

PC

MAGAZINE

DIGITAL EDITION

APPLE LAUNCHES LEOPARD

OCTOBER 2009

- **Verizon Blackberry Tour 9630 Smartphone**
- **Best Mobile 3G Routers**
- **Kodak Zi8 Pocket Video Camera**
- **What's New in Security Suites**



**Your
Essential
Guide to**



A Sneak Peek at Hot New Features

- **Device Stage**
- **Multi-Touch**
- **Home Group**
- **Libraries**
- **Jump Lists**
- **Enhanced Taskbar**
- **Beefed-Up Security**
- **The New Paint**
- **Gentler UAC & More**

Windows 7

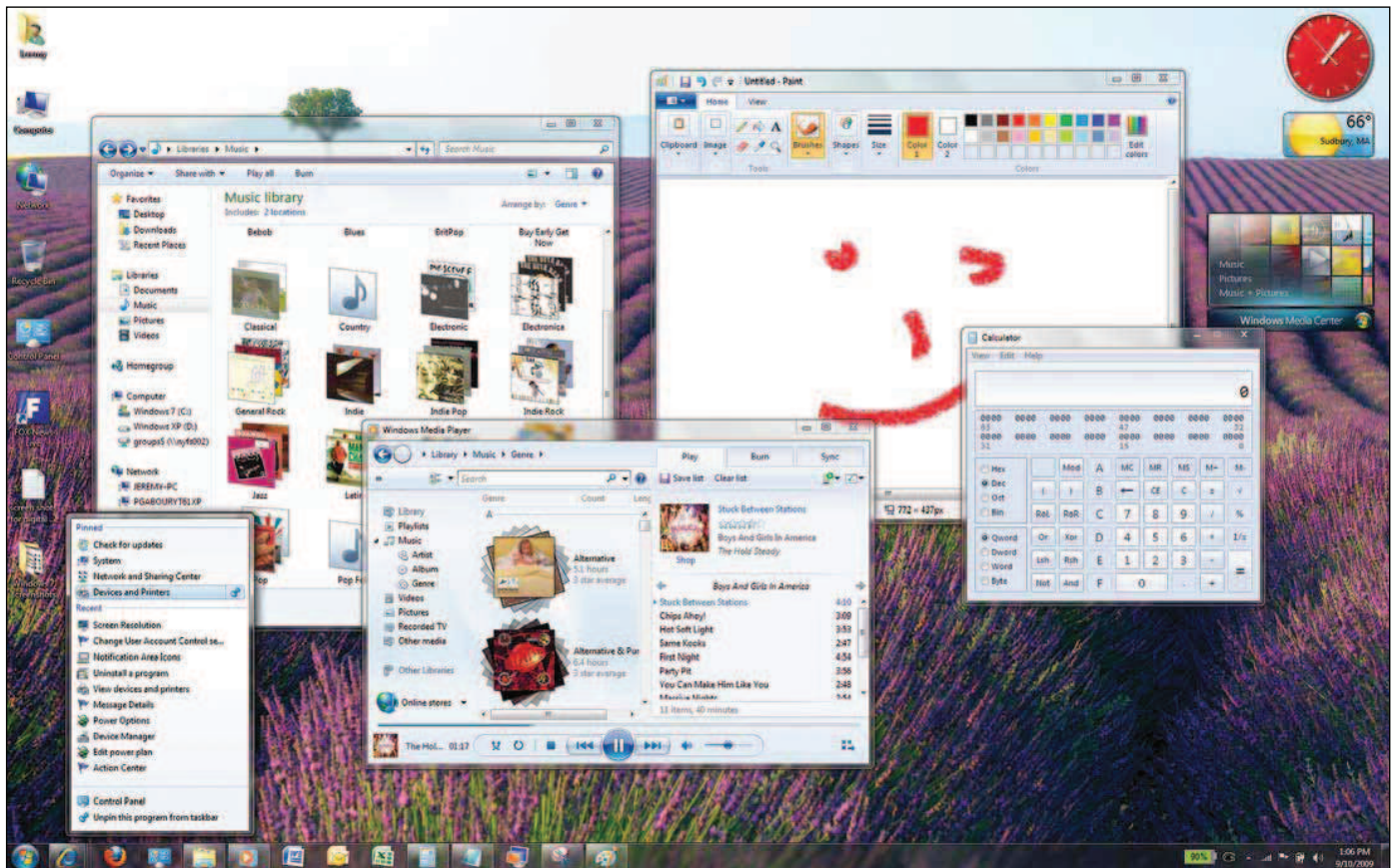
- > Should You Upgrade?**
- > Which Version Is Right for You?**
- > Is Your System Ready?**



PC

MAGAZINE

DIGITAL EDITION



46

COVER STORY

INSIDE WINDOWS 7

The final release is on the horizon, and we have a full analysis. Check out all the new features, extras, tips, and customizations in Windows 7 that will make you say *bon voyage* to Vista.





