Do this when you first arrive at your overseas destination, and you can reset all the stats to start tracking your use from then on.

The fine print: When was the last time you scrutinized your phone bill? This exercise can help you see if your usage is in line with your plan. You might find, for example, that you're not even close to using the number of minutes you pay for. Also, look carefully for little charges at the end for things you never wanted. A few years ago, a lot of people complained about unsolicited roadside-assistance service charges; who knows what other charges lurk in the bill?

Get the Most Out of Black Friday Bargains

THE WORDS "Black Friday"—referring to the day after Thanksgiving—can trigger different emotions in

people: excitement, fear, anxiety, or just plain indifference. But with our shopping tips and some planning, you should find this year's bargain bonanza a breeze.

Prepare Your Shopping List

First, you need to know what to look for. According to Dealnews.com CEO Dan de Grandpre, this year's best deals will be found on low-end netbooks, 15- or 16-inch laptops, Blu-ray players, HDTVs of various sizes, external hard drives, and brand-name LCD monitors.

Be aware of trade-offs, however: Bargain products likely won't have the specs and performance of more expensive models. Though de Grandpre predicts that some 15- or 16-inch laptops will hit stores for under \$300, don't count on such a machine having a powerful processor or a lot of memory. If you're looking for a secondary computer, however, that would be a great deal.

Black Friday and the holidays are the time to buy a new TV. De Grandpre advises shoppers to look for budget 46- to 47-inch 1080p LCD sets on Black Friday; prices are about 25 percent lower than a year ago. For a discounted high-end set, however, wait until a few weeks before Christmas. Retailers generally don't put higher-end products on sale during Black Friday because they know customers are looking for the cheapest products possible.

The Web Is Your Friend

Getting up at 4 a.m. and waiting in line is no longer your only option for the big day, as many sales will be online. Be aware, however, that the best deals might be in

Scoring the best tech buys on the biggest shopping day of the year requires a little preparation and research.

the weeks leading up to Black Friday or just afterward on Cyber Monday.

To get an inside scoop on when deals will hit stores, visit dedicated Web sites such as BlackFriday.info, Dealnews.com, FatWallet.com, and GottaDeal.com, and check them frequently up until the big day. Many of these sites have newsletters or RSS feeds you can subscribe to.

BFAds.net archives Black Friday ads back to 2004 and organizes them by store. It's a great tool for seeing historically how much certain products

have dropped in price. You can use that information as a guideline for this year's sales.

With all these sites, however, use some caution. So-called "leaked" Black Friday ads that sometimes show up on them may be inaccurate or incomplete, so don't jump the gun on those purported bargains.

How to Tackle the Mall

If you decide to brave the brick-and-mortar stores, go to sleep early on Thanksgiving night so that you can hit the stores first thing in the morning. Double up with a family member or friend to divide and conquer larger stores, and communicate via text messages on what deals are where. Look for unannounced discounts; in previous years, stores haven't advertised every product that's on sale.

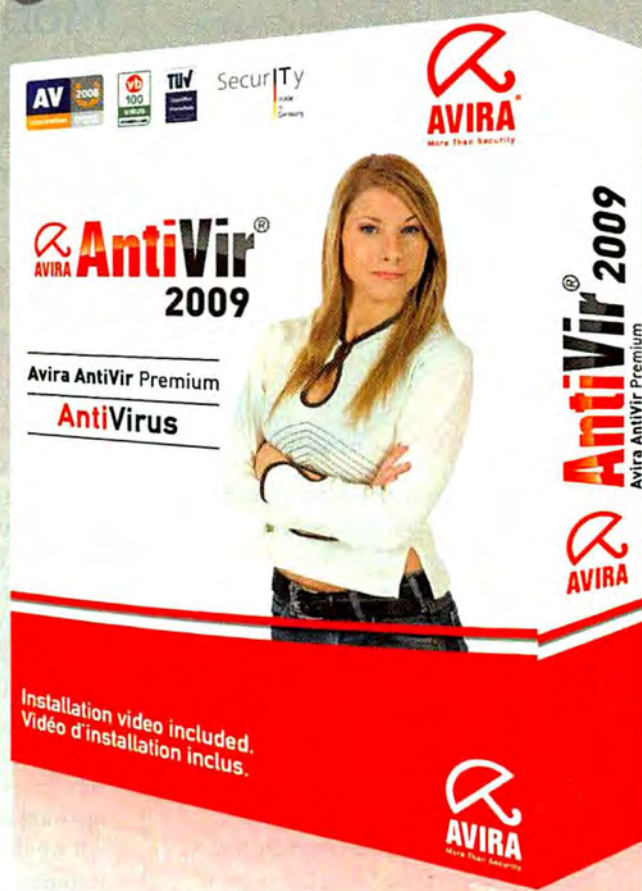
Final word: Resist the temptation to sweep something up just because the vendor says it's a good deal. It doesn't matter how much you saved on a dud. Know what you want, do your research, and you'll survive the experience stress-free. And have a cool new toy or two.





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ON YOUR SIDE

MARLA MIYASHIRO



MY DAUGHTER CARLEY called Hewlett-Packard for a free replacement part for her HP Pavilion dv6700 laptop, which was still under warranty. The HP representative told her that she had to give a debit or credit card number to ensure processing of the shipment. Despite the rep's assurances that her account would not be charged, HP debited \$69.15, which overdrawed her account. We called HP the next day and faxed copies of the receipt showing that the laptop was under warranty. HP says that it will refund the charge for the replacement part, but won't do anything about the bank's service charges, now \$143. Can you help us?

Sue Waser, Cherry Valley, Illinois

OYS responds: Shortly after we contacted HP about the Wasers' issue, a representative called them to say that the company would be sending Carley Waser a check for the \$143 in bank service charges. He also offered an additional rebate to use in a future purchase of an HP computer.

HP's records showed the laptop's date of manufacture rather than the date of purchase, meaning that the company mistakenly thought the warranty had expired. Fortunately for the Wasers, they had saved the original receipt.

We recommend keeping receipts and service contracts for major purchases for as long as you own the item. You might need the papers to make a return or an exchange, or to have repairs done or parts replaced (especially if the product is under warranty); you may also need to refer to those records for income tax or property insurance purposes.

One easy way to keep track of receipts for big-ticket items is to tape them inside the user manual for each product.

Mystery Cable

Keith Sipperley of Levering, Michigan, contacted us after discovering that he was unable to connect his new Fujifilm FinePix Z30 digital camera to his TV set. The FinePix user manual shows an optional audio/video (A/V) cable that would allow such a connection.

Sipperley asked representatives in Fujifilm's accessory, parts, and customer service departments about the A/V cable, but no one could help him. After we contacted Fujifilm, a rep checked into the issue and learned that the separately



sold cable was out of stock. She was, however, able to find one at her office, and she sent it to Sipperley for free.

If you're counting on a product to perform a particular function, we recommend that you find out before buying whether you'll need a separately sold accessory and if you can easily obtain it.

Wal-Mart Durabrand DVD Player Recall

Wal-Mart, in cooperation with the U.S. Consumer Product Safety Commission, is recalling about 4.2 million Durabrand DVD players. The units' circuit board can overheat, posing a fire and burn hazard.

Wal-Mart has received 14 reports of DVD players overheating; in 7 of the reported cases, resulting fires caused property damage. As of this writing, no injuries have been reported. Consumers should immediately stop using the recalled DVD players and return them to the nearest Wal-Mart store for a full refund. For more information, visit the company's Web site at walmartstores.com or call Wal-Mart at 800/925-6278.



Sidekick Fiasco Shows Need for Mobile Backups

AN APPARENTLY MASSIVE loss of personal data that Sidekick users in the United States recently suffered (find.pcworld.com/63939) shows how important data on mobile phones has become.

A service disruption in early October at Sidekick provider Danger (a Microsoft subsidiary) caused the company to lose customers' data; Microsoft was able to restore the data a few days later.

While the company was at fault, few people take precautions to protect the data stored on their own phones, notes Nick Jones, vice president at market research firm Gartner. "You really have to treat a smartphone as a PC, and you have to be prepared to back up the information on a regular basis," Jones says.

Both mobile phone manufacturers and carriers have seen the need for backup services, and they have accordingly started to offer a number of such services—but users have largely been ignoring them, according to Jones.

It would help if mobile phone manufacturers started to build better PC connectivity, observes Carolina Milanesi, research director at Gartner. A lot of people don't back up their data because it is too cumbersome, she says.

One catch to mobile backup services: They may become a way for carriers and mobile phone vendors to retain their users and increase loyalty, according to CCS Insight's Paolo Pescatore. Once a user stores a tremendous amount of information with a particular carrier, that user may find it hard to move to another carrier, he points out.

—Mikael Ricknäs ●

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Business Center

Build a Social Network for Your Business

The Ning social media platform can help you create a community hub for your customers.

BY ZACK STERN

UPGRADE FROM THE break-room bulletin board and one-way customer e-mail lists—your business can take advantage of its own Facebook-like social network. You might try Facebook itself, of course, but the clash of business and personal communications could leave your vacation photos mingling with company news, and could lead to goofing off on company time. Instead, turn to a social network platform to make your own site. Many services offer functionality similar to that of Facebook; but here I'll focus on Ning, which has been established for a few years and offers customization tools that can make your site behave almost any way you want.

Within your company, you could rely on a Ning social network to maintain schedules for anything from managing projects to organizing an office softball team. Calendar tools, blog-style posts, comments, and other systems could help connect people. You could post photos and videos to recap events. You could also use Ning to collaborate, updating everyone on a project's status, leaving ideas about new goals,



NING LETS YOU choose which features to add to your social network; you can place the elements by dragging them to any position.

recapping meetings, and otherwise keeping the office in sync. Best of all, nearly anyone can run the setup process, so you won't have to waste tech or design resources.

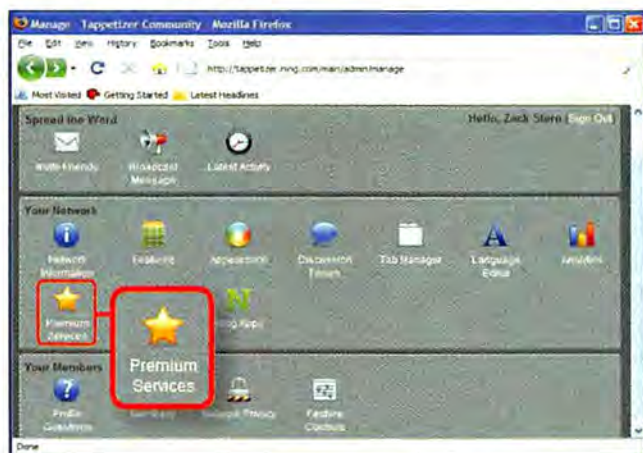
But Ning is especially powerful for building a space in which to interact with customers. Think of it as a companion to your company's Website. Your Ning social network can live at its own URL, as in *mycompany.ning.com*, or you can integrate it as a subdomain of your site, as in *community.mycompany.com*.

Using Ning's Basic Features

Ning's core functionality is free; you can create a site with a *mycompany.ning.com* URL in minutes. Such sites should be fine for most intra-office situations.

For customizations, you need to pay a monthly fee. Removing Ning's ads costs \$25 per month (you could replace them with your own, if you want to); using a custom domain name is \$5 a month; and removing all Ning branding from your site costs \$25 a month. A free account includes 10GB of storage and 100GB of bandwidth per month, but you can pay \$10 a month to double both capacities. (And each \$10 you pay after that adds another 10GB and 100GB per month.)

To get started, visit Ning.com and walk through the



WITHIN NING'S MANAGE screen, you can alter settings. Click Premium Services, for example, to map your network to a custom domain.

For more practical advice on putting the power of microblogging and social networks to work for your business, point your browser to "Nine Twitter Tips for Business" at find.pcworld.com/63949.



NET WORK MICHAEL SCALISI

prompts to set up your site. Enter a name for the network and a URL prefix (the *mycompany* in *mycompany.ning.com*). Click *Create*, and the screen will prompt you to either sign in to an existing Ning account or create a new one.

On the Describe page, enter a succinct tagline, a description, and keywords. Use these fields, especially the keywords, to help people find your network; consider using product names or other popular terms that relate to your site. Use the radio buttons to make the network public or private. Click *Next*.

Adding Features

On the Features page, click *View all features*. Each module represents a feature for your network, such as blogging, video posts, and an event calendar. Drag them into your layout, and order them within the columns. To remove items, drag them out, to the left. Click a question-mark icon to get a description of that function. Click *Next*.

On the Customize Appearance screen, pick a template, and then scroll down to make further changes. You can swap in colors and fonts as you go; it's a good idea to match them to the look of your company's existing Web site. Click *All Options* to customize even more and to upload your own images. If you know how to manage CSS, click *Advanced* to import or change the style sheet, which gives you complete control over your site's appearance and layout. Click *Launch* when you're satisfied.

After building your social network site, you can return at any time to make updates. Visit your site page—log in if needed—and click the *Manage* link. You can adjust the site features, layout, and other aspects. For example, be sure to click *Manage•Network Information* to find the prompt to upload a network logo to overwrite the generic Ning one.

For more tips, including advice on importing addresses and inviting participants to your network, using a custom domain, taking advantage of Ning Apps, and fighting comment spam, browse to find.pcworld.com/63956.

Guard Your Network With a Free Firewall

IF YOU EVER find yourself in need of a decently robust and full-featured firewall but your budget is approaching zero, I have just the solution for you.

SmoothWall Express 3.0 is an open-source, security-hardened GNU/Linux firewall. With minimal hardware requirements and a small footprint, it should work with nearly any Pentium-class PC that has at least 128MB of RAM and a hard disk of 2GB or greater. You should have at least two network cards installed for basic use—three or more if you want to incorporate a wireless network or to have a DMZ (a demilitarized zone, or a host that serves as a buffer

between your private network and the outside). Keep in mind, though, that your firewall's reliability is limited by the hardware on which you install it.

Installing SmoothWall

Don't worry if you don't know much about Linux. Though the geeky can get down and dirty at the command line, SmoothWall is easy to install and configure. It's meant to be managed via an integrated Web interface, as well. To install, first download the 81MB ISO file at find.pcworld.com/63892 and burn it to a CD. If you need disk-burning software, try ImgBurn (find.pcworld.com/61194).

Boot to the CD and run the installer, which will wipe the hard disk before it installs. Accepting the installer's defaults is a good start. The first "hard" question involves the security policy for outgoing requests. The default is Half-Open, which permits outgoing traffic except for any that is potentially harmful. You may also choose Open, which doesn't limit outgoing traffic, or Closed, which requires that you configure what traffic is permitted.

Need robust protection on a nonexistent budget? Try this open-source option.

You then need to configure your network interfaces, which will be labeled Green, Red, Orange, or Purple. The Green interface is your trusted LAN. Red is the evil and dangerous Internet. Orange is your DMZ, and Purple is your wireless LAN.

Next you select which network card to assign to each role. SmoothWall will

probe for and detect most cards. You'll need to specify IP configuration, and optionally the DNS and gateway settings. You may also configure Web proxy, ISDN, ADSL, and DHCP. Lastly, you need to set a Web-interface password and a root

password for command-line access.

You're done with setup. From here you can leave your "Smoothie" as is, and it behaves as a fully functional firewall. However, you can configure the most in-depth features only through the Web interface. Point your browser to <https://SmoothWallGreenAddress:441> and enter the admin password you made earlier.

For a free product, SmoothWall is remarkably full featured, including proxy servers, IDS, logging, traffic graphs, DHCP, VPN, dynamic DNS, port forwarding, server health, and access control. It also provides an interface for backing up and restoring your configuration, so when your Pentium II PC kicks the bucket, you can get SmoothWall up and running again.

SmoothWall Express is limited to a single CPU and 1GB of RAM, but that's not likely to be an issue for even a network with a couple hundred users. The real limitation is the lack of support: While you can consult the robust user community, you're mostly on your own. Of course, the commercial arm of SmoothWall sells paid and supported products, too.



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TECH AUDIT

Nonprofit Overhaul Assists Families of Ill Children

IN RECENT YEARS, Ronald McDonald House Charities of Memphis (www.rmhmempis.org) has experienced its share of technological growing pains. The business staff of ten serves the families of children receiving medical treatment for cancer and other serious illnesses by providing a home away from home while the children receive treatment at the local St. Jude's Children's Hospital.

To help visiting families keep in touch with family and friends back home during their time of need, the Ronald McDonald House desperately wanted to upgrade both its computers and its network. Executive Director Caron Byrd turned to my team at GHT Technology Group for assistance.

Outdated Equipment

Before we stepped in, the charity had offered to its guests a small number of shared computers in a common area. These aging Windows 98 systems provided an essential link to loved ones via Web-based e-mail, but they performed sluggishly and required frequent maintenance. Increasingly, families had begun bringing their own laptops along, but the facility's data network was inadequate to handle the guest PCs.

Ronald McDonald House needed a manageable way to distribute Internet connectivity across an entire campus of users so that the families of patients could take their own personal laptops anywhere in the facility and access their e-mail, chat, browse the Web—whatever they wanted to do—in a secure and dependable wireless environment. To make that happen, we focused on upgrading the heart of the charity's network.

The facility's existing network consisted of a Bluesocket BSC-400 Wireless Controller linked to 11 Proxim AP-700 access points through four Cisco Catalyst switches. This aging controller was an obstacle to fulfilling the client's needs because it clearly wasn't up

Memphis-based IT pros give Ronald McDonald House Charities an extreme-tech makeover.

FIFTEEN CISCO AIRONET 1200 access points ensure reliable wireless connections throughout the Ronald McDonald House facility.



to the task of securely allowing guest families to connect to the network and access the Web services they required.

We replaced the BSC-400 with a new, more powerful Bluesocket BSC-2200 Bluesecure Controller and connected it to 15 Cisco Aironet 1200 Series wireless access points, significantly improving wireless reception throughout the facility. We then redeployed the Cisco Catalyst switches to segregate the wireless network from the wired network, keeping the charity's mission-critical internal systems safely separated from the PCs of its guests.

Managing Guest Access

To further secure the network, the Bluesocket BSC-2200 allows us to create and define user roles for guests and administrative personnel, to define Internet access security, and to control the settings of all of the access points. It also permits a designated network user to manage the guest access through a simple utility on their own computer.

Finally, we scrapped the outdated Windows 98 computers in the lobby and replaced them with three Windows XP-based Dell workstations, which we connected to the wireless network. This setup allows families who do not have their own laptops to safely enjoy round-the-clock Internet access.

Parents and other relatives of the kids at the childhood cancer institute depend on their laptops and Internet connectivity to stay in contact with the family members they've left back home. The consolidated wireless management system that we installed provides secure and easy-to-use wireless technology to everyone who visits the Ronald McDonald House facility.

—Bill Thorsberg, GHT Technology Group

MEET THE PROS

GHT Technology Group

MEMPHIS-BASED GHT TECHNOLOGY Group was founded in 2004 by three former IT managers. Partners Rozell Henderson and Bill Thorsberg worked as systems managers, network administrators, and IT directors—as well as in every sort of IT position over 20 years' time—gaining hands-on experience in all aspects of information technology management and operations. Contact them at 901/373-4058 or via their Web site at www.ghattlc.com.

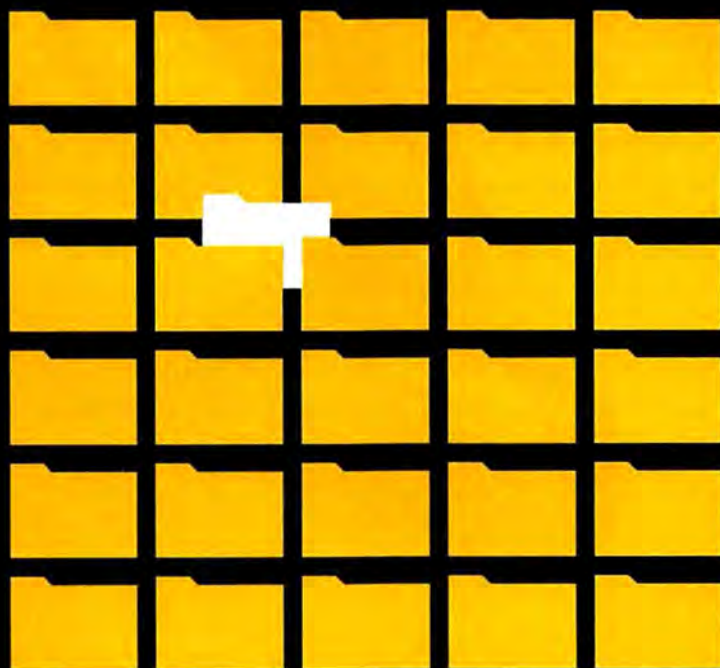
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Security Alert

Phishers Dangle Some Brand-New Bait

BY ROBERT VAMOSI

IN SEPTEMBER 2009, some unlucky visitors at the New York Times Web site clicked on an ad that attempted to install malware. The advertisement displayed a popup window informing readers that their computer might be infected with a virus; only by purchasing a new anti-virus product could they be sure of having a clean system.

The Times later acknowledged the scam in a posting on its Web site: "Some NYTimes.com readers have seen a pop-up box warning them about a virus and directing them to a site that claims to offer antivirus software....If you see such a warning, we suggest that you not click on it. Instead, quit and restart your Web browser." Phishers and scammers use this and other new tactics to deceive unsuspecting victims.

Phishing 2.0

Phishing refers to an attempt to collect usernames, passwords, and credit card data by posing as a legitimate, trusted party. Often the deception involves using e-mail sent from a trusted address. Originally, *phishing*

applied to the banking and payment industry only, but now it also covers theft of log-in credentials to games, and personal passwords to social networks such as Facebook and Twitter.

Most people wouldn't reveal their social security number or mother's maiden name at a strange site. Modern browsers and security software flag such content and ask you whether you're sure you want to send it; some block it with a red-and-black warning label. So phishers have adopted new tactics.

Fake Antivirus Software an Emerging Problem

Rogue antivirus products are among the latest phishing instruments to appear, and many are quite convincing. Bearing names like Antivirus 2009, AntiVirmin 2009, and AntiSpyware 2009, they have interfaces similar to those of real antivirus apps. Some rogue antivirus products have their own key-

words on search engines and cite fake reviews recommending them (see find.pcworld.com/63915 for one that I supposedly wrote).

The rogue antivirus product that showed up on the New York Times site installed malware that, if executed, would have lowered the security settings in Internet Explorer, run executable files, and altered the system Registry. Such actions by phishing malware are fairly common. The real security apps knew it, too: Legitimate antivirus vendors AVG, Comodo, Kaspersky, McAfee, Microsoft, Nod32, and Sophos, (among others) detected this particular piece of malware within the first few hours.

Customer-Service Fakes

Another phishing gambit is a variation on an old scam: The

crooks mass-mail a seemingly personalized e-mail message, ostensibly from a bank, containing a fake online chat option.

In this "chat-in-the-middle" attack, as soon as the victim enters a user name and password at the designated online site, a chat window opens up and a scammer posing as a customer service rep at the bank requests additional personal information to confirm the identity of the account holder. By providing these details, the victim gives the thief crucial data. »

Just when you thought it was safe to shop or bank online, criminals have invented new ways to steal your personal information.



Floppy disks may be obsolete, but you can give your old floppies new life by using them as a convenient, inexpensive, and portable way to store your passwords. Learn how at find.pcworld.com/63916.

Small Potatoes

Roger Thompson, chief research officer at AVG, says rogue antivirus products are common: "The bad guys are clearly making money at it." Besides benefiting up front by selling the rogue antivirus product, they collect credit card information for future identity fraud.

Jon Miller, director of Accuvant Labs, a security consulting firm that works with Fortune 500 companies and several U.S. government contractors, says that the New York Times incident isn't unusual. Further, he notes that he has seen an upsurge in the use of malware tailored to customers of particular banks and other financial institutions.

Protect Yourself

AVG makes a free product called Link-scanner (find.pcworld.com/63911) that blocks new phishing attacks, yet allows users to safely view any site. For phishing attacks such as fake chat sessions and fake keywords, AVG's Thompson says, users need to develop a healthy dose of skepticism, and learn how to kill the browser using Task Manager. That won't stop Web-based exploits, but it will give you a way to defeat social engineering attacks.

Accuvant's Miller recommends several common-sense antiphishing strategies:

- Use a strong browser. According to Miller, Internet Explorer is the weakest browser, while Firefox and Google Chrome are relatively strong.
- Use a malware-resistant platform such as Mac OS or Linux. Though neither is impervious to attack, each is less likely to be targeted than the mainstream Windows operating system.
- Use antimalware software; Miller says that his program of choice is Web-root Internet Security Essentials.
- Update your software promptly and regularly, but don't depend on updates as the sole way to guarantee your system's security. As Miller observes, "malware tends to be ahead of the curve."
- Be cautious and vigilant when using high-profile social networking sites such as Facebook and Twitter.

BUGS & FIXES

ERIK LARKIN

Stymie Malicious Media, Network Attacks

ESSENTIAL OS fixes are big this month. And fans of free software need to update their Firefox and OpenOffice copies.

Apple's QuickTime 7.6.4 update revises the program's handling of .fpx, .mov, and .mp4 files on Windows XP, Vista, or 7, or Mac OS X (not Snow Leopard). In QuickTime, click *Help•Update Existing Software* to ensure that you have version 7.6.4 (for details, see find.pcworld.com/63917).

Microsoft's patch plugs a security hole in the way Windows 2000, XP, Server 2003, Vista, and Server 2008 (but not Windows 7) process .asf or .mp3 media files. Microsoft's bulletin (find.pcworld.com/63918) lists many vulnerable combinations of Windows Media Format Runtime and OS versions; run Windows Update to confirm you have the fix.

Network Flaws

Windows Vista and Server 2008 are vulnerable to several network-based security flaws. One, an SMBv2 file-sharing hole could let a remote attacker take over a machine. Microsoft hasn't yet released a patch, but at find.pcworld.com/63919 the company has posted a "Fix It" for disabling SMBv2. File sharing should work, but it may be slow.