14



20



28



34

FIRST LOOKS

14 BUSINESS

Mobile 3G routers

HP Officejet 6000 Wireless
Printer

HTC Touch Pro2 (T-Mobile)

20 HARDWARE

Dell Studio 1555 (USE006CS)

Lenovo ThinkStation S20

Asus EeePC 1101HA

Plus Quick Looks

26 CONSUMER ELECTRONICS

Kodak Zi8 Pocket Video Camera

BlackBerry Tour 9630 (Sprint)

Samsung Reclaim (Sprint)

Sony PlayStation 3 120GB
(PS3 Slim)

Olympus E-P1

Plus Quick Looks

34 SOFTWARE

Apple Mac OS X 10.6
(Snow Leopard)

Security suites

Plus Quick Looks

82 THE BEST STUFF

LETTERS

5 FEEDBACK

TECH NEWS

7 FRONT SIDE

The FCC's probe of the wireless industry; cable-free gadget power; headphones for travelers.

OPINIONS

2 FIRST WORD:

LANCE ULANOFF

40 JOHN C. DVORAK

42 SASCHA SEGAN

44 DAN COSTA

SOLUTIONS

70 CAPTURE YOUR TV MOMENT

Recording live TV with Windows Media Center.

73 AT WORK

Power user tips for Peachtree.

78 OFFICE/OS

Create architecture sketches in Excel.

81 SECURITY

Whose browser is the safest?





FIRST WORD LANCE ULANOFF

Twitter's Outage is Your Fault

Back in August, I suffered through three hours without access to Twitter. The micro-blogging service was hit by a massive denial of service (DDoS) attack. It was restored a few hours later, but failed again that evening. When Twitter came back online, it behaved as if it were on life support: slow to respond, listless, and drifting in and out of consciousness.

And this mess is your fault.

When Twitter launched a few years ago, it was largely a tech and Internet insider's destination. It was a place where the Web cognoscenti dumped 140-character mis-sives about the work they were doing, who they had met that day, and the color shirt they had just grabbed from the dresser drawer. When it became a cultural phenomenon—with thousands of new users joining every day—the most distinct difference was the appearance of the loveable Fail Whale. Whenever Twitter went down, the service would post an image of a cute, blue whale

and explain that “Twitter is over capacity.” The company simply couldn't keep up with the volume of information from its Tweeters. Last year, the company made a concerted effort to address those capacity problems, and now Fail Whale sightings are as rare as those for white whales.

The DDoS problem is a whale of a different color, however. All you people who I've warned over and over again to install or update your security software, everyone who can't stop visiting HotSexyLibrarians.com or downloading music and movies from Igotyourfiles.com, and all those noobs who insist on opening every single e-mail attachment they get—you did this. You and your zombie PCs are to blame.

Many of the news reports about the Twitter outage used the phrase “denial of service attack” and then the acronym “DDoS.” So, what's the extra “D” mean? Turns out it stands for “distributed,” which, in this case, means the attack does not originate from one place, but rather millions of places. Put simply, a denial of service attack does not

There is someone other than you to blame, but good luck finding that person.

come from one big server somewhere in Russia, China, or North Korea that attacks commercial enterprise's servers here in the U.S. or elsewhere in the world. If it did, companies could find such attacks easier to block or stop. A DDoS is a coordinated attack spread across thousands, if not millions, of PCs around the world.

To create the soldiers of a DDoS, called "bots," a bit of code is dropped onto your PC from any one of the above-named scenarios and quietly uses your system and, say, your e-mail address book, to reach hundreds of other computer users. So the malware spreads and, thanks to some clever programming, works to hide itself. Just like a viral marketing message, the new bot roams in ever wider circles. In its wake are, potentially, millions of zombie PCs.

And so what? This has nothing to do with Twitter going down, or my shaking in a corner as I am forced to temporarily quit Twitter cold turkey. Except that it does. The only way Twitter could have been attacked like this—and so successfully—is if millions of infected zombie PCs suddenly attacked the service. Usually, a company doesn't even realize it's under attack until it is knocked offline. Based on the initial messages we saw from Twitter, the site didn't know what was happening until the crash occurred. Again, that's because a DDoS doesn't attack the server as much as the service. Bots sim-

ply flood the system with requests. Someone programmed those bots to do this, and while this person didn't have to do anything during the attack—except pray that there were enough infected PCs out there (thanks to all of you) to make it happen—he certainly knew when it would happen.

In other words, there is someone other than you to blame, but good luck finding that person. Wouldn't it just be easier for all of us to install security software, pay for the updates, run regular scans, and stop doing risky things online? And then that one evil person would be writing malware bots that got no farther than his own desktop? This would make future DDoS attacks virtually impossible.

During the week of the Twitter attack, other major sites, including LiveJournal and The Consumerist, were nearly laid low by DDoS. Facebook got wobbly, too, but somehow held up. The reason Twitter has been up and down is that the bots are continuing to work and may be programmed to switch up the ports they're attacking. So just when Twitter is able to block certain ports, the botnet army is already mobilizing to attack on another.

While this is happening, you sit at home with your zombie PC wondering why you can't get to Twitter. I wonder why, too.

FOLLOW ME ON TWITTER! Catch the chief's comments on the latest tech developments at twitter.com/LanceUlanoff.



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FeedBack

Down on Dvorak

With all due respect to the rest of your organization, I have to say that John Dvorak is an idiot and I'll watch for his name so I can make sure to avoid his articles in the future. I'm referring to his column "What Is Happening To Windows 7?" If you ask me, this is shameless, cynical, sensationalism, and articles like this one reflect poorly on the rest of your deservedly well-respected organization.—*Mark Rush*

An Obligatory Internet?

In response to Sascha Segan's column "Learning from Iran's Twitter Revolution," I have to ask that among the 27 percent of American households that don't have Internet access, what portion of those would you say are satisfied with not having it? It's similar to the principle of jobless people, many of whom prefer to stay that way. Obviously we don't need to force the Internet on people who don't want it.

To be honest, I don't quite understand the application of this whole theory. What about the people who can't afford computers to get on the Internet? Is the government going to provide computers for them

too? I think the notion of "getting the Internet" out to people who don't have it is a pie-in-the-sky dream. What we have to realize is that we can't legislate general social practices.—*Rustedpc*

Netbooks are Not Laptops

I read Cisco Cheng's review of the Lenovo IdeaPad S10-2, and it seems to me that everyone continues to compare netbooks to their full-size laptop cousins. Netbooks are an entirely different machine. Just because they and laptops look alike shouldn't account for much. After all, we don't compare a Ford F150 pick-up truck with a Mini Cooper. Just as my Kia is basic transportation, a netbook is basic computing at best.—*Richard6661*

What the Recession May Be Telling Us

In regard to John Dvorak's column "Bargains Galore, How Can You Resist?" I think it is very easy to resist, John. Like so many intelligent Americans facing the steepest economic slowdown in nearly a century, I'm not buying anything I don't need. I'm conserving cash in case the all-too-fickle finger of fate puts me out of a job. All my old stuff works and is configured the way I want it.

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Frankly, John, I think that most of today's tech is boring! Could it be that tech companies will have to come up with some new and revolutionary technology like they used to? Could it be that the financial crisis is now simply accelerating consumers' boredom with products from U.S. tech companies? Intel, AMD, Sony, Sharp, and Apple: I'm bored with your stuff. I am not spending my hard-earned dollars on new colors for the iPod or a few nanoseconds of speed gain on processors. I don't have much free cash to spend, but I can tell you that I'll *find* the money to buy the next generation of products that don't look like the Eighties warmed over.—*Coventry*

Linux Ain't So Bad

After reading Lance Ulanoff's column "Diary of a Linux Virgin," I just have to say, "Lance, puh-leeze!" Why did you make it hard on yourself by setting up your VAIO with a dual-boot XP-Ubuntu setup? You have scared off some readers from trying Ubuntu or another Linux distro by making the Linux desktop install seem harder than it is. Or did you complicate matters intentionally so you could better meet a quota for a minimum number of words on the subject? I'm disappointed. You may have been a Linux virgin, but after more than 15 years in the computer journalism biz, you should have known better.—*Ben Myers*