Microsoft did patch a flaw that malicious TCP/IP packets sent across a network might exploit. On Vista and Server 2008, that could mean a full takeover; on Windows 2000, Server 2003, and XP, a system crash is likelier. Microsoft won't release a patch for Windows 2000 (see find.pcworld.com/63920) or XP (which by default doesn't accept the perilous packets).

A network problem in the Wireless LAN AutoConfig Service (find.pcworld.com/63921) could let remote attackers "own" vulnerable Vista or Server 2008 systems. PCs that lack wireless cards or run other Windows versions are safe. A firewall will help block such Web-based assaults.

Fix media-file flaws on PCs and Macs, and block Vista network attacks.

Two more Microsoft patches correct critical flaws that might let code hidden on a Web page run commands on a vulnerable PC. One, in the JScript Scripting Engine (find.pcworld.com/63922), affects Windows 2000, XP, Server 2003, Vista, and Server 2008. The other involves the DHTML Editing Component ActiveX control (find.pcworld.com/63923), and is critical for Windows XP and 2000 only. Windows Update has both fixes, as usual.

Fixes for Free Software

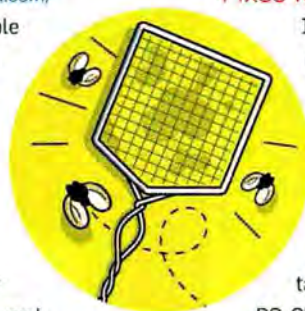
If you use the OpenOffice productivity suite, update to version 3.1.1 or later to avoid a critical problem in how OpenOffice handles Microsoft Word documents. If you open a tainted .doc file, an attacker could take over your PC. Click *Help•Check for Updates*

to see whether you have the latest version (read more at find.pcworld.com/63924).

Firefox versions 3.5.3 and 3.0.14 correct three critical flaws. Click *Help•Check for Updates*, and see Mozilla's Firefox 3.0 (find.pcworld.com/63925) and 3.5 (find.pcworld.com/63926) security advisories.

Firefox 3.0 and 3.5 include a security feature that warns you to update Flash if your version is vulnerable; they also provide a link to the Flash download site.

If you use Mac OS X versions 10.4 through 10.5.8, fire up Software Update to pick up Security Update 2009-005, which fixes image file, PDF file, or Web site holes (see find.pcworld.com/63929).



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Banking Trojan Horse Hides Its Money Mules

TROJAN HORSES SUCH as Zeus and Clampi have been emptying bank accounts for years, but a devious new program tries to deceive investigators about where the money is going.

First uncovered by Finjan Software, the URLzone Trojan horse rewrites bank pages so that victims don't know their accounts have been emptied. Its sophisticated command-and-control interface lets the bad guys preset the percentage of the account balance to remove.

RSA Security researchers say that URLzone uses several techniques to spot machines run by crime investigators. Researchers typically create programs that mimic the behavior of real Trojan horses. When URLzone identifies one of these, it sends it bogus information, says Aviv Raff, RSA Security's Fraud-Action research lab manager.

Security experts have long published research on the inner workings of malicious computer programs such as URLzone, according to Raff. "Now the other side knows that they are being watched, and they're acting," he says.

When URLzone spots a researcher's program, rather than just disconnecting from the researcher's computer, the server instructs it to transfer money—but not to one of the mules recruited to move cash overseas. Instead, it chooses an innocent victim—typically someone who has received legitimate money transfers from other hacked computers on the network, Raff says.

So far, more than 400 legitimate accounts have been exploited in this way, according to RSA. The idea is to confuse researchers and to prevent discovery of the criminal's real money mules.

According to Finjan, the URLzone Trojan horse infected about 6400 computer users last September, clearing about \$17,500 a day during that month.

—Robert McMillan

PRIVACY WATCH ERIK LARKIN



Are Flash Cookies Devouring Your Privacy?

EVEN IF YOU delete normal tracking cookies regularly to evade tracking by snooping sites and eager

advertisers, little-known Flash cookies may be making an end run around your attempts to preserve your privacy.

Flash cookies (also known as *local shared objects* or *LSOs*) can save certain Adobe Flash-related settings—storing preferences for watching Flash video on a certain site, for example, or caching a music file for better playback.

But Flash cookies can also store unique identifiers that track the sites you visit,

much as regular tracking cookies do. Deleting the regular cookies on your machine via a standard browser option such as Clear Private Data•Cookies (in Firefox) or Tools•Delete Browsing History•Delete cookies... (in Internet

Explorer) doesn't affect Flash cookies, which are stored elsewhere on your PC.

Flash Cookie Research

A recent study (find.pcworld.com/63930) of Flash cookies and their use reports that even the private browsing modes in the latest browsers won't hamper LSOs.

Students and researchers at the University of California, Berkeley, and at other universities found that a number of sneaky online actors use Flash cookies to re-create regular tracking cookies that users delete. According to the study, more than half of the top 100 Web sites used Flash cookies, and third-party advertisers tended to be behind the underhanded cookie re-creation effort.

If you don't want your privacy preferences to be ignored, you can try a couple of options. If you use Firefox, you can install an add-on called Better Privacy

Small Flash files can track your online movements, and they don't vanish when you delete normal tracking cookies.

(find.pcworld.com/63931) that displays a summary of your current LSOs and lets you arrange to delete Flash and regular cookies automatically whenever you stop or start the browser. It works well for me.

Flash Player Settings Box

If you don't use Firefox, you'll have to dig into the settings box at find.pcworld.com/63932, which lets you change settings for the Flash Player on your system.

If you want your computer to prompt you for permission to proceed whenever a site wishes to store a Flash cookie on the PC, move the Global Storage Settings slider bar all the way to the left (from '100KB' to 'None').

To disable LSOs, check the *Never Ask Again* box (doing so is likely to prevent many sites that use Flash content from working correctly).

Likewise, unchecking the 'Allow third-party Flash content...' option could prevent advertisers from storing Flash cookies on your PC, but it may also prevent Flash video from working correctly on some sites (including 9 out of the 100 sites in the research report).

To delete all existing Flash cookies—good or bad—click the *Website Storage Settings* tab at the far left of the Flash settings interface, and click the *Delete all sites* button at the tab's base. To delete them individually, highlight an entry and click *Delete website*.

Altering these settings once will cover any browser on that PC, according to Adobe. Longer term, the company is looking into allowing Flash cookie controls from the browser menu itself. ●



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Making Mobile Devices Good

Good for Enterprise 6.0 provides enterprise-class security and management for consumer handhelds

From the iPhone to the Android to the Palm Pre, mobile devices are infiltrating the enterprise. Employees expect anytime, anywhere access to corporate applications, data and each other over these popular handhelds. But until now, IT organizations concerned with network security have had to say no – putting a damper on productivity and collaboration.

In a recent report titled "The Device Dilemma," commissioned by Good Technology, more than 40% of IT decision makers at large companies in the U.S. and U.K. reported that they would allow users to choose their own devices if they could be assured of security and configuration. But that same report revealed that 28% of enterprises have already experienced security breaches due to employees bringing unauthorized devices into the workplace. Therefore, they have considered the risk too great to support enterprise use* of these devices.

Now, with Good for Enterprise 6.0, users gain the collaboration and productivity benefits that mobility offers without increased risk or resource drain to your organization. Companies, government agencies, and individuals can extend secure and easy-to-manage access to their assets and applications without fear of device theft or data leakage.

FAST FACT

80%

of large companies in the U.S. and U.K. report an increase in the number of employees wanting to bring their own devices, including the iPhone, into the workplace in the past six to 12 months.

Source: "The Device Dilemma," a report commissioned by Good Technology, Sept. 2009

Here's a look at what you get with the Good for Enterprise platform:

- **Good Mobile Control** provides the highest levels of security and management, including remote wipe capabilities and on-device data encryption. IT can provision, configure and manage all devices from a single, Web-based management console as well as do over-the-air dispatches of updates and patches. The software gives IT real-time visibility into its entire mobile deployment, allowing for centralized policy creation and enforcement.
- **Good Mobile Access** establishes secure and easy-to-use instant mobile access to data, applications and services on hundreds of mobile devices, including the iPhone, Android, Palm Pre, Windows Mobile, and Symbian. Users can connect to corporate instant messaging such as Lotus Sametime and Microsoft Office Communicator, corporate intranets and portals like Microsoft SharePoint, and other horizontal and vertical applications. Also, because Good leverages industry-standard protocols, proprietary SDK development isn't required to develop and deploy mobile applications.
- **Good Mobile Messaging** features personalized messaging options that enable business users to get things done more easily. For instance, users can employ voice-activated dialing when the device is password protected, share RSS news feeds with the integrated Good Mobile News feature, and schedule e-mail synchronization intervals to improve battery life.

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Reviews & Rankings

The E-Book Explosion

As consumer interest in e-book readers approaches critical mass, the number of high-quality models available is mushrooming.

THE E-BOOK universe is expanding rapidly. Amazon's Kindles still offer the ultimate in wireless-transfer convenience, but other readers and e-book resellers are starting to compete on price and content—including hundreds of thousands of free books Amazon doesn't offer.

E-books have numerous benefits. Eliminating paper saves resources. E-book readers take up little room in travelers' backpacks and purses, while storing the equivalent of a whole bookshelf. You don't have to go anywhere to buy or borrow an e-book title. For the vision-impaired, the ability to adjust font size can make the difference between being able to read a book and having to hope for an audio version. Some readers dou-

ble as music players, and some even read books aloud.

Unfortunately, the world of e-books is Balkanized, with multiple incompatible file formats and digital rights management (DRM) technologies, and devices with varying support for both. Books in the public domain are widely available in PDF and other standard formats. But copyrighted material is another story. Amazon's current Kindles can obtain commercial e-books in Amazon's AZW file format via wireless download only in the United States (in early October, however, the company announced a Kindle capable of downloading content in most countries).

Meanwhile, Sony, which



produces some of the classiest e-book readers around, is abandoning its proprietary BBEB e-book file format and shifting protected content in its e-book store to Adobe ePub, an e-book file format that book publishers and resellers have widely embraced. Whereas Adobe's PDF reproduces a fixed image of a page, ePub permits reflowing of text to accommodate different fonts and font sizes.

Adobe offers a DRM technology called Adobe Content Server 4. Sony and a number of other online bookstores—most notably Borders—sell

A STACK OF e-book readers (top to bottom): Astak's EZReader PocketPro, Sony's Reader Pocket Edition (PRS-300), Sony's Reader Touch Edition (PRS-600), Foxit's eSlick Reader, Interead's Cool-ER, Amazon's Kindle 2, and Amazon's Kindle DX.

commercial titles in ePub/ACS4 format, and some libraries let patrons check out ePub books. As of early October, 17 e-book readers supported ePub and ACS4, making that combination the closest thing the industry has to a standard for DRM-protected books.



58 TOSHIBA DMF82XKU



62 HP ENVY 13



64 APPLE IPOD Nano



69 HP TOUCHSMART 600

Aside from the Amazon Kindles and Foxit's eSlick, all of the e-book readers in this review support ePub/ACS4.

Sony Reader Touch Edition (PRS-600)

Sony's new flagship e-book reader offers something we haven't seen in previous Sony Readers: a touchscreen and stylus for navigating and for creating drawings and handwritten notes. Whether this innovation enhances the e-book experience is open to debate, but the overall quality of the product is not: Except for its lack of wireless connectivity for purchasing books without connecting to a PC, the Touch Edition is a worthy competitor to Amazon's Kindles.

This reader looks like a refined version of Sony's previous reader, with a 6-inch, 8-grayscale E Ink screen framed by a metallic case (available in silver, black, or red). Beneath the display are five thin silvery bar-shaped



THE TOUCH EDITION of the Sony Reader lets you handwritten notes.

buttons for turning pages and accessing menus.

The Touch Edition lets you create text memos (via an on-screen keyboard), listen to unprotected MP3 and AAC music, view images, and set up a slideshow. The MP3 player was the best on any e-book reader I tried, with reasonably strong audio through earphones plugged into the Touch Edition's standard headphone jack. It includes repeat/shuffle options, and you can play the music while you read. The reader comes with a dictionary and lets you annotate your books and documents.

The Touch Edition is a top-notch e-book reader. Though pricey at \$300, it's well designed and feature-rich.

Amazon Kindle DX

The Kindle DX looks surprisingly lean and elegant. On the device's front is a spacious 9.6-inch E Ink display that can show 16 shades of gray (as can the Kindle 2).

At 7.2 by 10.4 by 0.4 inches and 18.9 ounces, the Kindle DX is the largest and heaviest of today's e-book readers. Like the Kindle 2, it has a keyboard (for annotations and for searching for books in Amazon's Kindle store through the built-in wireless connection), but typing on it is awkward.

In the United States you can shop for and download books from the device without connecting to a PC (only the just-announced global

version of the Kindle 2 lets you download content elsewhere). Though the DX's spacious screen and skinny profile are big pluses, the device is unlikely to succeed as a newspaper or magazine replacement; it's too heavy for that, and its E Ink display lacks the color and visual appeal that modern print publications possess.

The DX's high price is likely to turn off some potential customers as well: At \$489, it costs more than some full-featured laptops.

Amazon Kindle 2

The Kindle 2 is a sleek, curved tablet that you can hold easily in your hands. Like other Kindles, it offers easy



THE KINDLE DX'S 9.6-inch-diagonal screen shows 16 shades of gray.

MORE ONLINE

For further details about some e-book readers that will vie for consumers' attention next year, see find.pcworld.com/63963.

access to Amazon's Kindle store through Sprint's 3G wireless network (at no extra cost to users), so shopping for books is a breeze. But Amazon doesn't make available the hundreds of thousands of free e-books you can get from other stores.

Its polished design looks great, as does its 6-inch, 600-by-800-pixel E Ink screen. Text is sharp, and images are crisp. But the Kindle 2's stumpy five-way navigation joystick feels stiff and sits awkwardly near the right bottom edge. Still, the QWERTY keyboard below the display is surprisingly usable, with circular keys that are easy to press.

Even though its extras are limited to a text-to-speech capability, a basic MP3 play-



AT 0.4 INCH, the Kindle 2 is half as thick as the original Kindle.

er, and a Web browser, the Kindle 2 stands as a good reader's companion overall.

Sony Reader Pocket Edition (PRS-300)

The Pocket Edition is about as inexpensive as e-book readers come: \$199 for a

slim gadget with a 5-inch, 8-grayscale E Ink screen. It lacks extras that some competitors offer, but its top-flight design and usability more than compensate for the missing features.

Like previous Sony Readers, the Pocket Edition has a metal case (most competitors use some sort of plastic), which may explain why it tips the scales at nearly half a pound. But the silvery case felt great in my hands, and the reader's controls are simple and intuitive.

Document file format support is limited to unencrypted BBEB, ePub, PDF, TXT, RTF, and Microsoft Word (.doc) files, plus (on commercial books) encrypted BBEB, ePub (with Adobe Content Server 4 DRM tech-

nology), and PDF files. The Pocket doesn't support image or HTML files, and you don't get a dictionary.

Reading on the Pocket Edition is easy and intuitive: Pages looked good and flowed neatly, and page turns were responsive—



THE POCKET EDITION of the Sony Reader costs just \$199.

PC WORLD TOP 5 E-BOOK READERS






| MODEL | Rating | Dimensions | Display | Commercial e-book formats | Features |
|--|---------------------------|--|---|---------------------------|---|
| 1  Sony Reader Touch Edition \$300 find.pcworld.com/63964 | ★★★★★ VERY GOOD | • 4.8 by 6.9 inches • 0.4 inch thick • 10.1 ounces | • 6.0 inches • 800 by 600 pixels • E Ink, 8 grayscale | • Adobe ePub, Sony BBEB | • Wireless: No • MP3 player: Yes • Touchscreen: Yes |
| ► With its elegant design and ePub support, the Sony Reader Touch Edition shapes up as a formidable competitor to Amazon's Kindles. | | | | | |
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| ► The DX impresses with a large screen and wireless connectivity; but it's heavy and pricey, and it locks you into Amazon's ecosystem. | | | | | |
| 3  Amazon Kindle 2 \$259 find.pcworld.com/63966 | ★★★★★ VERY GOOD | • 5.3 by 8.0 inches • 0.4 inch thick • 9.6 ounces | • 6.0 inches • 800 by 600 pixels • E Ink, 16 grayscale | • Amazon AZW | • Wireless: Yes • MP3 player: Yes • Touchscreen: No |
| ► The second-generation Kindle improves on its predecessor with a slimmer design and significantly better image quality. | | | | | |
| 4  Sony Reader Pocket Edition \$199 find.pcworld.com/63967 | ★★★★★ VERY GOOD | • 4.2 by 6.2 inches • 0.4 inch thick • 7.8 ounces | • 5.0 inches • 800 by 600 pixels • E Ink, 8 grayscale | • Adobe ePub, Sony BBEB | • Wireless: No • MP3 player: No • Touchscreen: No |
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CHART NOTES: Ratings are as of 10/5/09.

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on a par with those of other devices. Overall, the Pocket Edition is appealing, not just for people on a budget (after all, the Kindle isn't a lot more expensive), but for anyone who wants a small, no-frills e-book reader to carry in a purse or backpack.

Interread Cool-ER

The \$249 Cool-ER strives to distinguish itself from the black-and-gray competition, and for the most part it succeeds. Skinny (0.4 inch thick), lightweight (6.2 ounces) and available in eight cheery colors, this e-book resembles an overgrown iPod—not a bad role model for industrial design.

The only items visible be-



HIP, TINTED metallic casing sets the tone with Interread's Cool-ER.

low the 6-inch screen are the device's logo and a round, iPod-esque four-way navigation/selection wheel, which you use to navigate through menus and turn pages. Unfortunately, because the button is quite stiff, using it is

unnecessarily arduous.

The Cool-ER's display employs the same E Ink technology that Kindles, Sony Readers, and other e-book readers use. The Cool-ER adopts the 8-grayscale version, operated by a 400MHz Samsung ARM processor. You can transfer content only via the USB cable, but a wireless model is due next year.

The Cool-ER supports about a dozen file formats, including ePub, HTML, PDF, Rich Text, and three popular image formats; ePub with Adobe Content Server 4 digital rights management software is the primary format for commercial e-books, which you can buy at CoolerBooks.com (its

available library isn't huge) or at other sites that support ePub and ACS4.

The built-in MP3 player lets you play music while you read, but it's a bare-bones audio player. Annoyingly, the headphone jack port doesn't accept standard mobile 3.5mm jacks. You'll have to get a 2.5mm adapter to use it with most current headphones or phone headsets (the Cool-ER comes without earphones).

A little polish (and a better four-way navigation wheel) would improve the Cool-ER's usability. But for the price, it's not a bad deal.

Jason Cross and Melissa J. Perenson contributed to this story.

BEYOND THE TOP 5

Two New Readers With Some Catching Up to Do

FIVE E-BOOK READERS made our chart on page 46. Two others fell short: Astak's EZReader PocketPro and Foxit's eSlick Reader.

Astak EZReader PocketPro

The EZReader PocketPro (find.pcworld.com/63970) is about the same size as the Sony Reader Pocket Edition and costs the same (\$199). But its limited, impractical font size options are a serious drawback.

The EZReader PocketPro is light and comes cradled inside a handsome flip-open leather cover. A built-in MP3 player lets you play music while you read. Also, Astak's reader supports Adobe's DRM technology—Adobe Content Server 4—giving you access to a

fair amount of commercial content.

But the PocketPro's navigation controls are neither convenient nor particularly intuitive. For instance, there's no cursor for scrolling through lists of options (you have to use the numeric keypad underneath the display instead) and no status bar on the page to indicate progress through the book. And the built-in text-to-speech feature for PDF content is pretty bad.

Worst of all, the only usable font size option of the five offered was



CLIPS SECURE the EZReader PocketPro's cover in place.

'Small'; the others were either ridiculously large or optician-chart tiny—a far cry from the more evenly graduated font sizes on most other readers.

Foxit eSlick Reader

Known for its popular alternative to Adobe's PDF reader, Foxit has produced an e-book device that works solely with the PDF format. Thanks to this capability, the eSlick Reader (find.pcworld.com/63969) can handle the thousands of free volumes available in that format; but it lacks support for commercial content incorporating DRM encryption, ruling out access to the best-sellers that you can read on most competing devices.

The \$250 eSlick Reader is small, thin, and lightweight, with a rubberized finish. The screen is easy to read, but illustrations don't look as attractive on its 4-grayscale display as they do on the 16-grayscale and 8-grayscale screens of other readers we reviewed.

We couldn't change the font size in any PDF book we tried; the menu option for that operation was grayed out. Zooming in works, but then you may have to scroll left and right to read across a line.



A FOUR-WAY controller (at lower right) on the eSlick turns pages.

DECEMBER
2009

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ASPIRE TIMELINE

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8+ hours battery life

Feel the difference



Ultra Thin < 1 inch

11.6"

Acer Aspire 1810

- Genuine Windows® 7 Home Premium
 - Intel® Pentium® Processor SU4100
- AS1810TZ-4013 (LX.PJ502.074)

\$549

Acer® Aspire® 1810

- Genuine Windows® 7 Home Premium
- Acer CineCrystal 11.6" display, 1366 x 768 resolution
- 3GB DDR2 667 SDRAM
- 320GB³ hard drive
- Multi-in-one card reader
- 802.11b/g/Draft-N WLAN, gigabit LAN
- Integrated webcam
- Eight-hour battery¹
- 3.08 lb.
- One-year limited warranty⁴



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- Fingerprint reader
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- One-year limited warranty⁴

14.0"

Acer TravelMate 8471

- Genuine Windows® 7 Professional
 - Intel® Centrino® 2 Processor Technology
Intel® Core™2 Duo Processor SU9400
 - 4GB DDR3 1066 SDRAM
 - 320GB³ hard drive
- TM8471-6306 (LX.TTP03.072)

\$999

14.0"

Acer TravelMate 8471

- Genuine Windows® 7 Professional
 - Intel® Centrino® 2 Processor Technology
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UltraThin

ASPIRE one

Your second connection

Acer® Aspire® One D250

- Genuine Windows® XP Home Edition
- 10.1" display, 1024 x 600 resolution, Acer CrystalBrite Technology
- 1GB DDR2 533 SDRAM
- 160GB³ hard drive
- Multi-in-one card reader
- 802.11b/g WLAN, 10/100 LAN
- Integrated webcam
- Three-cell battery
- 2.4 lb.
- One-year limited warranty*



Acer Aspire One D250

- Genuine Windows® XP Home Edition
- Intel® Atom™ Processor N270

AOD250-1326 (LU.S690B.037) - White chassis
AOD250-1165 (LU.S680B.066) - Blue chassis
AOD250-1151 (LU.S670B.034) - Black chassis
AOD250-1116 (LU.S700B.029) - Red chassis

\$289

Acer Aspire One Accessory Kit

- Protective sleeve
- USB wireless mini-mouse
- External Super-Multi drive (LZ.23800.024)

\$99

Acer H233H bmid

- 23" wide-screen TFT LCD
- 1920 x 1080 maximum resolution
- 40000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), HDMI signal connectors
- 300 cd/m² brightness
- 5ms response time
- Two 1.5W integrated speakers
- Tilt adjustment (ET.VH3HP.001)



\$229

Acer B243HL bmdrz

- 24" wide-screen TFT LCD
- White LED backlight
- 1920 x 1080 maximum resolution
- 8,000,000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), four USB signal connectors
- 250 cd/m² brightness
- 5ms response time
- Two 2.0W integrated speakers
- Height, pivot, tilt and swivel adjustments (ET.FB3LP.002)



\$299

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Acer® Aspire® 3810

- Genuine Windows® 7 Home Premium
- Acer CineCrystal 13.3" display, 1366 x 768 resolution
- 4GB DDR3 1066 SDRAM
- 500GB³ hard drive
- Multi-in-one card reader
- 802.11b/g/Draft-N WLAN, gigabit LAN
- Integrated webcam
- Eight-hour battery¹
- 3.5 lb.
- One-year limited warranty⁴



Ultra Thin < 1 inch

13.3"

Acer D240H bmidp

- 24" wide-screen TFT LCD
 - 1920 x 1080 maximum resolution
 - 80000:1 dynamic contrast ratio
 - 170°/160° horizontal/vertical viewing angles
 - VGA, DVI (HDCP), HDMI, USB signal connectors
 - 300 cd/m² brightness
 - 2ms gray-to-gray response time
 - Two 2.0W integrated speakers
 - Digital photo frame function
 - 1GB³ storage
 - CompactFlash®, Secure Digital card reader
 - Tilt adjustment
- (ET.FD0HP.001)



Acer Aspire 3810

- Genuine Windows® 7 Home Premium
 - Intel® Pentium® Processor SU4100
- AS3810TZ-4078 (LX.PE602.057)

\$649

\$325

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Acer recommends Windows 7.