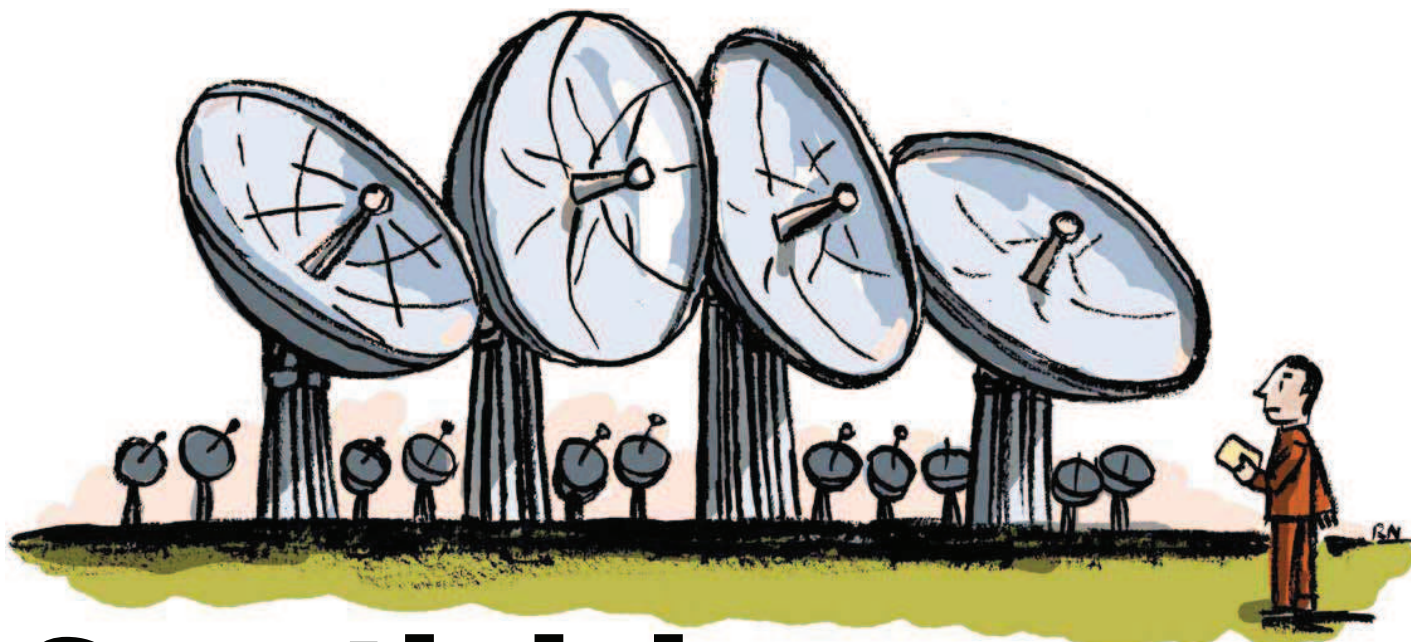
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Scrutinizing Cell Providers

The FCC launches a new probe into the wireless industry.

Ask ten people what they think of their wireless service provider, such as Sprint, Verizon, or AT&T, and you'll probably get ten different answers. But if you ask ten industry insiders the same question you'll probably hear only two standard responses: companies are doing a great job or they fall far short on customer service.

To gain a more detailed look at the performance of the wireless industry, the Federal Communications Commission has recently launched a probe of the subject. In late

August, the commission asked stakeholders in the industry to submit their feedback in three key areas: innovation and investment, the state of competition, and whether or not consumers get enough information from providers to make informed decisions about service. The goal of this call for comment, officially called notice of inquiries (NOIs) is to establish a "factual basis" for claims made by supporters and detractors of wireless providers about the state of the industry going forward, FCC chairman

Responses to the inquiry will help the FCC decide whether it needs to impose any new rules.

Julius Genachowski said at the commission's monthly public meeting.

"This process will be essential for our nation to become the world's leader in mobile," he added.

Responses to the inquiry will help the FCC decide whether it needs to impose any new rules on the wireless industry. The report will also be submitted to Congress. The commission wants to "better understand the factors that drive and encourage investment in wireless and identify concrete steps the commission can take to drive innovation in this area," said Joel Taubenblatt, chief of the broadband division for the FCC's Wireless Telecommunications Bureau.

On the consumer side, the report will explore how important customers deem the specifics of their plans, in addition to quality of service and equipment. It will also look at the type of information consumers need before selecting a plan, as well as barriers to understanding a cell-phone bill, making changes, and contesting fees and charges.

While industry groups, such as CTIA, say the NOIs are an "opportunity to respond" to the FCC's questions—and outside criticism—others see it as a chance to finally scrutinize an industry that has gone unchecked.

"This investigation is long overdue," says Andrew Jay Schwartzman, president and CEO of the nonprofit public-interest law firm MAP. "The country's four major wireless providers have enjoyed the fruits of market power for too many years, at the expense of the public's ability to gain access to low-cost mobile broadband services."

Public Knowledge president and co-founder Gigi Sohn says that "for too long, the appearance of competition among a few carriers has masked underlying anti-competitive industry practices ranging from consumer contracts to roaming agreements."

VoIP provider Skype, which has had a rocky relationship with some wireless companies, says the probe can increase competition and innovation by "asking the right questions."—*Chloe Albanesius*

BEST OF THE INTERNET

MIDOMI

Midomi is a Web service that lets you sing, hum, or whistle a song into your computer's microphone and the service will identify the song. There's also a social network and music sharing service built in.
—Alan Henry

PADMAPPER

Padmapper takes Craigslist rental listings and puts them on a Google map to browse and filter based on rent, keyword, pet-friendliness, or even distance to mass transit. You can even save listings to Google Maps.—AH

RECIPEPUPPY

With this site, you just type in the things you have in your pantry or the fridge and the service will pull together recipes that use those ingredients. The results page also includes a list of suggested ingredients.—AH

Cable-Free Gadgetry

Wireless power could finally be close to market.