Acer® Aspire® R3610

- Genuine Windows® 7 Home Premium
- 2GB DDR2 SDRAM
- 160GB³ SATA hard drive
- Multi-in-one card reader
- 802.11b/g/Draft-N WLAN, gigabit LAN
- Wireless keyboard and mouse
- One-year limited warranty⁴



Monitor sold separately

Acer Aspire R3610

- Genuine Windows® 7 Home Premium
 - Intel® Atom™ Processor 330
- ASR3610-U9012 (PT.SCX02.002)

\$329

Acer B273HU bmidhz

- 27" wide-screen TFT LCD
 - 2048 x 1152 maximum resolution
 - 40000:1 dynamic contrast ratio
 - 160°/160° horizontal/vertical viewing angles
 - VGA, DVI (HDCP), HDMI, four USB signal connectors
 - 400 cd/m² brightness
 - 5ms response time
 - Two 1.5W integrated speakers
 - Height, tilt and swivel adjustments
- (ET.HB3HP.001)



\$445

Acer H243H bmid

- 24" wide-screen TFT LCD
 - White LED backlight
 - 1920 x 1080 maximum resolution
 - 40000:1 dynamic contrast ratio
 - 160°/160° horizontal/vertical viewing angles
 - VGA, DVI (HDCP), HDMI signal connectors
 - 300 cd/m² brightness
 - 2ms gray-to-gray response time
 - Two 1.0W integrated speakers
 - Tilt adjustment
- (ET.FH3HP.002)



\$259

Acer® Veriton® X480G

- Genuine Windows® 7 Professional
- CD with Genuine Windows® XP Professional⁵
- Super-Multi drive
- Gigabit LAN
- PS/2®-style keyboard and optical mouse
- Three-year limited warranty⁴ with limited on-site service during first year⁶

Acer Veriton X480G

- Genuine Windows® 7 Professional
 - Intel® Core™2 Quad Processor Q8400
 - 4GB DDR3 SDRAM
 - 320GB³ SATA hard drive
- VX480G-EQ8400C (PS.V9703.005)

\$699

Monitor sold separately



Compact PC

Acer V233H bd

- 23" wide-screen TFT LCD
 - 1920 x 1080 maximum resolution
 - 40000:1 dynamic contrast ratio
 - 160°/160° horizontal/vertical viewing angles
 - VGA, DVI (HDCP) signal connectors
 - 300 cd/m² brightness
 - 5ms response time
 - Tilt adjustment
- (ET.V23HP.001)



\$195

Acer Veriton X480G

- Genuine Windows® 7 Professional
 - Intel® Core™2 Duo Processor E7600
 - 3GB DDR3 SDRAM
 - 320GB³ SATA hard drive
- VX480G-ED7600C (PS.V9703.004)

\$599

Acer Veriton X480G

- Genuine Windows® 7 Professional
 - Intel® Pentium® Processor E5300
 - 2GB DDR3 SDRAM
 - 160GB³ SATA hard drive
- VX480G-ED5300C (PS.V9703.006)

\$479

Acer® TravelMate® 6593

- Genuine Windows® 7 Professional
- CD with Genuine Windows® XP Professional⁵
- 15.4" display, 1280 x 800 resolution
- Modular Super-Multi drive
- Multi-in-one card reader
- 802.11a/b/g/Draft-N WLAN, Bluetooth®, gigabit LAN
- Integrated webcam
- Fingerprint reader
- Optional docking station available
- Three-year limited warranty⁴



Acer TravelMate 6593

- Genuine Windows® 7 Professional
 - Intel® Centrino® 2 with vPro™ technology
Intel® Core™2 Duo Processor P8700
 - 4GB DDR3 1066 SDRAM
 - 320GB³ hard drive, 7200RPM
- TM6593-6639 (LX.TPV03.006)

\$1,099

Acer TravelMate 6593

- Genuine Windows® 7 Professional
 - Intel® Centrino® 2 with vPro™ technology
Intel® Core™2 Duo Processor P8700
 - 3GB DDR3 1066 SDRAM
 - 250GB³ hard drive, 7200RPM
- TM6593-6585 (LX.TPV03.007)

\$999

Protect Your Investment with an Acer Notebook Service Upgrade

Quality is built into every notebook PC Acer makes, and each comes with a one-year or three-year standard limited warranty.⁴ It includes hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. For extra protection – and peace of mind – consider a warranty extension or, even better, the **Total Protection Upgrade**. This plan covers the cost of a replacement unit if, as determined by Acer, your covered notebook cannot be repaired.

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for Notebooks with 1-Year Limited Warranty**
\$99

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

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

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

¹ MobileMark® 2007 test results for the Acer Aspire Timeline model 3810. Battery life will vary based on your configuration. The MobileMark® 2007 benchmark does not include DVD playback.

² 13.3" and 14.0" models.

³ When referring to storage capacity, GB stands for one billion bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

⁴ For a free copy of the standard limited warranty, see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76703.

⁵ The operating system on the CD can be installed in place of, not in addition to, the pre-loaded operating system.

⁶ On-site service applies to the continental U.S. and Canada only and may not be available in all locations. In those areas where on-site service is provided, a technician will be dispatched, if necessary, following efforts to resolve the problem by telephone support.

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please visit our Web site or call 800-571-2237



Top 10 Cell Phones

The new HTC Hero from Sprint offers a big advance in the innovative Android platform.

| MODEL | Rating | Features and specifications | Performance |
|--|---------------------------------|--|---|
| 1  Apple iPhone 3GS \$300 find.pcworld.com/63910 | ★★★★★ SUPERIOR | <ul style="list-style-type: none"> Carrier: AT&T Form factor: Candy bar Weight: 4.8 ounces Camera resolution: 3.0 megapixels | <ul style="list-style-type: none"> Sophisticated design Extremely responsive touchscreen Excellent video and audio playback and features |
| ▶ Performance enhancements distinguish the 3GS—an otherwise evolutionary step up—from the iPhone's previous iterations. | | | |
| 2  T-Mobile myTouch 3G \$150 find.pcworld.com/63912 | ★★★★★ SUPERIOR | <ul style="list-style-type: none"> Carrier: T-Mobile Form factor: Candy bar Weight: 4.1 ounces Camera resolution: 3.2 megapixels | <ul style="list-style-type: none"> Lightweight and slim design Touch keyboard isn't perfect Excellent video and audio features |
| ▶ The T-Mobile myTouch 3G is a big improvement from its predecessor, but the physical keyboard is sorely missed. | | | |
| 3  T-Mobile G1 \$130 find.pcworld.com/61827 | ★★★★★ SUPERIOR | <ul style="list-style-type: none"> Carrier: T-Mobile Form factor: Candy bar Weight: 5.6 ounces Camera resolution: 3.0 megapixels | <ul style="list-style-type: none"> Design is a bit clunky Roomy, comfortable keyboard Good video and audio capabilities |
| ▶ The G1 offers great call quality and does a good job of melding its hardware with the Android operating system. | | | |
| 4  BEST BUY Palm Pre \$150 find.pcworld.com/63258 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: Sprint Form factor: Candy bar Weight: 4.7 ounces Camera resolution: 3.0 megapixels | <ul style="list-style-type: none"> Sleek, ergonomic design Keyboard is small and flimsy Gorgeous video and audio applications |
| ▶ The Pre's WebOS software is touch-friendly and fun, but the cramped QWERTY keyboard detracts from the phone's usability. | | | |
| 5  RIM BlackBerry Bold \$200 find.pcworld.com/61894 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: AT&T Form factor: Candy bar Weight: 4.8 ounces Camera resolution: 2.0 megapixels | <ul style="list-style-type: none"> Most stylish BlackBerry to date Ergonomic keyboard Good video and audio quality |
| ▶ The BlackBerry Bold almost lives up to its name with a stunning design, but its mediocre call quality and camera hold it back. | | | |
| 6  HTC Hero \$180 NEW find.pcworld.com/63913 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: Sprint Form factor: Candy bar Weight: 4.5 ounces Camera resolution: 5.0 megapixels | <ul style="list-style-type: none"> Solid construction Touch keyboard is just okay Not all Flash videos play |
| ▶ The HTC Hero marks a giant step in the innovative evolution of the Android platform; nevertheless, it isn't without flaws. | | | |
| 7  RIM BlackBerry Tour 9630 \$200 find.pcworld.com/63914 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: Verizon Form factor: Candy bar Weight: 4.6 ounces Camera resolution: 3.2 megapixels | <ul style="list-style-type: none"> Stick design Superb keyboard Okay multimedia features |
| ▶ The BlackBerry Tour entices with an ergonomic keyboard and a gorgeous display, but its lack of Wi-Fi disappoints. | | | |
| 8  Nokia E71 \$300 find.pcworld.com/61733 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: AT&T Form factor: Candy bar Weight: 4.4 ounces Camera resolution: 3.2 megapixels | <ul style="list-style-type: none"> Ultraslim design Small but easy-to-use keyboard Underwhelming multimedia capabilities |
| ▶ The Nokia E71's sleek design and multitude of useful features make it ideal for both personal and business use. | | | |
| 9  Apple iPhone 3G \$100 find.pcworld.com/62034 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: AT&T Form factor: Candy bar Weight: 4.7 ounces Camera resolution: 2.0 megapixels | <ul style="list-style-type: none"> Gorgeously designed phone Very responsive touch keyboard Excellent multimedia quality |
| ▶ With a lower price (the lowest on the chart), a 3G radio, and GPS capability, Apple's older smartphone is in a class by itself. | | | |
| 10  Nokia N97 \$700 find.pcworld.com/63399 | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Carrier: n/a (unlocked) Form factor: Slide Weight: 5.3 ounces Camera resolution: 5.0 megapixels | <ul style="list-style-type: none"> Bulky design Good hardware/software keyboards Unique multimedia features and solid playback |
| ▶ The N97 (unlocked, hence the price) has great multimedia capabilities, but its operating system lacks the refinement of other OSs. | | | |

CHART NOTE: Ratings are as of 10/8/09.

MORE ONLINE Visit find.pcworld.com/63260 to see in-depth reviews, full test results, and detailed specs for all cell phones.

New Photo Frames That Look Best on the Desk

TWO NEW DIGITAL photo frames pack wireless features, for a price. Here's a look.

HP DreamScreen 100

With its new DreamScreen, HP expands the digital photo frame concept to include applications normally associated with stand-alone tablets. This 10-inch, \$250 model

incorporates wireless support for popular apps such as Facebook, Pandora, Snapfish, and HP's own packaging of Net radio stations.

Sleek and shiny black, the DreamScreen 100 is better suited for sitting on a desk-top than hanging on a wall, due to its weight and the need to keep it plugged in.

Setup was easy, even with the labor of entering passwords and network keys via the remote. The interface is attractive, intuitive, and highly readable. In addition, a CD provides video tutorials and an intuitive desktop



HP'S DREAMSCREEN 100 offers wireless support for Internet apps.

★★★★★ VERY GOOD

DreamScreen 100 | HP

Does more than most photo frames, but the price is steep.

List: \$250

find.pcworld.com/63954

program that lets you drag and drop audio, photo, and video files from your PC into the frame's 2GB of internal memory. As other frames do, the DreamScreen lets you program on and off times, and it has both clock and calendar functions.

The screen's display was impressive and crisp. Sound

was a strong point: Though you won't get booming bass or extreme clarity, the frame cranks out better audio than most laptops do.

The Facebook app lets you view friends' updates and photos, while the Snapfish app shows online albums.

HP's radio feature is neat, but navigation is limited—

2009 TOP TEN REVIEWS GOLD AWARD

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THE TOSHIBA DMF82XKU has a sleek design and wireless features.

adding stations to your favorites list is a chore that involves lots of drilling.

Toshiba DMF82XKU

This 8-inch digital picture frame (\$180; a 10-inch \$230 model is also available) has a sleek design and some useful wireless features. But looks aren't everything: Its menu

icons are difficult to decipher, and the interface can be sluggish, making for a frustrating user experience.

The chic-looking black frame is accented with a narrow acrylic border (it is also available in white as the DMF82XWU). The frame's 1GB of internal memory lets you store plenty of photos

and music. It supports SD/SDHC, MultiMediaCard, XD-Picture Card, and Memory Stick or Memory Stick Duo, and it will play content from an inserted card.

As we now expect from a wireless frame, Toshiba's model allows users to access online content from various Web sites, streaming that content via a FrameChannel account that you set up.

Like most of its Wi-Fi brethren, the unit must remain tethered to an AC adapter. The frame is heavy, too, with a chunky protrusion on the back, so it really looks best on a desk.

To access the frame's menu, you can use the included remote—its buttons require

a lot of pressure—or the touch-sensitive controls on the frame's right side. Unfortunately, the menu's cryptic icons make operation difficult, and the frame is slow to respond to commands.

The unit offers calendar and clock views. Slideshows can display with or without music. Images appeared punchy, with high contrast, and photos generally looked sharp, with good detail.

—Kathleen Cullen

★★★★★ VERY GOOD

DMF82XKU | Toshiba

The interface is the main shortcoming of this digital photo frame. List: \$180

find.pcworld.com/63953



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Top 10 Inkjet Multifunction Printers

HP's new Photosmart Plus takes second place with impressive quality and a terrific price.

| MODEL | | Rating | Performance | Features and specifications |
|-------|---|-------------------|--|--|
| 1 |  <p>Canon Pixma MX7600 \$400 find.pcworld.com/60874</p> | ★★★★ 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 |
| | ► Good speed, great print quality, and features galore make this printer worth its fairly high price; it lacks only Wi-Fi. | | | |
| 2 |  <p>BEST BUY HP Photosmart Plus \$149 NEW find.pcworld.com/63563</p> | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Very Good Tested speed (ppm): 14.0 text/4.0 graphics | <ul style="list-style-type: none"> 30 ppm text 28 ppm graphics 4800-by-1200-dpi maximum true color resolution |
| | ► A true bargain, the Photosmart Plus offers impressive speed and print quality for its cost—plus Wi-Fi and autoduplexing. | | | |
| 3 |  <p>HP Photosmart C8180 All-in-One \$300 find.pcworld.com/59702</p> | ★★★★ 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 |
| | ► The complete digital photo processing features of this Photosmart include a LightScribe drive for etching and burning. | | | |
| 4 |  <p>HP Officejet Pro 8500 Wireless All-in-One \$400 find.pcworld.com/62494</p> | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 15.6 text/4.5 graphics | <ul style="list-style-type: none"> 35 ppm text 34 ppm graphics 4800-by-1200-dpi maximum true color resolution |
| | ► A small office that wants everything can get it here: The Officejet Pro 8500 Wireless has features galore, and really cheap inks. | | | |
| 5 |  <p>HP Officejet 6500 Wireless \$199 find.pcworld.com/62945</p> | ★★★★ 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 |
| | ► The Officejet 6500 Wireless is a midprice model that offers solid performance, features, and print quality, with few compromises. | | | |
| 6 |  <p>Canon Pixma MX860 \$200 find.pcworld.com/62466</p> | ★★★★ 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 |
| | ► With the Pixma MX860, you get nice print quality plus Wi-Fi and automatic duplexing, but speed is just average overall. | | | |
| 7 |  <p>Canon Pixma MP490 \$100 find.pcworld.com/63413</p> | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Text quality: Superior Graphics quality: Good Tested speed (ppm): 8.7 text/2.3 graphics | <ul style="list-style-type: none"> 8.4 ppm text 4.8 ppm graphics 4800-by-1200-dpi maximum true color resolution |
| | ► The inexpensive MP490 is a surprisingly decent machine; however, high black-ink costs are the trade-off for its low initial price. | | | |
| 8 |  <p>HP Photosmart C6380 All-In-One \$200 find.pcworld.com/61979</p> | ★★★★ 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 |
| | ► This model, designed for home and school use, prints good-looking text and photos quickly, and ink costs are reasonable. | | | |
| 9 |  <p>HP Photosmart Premium Fax All-in-One \$300 find.pcworld.com/62498</p> | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 11.3 text/3.1 graphics | <ul style="list-style-type: none"> 33 ppm text 32 ppm graphics 9600-by-2400-dpi maximum true color resolution |
| | ► Well equipped for both photo printing and light office use, with lots of connectivity options, this MFP is capable—but expensive. | | | |
| 10 |  <p>Epson Stylus NX515 \$130 find.pcworld.com/63232</p> | ★★★★ VERY GOOD | <ul style="list-style-type: none"> Text quality: Good Graphics quality: Good Tested speed (ppm): 18.4 text/5.1 graphics | <ul style="list-style-type: none"> 36 ppm text 36 ppm graphics 5760-by-1440-dpi maximum true color resolution |
| | ► Students and home users will like this model's speed, but not its ink costs, flimsy trays, and skimpy documentation. | | | |

CHART NOTES: Ratings are as of 10/6/09. Speeds are in pages per minute (ppm); resolutions are in dots per inch (dpi).

MORE ONLINE Visit find.pcworld.com/63938 to see in-depth reviews, full test results, and detailed specs for all MFPs on this chart.



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HP's Slickest Laptop Is Designed to Stir Envy

THE HP ENVY 13 is a PC answer to Apple's MacBook Pro: It's similarly sleek but costs a bit more, starting at \$1699 (our review unit is \$1799). It comes with a 2.13GHz Intel Core 2 Duo SL9600 CPU, 3GB of RAM, and an ATI Mobility Radeon HD 4330 discrete GPU. The

laptop is 12.6 by 8.5 by 0.8 inches and weighs 3.1 pounds. It earned a nice WorldBench 6 score of 94.

You can play HD video on the crisp, glossy 13.1-inch backlit LED screen—but reflections on it will be distracting. The Envy has high-tech Beats audio, but you'll need headphones or earbuds to appreciate it. Though the touchpad's multitouch functionality works, the mouse buttons are poorly placed. The keyboard is fine. The notebook has a couple of USB 2.0 ports, an HDMI-out, an SD flash-card reader,



THE ENVY 13 is HP's stab at a sleek and cool—but pricey—laptop.

and a headphone/mic jack.

Missing are ports for wired ethernet and VGA (you do get Bluetooth and 802.11n Wi-Fi). And it has no optical drive—you must buy an external one (starting at \$100 for a DVD-ROM version). A helpful six-cell battery slice goes for another \$100.

We give HP nods for smart design overall, and a promise of premium support. (You even get a 2GB SDHC card that holds the manual.) The Envy 13 has a lot of eye-catching touches and is a good machine for people who have money to burn.

—Darren Gladstone



★★★★★ VERY GOOD

Envy 13 | HP

It has eye-catching touches, but you'll need some cash to burn.

List: \$1799, as reviewed
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Top 10 External Hard Drives

Any of the fast, roomy drives here would be ideal for storing large media files and backups.

| MODEL | Rating | Performance | Features and specifications |
|--|--------------------|---|---|
| 1  LaCie 2Big Quadra 2TB \$330 NEW find.pcworld.com/63903 ▶ LaCie's 2TB external model is a stylish and sturdy direct-attached RAID box that offers great performance. | ★★★★★ SUPERIOR | • Overall performance: Superior • Copy files: 65 seconds • File search: 106 seconds | • 2000GB; rpm not reported • External SATA-300, USB 2.0, FireWire 800/400 • Cost per gigabyte: \$0.17 |
| 2  Verbatim Quad-Interface Professional Hard Drive \$170 NEW find.pcworld.com/63904 ▶ This handsome, rugged Verbatim hard drive provides flexibility through universal connectivity options. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 76 seconds • File search: 103 seconds | • 1000GB; rpm not reported • External SATA-300, USB 2.0, FireWire 800/400 • Cost per gigabyte: \$0.17 |
| 3  WiebeTech RTX400 QR \$1515 NEW find.pcworld.com/63905 ▶ WiebeTech's RTX400 is a versatile, multibay direct-attached RAID array with tremendous storage capacity. | ★★★★★ VERY GOOD | • Overall performance: Very Good • Copy files: 233 seconds • File search: 110 seconds | • 4000GB; rpm not reported • External SATA-300, USB 2.0, FireWire 800/400 • Cost per gigabyte: \$0.38 |
| 4  SimpleTech Duo Pro Drive \$290 find.pcworld.com/62155 ▶ Terrific design, speedy performance, and multitasking backup software make this SimpleTech drive a strong choice. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 69 seconds • File search: 112 seconds | • 1000GB; 7200 rpm • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.29 |
| 5  BEST BUY Apricorn 1.5TB Aegis Desktop ADT-1500 \$200 NEW find.pcworld.com/63906 ▶ Apricorn's 1.5TB model is a basic direct-attached box, with solid imaging software (and bundled software for Mac users, too). | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 69 seconds • File search: 99 seconds | • 1500GB; rpm not reported • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.13 |
| 6  CMS Products ABS V2 Plus 1TB \$233 NEW find.pcworld.com/63927 ▶ This handy drive is speedy over e-SATA, and it comes with CMS BounceBack Ultimate 9, a flexible backup application. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 71 seconds • File search: 106 seconds | • 1000GB; 7200 rpm • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.23 |
| 7  Seagate FreeAgent X-Treme 1TB \$180 NEW find.pcworld.com/63907 ▶ The FreeAgent X-Treme is a more versatile, triple-interface version of models in Seagate's popular direct-attached line. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 78 seconds • File search: 112 seconds | • 1000GB; rpm not reported • External SATA-300, USB 2.0, FireWire 400 • Cost per gigabyte: \$0.18 |
| 8  CMS Products V2 Desktop Backup System 1TB \$181 find.pcworld.com/62152 ▶ This top-flight performer provides a software/hardware combination for creating a bootable backup drive. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 71 seconds • File search: 100 seconds | • 1000GB; 7200 rpm • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.18 |
| 9  Seagate BlackArmor WS 110 \$160 NEW find.pcworld.com/63901 ▶ In the BlackArmor WS 110, you get a basic 1TB direct-attached storage product with imaging software. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 66 seconds • File search: 105 seconds | • 1000GB; rpm not reported • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.16 |
| 10  Apricorn 1TB Aegis Desktop ADT-1000 \$130 NEW find.pcworld.com/63908 ▶ Like its 1.5TB sibling, Apricorn's 1TB offering has basic direct-attached storage plus imaging software and bundled Mac apps. | ★★★★★ VERY GOOD | • Overall performance: Superior • Copy files: 69 seconds • File search: 101 seconds | • 1000GB; rpm not reported • External SATA-300, USB 2.0 • Cost per gigabyte: \$0.13 |

CHART NOTES: Ratings are as of 10/5/09.

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★★★★★

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SanDisk Extreme Pro CompactFlash Card Is Speedy

THE SANDISK EXTREME Pro CompactFlash Card, available in capacities of 16GB to 64GB, can achieve read/write speeds of up to 90 megabytes per second in a digital SLR camera that supports UDMA (mode 6).

I've taken the \$336 16GB card out for shoots, and I've been impressed with how it handles in the field.

★★★★★ SUPERIOR

Extreme Pro CompactFlash Card Sandisk

Impressively fast memory card lets you capture every moment.
List: \$336 (16GB)

find.pcworld.com/63896

As a photographer, I never want to miss *the* shot. You know the one: an athlete's elation at a successful play, a gymnast's gravity-defying midair flip, a couple's first kiss at their wedding. Burst modes were made for such shots—but even with SLRs that offer burst modes, the ratings have been for shooting JPEG, not RAW. I can fill a camera's buffer in a heartbeat using just JPEG; the more-sluggish write speed for shooting larger RAW files has been, for me, too much of a sacrifice.

Until now. With the



WITH SUPERFAST WRITE speed, the Extreme Pro is worth its steep price.

Extreme Pro, I don't feel constrained when I shoot RAW, or even when I use my camera's RAW + JPEG Fine modes. Using an SLR rated at 7 frames per second for JPEG (and 5 frames per second for RAW), I shot a parade, a

wedding, daily happenings, sights out of a car window, and more—and I captured every moment that I intended to.

This card makes it clear that real differences exist among flash memory cards, and not every card will take full advantage of your camera's capabilities. If you have a newer digital SLR that supports the UDMA (mode 6) interface, a card like the Extreme Pro can be well worth the high cost. It's a small price if it means capturing moments—in the best quality possible—that you typically missed before.

—Melissa J. Perenson

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HP's TouchSmart 600 PC Offers Responsive Interface



HP HAS THREE years of experience in making multitouch all-in-one PCs. It shows. The 23-inch display of the TouchSmart 600 supports a resolution of 1920 by 1080 (1080p)—ideal for watching high-def movies and TV via its Blu-ray slot drive and HDTV tuner. You

can also stream shows over 802.11n, and pull in photos with the multicard reader. A remote control is included.

HP's custom touch software really shines. Version 3.0 offers variations of Hulu, Netflix, Twitter, and other apps that have oversize buttons and that understand gestures. And the HP apps now multitask, letting you hop back and forth by sliding them around.

As touch remains best for casual interaction with the PC, HP also throws in a wireless mouse, plus a low-profile wireless keyboard.



HP'S ALL-IN-ONE supports touch in Windows 7 and apps.

Our \$1600 test unit had Windows 7 Home Premium (64-bit), a 2.13GHz Intel Core 2 Duo P7450, 4GB of DDR-1333 memory, a 1GB nVidia GeForce GT230M GPU, and a 750GB hard drive. Those components helped the system achieve

a WorldBench 6 score of 92, right in the middle of our top all-in-one PCs. In gaming, however, it struggled to reach a playable frame rate.

If you're ready to reach out and touch Windows 7, the TouchSmart 600 makes it both fun and effective.

—Harry McCracken

★★★★ VERY GOOD

TouchSmart 600 | HP

Windows 7 all-in-one provides impressive multitouch software.

List: \$1600

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Adobe Elements 8 Apps Acquire a Suite Flavor

ADOBE HAS LONG offered Photoshop Elements and Premiere Elements in one box, but until recently they have been little more than two separate apps. Now, with the release of version 8, they are far better integrated, and are starting to show signs of becoming a true suite.

Previously Photoshop Elements had an Organizer for photos, but now the tool lets you view, keyword-tag, manage, and search both stills and videos. For keywording, it uses Auto Analysis of image content and Smart Tagging of image quality, starting instantly when you import files.

The Organizer can use the Photoshop.com site to back up, share, and archive your database and media files, as well as to sync them with your other PCs, if they have at least one of the apps installed. A Basic one-year membership with Photoshop.com, including 2GB of storage, comes with the package. A Plus membership, when you buy it with the

software, gives 20GB for \$30.

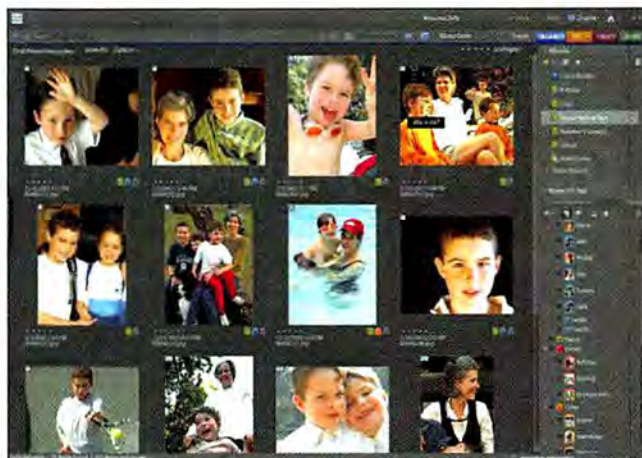
Aside from Organizer, the two apps are integrated in that a slide show can now include video, while movies can now incorporate stills.

Editing Made Easier

Among Photoshop Elements' new or extended tools is PhotoMerge, which has added an Exposure tool that can combine two nearly identical photos to obtain the optimum exposure. While the auto mode works nicely on some images, others need manual tweaking; in the latter case, you need good hand-cursor-eye coordination to achieve the best results.

A less finicky new tool is Recompose, which lets you selectively redefine a photo to fit into another size or orientation by choosing particular subjects or portions of the background.

Premiere Elements has undergone more-extensive improvements. Instant Movie can use the new Smart Tags (which are intended to guide



THE ORGANIZER, PREVIOUSLY limited to Photoshop Elements, now lets you view, tag, and manage both still photos and videos.

the tool away from static, blurred, or otherwise undesirable clips) to automatically make a movie, with music and transitions, based on your selected Flash template. The results tend to be pleasant, but they are sometimes rough, with the clip order not always logical.

More New Tools

You'll find other new auto tools in Premiere Elements. Smart Fix tries to correct the imperfections that Smart Tags have flagged. Smart Trim uses Smart Tags to find portions of a video to cut, as well as to weigh the interest of various sections. Smart Mix balances sound sources so that background music doesn't drown out narration or dialogue. In our tests, both Smart Trim and Smart Mix worked seamlessly, taking the drudgery out of important video editing processes. Smart Fix tended to do well on the most obvious, correctable problems.

Premiere Elements' new content generally outshines Photoshop Elements'. For instance, the video app's new effects, transitions, and graphics include animated

clip art that you can drag and drop into a video. Afterward, you can use the new Motion Tracking to move the objects within the video.

A small button on each tabbed screen in both apps links to Flash and Acrobat tutorials. Few are open to the general user, however. To access the larger library, which Adobe will add to periodically, you must buy a Photoshop.com Plus membership. Extra templates and transitions will be available only to Plus members, too.

The bundle of Photoshop Elements and Premiere Elements is a good value in terms of power, ease of use, and price. We only wish that Adobe didn't require a Photoshop.com Plus membership for access to tutorials.

—Sally Wiener Grotta
and Daniel Grotta



PREMIERE ELEMENTS' INSTANT Movie function can automatically create a movie from your clips, based on a selected Flash template.

★★★★★ SUPERIOR

**Photoshop Elements 8 and
Premiere Elements 8**

Adobe

A good bundle for anyone who works with still photos and videos. List: \$150; \$180 with a one-year Photoshop.com Plus membership find.pcworld.com/63958



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KeepVault Offers Easy Backups

THE KEEPAVULT service can back up data from multiple PCs, both to a local destination and online. It also offers continual data protection, backing up files in near real time as the data changes.

Version 3.16 of the client works quite well: It backed up my 200MB of data so quickly online that I missed it when I turned away for a minute or two. That said, the program sometimes seemed to bog down my system for a few seconds after I had tweaked a setting. Fortunately, the continual data protection performed without slowing down my PC.

The plan rates hover around \$1 per gigabyte per year, starting with 40GB for \$48 and topping out at 5TB for \$4460. Since few people will need more than 40GB, that makes KeepVault a bit cheaper for the average user than Fabrik, Mozy, and others (excepting those services' free 2GB plans).

The continual protection alone is a reason to consider using KeepVault, but I'm also betting you'll like the features and speed. And if your backup needs exceed 2GB, you'll like the price.

—Jon L. Jacobi

★★★★ VERY GOOD

KeepVault Proxure

Affordable backup service is easy to use, effective, and speedy.

List: \$48 (40GB, one year)

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DOWNLOAD THIS

Tools for Web Pages, Sharp Photos, and Fun

WE'VE SEEN COLLABORATION tools and Web design software, but a Firefox add-on that lets people troubleshoot a site together is pure genius. Into taking candid camera-phone shots? A freebie we found keeps them sharp when you enlarge them. And if you've yearned for the ball-blasting fun of a classic casual puzzler updated with high-res graphics, that game has arrived. You may not have known that these programs existed—but now that you do, you'll probably download at least one.

Notable

Anyone involved in designing Web pages will want to give this Firefox add-on a try. Notable lets you capture and annotate Web pages and the underlying code, and then post those pages and notes to the Web, where colleagues can see the markup and respond.



THE NOTABLE ADD-ON for Firefox lets you annotate Web pages and their underlying code.

Using Notable is exceedingly simple. After you install it, click the icon in the Address Bar when you want to annotate a Web page. You'll see an image of the page, shown full-screen. You can then add your notes and save it. Afterward, you can upload the item to a workspace on the Notable site and share it with others, who can make their own comments. find.pcworld.com/63950

—Preston Gralla

Zuma's Revenge

Zuma's Revenge continues the lineage of the original Zuma: highly addictive ball-blasting, color-matching gameplay. The high-res graphics and new features of this iteration bring it in line with its casual-game contemporaries. New to Zuma's Revenge are additional power-



THE BALL-SPITTING FROG is back—with gorgeous graphics—in Zuma's Revenge.

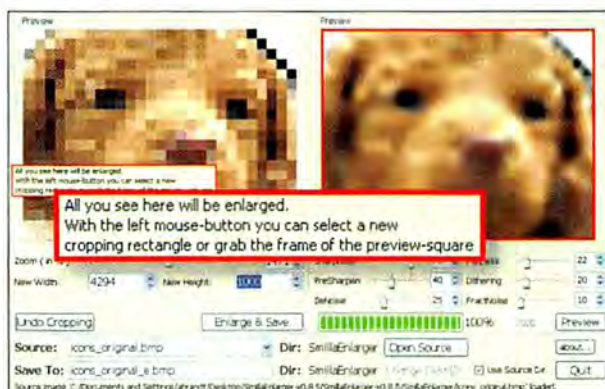
ups: Laser lets you blast individual balls into nothingness, Lightning eliminates all the balls of a single color, and Tri-Shot gives you one massive shot that clears out anything in its path. The granddaddy of casual gaming has his groove back. find.pcworld.com/63952

—Steve Horton

SmillaEnlarger

If you've ever tried to work with small images, like the kind that camera phones generate, you know how frustrating it can be to turn them into something printable (or in some cases, easily viewable). SmillaEnlarger's algorithm does a remarkable job of turning even an incredibly minute bitmap into something close to a blurry snapshot. While that is the full extent of its abilities, you might want to keep it in your digital imagery toolkit for a photographic rainy day. find.pcworld.com/63951

—Andrew Brandt



SMILLAENLARGER MAKES LOW-RES photos bigger, not blockier.



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March 2008



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Clockwise from top right: Synology DS209+ II storage device, Lexmark C734dn color laser printer, Palm Pre smartphone, Dell Latitude Z600 laptop, Microsoft Windows 7 (on the Dell's screen), Nikon D300s digital camera, Microsoft Zune HD media player, Kodak Zi8 digital camcorder, Lenovo IdeaCentre A600 all-in-one PC, FanSnap.com (on the Lenovo's screen).



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BY THE PC WORLD EDITORIAL TEAM
PHOTOGRAPH BY ROBERT CARDIN

and ratings—for each of the products that earned spots on our PC World 100 list at find.pcworld.com/63960.

#1

The App Store

(iPhone apps, prices vary) What can

you say about a store that moves

2 billion products in just 16

months? This year, Apple's trail-

blazing App Store put the word

app on the map, as customers

flocked to download iPhone applications by the shopping bas-

ketful. The iPhone is hardly the first smartphone to run third-

party software. But by creating one easy-to-use marketplace for

85,000 free or (in most cases) inexpensive programs, Apple

sparked unprecedented interest in phone software from both iPhone owners and developers, resulting in thousands of innovative, well-designed apps (and lots of junk) to enhance your iPhone with.



2 Google Voice (telephony service,

free) Google Voice gives you a single number for all of your phones to use, e-mails you transcripts of your voicemail messages, and sports a host of sophisticated calling features. Set up conference calls for free, record calls, even switch phones in the middle of a call. And it's all free. Ma Bell, eat your heart out.

3 Intel X25-M Solid State Drive

160GB (internal storage drive, \$500) A new manufacturing process and a significantly lower price combine with great performance in this top-notch SSD. This model's speedy test results put it at the top of our chart; its price and performance make it a compelling flash upgrade for notebook or desktop users.

4 Nikon D300s (digital camera;

\$1770, body only) The first enthusiast model to include high-def video capture, this camera is a joy to handle. Changing focus points on the D300s is quite easy—and the camera takes excellent photos, too.

5 Twitter (social media service,

free) We loved Twitter enough last year to include it on our Top 100 list; since then, it has only grown stronger. Its uncomplicated API has led to an explosion of cool client apps and media sites that continually expand what it can do, including robust photo and music sharing.

6

Dell Latitude Z600 (laptop,

prices start at \$1999) This super-slim 16-inch laptop combines fashion-forward design and high-tech extras—with no cords. A 14mm-thick metallic/rubbery case, a touch-inductive panel alongside the screen that lets you summon on-screen shortcuts, and an inductive-charging base station highlight this status symbol for business travelers.

7 Microsoft Bing (search engine,

free) Whereas Google emphasizes a quick-loading design and a list of highly relevant search results, Bing presents its results in Search Categories that it creates dynamically in response to the user's query.

8 Canon PowerShot SX200 IS

(digital camera, \$350) It's pocket-size only if you have really big pockets, but the 12X-optical-zoom SX200 IS justifies its size by delivering astonishing versatility. With full manual

controls plus a Smart Auto mode, 720p HD video recording, great image quality, and that powerful lens, the SX200 IS is a budding photographer's best friend.

10 Samsung LN46B750U (HDTV, \$1670) This 46-inch television turned in the best motion-handling performance we've seen yet in our tests. Its 240Hz refresh rate certainly helped, and the LN46B750U offers solid Web service connectivity, too.

11 Microsoft Windows 7 (operating system, prices vary) Windows 7 smooths out various Vista annoyances and makes the interface cleaner and easier to work with.

12 Intel Core i7 (processor series, prices vary) No wonder these processors rule our power-PC charts: Core i7 chips have a bigger cache and a Turbo Boost mode that automatically overclocks the CPU when your system needs an extra burst of speed.

13 AMD Phenom II (processor series, prices vary) AMD's latest CPUs can't outrun Intel's Core i7 line, but they offer features (like overclocking) that enthusiasts love.

14 Palm Pre (smartphone, \$150 with two-year Sprint contract) Its WebOS software, responsive multitouch screen, and intuitive gesture-based controls wowed us.

15 Amazon Kindle 2 (e-book reader, \$259) It fell to third on this month's e-book reader chart (see page 46), but the Kindle 2 was the category's breakthrough product.

16 Facebook (social media service, free) A cross between a personal digital scrapbook and a running discussion forum with friends, Facebook has changed the way human beings interact in the 21st century.

9 “

I love this game because finally my wife—and even the in-laws—want to get in on the game action. I need to wrestle for a turn to play.”

Darren Gladstone, Senior Writer



The Beatles Rock Band (game, \$140 with instruments) This gaming experience isn't just a setlist; it's a musical history lesson. You retrace key steps in the progress of the Fab Four, rocking out the entire time.

18 Samsung LN40B650 (HDTV, \$1700) This 40-inch TV earns high marks for its image quality and ease of use.

19 Novatel Wireless MiFi 2200 (Wi-Fi card, \$100 or \$150 with a two-year Sprint or Verizon plan) With this credit-card-size gadget, five users can share bandwidth from a single mobile account.

20 Kodak Zi8 (digital camcorder, \$180) Here's the first ultracompact HD pocket camcorder to record at 1080p.

21 HTC Hero (smartphone, \$180 with a two-year contract from Sprint) HTC's Android OS-based smartphone has lots of features and customization options.

22 Microsoft Zune HD (multimedia player, prices start at \$220) The Zune HD (see page 64) is the only player to support HD video playback and HD radio.

23 G-Data Internet Security 2010 (security software, \$30 for one PC) You get excellent, low-cost malware detection.

24 Lenovo ThinkPad T400s (laptop, \$1999) For frequent business flyers, this laptop is a trusty sidekick. »

17

HP Mini 311 (netbook, prices start at \$399) The first netbook to sport the nVidia Ion platform, the Mini unites an Intel Atom processor and a discrete GPU, producing a fairly powerful combo that lets you run high-def video and games.



25 Boxee (online video service, free)

The Internet offers many great sources of video these days, and Boxee's software for Windows, Mac, and Linux pulls them all together—for free.

27 Apple iPhone 3GS (smartphone; \$200 for 16GB, \$300 for 32GB, with two-year AT&T contract) A faster processor, an improved camera, and software for recording video and uploading it directly to YouTube highlight the iPhone 3GS.

28 HP Envy 13 (laptop, prices start at \$1699) The Envy 13 (see page 62) is a sleek, slim laptop with a neat metallic frame and a raft of high-end hardware.

29

Atebits Tweetie 2 (iPhone app, free) On the iPhone, it's hard to beat Tweetie 2's clean interface and simple execution of Twitter's essential features. This charming mobile app connects replies to the tweets that they're responding to and lets you manage multiple Twitter accounts easily. Tweetie 2 is a birdie to watch.

30 Panasonic Lumix DMC-GF1 (digital camera, \$900 in two kit variations) It's not a digital SLR, but this model has the best blend of features and portability of any Micro Four-Thirds camera yet.

31 Xmarks.com (Firefox add-on, free) Xmarks is a must-have for anyone who wants to keep a consistent, automatically updated set of Firefox, IE, or Safari bookmarks on PCs and Macs.

32 Alienware M15x (laptop, prices start at \$1499) Thanks to its Core i7 CPU, the M15x gaming laptop matches the panache and power of its huge predecessor, the M17x, in a smaller frame.

26



SanDisk Extreme Pro CompactFlash Card (memory card; \$896 for 64GB, \$560 for 32GB, \$336 for 16GB) With read/write speeds of up to 90 megabytes per second, the Extreme Pro card (see page 68) is wicked fast. Though a bit pricey, it's worth it for photographers who want to take full advantage of their digital SLR's UDMA (mode 6) interface.

“I especially loved how I could easily shoot JPEG and RAW files using this card without missing critical moments I wanted to capture.”

Melissa J. Perenson,
Senior Editor



33 AirCell GoGo (in-flight Wi-Fi service, prices vary by airline) We've been using GoGo extensively, and it has delivered rock-solid performance throughout the year.

34 Seesmic Desktop (social media software, free) Seesmic Desktop consolidates your Facebook and Twitter accounts into a single interface that transforms all of the tweets and status updates your friends send you into a continuous stream.

35 Avira AntiVir Personal (security software, free) This was the best free anti-virus program we tested in 2009 for detection rate (98.9 percent) and scan speed.



iGo Netbook Anywhere (charger, \$70) Though it is smaller and lighter than a standard power brick, the Netbook Anywhere adds a USB port for charging additional devices, as well as airplane and AC adapter connections. And if you have another iGo charger (for your full-size laptop, say), you can share this device's tips with that charger.

36



37

3M Pro120 (*digital projector; \$349*) One of the best miniprojectors we've ever looked at, the MPro120 delivers superb image quality and

such impressive features as 2 lumens of brightness, a 20,000-hour LED light source, VGA resolution, 2- to 4-hour battery life, and stereo speakers. When you attach it to a laptop, a digital camera, or another device equipped with video output, the projector excels in displaying colorful photos, videos, and presentations at small-screen size on any light-colored surface, in darkened or subdued light.



38 Twitpic.com (*photo-sharing software, free*) Twitpic allows you to post and share photos to Twitter from your Website (using the Twitpic API), from your phone, or from the Twitpic site.

39 Qik.com (*online video service, free*) This Web service allows you to stream live video from your mobile device to your friends via Qik's Website. Afterward, the video remains archived at the site for future viewing.

40 Canon PowerShot G11 (*digital camera, \$500*) The PowerShot G11 is a portable powerhouse. It shoots RAW images, comes with 5X optical zoom that can extend from 28mm to 140mm, has a flip-out LCD screen, and offers a full range of manual settings.

41 Canon Vixia HF S10 (*digital camcorder, \$1300*) This camcorder has robust manual controls and captures sharp 1080p video and 8.6-megapixel stills.

42 Mozilla Firefox 3.5 (*browser, free*) In our 2009 tests of Web page loading speed tests, only Google Chrome

beat Firefox 3.5. Firefox 3.5's new features include private browsing, geolocation, and improved session restore.

43 Clickfree Traveler (*storage device; \$70 for 16GB, \$130 for 32GB, \$220 for 64GB*) A lightweight, credit-card-size device, the Traveler combines a generous amount of storage space with easy-to-use backup software (and a cleverly concealed full USB 2.0 interface), making it perfect for people on the go.

44 HP Officejet 6500 Wireless (*inkjet multifunction printer, \$200*) Compact yet loaded with features, this MFP offers good performance (suitable for a small office with moderate output needs) and ease of use at a tempting price.

45 Noval Development Parallels Desktop 4 (*virtualization software, \$75*) Run Windows apps on your Linux PC or Linux apps in Windows with Parallels Desktop 4. Unlike other virtualization apps, this software integrates the guest OS directly into the host, so you can launch a foreign OS seamlessly from within your native desktop, hassle-free.

46 LastPass.com 1.51 (*password manager, free*) LastPass 1.51 automatically fills in saved log-ins and forms with the click of a button. This handy Web freebie and browser plug-in also synchronizes your data to any computer that you use regularly. Finally—a more reliable password manager than a workstation littered with yellow Post-its.

47 Panasonic HDC-TM300 (*digital camcorder, \$1300*) Capture good-quality 1080p video and 10.6-megapixel still images with this versatile camcorder, which provides deep manual controls as well as useful automated settings.



Groovespark
(*online music service, free*)

Find a song on this online service, and play it immediately. It's that simple—and since Groovespark has plenty of music and can be accessed at no charge, it's pretty cool, too. Groovespark offers a premium service in addition to its free option; either way, no audio ads will interrupt your tunes. >>

48



49

Aliph Jawbone Prime (*Bluetooth headset, \$130*) This sleek, textured headset offers impressive call quality and noise

cancellation, and you can wear it with or without an over-the-ear loop. It's available in seven colors. A slight dip in the surface conveniently marks the Talk button.

50 Western Digital My Passport Essential SE 1TB (*portable storage drive, \$199*)

Western Digital's stylish, compact portable hard drive packs 1 terabyte of storage on a 2.5-inch drive inside its chassis. WD is the first hard-drive maker to migrate to micro-USB for connections, too—making more-streamlined designs possible.

51 Belkin Powerline AV+ Starter Kit F5D4075 (*networking kit, \$180*) This kit lets you extend your home network over your electrical wiring system. Multiple ethernet ports, a convenient desk-mount option, solid performance, and plug-and-play setup put this kit at the head of the powerline networking class.

52 Valve Steam (*digital game-distribution service, free*) With 20 million user accounts and 837 games from publishers like Activision, EA, and Ubisoft, Steam is the place to buy everything from casual time-killers to enthusiast-caliber thrills.

53

Duracell MyGrid (*charger, \$80, some accessories extra*) Duracell's MyGrid is a wired pad that can re-juice up to four mobile devices simultaneously—and wirelessly—via conductive charging. It's not perfect:

You have to slip your BlackBerry or iPod into a supplied PowerSleeve, charging takes just as long as with a wired charger, and the device is incompatible with some phones. But it noticeably reduces recharging clutter.



“ I always carry my cell phone, smartphone, and iPod, so the fewer wires I have to deal with, the better off I am. The MyGrid really helps untangle my life.”

Nick Mediati, Assistant Editor

54 Sonos Controller 200 (*remote control, \$349*) iPhone users would be in texting heaven if the on-screen keyboards on their smartphones worked as well as the one on the Controller 200, the sophisticated remote for Sonos's high-end digital music system.

55 Seagate Replica (*backup hardware, prices start at \$130*) The Replica backs up your entire computer, including system drives, and protects data in real time for as long as it's connected.

56 Blip.fm (*music service, free*) Sort of like Twitter for music, Blip.fm lets you share and discuss tunes. Scroll a list of people's song choices, plus the short comments (or Blips) posted about the music. Listen to “blipped” songs as they come up, or skip to ones you like.

57 Retrevo.com (*shopping service, free*) A page on this consumer electronics shopping site (a former PCW partner) analyzes how close a product is to retirement, how good the current price is, and whether reviewers and other users like it. Another option helps you get copies of long-lost gadget manuals.

58 Google Chrome (*browser, free*) Google's streamlined Web browser is fast and crash resistant: If a Web page hangs up, Chrome closes it instead of bringing down the whole browser.

59 Synology DS209+ II (*storage device, \$440*) With a stable, reliable OS and more features than you can shake a stick at—RAID striping and mirroring, DLNA media serving, video surveillance, and integrated backup, to name a few—the handsome DS209+ II is network-attached storage in a class by itself.

60 Google Picasa 3.5 (*photo software, free*) This photo-management program adds impressively accurate face-recognition features and uses Google Maps to add geolocation information to photos. The scanning and tagging provide a quick way to find your snaps.



61

RIM BlackBerry Tour 9630 (*smartphone, \$200 with a two-year contract from Verizon*) This smartphone puts the best features of RIM's Bold and its Curve 8900 into one slick package. You get a superslim design, a gorgeous display, and one of the best keyboards we've seen on a BlackBerry—but no Wi-Fi.

62 Google Books (*online service, free*) This service gathers 10 million scanned, digitized, searchable books from libraries and collections all over the world. Those in the public domain are available to download and read.

63 UStream.com (*iPhone app, free*) Use UStream if you or your business wants to broadcast an event live to an Internet audience. The UStream player is well designed and intuitive for first-time users. And the only other things you'll need for your live broadcast are a camera and a broadband connection.

64 Sendmehome.com (*identification service, free*) With Sendmehome, you may get your lost gear back. Print out

stickers with unique ID numbers and instructions for returning your gadgets to you. If someone honest finds your smartphone, you could get it back in a day or two.

65 Digsby.com (*message service, free*) This simple program lets you communicate with people using different IM clients or social networking sites such as Facebook.

66 Motorola T305 (*Bluetooth car speakerphone kit, \$70*) The T305 mounts on your sun visor, and delivers above-average call quality for a good price. It ranks at the top of our current car-kit chart. In our tests, incoming voices sounded crisp, and audio quality at the other end was brighter than with competing units.

67

Sony PlayStation 3 (*game console, \$300*) The 120GB PS3 bundles the earlier PS3's top-notch features into a smarter, sleeker, less-expensive package. The result is a first-class, BD-Live-capable Blu-ray player with 1080p HDMI output, integrated Bluetooth and 802.11g, an upgradable 120GB hard drive, gigabit ethernet, 7.1-channel Dolby Digital audio support, and powerful CPUs.



68 Dropbox (*online storage service, getdropbox.com, basic service free*) Dropbox makes online storage, including file syncing and sharing, as easy as saving to a local drive. Just save or drag files—up to 2GB for free, or up to 100GB for a fee—to a folder on your Windows, Mac, or Linux system, and Dropbox's software will promptly transfer them to the service's secure online servers.

69

Evernote.com (*online content manager, basic service free*) This site gathers e-mail messages, business documents, Web clips, memos, and images in a sortable format that lets you find everything fast. It even reads text in your pictures, so you can search a snapshot of a whiteboard by keyword.

70 Adobe Photoshop Elements 8 (*photo editing software; \$90 separately, \$150 bundled with Premiere Elements 8*) Elements delivers Photoshop's imaging power to nonprofessional photographers in an accessible, tabbed interface. Version 8's Auto Analyzer assesses the content of your pictures and applies special keywords to identify images by focus, level of contrast, exposure, number of faces or objects, and so forth. See page 70 for our review of the Photoshop/Premiere Elements 8 bundle.

71 Samsung SP-P410M LED (*digital projector; \$749*) This stylish compact projector can handle PC-free slideshows and videos, but its low brightness suits it for small groups. Businesspeople who want to travel light will appreciate its ability to manage presentations without having to work in tandem with a PC.



72 Lexmark C734dn

(*printer, \$875*) This color laser model offers the print speed (27.6 pages per minute for text and 4.4 ppm for graphics), features (roomy trays, automatic duplexing), and expandability that a mainstream office is likely to need—and it uses inexpensive toner to boot.

73 D-Link DIR-655 Xtreme N

Gigabit Router (*networking hardware, \$73*) D-Link's high-performance router supports drive and printer sharing, and offers a Wi-Fi guest zone. A USB port on the rear accommodates flash drives, hard drives, and printers (including multifunction devices). One drawback: The gear does not support Macs.

74 SlideRocket.com

(*presentation service, basic service free*) This striking, browser-based presentation software works with any OS and is accessible from anywhere at any time. It may not drive a stake into PowerPoint, but its versatility poses a significant challenge.

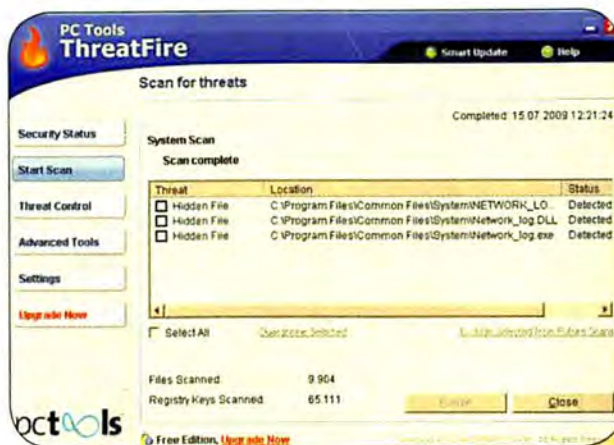
75

Navigon MobileNavigator

(*iPhone app, \$90*) If you have both an iPhone and Navigon's MobileNavigator, you can get turn-by-turn directions without having to use a stand-alone GPS device. And with a new \$25 traffic add-on from Navigon, you can avoid commute jam-ups, too.

76 Lenovo IdeaCentre A600

(*all-in-one PC, \$750*) The combination of a sharp, angular design and an ultrathin chassis helps Lenovo's good-looking all-in-one PC stand out from the pack.