Although wireless power was first revealed at CES in 2007, the technology has since been slow to roll out. But that could be changing, thanks to a group called the Wireless Power Consortium. The consortium, which includes companies such as Fulton Innovation, National Semiconductor, Olympus, Philips, and Samsung, recently announced a specification for wireless power. Version 0.95 is a standard for power via magnetic induction, in which devices can be charged by placing them on a compatible power pad. To identify the spec and compatible products, the group unveiled its official logo, which is a rendering of the Chinese word Qi (pronounced “chi”), which means “vital energy” and is often associated with the body’s life force.

According to Camille Tang, co-chair of the Wireless Power Consortium’s Promotion Work Group, the companies in the consortium worked very closely for seven months to come up with the spec. Such collaboration will also “pave the way for an accelerated 1.0 release schedule of the standard,”

Tang says. Version 1.0 is expected to be announced by late fall. The current spec is designed to provide up to 5 watts of power, enough to power a cell phone or an MP3 player, according to the consortium.

Fulton Innovation is one of the first companies out of the gate with prototype products. Its eCoupled line features charging pads for homes and cars. Other companies outside the consortium have been working on their own versions of wireless power, such as Intel, with its radiant wireless technology (which involves beaming power across an air gap) and Powercast, which is developing devices that use radio waves as a transmission medium for wireless power.

—Mark Hachman



BEST OF OUR BLOGS



GEARLOG

A New Twist on Webcams

If you're looking for a better way to videoconference, the Hercules Dualpix HD720 has a few impressive features that separate it from the rest. For one, it offers 1,280 by 720, 30 fps high-definition video. What really impresses, though, is the physical design. This Dualpix can be attached to the top or side of your notebook, and can twist for the best camera angle. When you rotate the camera, the on-screen image automatically corrects itself. And this camera is made to work well in low-light conditions. It is available from Amazon, NewEgg, and other retailers for \$59.99 list. —Troy Dreier

SECURITY WATCH

Microsoft Lists Top 10 Windows Malware

Based on data from its Malicious Software Removal Tool, Microsoft recently released a list of the top ten malware threats that the tool has removed from Windows systems.

Family	Machine Count
1. Taterf	463,000
2. Renos	228,973
3. Alureon	211,441
4. FakeRean	162,328
5. Bancos	158,152
6. Koobface	134,139
7. Frethog	132,827
8. Cutwail	110,840
9. Rustock	90,788
10. Tibs	84,081

—Larry Seltzer



GOODCLEANTECH

A Power Plant in Your Hand

After a long line of products that includes a bicycle, lighting, and an assortment of hand and lap warmers, Sanyo has added a portable solar generator to its enloop product line. The generator uses Sanyo's HIT solar cells, and a simple mesh bag houses the charger. An accessory for the charger lets you charge the internal lithium-ion battery via USB port. The enloop single-panel charger can power a phone for 20 minutes for the same amount of charging time. —Mariella Moon

@WORK

Iomega's Big, New NAS

The latest four-drive desktop network attached storage (NAS) device from Iomega, the StorCenter ix4-200d now supports a number of new features including device-to-device replication, multiple RAID configurations, dual Gigabit Ethernet ports, and compatibility with Apple's Time Machine. You also get three USB ports for adding printers or external drives.

The ix4-200d comes in three capacities: 2 Terabytes for \$700, 4TB for \$900, and 8TB for \$1,900. —Eric Griffith



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Connected Traveler

Music to Your Traveling Ears

Pick the right headphones for your next trip.

Perhaps the most painful separation between yourself and two dollars is paying for lousy airline headphones because you forgot your own. A good pair of headphones or earbuds more than pay for themselves by providing countless hours of enjoyment to pass a plane, train, or bus ride. So whether you want to drown out a screaming toddler,

watch the in-flight movie, or lull yourself to sleep with some Brian Eno, here are some of our top picks.

If nothing but the best will do for your tender auricles, the current gold standard of noise-cancelling headphones for travelers is the [1] **Bose QuietComfort 15** (\$299.95 direct, ●●●●○). Bose has boosted the noise-cancelling capability of these headphones since the previous QuietComfort 2 by adding a second microphone and using more advanced materials in the padded seal around the ear. These headphones fold flat to save space and fit into a sturdy black carrying case. You also get an airplane adapter and a detachable audio cable.