PC Tools Threatfire

4.5 (*security software, free*) This antivirus application is designed to supplement your existing security software. Unlike traditional antivirus programs that primarily use malware-signature files to detect baddies, Threatfire

77

identifies malware by analyzing its behavior. In our tests, Threatfire 4.5 caught all 15 malware samples we threw at it. The software works well alongside most current antivirus programs, but it has shown some conflicts with AVG products.

78 Adobe Premiere Elements 8

(*video editing software; \$100 separately, \$150 bundled with Photoshop Elements 8*) The new Organizer lets you view, keyword-tag, and manage videos and photos. You can also drag and drop tags onto a video while previewing it. See page 70 for our review of the Photoshop/Premiere Elements 8 bundle.

79 FanSnap.com

(*online ticket service, free*) This online aggregator searches ticket scalping services to find the best prices on seats for your local sports team or the latest arena rock concert. Cool graphics show you how much tickets are going for.

Dell Studio One 19

(*all-in-one PC, prices start at \$699*) A step above a budget all-in-one, but by no means high-end, the Studio One 19 is ideal if your needs and budget fall somewhere in the middle. It's one of the few multitouch all-in-one PCs available with a 19-inch (or smaller) screen—and it's one of the fastest. You'll either love or hate its fabric screen-trim (available in white, navy blue, gray, pink, or red).

80



PHOTOGRAPH: ROBERT CARDIN



This season's shows still look great
on last season's HD TV.

Come to think of it, **eBay**

81



Samsung TL225 (digital camera,

\$330) For sheer wow factor in a compact camera, the TL225 is hard to beat. Besides including dual LCD

screens (the one on the front is designed for self-portraits), Samsung provides a touchscreen-only, gesture-sensitive interface.



82 Asus Eee PC 1101 (netbook,

\$430) The slim, well-designed Eee PC 1101 has a great keyboard and touchpad and a clear, bright, 11.6-inch screen. Its battery life rocks, too, at over 8 hours.

83 Wolfram Alpha (search engine,

free) This unusual search engine returns information—neatly formatted with graphs and images—not Web pages. It doesn't come close to the scope of Google, but for well-presented data on serious topics, Wolfram Alpha is a great resource.

84 Ubuntu 9.04 Desktop Edition (operating system, free)

Ubuntu Linux has become the gold standard in free OSs. Version 9.04 has the best hardware support in Linux history, including tools to manage displays and wireless network connections.

85 LG BD390 (Blu-ray player, \$250)

The LG BD390 delivers outstanding Blu-ray images, and it supports BD-Live, CinemaNow, DLNA, Netflix, Wi-Fi, and YouTube. Picture clarity is amazing, though the quality of unconverted regular DVDs isn't as good.

86

Hillcrest Labs Loop Pointer

Remote (input device, \$100) This stylish device is an oddly shaped wireless mouse for pointing and clicking your way around the dial. It's also adept at navigating various set-top media hubs. To input text into your PC without a keyboard, you must use the Loop in conjunction with Windows' on-screen keyboard feature.

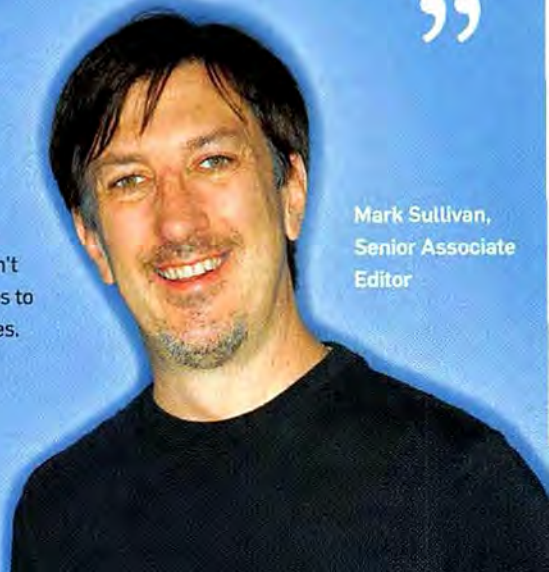


Transmedia Glide OS 3.0

(content access service, basic service free) Glide gives you remote access to your data—from photographs and music to word processing and spreadsheet documents—via a Web browser over a smartphone, cell phone, PDA, or other device. Glide is OS- and device-neutral, and users don't have to move between siloed apps to modify and share various file types.

87

“Glide makes my life easier because it lets me collaborate and share documents with other people regardless of what OS they're on.”



Mark Sullivan,
Senior Associate
Editor

88 Acronis True Image Home

2010 (backup software; free trial, \$50 per license) This powerhouse backup software has a revamped interface and new features such as one-click backup and continuous data protection.

89 Wordnik (online reference, free)

With detailed definitions, synonyms, audio pronunciation guides, and usage data, Wordnik is great for word nerds.

90 Intuit Mint (accounting software,

free) Mint continues to add nice features at the same unbeatable price. A ro- >>

tell us

You've seen a year's worth of tech, too. So tell us what you loved, liked, or even hated at find.pcworld.com/63959.



Last year's music player at half price
still plays this year's music at full volume.

Come to think of it, **eBay**

bust yet streamlined iPhone app takes Mint on the road, and you can integrate it with your Yahoo Finance account.

91 HP W2558hc (monitor; \$600)

This feature-rich, 25.5-inch widescreen LCD delivers fantastic image quality and comes with a host of extra features.

92 Western Digital Caviar Green

WD20EADS (hard drive, \$250) How about 2TB of space on a single drive? The WD20EADS combines vast storage with lower power consumption.

93



FileHippo.com
Update Checker
1.035 (update-managing service,

free) PC World's Facebook fans recommended this practical tool, which scans your PC and identifies software updates you need. You can download the updates with FileHippo, but downloading won't occur automatically.

94 Linksys Dual-Band Wireless-N Gigabit Router WRT320N (networking hardware, \$91) The WRT320N did well in our tests, and it can operate at either the 2.4GHz or the 5GHz Wi-Fi band—handy flexibility if neighboring Wi-Fi networks surround your office.

95 NinjaVideo.net

(video-playing service, free) NinjaVideo.net is the place to watch newly released movies and just-aired TV shows. Content ranges from episodes of *Lost* to documentaries and other long-form news programs.

we just can't wait for

The Apple Tablet: Speculation has it that Apple is working on a souped-up tablet PC with (maybe) a 10-inch screen, iPhone software, and the ability to display books, magazines, and HD video.

Google Chrome OS: Google's new OS will target netbooks at first and will be open-source-based (good for speed and security).

Google Wave: Google Wave is said to be part e-mail, part IM, and part document, with real-time collaboration functionality.

Project Natal: Microsoft's motion-sensing device will let users play video games with their bodies instead of with controllers.

96 Slacker.com

(streaming music apps, free) Slacker's mobile apps let you listen to the streaming-music service on your BlackBerry or iPhone/iPod Touch. And with a BlackBerry, you can store music for times when your wireless reception gets wonky.

97 Kensington Auto Power Inverter With USB Power Port

(charger, \$35) This inverter provides both an AC outlet and a USB port for charging (so you can top up your cell phone or iPod while on the go), all from a single power connection to your car or airplane seat with DC power.

98

HP Dream-Screen 100

(Internet touchscreen, prices start at \$250)

This slick moni-

tor uses wireless Internet service to display weather and Facebook friend updates, stream Pandora music, and play videos. The screen has 2GB of memory, two USB ports, stereo speakers, an ethernet jack, and an 802.11 b/g wireless antenna.



99 Nintendo DSi

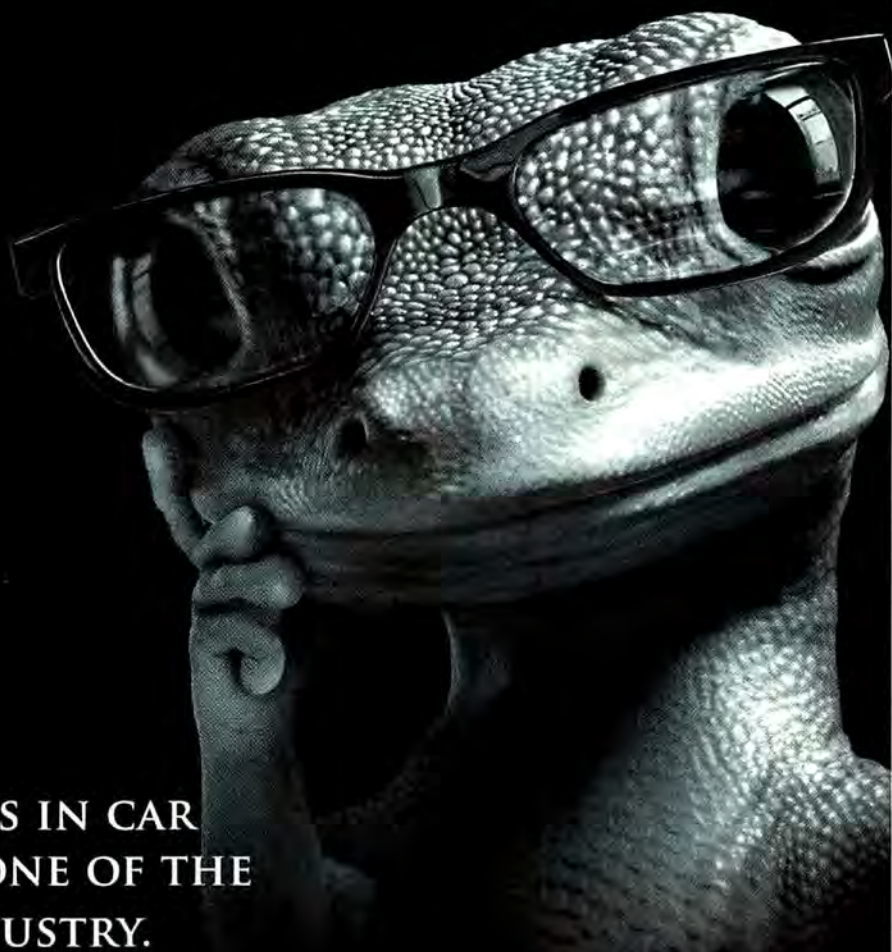
(game console, \$170) The world's bestselling games handheld introduces a matte finish, larger TFT-LCD screens, two 0.3-megapixel VGA cameras, Facebook support, and an online game and app store.



100

Uncharted 2: Among Thieves

(game, \$60) Created for the PS3, Uncharted 2: Among Thieves trumps its predecessor by offering a superlative cinematic romp full of clever 14th-century apocrypha and dazzling exotic venues. ●



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



NEW
Enterprise
Version
Available!



Synchronize Your Life!

GoodSync

Award Winning Backup and Synchronization Solution

Automatic backup and synchronization made easy...

Now you can automatically compare, synchronize, and back up your precious family photos, music, email, contacts, and other important files - between desktops, laptops, servers, and external drives, as well as through FTP, SFTP, DAV, and S3 servers.

GoodSync will:

- ✓ Automatically backup all your important files.
- ✓ Synchronize your data between multiple devices.
- ✓ Organize/transfer information between computers.
- ✓ Sync multiple file copies to prevent data loss.
- ✓ Help you achieve complete peace of mind!

GoodSync's powerful technology is years ahead of the pack. Excellent reviews by industry experts and customers alike solidify **GoodSync** as a leader in file backup and synchronization.

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www.GoodSync.com/PCW



The TV You Want Today >>

BY ALFRED POOR • TESTING BY TONY K. LEUNG

HDTVs are evolving fast.

From new smooth-motion technology to the latest on 3D, we'll tell you the features you've got to have on your next set. And we'll recommend the best TVs we've tested between 40 and 47 inches.

PHOTOGRAPH: ROBERT CARDIN

When you stroll into your local store to shop for a new TV, dozens of big, glossy screens will greet you, each one trying to draw you in with its bright, colorful pictures. And a bewildering bevy of new features promise a multitude of benefits. Which ones will make a difference in what you watch and in how it looks on the screen? We'll help you sort out what's important.

The Changing World of Television

It's official: The (television) world is flat. The market has just about completed the transition from the large, heavy, cube-shaped, standard-definition CRT (picture-tube) television set to the sleek, thin, light, high-definition flat-panel set. According to market research firm DisplaySearch, worldwide shipments of flat-panel televisions shifted from about 5 percent of all sets in early 2004 to nearly 75 percent of the total last spring. In terms

of revenue, flat panels now account for more than 90 percent of the worldwide television market. The Consumer Electronics Association says that 52 percent of U.S. households have an HDTV today. And now that the digital transition is complete, HDTV adoption continues apace.

For many shoppers, this year's television purchase may bump a previously purchased HDTV down to some other area of the house, such as the kitchen or a bedroom. But whether this is your first HDTV set or your third, it pays to get a model that's packed with all of the latest features.

You'll likely find some eye-popping HDTV deals this holiday season, but don't expect prices to plummet, even if HDTV prices today are 20 percent lower than they were last year. According to DisplaySearch analyst Paul Semenza, the LCD panels used in HDTVs are actually getting more expensive.

So far, prices of models on store shelves haven't reflected this shift—but it could inhibit the deep discounts that often appear during a holiday buying season.

Another recent trend is full-resolution HDTVs: All but a few entry-level, low-cost models with screen sizes greater than 40 inches have the 1920-by-1080 resolution of "full HD" (1080p). At smaller screen sizes, 720p remains common: On Best Buy's Web site, I found that 18 of the 35 sets between 30 and 39 inches were 720p,

40" Samsung LN40B650T1f It's the priciest 40-inch model on our chart (by \$600), but this television offers first-rate picture quality, along with a slew of ports for Internet features and other network connections, all while being very usable.



PHOTOGRAPHS: ROBERT CARDIN

top 5: 40- to 42-inch HDTVs

Though it's pricey, Samsung's LN40B650T1f earns the top spot.






| MODEL | Rating | Performance | Features and specifications |
|---|---------------------------|--|--|
| 1  Samsung LN40B650T1f \$1700 find.pcworld.com/63974 ▶ Samsung's LN40B650T1f is an excellent all-around TV, thanks to its very good picture quality, Internet extras, and user-friendliness. | ★★★★★ SUPERIOR | • HD broadcast: Very Good • DVD: Very Good • Blu-ray: Very Good • Design: Superior | • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 120Hz |
| 2  LG 42LH50 \$1100 find.pcworld.com/63975 ▶ The LG 42LH50 provides great connected features, above-average image quality, and good looks for a moderate price. | ★★★★★ VERY GOOD | • HD broadcast: Very Good • DVD: Good • Blu-ray: Very Good • Design: Superior | • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 120Hz |
| 3  BEST BUY Sony Bravia 40W5100 \$1100 find.pcworld.com/63976 ▶ The Sony Bravia 40W5100 isn't just an HDTV with very good picture quality; it's a 40-inch window to the Internet. | ★★★★★ VERY GOOD | • HD broadcast: Very Good • DVD: Very Good • Blu-ray: Very Good • Design: Very Good | • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 120Hz |
| 4  LG 42LH55 \$1100 find.pcworld.com/63977 ▶ The LG 42LH55 displays solid picture quality and is reasonably priced, but it is far from generous with extra goodies. | ★★★★★ VERY GOOD | • HD broadcast: Very Good • DVD: Very Good • Blu-ray: Very Good • Design: Good | • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 240Hz |
| 5  Vizio SV421XVT \$900 find.pcworld.com/63978 ▶ Though it put up good numbers all around, this 42-inch, 240Hz set had a hard time displaying the fine details we expected to see. | ★★★★★ VERY GOOD | • HD broadcast: Very Good • DVD: Good • Blu-ray: Good • Design: Very Good | • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 240Hz |

CHART NOTE: Ratings are as of 10/16/09.

including models from LG, Panasonic, Samsung, and Sony.

Beyond entry-level sets, today's HDTVs differentiate themselves with features that can enhance your viewing experience and improve the TV's performance. Several capabilities—such as fast-motion response times and LED backlighting—that were once exclusive to super-pricey high-end models are now showing up in more-affordable mainstream units. But what do these new features mean, and will they make a noticeable difference in your viewing? Which features are merely nice to have, and which ones are worth paying extra money to get?

Rising Refresh Rates

According to DisplaySearch, about half of all LCD HDTVs with 40-inch or larger screens now have refresh rates of 120Hz or higher. It took a couple of years for 120Hz to reach the mainstream, but today only entry-level and economy models at these large sizes have the standard 60Hz refresh rate. The picture changes for sets under 40 inches, though: DisplaySearch says that among all such LCDs shipped in the second quarter of 2009, only 14 percent were capable of 120Hz. The company expects that figure to grow to 24 percent by the year 2013.

Some manufacturers have made a full-on push to 120Hz. Sony, for example, has only one series—the Bravia S5100—that doesn't have 120Hz or 240Hz models.

Note the emphasis here on LCDs (versus plasma screens): Since LCDs have the lion's share of the flat-panel market at more than 90 percent, it makes sense that they get most of the attention. But LCD technology has a known issue with fast motion: The technology relies on moving tiny molecules around to block or to transmit the light from the panel's backlight. And these molecules need time to move from one position to another. As a result, traditional panel designs ran into a problem with motion blur. Commonly, the leading and trailing edges of a fast-moving object in an image looked soft, an unwelcome artifact—and not just for hockey fans trying to follow a speeding puck on the screen.

Panel manufacturers found that changing the cell structure and the formulations of liquid crystal material wasn't enough to overcome this problem: The trick was to refresh the image twice as often, doubling the refresh rate from 60 to 120 times a second. In addition, manufacturers improved their televisions' controlling circuitry so that it would look at the two original frames in the 60Hz image stream, and interpolate a new frame to provide an intermediate image.

This approach produced a marked improvement over traditional 60Hz sets (see "Movement: The 120Hz Difference" on page 92), one that's well worth the extra investment in a set with a minimum of 120Hz. The price difference has nar- ➤

rowed, but you can still expect to pay approximately \$100 to \$200 more to step up to an HDTV set with this feature in the 40- to 42-inch range. It's a must-have feature if you plan to watch sports, but any content that includes panning scenes and fast action will benefit from this technology.

If 120Hz is good, then 240Hz must be twice as good, right? The answer is a lot murkier than that (see the box below).

The manufacturers that offer 240Hz refresh technology are divided into two camps, each with a different approach. Samsung and Sony use a true 240Hz technology, in which (as in 120Hz sets) the controller starts with a pair of frames from the 60Hz content stream—but then creates three additional intermediate frames, not one. This means that for each of the original frames, the set actually displays four frames.

Adding these extra frames causes the liquid crystal material to move more quickly than it otherwise would, which in turn reduces the blur effects. The difference may be noticeable compared with 120Hz, but in our tests it wasn't as dramatic as the difference between 60Hz and 120Hz, even when we looked at the sets side by side. As such, 240Hz is probably not worth paying a lot more for over the cost of a 120Hz model. (Right now, the jump from 120Hz to 240Hz is about \$300 to \$600, a

large premium compared with the step from 60Hz to 120Hz.)

LG approaches 240Hz by a different path: Its models with 240Hz performance generate one interpolated frame for each of the standard 60Hz frames, just as 120Hz models do, but they flash their backlights twice for every frame. Thus, 60 original frames plus 60 more interpolated frames make 120 frames, and then the backlight flashing twice for each frame yields 240 flashes per second. Like a strobe light in a disco dance hall, the flash of the backlight helps freeze the action on the screen and reduce motion blur. But this eye trick still presents only 120 frames per second, so asserting that its refresh rate is faster than 120Hz rests on rather shaky science.

Panels with 120Hz (or faster) refresh rates have one additional benefit: Most television programming is recorded at 30 frames per second (fps), which is easy to double for the 60Hz refresh rate that most HDTVs used. Movies, however, are filmed at 24 fps, which poses problems for technicians seeking to digitize them for DVD or broadcast use. To fit the 30-fps timing, every four frames of movie film must be stretched to fit five frames of video. The process employed to achieve this, called "3:2 pulldown," uses two interlaced fields of the first film frame and then three interlaced frames of the next frame to produce the stretch.

This awkward conversion can create a motion artifact called "judder," a jerkiness or slight stutter visible in the finished image. But since 120Hz, unlike 60Hz, is an even multiple of 24, these panels can display 24-fps material without requiring any conversion; each frame just gets shown five times.

movement: the 120hz difference

AS PART OF PC World's revamped HDTV test methodology (see find.pcworld.com/63979 for details on how we test HDTVs), we've introduced a series of motion tests that take into consideration the horizontal, vertical, and diagonal movements of images across the screen. These tests are designed to push HDTVs to the brink, and to separate the winners from the wimps.

HDTVs whose LCD panels had at least a 120Hz refresh rate generally did better than sets with a baseline rate of 60Hz. The improvement from 120Hz to 240Hz was less dramatic.

The best performer on our motion tests was the Samsung LN46B750U1F, a 240Hz set that compiled a score of 4.5 out of 5 stars on this series of tests—an impressive feat, considering how strictly our judges graded. Right behind it came the Vizio SV471XVT, with 4.2 stars, followed by a pair of TVs that earned marks of 4 stars: the Vizio SV421XVT and the Samsung LN40B650T1f.

The worst performers fared especially poorly on this test. The JVC LT-46P300, a 60Hz HDTV, scored just 0.6 star on our motion tests. But the 120Hz Insignia NS-L42X10A scored just 1.1 stars, well below average. In most cases, the difference between 60Hz and 120Hz was obvious. For example, as an image with text on it scrolled from right to left, it moved smoothly on the top-performing TVs in this test, and the text labels were clearly readable. That clarity and smoothness disappeared in the sets that performed below average.

Based on our tests, it pays to ante up the extra \$200 or so to move up to a 120Hz HDTV from a 60Hz model—if you're confident that the set implements the technology well. The wild variance we saw underscores that the 120Hz (or 240Hz) spec alone does not guarantee a minimum level of performance. The distinction between 240Hz and 120Hz was especially slight, so the value of jumping up to 240Hz is less clear-cut than the value of upgrading to 120Hz.

—Melissa J. Perenson

LED Backlighting

Another feature growing in prominence is the use of LEDs as backlights for LCD TV panels. Both Samsung and Toshiba call their models with this feature "LED TVs," which has confused many consumers. LED TVs are not a new technology; they're just LCD TVs with a different type of backlight.

LEDs have some distinct advantages over traditional cold-cathode fluorescent lamp (CCFL) designs, which many LCD TVs use. Compared with CCFL technology,



gy, LED backlighting results in TVs that require less power (by up to 40 percent for a 40-inch television) and provide improved color performance: LED TVs handle red and green hues better, resulting in more-natural, more-lifelike picture quality.

Perhaps the foremost advantage of LED backlighting is its ability to enhance contrast and produce darker blacks. This capability closes the gap between LCD screens and plasma displays, which traditionally have offered deeper blacks than LCDs. Here again, manufacturers have adopted two different approaches to implementing LED backlights.

One design puts the LED lights behind the LCD panel in a big matrix layout. This approach permits the use of "local dimming": If the controller recognizes that a portion of the image is generally dark, it can automatically dim the LEDs behind that one small segment of the image. This helps keep black levels low, increasing the apparent contrast.

The other way to use LEDs with LCD panels is to put them along the edge behind the panel, as Samsung's 1.2-inch-thick, 46-inch UN46B8000 does. This approach requires sophisticated diffusers to spread the light evenly behind the LCD layer, and it reduces or eliminates the ability to improve apparent contrast through localized, content-based dimming. It does keep the part count much lower, however, and it can make the heat that the LEDs generate easier to manage.

46" Samsung LN46B750U1F The top-ranked model on our chart of larger high-definition sets, this 46-inch HDTV earned plaudits for superb picture quality, Internet connectivity, and an array of functions on its full-featured remote control.

Though LEDs have their benefits, they come with their own issues. For one thing, LED TVs cost appreciably more than CCFL-based models—about \$300 more, on average—due both to the cost of manufacturing the LEDs and to the cost of installing these arrays. Also, LED production processes cannot yet make units with consistent color output, so manufacturers must inspect each LED and "bin" it—grouping it with other

LEDs of similar color. The more consistent and accurate the color output required, the more the individual LEDs cost. Until the industry solves this problem, LCD TVs with LED backlights are likely to cost more than CCFL sets.

If you care about color quality and are willing to tweak your television, an LED-backlight model may be worth the extra money. Note, however, that none of the models we tested for this roundup included LED backlights.

Connectivity

Another big trend this year involves connections to bring the Internet to your TV. Many HDTVs have an ethernet connection on the back, plus integrated software for dealing with Web content. If you connect to the Internet via your home network's router, your TV can gain access to a range of Web-based content, all without going through a computer.

According to data from Nielsen, 90 percent of U.S. homes now have access to broadband Internet connections, so >>

the connected TV is entirely feasible with today's technology, especially if the HDTV set has a Wi-Fi capability, as many do.

The TVs shipping today that have Web access limit the locations you can visit online. This approach simplifies navigation, which is important because you have to use a remote control instead of a keyboard, mouse, and full-on Web browser.

This year marks the debut of Yahoo Connected TV's Widgets; the Widgets are now offered on Internet-capable sets from LG, Samsung, Sony, and Vizio. The services and presentation vary from one brand to another, as manufacturers make different choices about which Widgets to offer. Widgets are available for news, weather, and sports information, as well as for access to popular sites like YouTube, Twitter, Flickr, and Facebook.

Yahoo Widgets isn't the only Internet connectivity going. Sony has continued to develop its Bravia Internet Video Link version of streaming, Web-based content—which includes modules for Amazon Video on Demand, CBS, Netflix, Slacker Internet Radio, YouTube, and more. Other sets, such as units developed by Panasonic and by LG Electronics, have modules for services as well; the most popular inclusions are Amazon Video on Demand, Netflix and Vudu, along with photo sharing sites such as Flickr and Picasa, and streaming

music Websites like Pandora and Slacker Internet Radio.

Network connectivity can give you access to the content you've stored on your home network, including CDs you've ripped, digital photos, and digital home movies. Some sets can access those items, as well. The Digital Living Network Alliance certifies most connected TVs; put your files on a DLNA-certified storage device on your network, and a DLNA television will be able to play your music and screen your photos and videos. According to the Alliance's Website (www.dlna.org) more than 500 DLNA-certified television models are available. Windows Media Player 11 and 12 are DLNA servers too, so using a PC that runs XP, Vista, or Windows 7 will work, if you use WMP 11 or 12 for your media library.