For those who still want an over-ear headphone but at a lower price, the [2] **Shure SRH440 Professional** (\$99.99 list, ●●●●○) sounds fantastic, with strong bass response and crisp highs. These headphones also come with a detachable cable. Though they are bulkier than the QuietComfort 15, they do fold down easily to fit inside the included pouch.

When space in your carry-on is at a premium, it pays to travel light with a good pair





of earbuds. Our current Editors' Choice here is the [3] **Klipsch Image S4i** (\$99.99 direct, ●●●●○). For iPod and iPhone users, the S4i is a no-brainer, because of its built-in microphone and controller for voice and music features. You can fast forward, skip tracks, answer calls, and even activate voice controls. And if you have the latest shuffle, you can use it to control the robot voice telling you what song and artist you're listening to. The S4i also has a secure fit and comes with four sets of silicone ear tips.

Another pair of earbuds that can do double-duty as a hands-free headset is the [4] **Altec Lansing BackBeat Plus Mobile** (\$59.95 list, not rated). These noise-isolating earbuds have a discreet in-line mic for calls, as well as a call and answer button. And their high dynamic range means you don't have to crank the volume to hear the subtle highs and lows of your favorite music.

Finally, the [5] **Ultimate Ears MetroFi 220** (\$79.99 list, ●●●●○) are great earbuds for everyday listening as well as traveling. The MetroFi 200's titanium-coated speakers deliver deep bass response without distortion. And the three included silicone tips ensure a snug fit.—*Tim Gideon and Erik Rhey*



INSIDE

- 14 BUSINESS
- 20 HARDWARE
- 26 CONSUMER ELECTRONICS
- 34 SOFTWARE

First

BUSINESS

3G Routers for On-The-Go Web Work

Every laptop comes with Wi-Fi these days, but all the Wi-Fi in the world is useless if you're so remote that there's no signal. There are a lot of public hot-spots out there, but they're not everywhere, and the connection fees can really add up. That's why wireless carriers like Sprint and Verizon Wireless offer 3G service, which can spread a lot farther (at least in the right markets).

Now, what if you could get a router—just like the one you use on your home or office network—but instead of Wi-Fi, the backbone was that wireless 3G connection? You could just plug that USB-based 3G modem dongle in and then take your Wi-Fi with you anywhere—in theory. Such is the case with three of the products in this group.



Linksys Wireless-G Router for Mobile Broadband (WRT54G3GV2-ST)

The latest generation of the Linksys Wireless-G Router for Mobile Broadband offers far more than a new body. It combines 802.11g Wi-Fi with 3G—supposedly from

Looks

OUR RATINGS KEY:

- EXCELLENT
- VERY GOOD
- GOOD
- FAIR
- POOR

PLENTY OF PORTS

The Linksys 3G router has a variety of connection options.



Linksys Wireless-G Router for Mobile Broadband (WRT54G3GV2-ST)

\$130 street



PROS Great security features. Top-notch performance for an 11g router. Extra ports for expansion. Easiest router setup on the market. Worked with Sprint and Verizon EV-DO in testing (though marketed as if only for Sprint).

CONS Too big for true mobility. 802.11g only, not 11n.

[CLICK HERE FOR MORE](#)

Sprint (EV-DO), though our test unit worked with a Verizon Wireless 3G modem—or a wired DSL/cable connection. You can even use a 2G GPRS service in a pinch.

Unlike the two pocket-size routers in this roundup, the Linksys router's relatively large

size—6.7 by 6.7 by 1.2 inches (HWD)—makes it more stationary than the others. (There's also no option for battery power.) The configuration interface is the same as the newer Linksys 11n routers, supporting common features such as free dynamic DNS, dynamic





Sprint MiFi 2200 Hotspot

\$99 direct with \$50 rebate with 2-year plan



PROS Easy to start and use. Pocket size is great for traveling. Free GPS service integrated, works with Google Maps and other services.

CONS Runs hot. Battery drains quickly when multiple Wi-Fi devices connect. No 3G connectivity when charging.

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routing, MAC address cloning, SPI and NAT firewalls, VPN pass-through, and Web Utility access. When I tested the Linksys router with SpeedTest.net, I got an average 1.1 Mbps throughput on Sprint's 3G network and a similar score on Verizon's.

This router is bulky, but what it lacks in traveling convenience, it makes up in its extensive features, at a reasonable price. The 802.11g is faster and its single antenna has better reach than its closest competitors. The WRT54G3GV2-ST's security features make it ideal for small businesses, too. It's not limited to one carrier (despite what the marketing materials say), and its mobility features are versatile. Ultimately, this Linksys router can serve your business better than just about any other device out there, thus our decision to award it an Editors' Choice for 3G routers.