Integrated ethernet has another advantage: Upgrades to your television's software can download automatically so the updated firmware, or a new Widget or other service, will be available the next time you turn on your HDTV.

Network connectivity will give you access to an enormous amount of additional content—much of it on-demand and free—but do some research before plunking down your cash if you want specific services or capabilities. Having an ethernet connection doesn't automatically mean that an HDTV >>

top 5: 46- to 47-inch HDTVs

Features and picture quality make Samsung's 46-incher our top choice.













| MODEL | Rating | Performance | Features and specifications |
|--|---|---|---|
| 1  Samsung LN46B750U1F \$1700 find.pcworld.com/63980 |  VERY GOOD | <ul style="list-style-type: none"> • HD broadcast: Very Good • DVD: Very Good • Blu-ray: Very Good • Design: Superior | <ul style="list-style-type: none"> • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 240Hz |
| <p>• Internet connectivity and very good picture quality make the \$1700 Samsung LN46B750U1F our top pick.</p> | | | |
| 2  Toshiba 47ZV650U \$1300 find.pcworld.com/63981 |  VERY GOOD | <ul style="list-style-type: none"> • HD broadcast: Very Good • DVD: Very Good • Blu-ray: Very Good • Design: Good | <ul style="list-style-type: none"> • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 240Hz |
| <p>• The Toshiba 47ZV650U features solid picture quality, but this 47-inch, LCD-based HDTV could be easier to use.</p> | | | |
| 3  Panasonic TC-P46S1 \$1300 find.pcworld.com/63982 |  GOOD | <ul style="list-style-type: none"> • HD broadcast: Very Good • DVD: Good • Blu-ray: Good • Design: Superior | <ul style="list-style-type: none"> • Display type: Plasma • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 600Hz¹ |
| <p>• The Panasonic TC-P46S1 is a well-designed HDTV, but some shortcomings in picture quality hold it back.</p> | | | |
| 4  Vizio SV471XVT \$1200 find.pcworld.com/63983 |  GOOD | <ul style="list-style-type: none"> • HD broadcast: Good • DVD: Good • Blu-ray: Good • Design: Very Good | <ul style="list-style-type: none"> • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 4 HDMI, 2 component • Refresh rate: 240Hz |
| <p>• While the Vizio SV471XVT is priced nicely and generally easy to use, its picture quality is merely average.</p> | | | |
| 5  JVC LT-46J300 \$1100 find.pcworld.com/63984 |  GOOD | <ul style="list-style-type: none"> • HD broadcast: Good • DVD: Good • Blu-ray: Good • Design: Fair | <ul style="list-style-type: none"> • Display type: LCD • 1920-by-1080-pixel screen • Inputs: 3 HDMI, 2 component • Refresh rate: 60Hz |
| <p>• Disappointing picture quality prevents the JVC LT-46J300 from ranking higher; it does have an appealing price.</p> | | | |

CHART NOTE: Ratings are as of 10/16/09. FOOTNOTE: ¹ The pixels on plasma sets like the Panasonic TC-P46S1 turn on and off much faster than LCD pixels.

MONEUAL 312 STARTING FROM \$899

- ◆ Intel Core 2 Duo E8400, 3.0GHz, 1333MHz, 6MB L2 Cache
- ◆ Microsoft Windows Vista Home Premium 32-bit w/ Digital Cable Support
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- ◆ Lite-On LH-4B1S 4X SATA Blu-ray Drive (Optional)
- ◆ Integrated Gigabit Ethernet RJ-45
- ◆ 8 Channels Realtek ALC1200
- ◆ 2.4GHz wireless Keyboard (Track ball included), Microsoft Media Center Remote
- ◆ 8-Channel High Definition Audio
- ◆ ATI Digital Cable TV Tuner Internal (Optional)
- ◆ Dimensions 17" (W) x 18 1/2" (D) x 6 3/4" (H), Aluminum



MiNEW S10 STARTING FROM \$349

- ◆ Intel Atom Processor 230 (1.6GHz / 512KB L2 cache)
- ◆ Microsoft Windows XP Home Edition
- ◆ 1GB DDR2 SDRAM
- ◆ 160GB SATA Hard Disk Drive (5400RPM)
- ◆ Intel Internal Graphics Media Accelerator 950
- ◆ Intel High Definition Audio
- ◆ Realtek 10/100 Ethernet LAN Built-In
- ◆ Dimensions 8.66" (W) x 8.66" (D) x 3.28" (H), Aluminum



MiNEW A10 STARTING FROM \$299

- ◆ Intel Atom Processor 230 (1.6GHz / 512KB L2 cache)
- ◆ Microsoft Windows XP Home Edition
- ◆ 1GB DDR2 SDRAM
- ◆ 160GB SATA Hard Disk Drive (5400RPM)
- ◆ Intel Internal Graphics Media Accelerator 950
- ◆ Intel High Definition Audio
- ◆ Realtek 10/100 Ethernet LAN Built-In
- ◆ Dimensions 7.95" (W) x 8.66" (D) x 2.75" (H), Aluminum



MONEUAL 972 STARTING FROM \$1,629

- ◆ Intel Core 2 Quad Q9400, 2.66GHz, 1333MHz, 6MB L2 Cache
- ◆ Microsoft Windows Vista Home Premium 32-bit w/ Digital Cable Support
- ◆ AMD ATI Radeon HD4670 512MB GDDR3 HDMI
- ◆ 500 GB 7200RPM SATA
- ◆ Lite-On LH-4B1S 4X SATA Blu-ray Drive (Optional)
- ◆ 7 inch Touch Screen
- ◆ 2.4GHz wireless Keyboard (Track ball included), I-mon Wireless Remote Controller
- ◆ Marvell88E8056 Gigabit Ethernet Controller
- ◆ 8-Channel High Definition Audio
- ◆ Multimedia Card Reader
- ◆ 7 USB 2.0 ports (1 Front, 6 Rear)
- ◆ 2 FireWire (IEEE 1394) port (1 Front, 1 Rear)
- ◆ Front 1/4" headphone / mic port
- ◆ ATI Digital Cable TV Tuner Internal (Optional)
- ◆ Dimensions 17" (W) x 18 1/2" (D) x 6 3/4" (H), Aluminum



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will stream media through your home network, or have all the Web services you seek.

Going 'Green'?

Consumer electronics are going green, and the HDTV market is no exception to the trend. While plasma flat panels continue to consume more electricity than LCD models, both technologies have made notable strides in energy conservation.

For example, "eco modes" dim the picture to save energy when the viewer doesn't need full brightness, working in much the same way as a draft mode on a printer. Automatic ambient light sensors can adjust an image's brightness, saving energy. And plasma manufacturers have developed some more-efficient technologies that reduce the power a plasma television consumes.

Most manufacturers are not shy about touting their "greenness," whenever possible. To check for lower power consumption, look for the Energy Star 3.0 logo. To qualify for this optional program, run jointly by the U.S. Environmental Protection Agency and the U.S. Department of Energy, an HDTV must not exceed a specified maximum power consumption limit. This limit differs somewhat depending on the set's screen size, and the Energy Star program breaks out HDTVs into three segments: smaller than 40 inches, 40 inches to 58 inches, and larger than 58 inches. (For a list of models that qualify for Energy Star logos, see find.pcworld.com/63934.)

The next revision of Energy Star, Version 4.0, is due to take effect on May 1, 2010, and Version 5.0 will replace it on May 1, 2012. These new specifications further reduce the maximum allowable amount of energy that a qualifying set can use.

According to some sources, consumers can save \$15 to \$30 a year on their electricity bills by choosing a set with lower power consumption. This may not seem like a big deal, but

3D tv: the next big thing?

NOW THAT WE have HDTV, what's next? 3D.

3D movies have been taking off at the box office. About 15 major feature films will be released in 3D in 2009, with twice that number set for 2010.

HDTV manufacturers are scrambling to support 3DTV. Both plasma and 120Hz LCD technology are adaptable to 3DTV using active glasses—not the passive glasses used in most 3D movie theaters.

Active glasses use LCD material to block the light first to one eye and then to the other, at very fast rates. By synchronizing them to the content on the HDTV, 3DTV technology can present full-resolution 1080p images sequentially to the left and right eyes, and still have a total frame rate of 60Hz. Other technologies can show 3D images with either passive glasses or no glasses at all, but are too expensive to manufacture or have significant viewing limitations.

One roadblock for 3D content has been the lack of an industry standard, but that's changing fast. Hollywood already adds depth information to many of its films, and translates this into different formats that different cinema projection systems use—the RealD system based on polarized light, for example, or the Dolby system that relies on sophisticated RGB color filters to create stereoscopic images. Creating a similar "home 3D master" is not that difficult—SMPTE (an organization of industry engineers) is well on the way to defining such a specification.

Such a master can provide data for a range of display formats. And the Blu-ray Disc Association

is working on a standard for storing 3D on prepackaged media. HDTVs can be made to work with a variety of 3D data-stream formats. Down the road, HDTVs should be 3D as well.

A WOMAN VIEWS 3D images through special active glasses on one of Panasonic's 50-inch plasma sets at its factory in Japan.



consider that the average U.S. consumer keeps a television for ten years or longer. A savings of \$150 to \$300 on a set that originally cost \$500 to \$1000 is a significant amount.

Final Word

Some of the newfangled features we've discussed here will help you experience your entertainment content differently, or improve how it looks on screen. In general, as you try to decide what to buy, resist being dazzled by shiny, sparkly things. Focus instead on the attributes that will matter when you're watching various kinds of content on your new TV.

For more on HDTVs, go to find.pcworld.com/63972. ●

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ATI Radeon™ 5870 1GB Direct X 11 Video
Inwin Maelstrom Full Tower Case 800 Watt Power
Aseatek Liquid Cooling System

Intel® Core™ i7 Processor

| | |
|------------------------|---------|
| Extreme 17-075 3.30Ghz | \$ 2165 |
| 17-900 3.20Ghz | \$ 1705 |
| 17-030 2.66Ghz | \$ 1415 |

System included the following



\$765

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Asus® Intel® P55 Chipset MB
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NVIDIA® GeForce® GT 220 1GB
Apevia X-Crusier 2 Gaming case with
3 Meters and Controls 420 Watt Power Supply

Intel® Core™ i7 Processor

| | |
|----------------|---------|
| (7-870 2.93GHz | \$ 1155 |
| (7-860 2.80GHz | \$ 849 |

Intel® Core™ i5 Processor

System included the following



\$999

Gamer Infinity HD 4850

Gigabyte Intel® X58 Chipset MB Supporting CrossFire™/SLI
Genuine Windows 7 Home Premium 64 Bit Edition
Corsair® 6GB DDR3-1333 Tri Channel Memory
500GB 7200RPM SATA-II 3.0Gb/s 16MB Cache Ultra Fast HD
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| | |
|------------------------|---------|
| Extreme i7-975 3.33GHz | \$ 1795 |
| i7-960 3.20GHz | \$ 1315 |

| | |
|----------------|--------|
| 17-920 2.80GHz | \$ 999 |
|----------------|--------|

System included the following



\$1009

Gamer Xplorer X7-7700

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| (800MHz FSB) | | |
|-----------------------------|--|---------|
| T9900 6MB L2 Cache, 2.93Ghz | | \$ 1375 |
| P9700 6MB L2 Cache, 2.80Ghz | | \$ 1169 |
| T9600 6MB L2 Cache, 2.66Ghz | | \$ 1135 |
| P8800 3MB L2 Cache, 2.53Ghz | | \$ 1055 |
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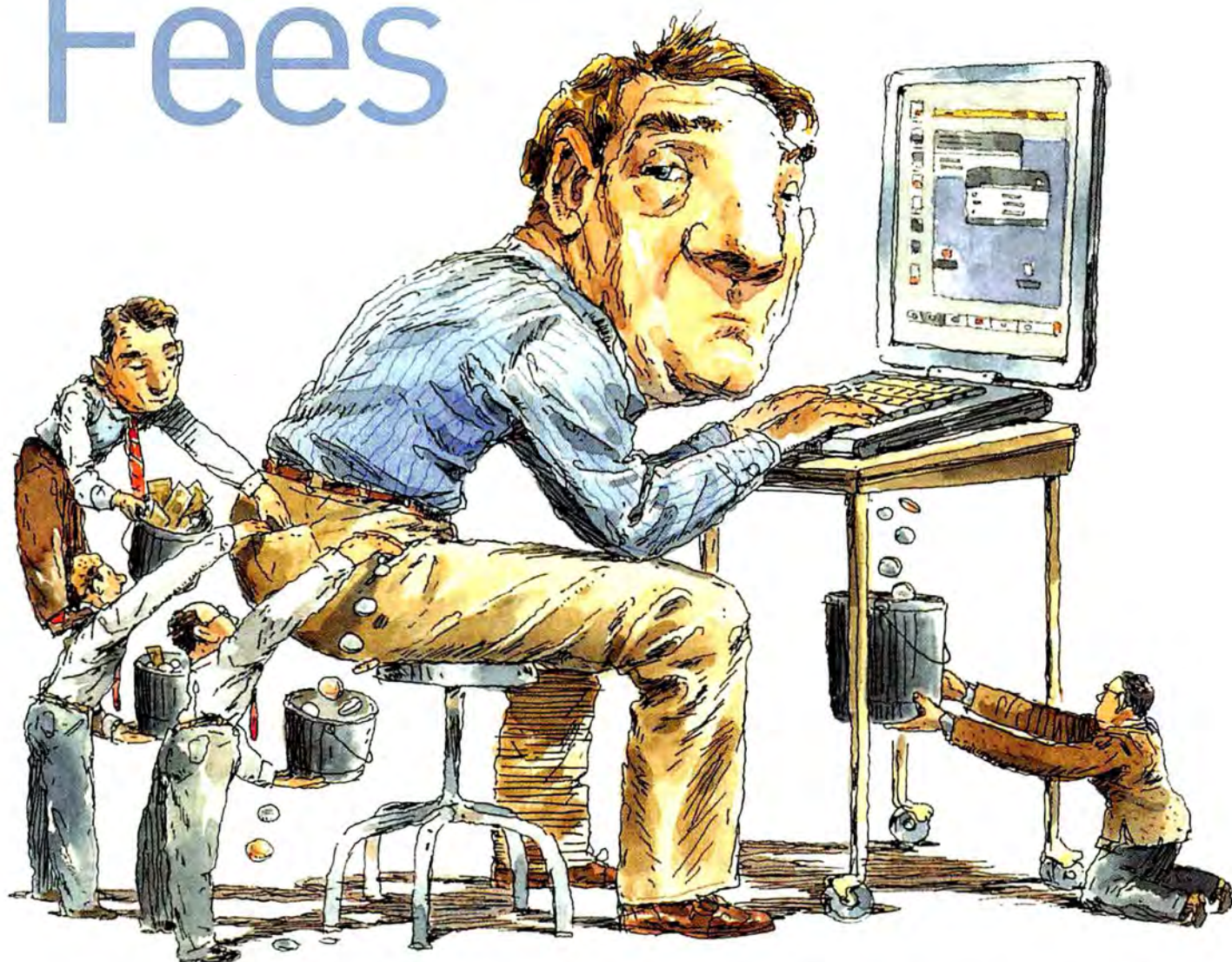
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\$15 to book airline tickets online?
Wireless providers, cable companies, and other firms are increasingly nickel-and-diming us to death. Here's how to fight back. »

Sneaky Fees

BY TOM SPRING

ILLUSTRATIONS BY JOHN CUNEO



Recently, I renewed

my XM Satellite Radio subscription. I had expected it to cost \$13 a month, the advertised price. But I found out that Sirius XM had added a monthly \$2 "music royalty fee." I grudgingly agreed to it and said, "Send me the bill." Well, the Sirius XM rep replied, there was one more thing: I'd have to pay a \$2 "invoice fee" if I wanted a paper bill mailed to me.

According to the Ponemon Institute, a research group specializing in consumer privacy, such sneaky fees cost each U.S. resident an estimated \$950 every year. None are outlandish—\$1 here, \$3.95 there. But they add up, boosting the cost of a wireless bill or of an airline ticket you book online far beyond what you had planned to spend.

For companies, they work like a charm, says Bob Sullivan, author of *Gotcha Capitalism*. "How does a \$39 cable bill become a \$70 bill? How does a \$55 wireless plan cost \$75? The answer is fees," he explains. According to Sullivan, surveyed companies from ten markets make \$45 billion annually in such charges.

Particularly annoying are fees that make a "free" offer not free at all. For instance, many PC makers offered customers who bought a system just before the debut of Windows 7 a "free" upgrade once the OS was out. What they didn't say is that many buyers would have to pay "ship-

ping, handling, and fulfillment fees." Lenovo is charging \$17.03. Compaq, Dell, HP, Sony, and Toshiba are asking some customers to pay \$11.25 to \$14.99.

Wireless Fees

Nowhere do consumers find fees more confounding than on their wireless bill. Maybe it's a \$3-a-month charge for a daily horoscope you didn't request. Maybe it's an \$18 "upgrade fee" that no one mentioned when you bought your snazzy new phone. Or maybe it's a charge for a ringtone that came with a "free" offer. Whatever the case, if you've had it with your cell phone company's billing practices, you're not alone.

The U.S. Government Accountability Office (an arm of Congress) determined that one-third of cell phone owners found unexpected charges on their bills

or complained to the agency about having problems understanding the bills. Worse, says the GAO, one in five customers who contacted their carrier were dissatisfied with the company's efforts to resolve the problem. (For advice, see "Five Ways Wireless Carriers Try to Gouge You" on page 25.)

Verizon Wireless is typical: It advertises a low \$40-per-month Nationwide Basic plan and adds charges on top of that. The plan details state that first-time customers pay a \$35 activation fee and can expect to pay between 5 percent and 37 percent more each month in "tolls, taxes, and surcharges." That doesn't include charges for going over the plan's preset limits for texting, data transfers, and voice minutes.

One Verizon fee is a \$0.92 "administrative charge," described on its site as one of several fees that "aren't taxes, aren't required by law, are kept by us in whole or in part, and the amounts and what's included are subject to change." Essentially, if you're a customer, you pay 92 cents a month to cover the cost of Verizon's doing business with you.

I asked spokesperson Michael Murphy why Verizon doesn't fold the non-tax fees into the advertised price so that consumers could know what their final bill would be. Murphy says that it's because surcharges and fees vary by market and are subject to change.

Sullivan doesn't buy it. The real rea-

Fine Print:

Sirius XM advertises its satellite radio service at \$12.95 per month. But that amount doesn't count another \$1.98 in a "music royalty fee" that customers pay on top of their regular monthly bill.



U. S. Music Royalty Fee

Effective July 29, 2009, a U.S. Music Royalty Fee has been added to subscriber invoices. Details about the specific costs being passed through to subscribers in this U.S. Music Royalty Fee are provided below.

1. Why does SIRIUS XM pay music royalties?
2. How much is the U.S. Music Royalty Fee?
3. How much is the U.S. Music Royalty Fee?

6. How much is the U.S. Music Royalty Fee?

- a. The fee is \$1.98 a month on our base \$12.95 subscriptions and \$.97 for base plans that are eligible for a second radio discount. Your actual fee may vary depending upon the Package and Plan term you choose.

son Verizon is sneaky, he says, is that everyone else is too. "You can't be the only company with transparent pricing, or you'll always appear to have the highest prices."

You can't always blame your carrier for sneaky charges, however. Customers can easily get stuck spending \$10 a month on third-

Second-Gen Flip Video MinoHD: The Best Pocket Camcorder

THE SECOND-GENERATION Flip Video MinoHD doesn't represent a huge jump in specs and features, although changes in the new model from the previous version include a doubling in storage capacity (from 4GB to 8GB), revamped video software, an HDMI-out port, and the end of the line for the Pure Digital brand (Cisco purchased the company in March, and "Flip Video" is now the brand name).

The stars of the show are the vastly improved build quality, the unit's best-in-class low-light video, and the sheer aesthetics of the device. Unlike the plasticky, cheap feel of previous Flips, this one feels a whole lot sturdier and looks a whole lot better (the brushed-metal faceplate and redesigned USB connector even make the new MinoHD look like an Apple product).

Video quality has improved, as well. Like the first-gen MinoHD, the new model shoots 720p high-definition MPEG-4 video at 30 frames per second; clips are smoother and sharper than those produced by its competitors. Flip cams have traditionally smoked the competition in taking low-light video, and the new MinoHD ups the ante even further: The footage it takes in low-light conditions is clearly at the head of the pocket-camcorder class, rivaling and even surpassing the low-light video of \$1000-and-up HD camcorders.

Similar to earlier models, the new MinoHD has a flip-out USB 2.0 connec-



THE NEW MINOHD is one of the most appealing, and functional, pocket camcorders.

tor, which pops up, switchblade-style, from the top of the device. (It also sounds more like a switchblade in this version, since the redesigned connector is now entirely metal.)

This is one of two connectors on the device; the new MinoHD has a mini-HDMI port on the bottom of the unit for watching videos on an HDTV set, which is another addition over the previous MinoHD. (You get no HDMI cable in the package, however.)

The revamped FlipShare software, which installs and launches when you plug the camcorder into your PC, now supports direct-to-Facebook uploads and adds a feature called MagicMovie that lets you enhance your footage with transitions, music, and more.

The sum of all these parts is arguably the best HD pocket camcorder you can buy now. Although Kodak's 1080p-shooting, digitally stabilized Zi8 is still a notch above the new Flip in bright-light video quality, frame-rate controls, and overall features, it has some nagging usability issues. The new Flip MinoHD beats it in low-light footage, usability, durability, and design.

—Tim Moynihan

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iPod Nano and Zune HD: Capable Media Players

OTHER THAN THE ability to play music and video, the new iPod Nano and the Zune HD share few similarities. The iPod Nano is more of a secondary player for commutes or the gym, and its new video camera makes it ideal for YouTube clips. The Zune HD, in contrast, is for the media junkie, offering a higher capacity and HD video playback.

Apple iPod Nano

Measuring 3.6 by 1.5 by 0.24 inches and bearing a 2.2-inch display, the 1.3-ounce fifth-gen Nano (\$150 for 8GB, \$180 for 16GB) comes in a rainbow of colors, encased in polished anodized aluminum. The finish is attractive, but susceptible to smudges and fingerprints.

Among the new features is an FM radio tuner (at last!). Though the FM radio isn't particularly innovative (we saw this feature on the first-gen Zune), it can pause and play radio, and it works well.

Thanks to its integration with iTunes, the Nano has unbeatable audio and video features. Genius Mixes, which group your music by a common characteristic, generate directly on the Nano when you sync from iTunes.



THE IPOD NANO'S video camera is suitable for taking casual clips.

Audio sounded clean but somewhat tinny through the included earbuds. In the PC World Labs' audio-quality tests, this Nano scored similarly to its predecessor, receiving a rating of Superior.

The video camera is a positive addition. The lens placement is awkward, however, and I found that holding the sliver-thin Nano by its edges was difficult. Gripping it at the bottom doesn't work well either, as the lens sits at the bottom of the device when you hold it vertically.

Video shot outside was bright and sharp. But since the Nano has no contrast or brightness controls, my indoor clips were fuzzy, dark, and grainy. The mic picked up sound adequately. The 640-by-480-pixel VGA footage is compatible with streaming-video sites, and it works natively in iTunes.

Watching video on the Nano itself is surprisingly enjoyable. Still, viewing videos on a device this small takes some getting used to, and the rounded screen attracts quite a bit of glare.

Microsoft Zune HD

The Zune HD marks a huge improvement from last year's model in speed, video quality, usability, and design. But

while it is priced competitively (\$220 for 16GB, \$290 for 32GB), you'll have to pay more to take full advantage of all of its features.

Physically, the Zune HD represents a complete make-



THE ZUNE HD'S Quickplay menu holds your favorites and history.

over. It measures 4.0 by 2.0 by 0.3 inches and weighs 2.6 ounces. A gorgeous, 3.3-inch, multitouch OLED display dominates the face.

Microsoft has added an HD radio receiver. HD radio delivers cleaner sound than analog FM does, and lets stations broadcast extra channels; you can also tag and download songs from the Zune Marketplace.

To fully enjoy the Zune HD's high-def video capabilities, you'll have to pay \$80 for the HDMI docking station. The Zune HD supports

720p HD files, so you can play videos via the dock on your HDTV. Video on my HDTV had bright and accurate colors, smooth transitions, and little pixelation. Video playback on the Zune HD itself was impressive, too.

Audio quality was good, but you'll want to ditch the included earbuds. With better headphones, songs sounded rich and clean.

Microsoft has optimized the interface for the multitouch display. The new Quickplay item displays your most recently added content and history, and lets you pin your favorites.

The Zune 4.0 PC software has its own splashy Quickplay page. You can't sync the menus, however; favorites you add to your Zune won't carry over to your PC.

Another new software feature is SmartDJ, which, similar to Genius Mixes, creates a playlist from songs in your library and on the Zune Marketplace. You have to buy the Zune Pass (\$15 per month), however, to enjoy the Zune Marketplace content.

—Ginny Mies

★★★★ VERY GOOD

iPod Nano Apple

Still a great media player, the Nano can now take casual video clips. List: \$150 (8GB), \$180 (16GB) find.pcworld.com/63897

★★★★ VERY GOOD

Zune HD Microsoft

With HD features and a slim shape, the Zune HD is a standout player. List: \$220 (16GB), \$290 (32GB) find.pcworld.com/63898

party services for ringtones, wallpaper, and jokes delivered via SMS. Many such customers say that they believed the services were free or involved only a one-time fee. And some claim that they never even requested the services.

Within the last couple of years, AT&T Mobility and Verizon Wireless reached settlements with Florida Attorney General Bill McCollum, who had accused the carriers (plus Alltel, which Verizon was acquiring) of allowing advertisers to put out misleading offers for "free" ringtones, wallpaper, and horoscopes, and then to bill customers for the services.

In June, without admitting to any wrongdoing, Verizon Wireless agreed to reimburse Florida customers up to \$30 million, as well as to set stringent advertising standards. In February 2008 AT&T Mobility had agreed to return up to \$40 million to Florida consumers.

The trade association CTIA has worked to create voluntary standards to make bills clear, says spokesperson John Walls. But problems persist: Consumer complaints filed with the FCC about wireless billing and rates rose from 8822 in 2006 to 10,930 in 2008, an increase of approximately 24 percent.

Triple-Play Plans Triple the Annoyance

Does your cable bill seem to inch closer to the stratosphere every month? It isn't your imagination. Advertised low prices seldom stay low, and with companies locking customers into contracts with early-termination fees, consumers are getting a raw deal, experts say.

According to Joel Kelsey, policy analyst with the Consumers Union, 25 percent of people who have a combination of TV, Internet, and phone service say that taxes and fees make their bills much higher than they expected.

Eighteen months ago, the triple-play bundle from RCN, my provider, sounded good at \$109 a month. Of course, I had to agree to a two-year contract with a \$150 early-termination fee. Now I pay \$130 a month on average, to cover costs, fees, taxes, and penalties. >>

She Fought the Fee—And Won

WHEN IT COMES to fighting sneaky fees, it pays to be loud, to use the power of numbers, and to know a good class-action lawyer. A case in point: T-Mobile customer Mallory LaBoube contested a monthly \$1.50 fee that really had her steamed.

In August, T-Mobile, hoping to spur customers to use electronic billing, started

charging the 16.5 million customers who received a paper bill \$1.50 a month. The goal was to cut back on the costs of sending out 10.8 million pounds of paper bills each year.

The backlash was immediate, with Web sites and forums percolating with customer complaints. LaBoube, of Webster Groves, Missouri, was so angry that she canceled her account and demanded that the company waive her \$200 early-termination fee.

"Who ever heard of paying to get your bill?" LaBoube says. "When you go to the grocery store, do they charge you \$1 to get your paper receipt?"

When T-Mobile refused to drop the termination fee, she contacted her sister, who worked at the Medler & Roither law firm in Clayton, Missouri. Lawyers there took the case.

On September 5, the attorneys filed a class-action lawsuit against T-Mobile in the United States District Court for the Eastern District of Missouri. The suit alleged that the billing change was a breach of the contract that customers signed. The company should let customers cancel service without having to pay a termination fee, the lawyers argued.

Merely six days after LaBoube's attorneys filed the lawsuit, the company dropped the paper-bill fee. T-Mobile representatives said at the time that it was a situation where a company heard loud and clear what its customers wanted. "Since the announcement we've heard everything from kudos to concerns about the move to paperless—especially from our customers who today are receiving paper bills at no charge. So, we've decided to not charge our customers a paper-bill fee for now."

"Yes, I am surprised they [T-Mobile] reacted to change their policy so quickly, and I am certain that it was the result of my lawsuit," LaBoube says. "T-Mobile sends out over 16 million invoices per month. At \$1.50, I figure I saved customers over \$24 million a month!"

For more information on companies' charging for mailing out paper bills, see *Skeptical Shopper* in the November issue or at find.pcworld.com/63902.

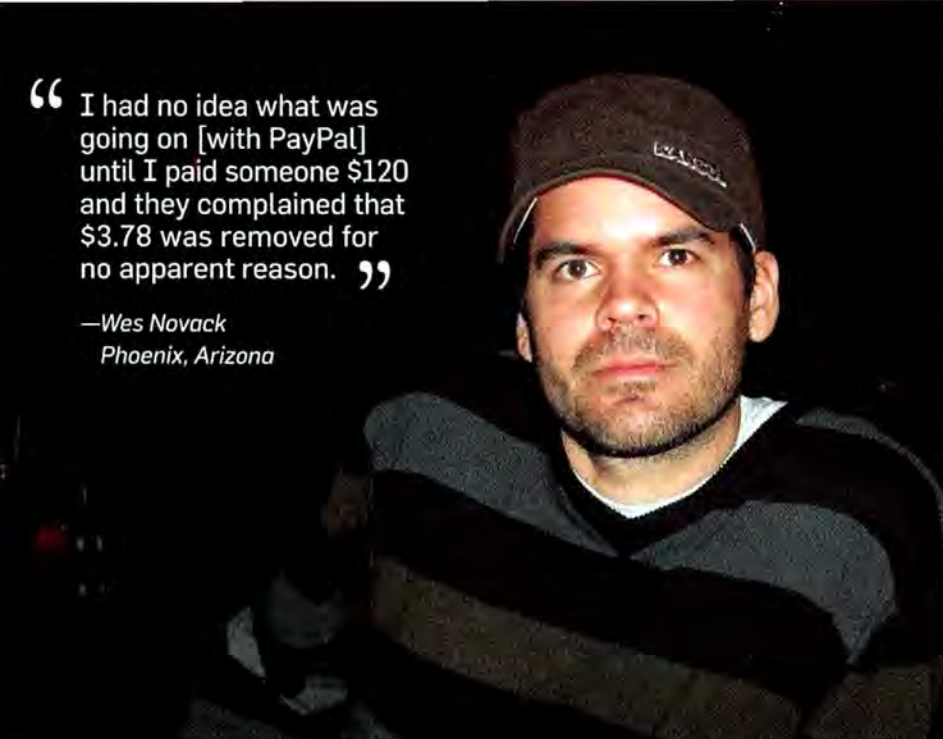


“I am surprised [T-Mobile] reacted to change its policy so quickly, and I am certain that it was the result of my lawsuit. T-Mobile sends over 16 million invoices per month. I figure I saved customers about \$24 million a month!”

—Mallory LaBoube
Webster Groves, Missouri

“ I had no idea what was going on [with PayPal] until I paid someone \$120 and they complained that \$3.78 was removed for no apparent reason. ”

—Wes Novack
Phoenix, Arizona



I have to pay \$2.95 monthly for each digital converter box (beyond the first two TVs). To that, add \$14.30 in “Taxes, Fees, and Surcharges.” For instance, I pay \$6.50 for a “Federal Subscriber Line Fee”—which doesn’t go to the federal government. In fact, it’s a charge paid to telephone companies to recoup the cost of having a phone line connecting your house to the network. The money goes to “local telephone companies such as Verizon, AT&T, and RCN,” according to RCN’s site.

It’s not unreasonable for RCN to pass its costs of doing business along to me. But hiding such costs under an opaque label is misleading and makes it difficult for consumers to compare costs.

RCN spokesperson Lisa Barder says it’s impossible to calculate “fee and surcharge” costs to roll into the advertised

price because they vary by region. But couldn’t RCN, on its Web site, quote a true monthly cost by using a zip code?

Financial Fees

Few fees are more infuriating than those that leech from our finances via checking accounts, credit card bills, and services such as PayPal. Wes Novack of Phoenix knows this firsthand.

Novack was happy with the electronic-payment service until July, when it began deducting fees from his transactions. “I had no idea what was going on until I paid someone \$120, and they called up and complained that \$3.78 was removed for no apparent reason,” says Novack, a Web server administrator. The debits were labeled only as a “fee.”

Novack went to the Fees section of the site and learned that money transfers labeled as payments for goods or services sent from personal accounts were now subject to a fee of 2.9 percent of the total, plus 30 cents. PayPal says it instituted the fees to discourage users from conducting business transactions on personal accounts.

“This isn’t a lot of money, but it steams me that there was no warning,” Novack complains. He suspects PayPal intentionally created the sneaky fee, hoping 75 million PayPal customers would give it little attention.

PayPal’s Anuj Nayar says customers were notified via e-mail of the new fees. But Novack insists that the e-mail Nayar refers to didn’t mention the fee.

“If people were confused about this fee, PayPal apologizes,” Nayar says. He bristles at the suggestion that PayPal is profiting from the fee. The service just wants to make it easier for users to distinguish personal transactions from business-related ones, Nayar says.

Online Travel Fees

Business-travel expert Joe Brancatelli says that airlines, hotels, and car rental agencies have begun breaking out fees for what used to be part of doing business, and applying new ones too. And we aren’t just talking \$5 minibar tabs.

Spirit Airlines charges \$7 to \$20 for advance seat assignments. American Airlines has a \$15 fee for checking >>

Fine Print:

According to Verizon Wireless’s own estimates, customers who sign up for the company’s Nationwide Basic plan—advertised at \$40 per month—may actually end up paying as much as \$55 each month after ‘taxes, surcharges, and fees.’

Verizon Wireless

Calling Plan Information

Taxes, Surcharges and Fees

- Tolls, taxes, surcharges and other fees, such as E911 and gross receipt charges, vary by market and as of April 1, 2009, add between 5% and 37% to your monthly bill and are in addition to your monthly access fees and airtime charges.
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your first bag. If your bag weighs too much, you might pay another \$100. And major air carriers have added a \$10 fee for flying on the busiest days.

Brancatelli says you can thank the Internet for these fees. Sites like Orbitz and Travelocity make it easy to find the cheapest airfare, hotel rate, and car rental rate. "Companies know the only thing people focus on is price," he says, so they keep their base price low while piling on charges that don't show up in your search results. "The price you are looking at is not the price you pay."

Sneaky-Fee Future

Annoying, hidden charges have become a way of life. "Sneaky fees just exist, and we give up," observes Mike Spinney, senior privacy analyst for the Ponemon Institute, adding, "There isn't enough



time in the day to fight every fee."

Sneaky-fee expert Sullivan believes that many of the charges buried in bills wouldn't pass legal muster. But the Federal Trade Commission, which has the authority to go after companies, is currently too preoccupied and understaffed to tackle the problem, he says.

"The FTC requires companies to be clear and conspicuous with their pricing," Sullivan says. But current bills, he notes, offer little that is clear or con-

Reality Check:

At \$69.99, RCN's offer for its cable, Internet, and phone package sounds great. But once you pay for modem and cable-tuner rentals, installation, taxes, and other fees, your bill will be at least \$91 a month—more if you have two HDTVs.

spicuous. Without more-stringent oversight from state and federal governments, consumers must watch their own bills like a hawk, he concludes. ●

How to Avoid Sneaky Fees

SICK OF BEING nickel-and-dimed? Here's how to fight some of the most egregious stealthy charges. For additional tips on fighting sneaky fees, go to find.pcworld.com/63899.

1. Sneaky Fee: Your wireless carrier charges you for storing contacts remotely or subscri-

ing to ringtones, even though you didn't request the services.

FEE FIX: Fight the charges with your carrier. If that doesn't work, contact the Better Business Bureau for help. Look for alternatives, too: Yahoo Mobile offers a free mobile address book.

2. Sneaky Fee: You have your ticket, but when you get to the airport, the airline says you owe an extra \$125 for transporting your bags.

FEE FIX: Most airlines charge \$25 for checking a second bag, and they heap on heftier fees (up to \$100) for overweight bags. American Airlines charges \$15 for the first bag. To avoid

the charges, pack light. You can also shop around—Orbitz offers a handy chart (find.pcworld.com/63900) that breaks down how much extra you will pay for bags, meals, and snacks with different airlines.

3. Sneaky Fee: Your cable company's triple-play (TV, Internet, and phone) package charges you extra for a 20-mbps Internet connection, but you're getting only 5 mbps. You also pay extra for premium phone features such as call forwarding, but you've never used them.

FEE FIX: Run an Internet speed test at a site like Broadband-Reports.com; if the speed is slower than expected, ask your provider for a discount. Investigate your service

provider's other packages with fewer bells and whistles, and request a no-penalty transfer. Threaten to take your business elsewhere if your provider doesn't agree.

4. Sneaky Fee: Wachovia Bank charges \$5.95 a month to download data to Microsoft Money, QuickBooks, or Quicken.

FEE FIX: A number of banks charge similar fees. Ask if you can switch to an account that doesn't charge to download data; at Wachovia, the fee is waived if you have a "premium" savings account that maintains a \$5000 balance.



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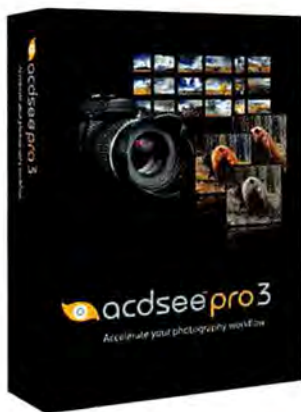


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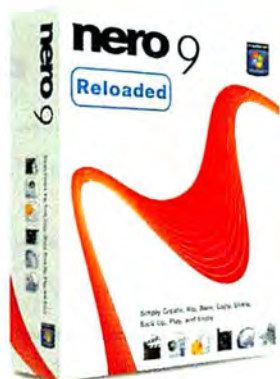


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Here's How

Protect Your Privacy on Facebook and Twitter

Here's how to ensure social networking security for your identity and personal data on today's Web.

BY TONY BRADLEY

WEB SURFING IS no longer a solo activity. Facebook, Twitter, and other social networks have quickly become an integral part of the online culture, and with them comes an array of serious threats to your privacy. In this article, I'll identify some of the key dangers of social networking and offer a few easy steps that you can take to stay safe online.

Social networking is built on the idea of sharing information openly and fostering a sense of community. Unfortunately, an online network of individuals who actively share their experiences and seek connections with other like-minded people can be easy prey for hackers engaged in social-engineering and phishing

attacks. It's important to be aware of the threats and to use discretion in all of your online interactions.

Take Care Before You Share Online

For starters, even in an open community of sharing, you should observe common-sense boundaries. As President Obama warned students in his September address to schools, "be careful what you post on Facebook. Whatever you do, it will be pulled up again later somewhere in your life."

The core truth of that statement can be applied to any social networking site, and possibly to the Internet as a whole. As a general rule, refrain from posting things online that you will regret later. The odds are good that someone, someday, will stumble across it, and it may come back to haunt you—especially if you are planning to run for public office.

If you think that abstaining from posting embarrassing



THINK BEFORE YOU share: Are you sure you want to mix work and politics in your relationship with all of your Facebook friends?

or inflammatory comments online ruins the fun, you're playing a dangerous game. Remember who your friends are, and know that a friend of a friend can be an enemy.

Don't Lose Sight of Who Your Friends Are

When you write a Twitter tweet or post a Facebook status update, you have to keep your audience in mind. More and more these days, we hear stories about people who forgot that their boss was part of their network and then said things online that resulted in their being reprimanded or even fired.

The adverse consequences of posting inappropriate online comments have become so commonplace—at least anecdotally—that they have earned an entry in the Urban

Dictionary: *Facebook fired*.

Even announcing something as seemingly innocuous as "I'm bored" in a status update during work hours can have dire consequences if the wrong people see it.

With services like Twitter, and with the recent changes to Facebook that permit any interested party to view and search your updates, you really have no way to hide.

Recognize the Visibility of Your Posts

You've thought it through, and you want to shout to the world how you feel about having to work overtime and during a weekend that you had earmarked for recreational activities. You have checked and double-checked, and you've determined that your boss is not

Why am I taking orders from this idiot?!?!??? If my boss had half a clue our department would be getting twice as much done in half the time and his wife wouldn't be running around behind his back with Williams from accounting!

Attach      

Share

FACEBOOK FIRESTORM: Broadcasting an incendiary message like this one is sure to turn out disastrously for someone—probably you.

in your network, so you let loose on the keyboard and speak your mind.

Unfortunately, you're not home free (figuratively speaking) just yet. Being outside of your network, your boss can't see your post directly, but if a Facebook friend who is connected with your boss comments on your status update—even just to say “I sympathize”—your boss may be able to click on the link through the friend and see your post.

Go ahead, be social. Share your trials and tribulations with your growing network of adoring followers. But for your own safety, keep one essential rule in mind: Never post anything online that you wouldn't be comfortable having everyone you know see—because eventually they probably will see it.

Define the Parameters of Your Privacy

Marrying privacy and social networking may seem terribly unintuitive. How can you be social and open, and yet protect your privacy? Well, just because you are choosing to share some information with a select group of people does not necessarily mean that you want to share everything with everyone, or that you are indifferent about whether the information you share is visible to all.

Facebook, in particular, has drawn unwanted attention in connection with various privacy concerns. If you have used Facebook for a while, you may have noticed adver-



FACEBOOK ALLOWS YOU to select a privacy control setting for third-party applications and advertisements, but not for internal Facebook Ads.

tisements that incorporate your friends' names or photos associated with them.

Facebook does provide privacy controls for you to customize the types of information available to third-party applications. If you look at the Facebook Ads tab of the privacy controls, though, you'll notice that it doesn't give you any way to opt out of the internal Facebook Ads. Instead, it states (alarmingly) that “Facebook strives to create relevant and interesting advertisements to you and your friends.”

Approach Tattletale Quizzes With Caution

For many users, one of the primary attractions of Facebook is the virtually endless selection of games and quizzes. And part of their allure is their social aspect. In the

games, you compete against your friends; through the quizzes, you learn more about them while being briefly entertained.

The ACLU exposed problems with how much information these quizzes and games share, however. Typically, when a Facebook user initiates a game or quiz, a notice pops up to declare that interacting with the application requires opening access to information; the notice also provides the user the opportunity to opt out and cancel, or to allow the access to continue.

The permission page clearly informs the user up front that allowing “access will let [the application] pull your profile information, photos, your friends' info, and other content that it requires to work.” Under the circum-

stances, you may wonder (as the ACLU has) why a game or quiz application would “require” access to your friends' information in order to work.

Facebook Policy Concerns in Canada

Facebook's privacy policies have run afoul of the Canadian government, too. Canada's Privacy Commissioner has deter-

mined that those policies and practices violate Canadian privacy regulations, and has recommended various changes Facebook should make to comply with them.

One of the commissioner's biggest concerns involves the permanence of accounts and account data. Facebook offers users a way to disable or deactivate an account, but it doesn't seem to provide a method for completely deleting an account. Photos and status updates might be available long after a user has shut down a Facebook profile. And like the ACLU, the Canadian government is unhappy about the amount of user information that Facebook shares with third-party application providers.

Exercise the Privacy Controls You Have

Although the concerns of the ACLU and the Canadian government run a little deeper, Facebook does offer privacy controls for restricting or denying access to information. Since Facebook is a social networking site designed for sharing information, many of the settings are open by >>



WHEN YOU TRY to take a quiz, Facebook warns you that continuing will open access to information from your profile—as well as to that of your friends.

default. It is up to you to access the Privacy Settings and configure the options as you see fit.

For each available setting, you can choose to share information with Everyone, with My Networks and Friends, with Friends of Friends, or with Only Friends; if you prefer, you can customize the settings to fine-tune access further.

Beware of Hijacking and Phishing Scams

By its very nature, social networking is all about socializing, which means that users are more than usually disposed to let their guard down and share information. They come to the network to expand their professional connections, re-establish contact with old friends, and communicate in real time with pals and peers. And for predatory bad guys, launching social-engineering and phishing attacks in this convivial environment is like shooting fish in a barrel.

Most people know not to respond to e-mail requests from exiled Nigerian royalty promising millions of dollars in return for help smuggling the money out of the country. (Anyone who doesn't know better probably shouldn't be on the Internet; such people are a danger to themselves and to others.)

But what if a good friend from high school whom you haven't seen in 18 years sends you a message on Facebook explaining how her wallet was stolen and her car

broke down, and asks you to wire money to help her get home? You might be less suspicious than you should be.

Attackers have figured out that family and friends are easy prey for sob stories of this type. Using other attacks or methods, they gain access to a Facebook account and hijack it. They change the password so that the legitimate owner can't get back in, and then they proceed to reach out to the friends of

the hijacked account and attempt to extort money from those friends through social-engineering cons.

How do you resist such devious techniques? First you should assume that any relative or friend who is close enough to you to ask you for money in a crisis probably has your phone number, and that a Facebook or e-mail message is hardly the most logical way to contact you in an emergency. If you receive

such a Facebook message or e-mail plea, pick up the phone and call the person directly to confirm its legitimacy.

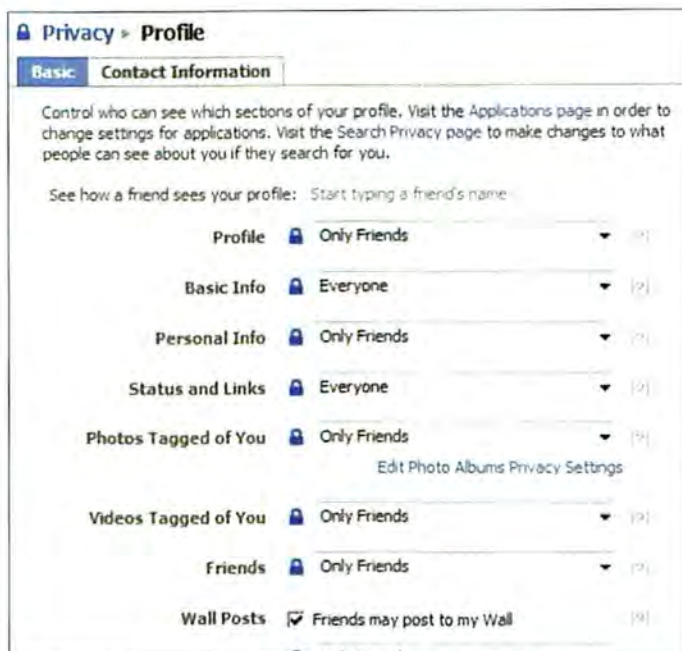
Don't Let a Tiny URL Fool You

Another threat that has emerged recently as a result of social networking is the tiny-URL attack. Some URLs are very long and don't work well in e-mail or in blog posts, creating a need for URL-shortening services. In particular, Twitter, with its 140-character limit, has made the use of URL-shortening services such as Bit.ly a virtual necessity.

Unfortunately, attackers can exploit a shortened URL to lure users into accessing malicious Web sites. Since the shortened URL consists of a random collection of characters that are unrelated to the actual URL, users cannot easily determine whether it is legitimate or phony.

TweetDeck, a very popular application for sending messages in Twitter, provides a 'Show preview information for short URLs' option, which offers some protection. The preview window supplies details about the shortened URL, including the actual long URL that the link leads to.

If you aren't using TweetDeck for Twitter, or if you need to deal with shortened URLs on other sites and services, maintain a healthy dose of skepticism about what might lie behind the obfuscated address that a message points to.



FACEBOOK'S PRIVACY SETTINGS let you designate who can access or view various categories of information and content on your Facebook page.



TWEETDECK LETS YOU check a preview pane that provides details about the original URL behind the shortened URL—including its complete address.

Upgrade to Gigabit Networking for Faster Transfers

Get speedier file transfers, smoother video streaming, and better network gaming with the right PC networking tools.

ON MOST HOME networks, the transfer rate of a fast ethernet connection (about 12.5 megabits per second) is the speed limit—and that's painfully slow for some tasks.

The solution? Upgrade to a gigabit network. Switching over to gigabit (1000-mbps) speeds increases potential throughput tenfold, minimizing transfer times and greatly enhancing your ability to stream high-bandwidth files to connected devices without interference. Gigabit networking is now a common feature of networking devices and shouldn't carry a big cost premium. Most modern motherboards have gigabit functionality built in.

This guide does not apply to wireless networks. The factors that constrain speeds on wireless networks are entirely unlike those that limit speeds on wired networks.

Here we'll look at how to determine whether your equipment can handle gigabit networking, and (if not) how to build a gigabit network from scratch.

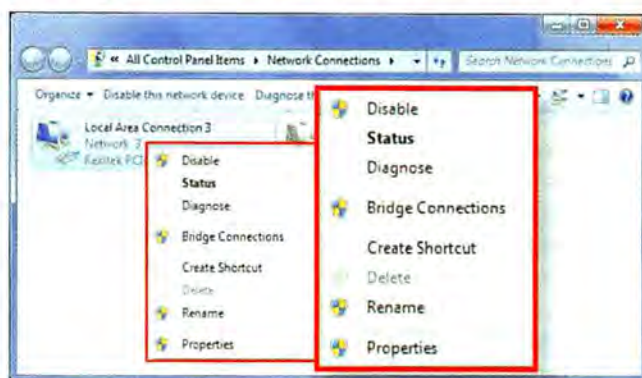
Identify Your Network

Do you already have a gigabit network? The Windows desktop doesn't indicate whether you've acquired this superspeedy networking feature. And since many factors influence network transfer speeds, your gigabit

network might crawl at a data transfer rate of less than 10 mbps for various reasons.

One requirement of gigabit networking is that all connected devices be connected via a gigabit port. In addition, they must be connected to one another with network cables that can handle the bandwidth. For devices such as your router, a gaming console, or an external storage device, the easiest way to discover whether they support fast ethernet (10/100 mbps) or gigabit ethernet (10/100/1000 mbps) is to check the devices' specifications in their online descriptions or accompanying manuals. Look for a mention of either "gigabit networking" or "1000 Mbps."

Your PC's motherboard is a critical component of the gigabit network. If your system came to you prebuilt or if you don't remember relevant details about your rig's



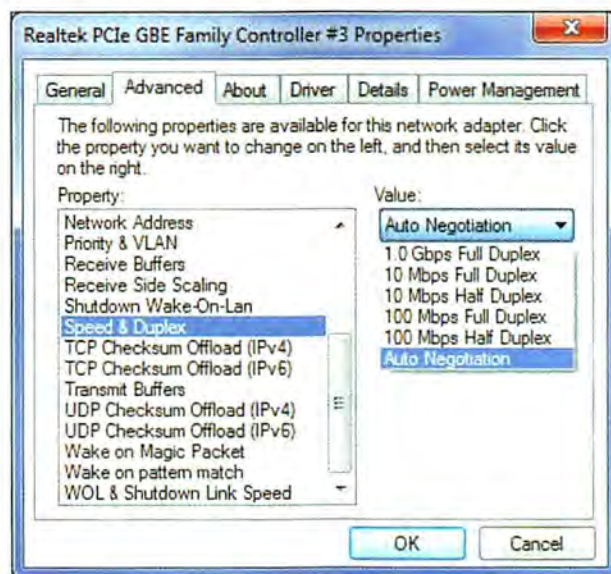
TO ASCERTAIN THE performance potential of your motherboard's network connection, first pull up your Network Connections window.

motherboard, don't worry. In Windows, click *Start* and select *Run* (for more-modern versions of the OS, move your cursor to the search box and left-click). Type `ncpa.cpl` and press `<Enter>`. The Network Connections window should pop up.