Sprint MiFi 2200 Hotspot

Sprint, like Verizon, now offers Novatel's pocket-sized MiFi 2200 hotspot. The MiFi (mobile Wi-Fi) is a Wi-Fi router with an integrated 3G modem using Sprint's EV-DO network—and only Sprint's EV-DO—to provide Internet access. Though small, the MiFi is capable of managing five Wi-Fi devices at a maximum distance of about 40 feet, while powered by a battery a little bigger than a CompactFlash card. It supports only the older 802.11g standard, but it packs many networking features such as VPN pass-through, port filtering and DHCP-server configuration, plus Sprint integrated GPS into the MiFi, a capability missing in Verizon's version.

With the Sprint MiFi, I was able to identify the SSID and connect at 50 feet, and the device reached a maximum throughput of

Verizon MiFi 2200 Intelligent Mobile Hotspot

\$99 with \$50 rebate and
2-year plan



PROS Simple to use. Great
Wi-Fi range. Travel friendly
size.

CONS Runs hot. Battery power
drops quickly with multiple
devices. Tied to Verizon Wire-
less EV-DO service only.

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2.2 Mbps for downloads and 0.76 Mbps for uploads.

Overall, the Sprint does a better job than Verizon, makes it easier to use, and comes cheaper if you decide to get the Simply Everything plan.

Verizon MiFi 2200 Intelligent Mobile Hotspot

Verizon's version of the MiFi 2200 can use only Verizon's network—you can't plug any other 3G modem into it. Powered only by a battery, the Verizon MiFi provides Internet access to up to five devices in a range of about 30 to 40 feet via 802.11g (not the faster 802.11n).

The included VZAccess Management client application has a Microsoft VPN client, Text Messaging tool, and it provides information on your Wi-Fi network. VZAccess

is slightly easier to use than the other interfaces, but it has some minor bugs—like not detecting wireless networks with hidden SSIDs, even if the networks were preferred networks in Windows.

Battery life for the MiFi, rated at 4 hours with constant use, drops much faster with multiple devices: just over 90 minutes with four Wi-Fi connections. I picked up the SSID of the MiFi at almost 50 feet but the service was sporadic. In our speed tests, the Verizon MiFi reached its highest throughput speed at 2.5 Mbps for downloads and 0.9 Mbps for uploads.

Although the Verizon MiFi runs a bit hotter than I prefer (especially if it's going to be in your pocket) and battery life is too short, this device is still a good basic choice for getting the Web on the go.—*Eric Griffith and Mario Morejon*





**HP Officejet 6000
Wireless Printer**

HP Officejet 6000 Wireless Printer

\$119.99 direct



PROS Fast. High-quality graphics and photos. Ethernet and Wi-Fi. Built-in duplexer for 2-sided printing.

CONS Although text quality is good enough for most small- and home-office needs, it's a touch below par.

A Winning Small-Office Ink Jet



All-in-ones (AIOs) have largely taken over the ink-jet market, but if you don't need a printer that scans, copies, or faxes, you can get a lot more bang for the buck from one that doesn't do anything but print. The Officejet 6000 offers fast speed, reasonably good output quality, paper handling suitable for a small or home office, and a relatively low cost per page, all for far less than a comparable AIO.

Despite offering reasonably high-quality photo output, the 6000 is clearly designed as an office printer, focusing on features important for an office, such as an ample 250-sheet input capacity and an automatic duplexer for printing on both sides of a page. And the printer's high-capacity car-

tridges yield a relatively low-cost 2.7 cents per monochrome page and 9.1 cents per color page.

On our business applications suite, the 6000 clocked a time of 11 minutes 34 seconds, making it the fastest single-function ink jet in its price range to date. (However, using the duplexer slows the printer's speed significantly). The 6000's output quality is a touch below par for an ink jet for text, above par for graphics, and at the low end of the typical range for photos. And this printer joins some other recent HP printers in earning the PCMag GreenTech-Approved seal. Overall, the 6000 offers an attractive balance of speed, output quality, paper handling, price, and cost per page, making it our new Editors' Choice.—*M. David Stone*

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HTC Touch Pro2 (T-Mobile)

\$350 street



PROS Solid build. Good call quality. Great calling features. Gorgeous new address book, calendar, dialer and home screen applications.

CONS Using headphones requires embarrassing dongle. Jerky video playback.



HTC Touch Pro2 (T-Mobile)

The Best Windows Mobile Phone Ever?

Simply stated, the Touch Pro2 for T-Mobile is the best Windows Mobile 6.1 phone on the market. But while its address book is a work of art and it would make a great addition to any Microsoft Exchange-based business, its cobbled-together interface and media playback problems hold us back from giving it an Editors' Choice.