Right-click the network connection that's listed as your Local Area Connection (LAN), and left-click *Properties*. Click the big *Configure* button located to the right

of the listing for your network controller. In the new window that appears, open the *Advanced* tab and scroll down until you find a property labeled 'Connection Type' or 'Speed'. Left-click it and click the *Value* field to the right. Scroll up and down through this list of options, looking for anything that starts with a value of '1000' or anything that refers to network speeds in 'Gbps'. If all you see are '100' values and speeds designated in 'Mbps', your motherboard's built-in ethernet controller tops out at fast-ethernet speeds. But you can still upgrade your PC to gigabit networking by installing a third-party gigabit ethernet card.

If all of the devices on your network do support gigabit functionality, great! If you add a slower, fast-ethernet device to a gigabit-ready hub, transfer speeds will crawl only when you access that particular device—a slow device connected to a router won't poison the rest. Obviously, if you directly connect a gigabit-ready PC to a >>



MOTHERBOARDS LABEL network controller properties unpredictably. Scroll down the properties list until you find an entry for device speed.

fast-ethernet device such as a network-attached storage (NAS) box, you'll get only fast-ethernet speeds.

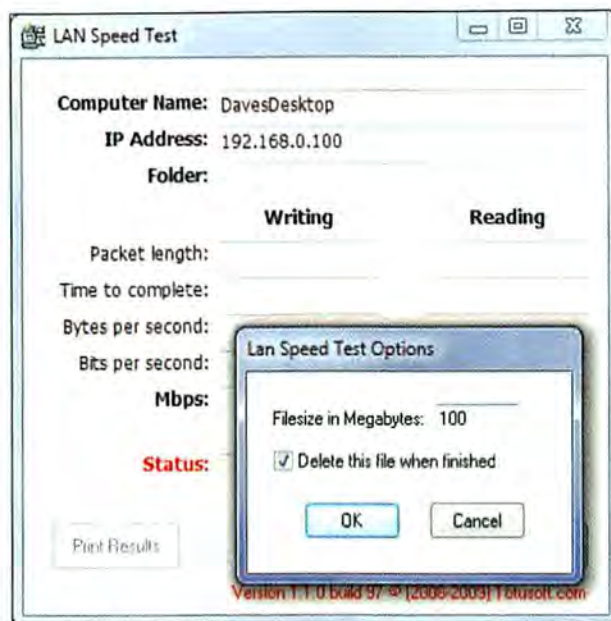
Also, consider your cables. A typical category 5 (Cat 5) cable supports gigabit ethernet, but it's worthwhile to invest in Cat 5e cables if you are building a gigabit network from scratch. Plain old Cat 5 cabling is now considered obsolete, and Cat 5e cabling meets more-rigorous specifications, allowing it to do a better job than Cat 5 cabling can of minimizing electromagnetic interference. On the other hand, bumping up your cabling to a classification higher than Cat 5e may not benefit your network speeds; for example, Cat 6 cabling doesn't dramatically improve speed.

To see what kind of cable you have, check the cable's side: The spec should be printed somewhere along the length of the cord.

Test Your Network

If your parts are in order and the cables are connected, you'll want to fire up your gigabit network so that you can check its performance. But first you need to confirm that the drivers and firmware related to your network-oriented devices (motherboard, router, NAS box, and so on) are up-to-date.

Suppose that you are planning to connect your PC to a gigabit NAS box via a single router. At this point you need to make sure that you are running the latest firmware for your NAS box and your router, and either the lat-



LAN SPEED TEST is a convenient utility for gauging your network's bandwidth, as measured between a PC and a target network device.

est firmware and drivers for your motherboard or the most recent drivers for your discrete gigabit network card, depending on how you've set up your system.

All too often, a device may not work as intended out of the box. Head over to the manufacturer's Web site to grab the latest drivers and firmware updates; then run the accompanying driver setup program or follow

the related instructions for flashing your device. The process isn't difficult (see find.pcworld.com/63936).

Fire up your network devices and use the helpful LAN Speed Test utility (www.totusoft.com/Products) to gauge the speeds that your gigabit network is attaining. After launching the tool, click the *Start Test* button and browse to a folder on a connected network device. Enter a size

for your test file (1GB should do the trick), and the program will begin to track the read and write speeds of transfers between your system and the target device.

Of course, you won't get the maximum 125-mbps connection that a gigabit network theoretically supports. Ultimately, the speed of the storage devices doing the reading or writing—be they magnetic hard drives or flash-based storage—will limit your network's performance. For a hard drive, relevant factors include the physical speed of the drive itself and the location where the drive writes the data on its physical platters. For a solid-state drive (SSD), the performance you get depends on whether the drive uses faster single-level cell flash memory or slower multilevel cell flash memory, and on whether you're reading or writing to the drive.

Unless it uses a RAM drive, or an array of hard drives or SSDs, your network won't reach the 125-mbps limit for

gigabit networking. Nevertheless, you can realistically expect to achieve speeds of at least 40 to 50 mbps, which is four times as fast as the real-world speed of a typical fast-ethernet connection. Though gigabit networking might not be the *Star Trek* transporter of LAN-based file transfers, the performance improvement that it offers over a typical fast-ethernet connection amply compensates for the time this setup process requires.

—David Murphy



AS THIS HARD-DRIVE benchmark indicates, the maximum read speed for files drawn off our networked hard drive is 95.8 megabytes per second.

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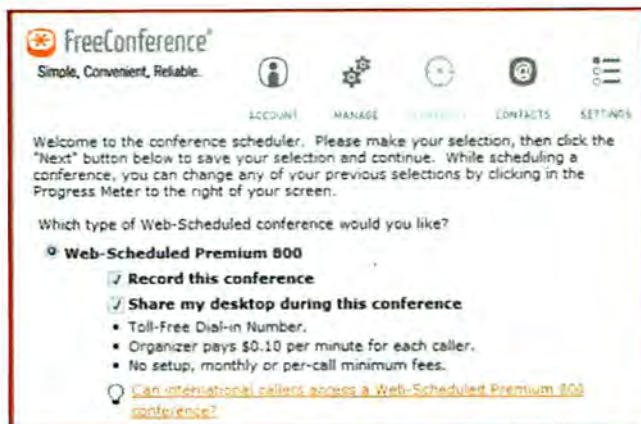
Though its name and URL may sound dubious, FreeConference.com delivers on its promise of free basic service. Up to 150 people can join the call, which is ample headroom for accommodating nearly any situation a small or medium-size business is likely to encounter.

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Planned calls let you input a few extra controls; for example, the organizer can mute the entire group of callers.

Either way, participants enter a (usually) long-distance number, supply an access code, and join the conversation. Participants can talk for 4 hours on a scheduled call or 3 hours on an unplanned phone meeting. The only charges involved are the relevant long-distance fees from your own phone company.

FreeConference.com sells upgrades to customers who need more features. For \$9 per month you can get call recording or PC desktop shar-



FREECONFERENCE.COM'S conference call scheduler includes options for recording the conference and for sharing the host's desktop.

ing tools. (Getting both costs \$18 monthly.) Or you can add either service to a single call for \$6.50 per month each. If you want participants to be able to dial in to an 800 number, FreeConference.com can set it up for you, but the host must pay 10 cents per minute per participant (the

charges will appear on the host's credit card).

You might consider springing for those extra features in certain situations. But depending on your needs, you may find that you can get by with the free service for most—or all—calls.

—Zack Stern

ANSWER LINE

Which Windows Update patches should I download and install?

—Dick McGraw, via e-mail

UPDATES ARE CONFUSING because Microsoft throws a lot of stuff at you. Some items you need; some you might like; and some Microsoft wants you to have for its own purposes. The fact that most of the updates' names are meaningless certainly doesn't help.

For any Windows Vista update, double-clicking the update will summon a pop-up window with a description. In XP, click the + next to the update name to expand the list and show details.

Vista updates come in three levels:

- **Important:** Most of these updates are essential security fixes. Unfortunately, Microsoft occasionally throws something into this group that it wants you to have for its own benefit—not yours—such as Windows Genuine Advantage.

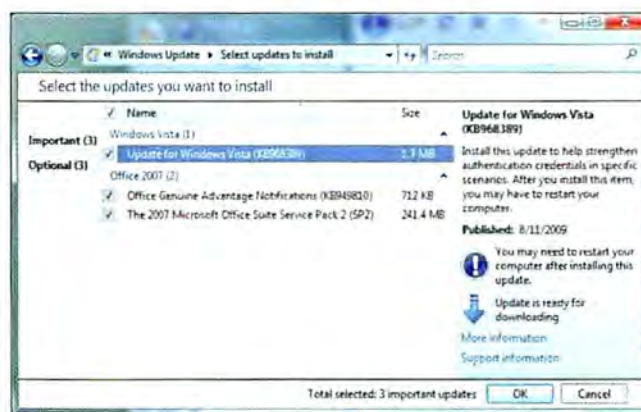
- **Recommended:** Nothing horrible will happen if you skip these items, but you might miss something that will make your PC work better. Read the descriptions and decide for yourself.

- **Optional:** You might occasionally discover a useful driver update here, but more likely you'll find marketing hype.

XP has just two levels:

- **High Priority:** As with Vista's Important category, most of the content here is crucial. For example, if you still use Internet Explorer 6, the upgrade to IE 8 is high-priority. IE 8 is significantly

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THE IMPORTANCE LEVEL that Microsoft assigns to an update offers a useful hint as to whether the download is essential or discretionary.

more secure, but it's a big change and some people hate it.

- **Optional:** Divided into separate Software and Hardware sub-levels, this group combines useful but nonvital updates, drivers (though not many), and useless hype. Use your judgment.

Most individual Windows updates—even Important and High Priority ones—aren't cumulative. If they were, you'd need to update your PC with only the most recent of them. The big service packs, however, are always cumulative. In fact, Microsoft just recently replaced a long list of Vista updates with one: Service Pack 2.

—Lincoln Spector

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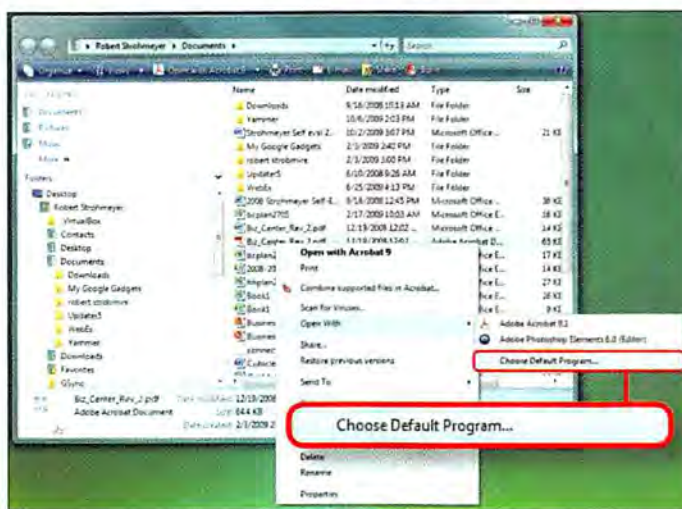
Make Documents and Media Open in the Right App

MY WIFE'S PC came with a trial of Microsoft Office 2007, but I installed IBM Lotus Symphony on the system instead—in part because it's free, and in part because I think it's easier to use.

But when the missus attempts to open certain file types (such as .docx or .rtf), up pops Office 2007, its trial period having long since expired. Why don't these files open in Symphony?

For whatever reason, certain file types remain associated with Office, so Windows doesn't know that it's supposed to direct them to Symphony. Fortunately, the problem is easy to fix.

In Vista and Windows 7, click **Start**, type **Default**, and press **<Enter>** to load the Default Programs menu in



RIGHT-CLICKING ANY incorrectly associated file in Windows enables you to choose a new default program for all files of the same type.

Windows. Then click *Associate a file type or protocol with a program*, choose the file type in question, click *Change Program*, and go from there.

That's a lengthy process. I prefer to right-click any file that's incorrectly associated

(such as one of the aforementioned .rtf files), mouse over *Open With*, and click *Choose Default Program*.

If the program you want appears under Recommended Programs (and it should), click it, and make sure the

checkbox for *Always use the selected program to open this kind of file* is checked. Click **OK** and you're done. Henceforth, any attempt to open that file type (not just that file) will cause Windows to load the selected program.

If the program doesn't appear, click *Browse* to locate its executable on your hard drive. That's not the easiest task in the world, but you'll need to do it if you want to reassociate that file type.

The most common file-association hassle you're likely to encounter involves media files—MP3s, videos, and the like—that refuse to open where you want them to. This solution works with those kinds of files as well as with document files.

—Rick Broida

ANSWER LINE

ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

How do I transfer my old Outlook Express inbox to a new PC?

—Petrie, PCWorld.com forums

HOW YOU MOVE your inbox depends on the version of Windows it's moving to. I'll focus on moving from XP to Vista; for details on how to go from one XP system to another or from XP to Windows 7, see find.pcworld.com/63937. First, you must copy your old PC messages.

In Outlook Express, select **Tools**•**Options**. Click the **Maintenance** tab, and then the **Store Folder** button. The resulting Store Location dialog box has a field containing a folder path (probably starting with 'C:\Documents and Settings...'). Select this entire path by clicking inside it, pressing **<Home>**, and then pressing **<Shift>-<End>**.

With the entire path highlighted, press **<Ctrl>-C** to copy it. Click **Cancel** twice to leave both dialog boxes. Be sure to close Outlook Express. Then select **Start**•**Run**, press **<Ctrl>-V** to paste that path into the Run box, and press **<Enter>**.

A Windows Explorer window will open, showing the contents of your store folder—the one holding your mail. Click the **Up Folder** icon to move to that folder. Copy the folder (probably called 'Out-



AFTER COPYING the entire folder path from the Store Location dialog box, click **Cancel to leave the box and again to close Options.**

look Express') to an external drive, a shared folder, or other media.

In Vista, launch Windows Mail, and select **File**•**Import**•**Messages**. Select *Microsoft Outlook Express 6* as the program in the resulting Windows Mail Import wizard. Click the **Browse** button, find and select the Outlook Express folder that you copied from your old PC, and click **Select Folder**. Complete the wizard's remaining steps.

To move the contents of your old inbox into your new one, click the **Inbox** folder inside the Imported Folder folder, press **<Ctrl>-A** to select all the messages, and drag them to the real Inbox folder.

—Lincoln Spector



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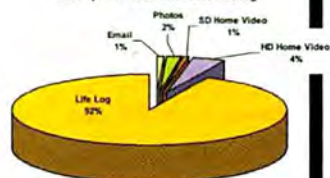


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RICK BROIDA'S HASSLE-FREE PC

Three Simple Annoyance Busters for Your Windows PC

THIS MAY COME as a shock to you, but Windows doesn't always behave as it should. Fortunately, I know a few tricks that can rehabilitate your PC. This month, I'll outline how to avoid automatic reboots after Windows Update runs. I'll also describe how to limit the amount of disk space Windows Media Center can use. And I'll share a trick for automatically opening apps in full-screen mode.

Stop Reboots After Automatic Updates

You step away from your computer for a little while, and when you come back, your windows and your work are gone. Why? Because Windows downloaded some updates and then took it upon itself to reboot without asking you for permission to do so.

Gah! This very thing happened to me not long ago, and I lost some in-progress work as a result. More precisely, I had instructed the Windows Update pop-up to postpone rebooting for 4 hours—and I just happened to be away from the PC when that timer ran out. Unlucky me.

A ridiculously easy fix for this exists, and I'm kicking myself for not applying it sooner. If you've been plagued by the same problem, here's what you need to do:

1. In Vista, click **Start**, type **Windows Update**, and click **Enter**. In XP, open the Control Panel and select **Automatic Update** from the menu of options.
2. In Vista, click the **Change Settings** option at left. In XP, you can simply skip to step 3.
3. Change the setting to *Download updates but let me choose whether to install them* (in Vista) or *Download updates for me, but let me choose when to install them* (in XP).
4. Click **OK**.

That's it. Windows may still nag you about installing updates, but at least it won't reboot without your permission.

Prevent Windows Media Center From Using Your Entire Hard Drive

I'm a big fan of the Windows Media Center software that comes baked into most versions of Vista and Windows 7. Specifically, I use it in conjunction with a TV tuner (four of them, in fact) to transform my PC into a DVR that rivals TiVo, in my humble opinion.

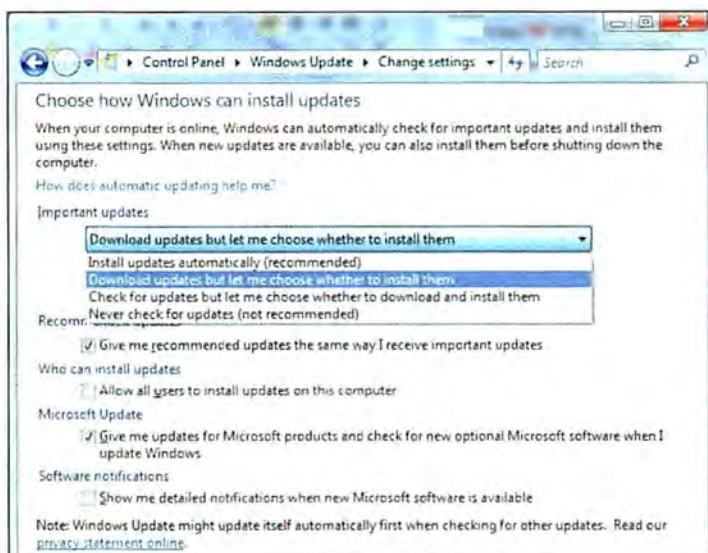
Just one problem: If you use Windows Media Center to record TV shows, it can consume almost your entire hard drive.

For example, suppose that you configure it to record *30 Rock*, *The Office*, *Mad Men*, or whatever your favorite shows may be. By default, WMC records an unlimited number of episodes of each TV series you specify; but if a few weeks go by before you have a chance to sit down and watch anything (that's what a DVR is for, right?), the accumulating shows may fill your hard drive to the brim—leaving you little or no room for anything else.

The solution to this problem is to limit the amount of space WMC can claim for TV recording. Here's how to proceed:

Install updates without rebooting, constrain Windows Media Center's drive space to a limit you prefer, and force apps to run full-screen.

1. Start Windows Media Center.
2. Scroll down to **Tasks**, and then over to **Settings**, and click that option (or press <Enter>).
3. Choose **Recorder**, and then **Recorder Storage**. (These options will appear only if you have a TV tuner installed and configured.)
4. Use the minus arrow located next to the redundantly named



WINDOWS VISTA LETS you change a setting in your Windows Update controls so that you can install downloads at your convenience, not Microsoft's.

'Maximum TV limit' to decrease the storage maximum (in 25GB increments) available for Windows Media Center's use.

5. Click **Save** to finish the operation.

Force Programs to Run at Full-Screen Size

Reader Bill has a problem with Internet Explorer 8, which he runs in Windows XP: Every time he starts the browser, it opens in a reduced-size window rather than at full-screen size. Then he has to maximize it manually every time. What a hassle!

I encountered the same annoyance with Excel 2007. Fortunately, it's easy to force any program to run maximized (that is, at full-screen size) when you start it. Here's how:

1. Right-click the program's shortcut, and click **Properties**.
2. The Properties window will open with the **Shortcut** tab selected. Click the pull-down menu next to **Run**, and choose **Maximized**.
3. Click **OK**, and you're done.

Henceforth, whenever you start that program using that shortcut, it should automatically give you a full-screen window. ●

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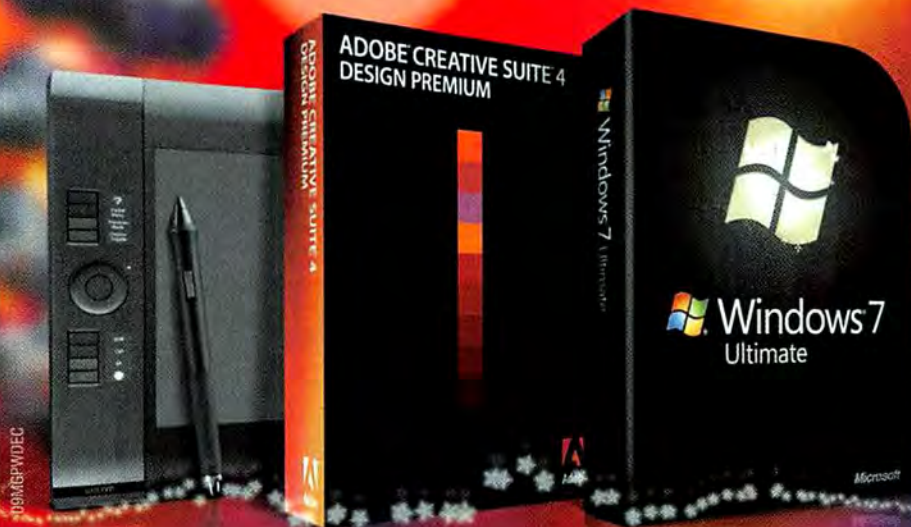


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The Back Page

Stretch Your Tech Dollar



Cheap, Waterproof,
All-Phone-Compatible,
Hands-Free Solution

Been looking for a Bluetooth headset? Consider instead the humble rubber band, a hands-free add-on that works with any cell phone and maybe even your landline phone.

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For more ridiculous hacks, point your browser to find.pcworld.com/63909.

—Sarah Jacobsson

THE NAME GAME:

Match the
Code Name
to the Final
Product

Code Names:

1. Revolution
2. Whistler
3. Gran Paradiso
4. B52 Rock Lobster
5. Copland
6. Dollhouse Simulator
7. Ginger
8. Mr. T
9. Origami
10. Kumo



Amiga 500



Segway



Bing



Firefox 3.0



UMPC



Wii



The Sims



Macintosh Plus



Windows XP



Mac OS 8

Answers: 1. Revolution = Nintendo Wii, 2. Whistler = Windows XP, 3. Gran Paradiso = Firefox 3.0, 4. B52 Rock Lobster = Commodore Amiga 500, 5. Copland = Mac OS 8, 6. Dollhouse Simulator = The Sims, 7. Ginger = Segway Human Transporter, 8. Mr. T = Apple Macintosh Plus, 9. Origami = UMPC, 10. Kumo = Bing.

Plugged In

Mac Attack Apple acknowledged a Snow Leopard bug that, in



"extremely rare cases," eats users' personal data after an upgrade from Leopard. Our advice to Apple: Ditch the pussycats and name the next Mac OS "Hungry Hungry Hippos."

Microsoft Plays 'Me Too' Sidekick users lost



personal data as well, after a service snafu at Microsoft subsidiary Danger, which makes the handheld device (see page 28). Maybe the critics are right: Microsoft really does steal ideas from Apple.

I M Your Leader President Obama's new policy



bans federal employees from texting while behind the wheel. The official announcement, sent from his BlackBerry, actually reads: "Feds, no txt yl drvng —POTUS"

Nokia Builds a Netbook The sleek metallic



Booklet—with a claimed 12-hour battery life, 3G, GPS, Bluetooth, even an accelerometer—is a smartphone passing as a netbook. Fine, as long as I don't have to hold it up to my ear to talk. ●

—Steve Fox

Have a great idea for a Back Page item, from crazy hacks to twisted tech billboards? Send your suggestion to TheBackPage@pcworld.com. You'll earn a small slice of fame, our undying gratitude, and a nifty PC World mug.

SONICWALL VS SPIRALING TCO

NO CONTEST

Tired of wasting IT budget deploying and managing so called best-of-breed network security and data protection solutions? If three-fourths of your budget is going toward the maintenance of these solutions, then your total cost of ownership (TCO) is spiraling out of control. But there's a smarter alternative—SonicWALL's network security, email security, and data protection solutions. SonicWALL solutions are built from the ground up to deliver higher performance protection while simultaneously reducing management complexity and the cost of acquisition, deployment, and management.

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SECURITY



BACKUP AND
RECOVERY



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Get the smartest phones
on the network PC World
named most reliable. Choose from the
best lineup in wireless, then sync, surf, snap, send and
go app crazy at 3G speeds. Season's greetings from
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first and only wireless 4G network from a national carrier.
1-800-SPRINT-1 sprint.com/holiday



**BlackBerry® Tour™
9630 smartphone**
Email, text, browse, navigate
and even conference call
around the globe.

**HTC Hero™
with Google™**
Only from Sprint.
Access to thousands
of applications.

Palm® Pre™
Only from Sprint.
The multitasker that
keeps on updating,
syncing, surfing
and sending.



PCWorld

Sprint tested as the most reliable 3G network overall among U.S. carriers
in a 3G performance test conducted by PC World.

PC World Claim: Test included 12 sites with more than 20 tests per city from March to April 2009. In all, 5,442 individual tests from 283 testing locations were conducted for each provider's nationwide 3G service. Testing was one minute in duration, and network performance can be highly variable by location. Cities included Baltimore, Boston, Chicago, Denver, New Orleans, New York City, Orlando, Phoenix, Portland, San Diego, San Jose, San Francisco and Seattle. For reliability, Sprint won in Boston, Chicago, Denver, Portland, San Diego, San Francisco and Seattle, and tied in Orlando. **America's Most Dependable 3G Network Claim:** "Dependable" based on independent third-party drive tests for 3G data on connection success, session reliability and signal strength for the top 50 most populous markets from January 08 to July '09. **4G:** 4G is currently available in limited areas and on select plans and devices; check sprint.com/4G for Sprint 4G coverage/device info. **Phone Offers:** May require up to a \$35 activation fee/line, credit approval and deposit. Up to a \$200 early termination fee/line applies. While supplies last. Requires activation on a specific plan with data and may require a two-year Agreement. **Other Terms:** Coverage not available everywhere. The Nationwide Sprint Network reaches over 275 million people. The 3G Sprint Mobile Broadband Network reaches over 253 million people. Offers not available in all markets/retail locations or for all phones/networks. Other restrictions apply. See store or sprint.com for details. ©2009 Sprint. Sprint and the logo are trademarks of Sprint. Google and the Google logo are trademarks of Google, Inc. Other marks are the property of their respective owners.