The Touch Pro2 is definitely a bulky phone, at 4.6 by 2.3 by 0.7 (HWD) inches and 6.3 ounces. But in this big phone you get a vast 3.6-inch resistive touch panel that slides to the side and tilts up like a little laptop. With the screen open, you can type on a huge five-row QWERTY keyboard. This phone is also very good for voice quality, with calls sounding loud and sharp through the ear-

piece. RF reception isn't fabulous, but it's good enough. The speakerphone is reasonably loud, as are ringtones.

Windows Mobile 6.1 is old and creaky, and HTC has done its best to dress up the interface, though the phone works best as a business communicator. It's full of useful little advances, like letting you create conference calls on the fly, respond to an e-mail with a voice call, and more. Web browsing with Opera Mobile 9.7 isn't bad, but playing back music and video was a horrendous experience. Its camera also leaves something to be desired. Overall, the Touch Pro2 is an excellent way for business people to stay in touch, but it's a new OS away from being a world-class smart phone.—*Sascha Segan*

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Dell Studio 1555 (USE006CS)

A Fundamentally Sound Laptop



The Dell Studio 1555 is an affordable desktop replacement that is neither too cheap to be called a recession special nor expensive enough to be labeled a power house. All of its components are better than what you would expect at this price. Though it isn't as affordable as the Gateway NV5807u (\$600) or the HP Pavilion dv6t (1030us) (\$750), its comprehensive array of ports, 500GB hard drive, and 6 hours of battery life more than justifies this price difference.

The Studio 1555 is arguably one of the bulkiest 15-inch laptops I've ever seen, measuring over 1.5 inches thick at the back. At 5.8 pounds, though, it's as light as the Dell Inspiron 1545 (i1545-USE010ST) and lighter than the HP dv6t (6 pounds), so its looks are deceiving. This system has a 15.6-inch, 1,366-by-768 widescreen display that offers plenty of screen real estate for most multimedia tasks. Most of its other features are comparable with its competitors, except that with the 1555 you get a 500GB hard drive instead of the 320GB-or-less drives included else-

where. Although it does not have a separate numeric keypad, the keyboard nonetheless offers a superb typing experience, with keys that are soft and silent, as well as a perfectly calibrated touchpad.

The 1555's budget price, unfortunately, is a mirror reflection of its non-fire breathing parts. On our performance tests, the 1555's 2.1-GHz Intel Core 2 Duo T6500 was no slow-poke, but the integrated graphics means that 3D-intensive games will be sluggish. However, its PCMark Vantage score beat most of the comparison systems. And thanks to the 1555's 9-cell, 85-Wh battery, this system turned in a strong score of 6 hours on MobileMark 2007.

Although the 1555 isn't the prettiest laptop to grace a store shelf, it is the best desktop replacement laptop in the \$600 to \$800 price range. This system raises the stakes for its competitors in areas such as hard-drive capacity, battery life, and warranty. For these reasons, it earns an Editors' Choice for budget desktop-replacement systems.—*Cisco Cheng*

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SPECS 2.1-GHz Intel Core 2 Duo T6500; 4GB DDR2 SDRAM; 500GB hard drive; 15.6-inch display; Intel Wi-Fi Link 5100 AGN; 5.8 pounds; 3 USB ports; 85-Wh battery; Windows Vista Home Premium (64-bit).



Dell Studio 1555 (USE006CS)

\$799 list



PROS Affordable. Top honors in battery life. Slot-loading DVD burner. Comprehensive array of ports. Large, bright display. Very good performance scores. Excellent typing and navigating experience. Two-year warranty.

CONS Design is thick and boring.

PERFORMANCE TESTS

▲ High scores are best. ▼ Low scores are best.
Bold type denotes first place.

	PCMARK VANTAGE* ▲	MOBILEMARK 2007 ▲ hr: min	MULTIMEDIA TESTS WINDOWS MEDIA ENCODER ▼ min:sec	CINEBENCH R10 ▲	PHOTOSHOP CS4 ▼ min:sec
Dell Studio 1555 (USE006CS)	3,267	6:00	1:17	4,815	0:35
Gateway NV5807u	3,141	3:17	1:18	4,774	0:44
HP Pavilion dv6t (1030us)	2,924	3:03	1:21	4,504	0:38

Product name in **RED** indicates Editors' Choice.

* For this test, each system was set to the default resolution of 1,024 by 768.



Lenovo ThinkStation S20

One Big, Bad Biz Desktop

Power users need power, and the ThinkStation S20 has that in spades. It can motor through digital content creation tasks like editing photos and video, plus it also has stability and IT-friendly features to help run your business. Its price is prohibitive for many, but it's a boon for professionals, particularly graphics professionals that just can't go Mac.

The S20 is housed in a large black metal and plastic tower, and it's just as easy to pop open as the Apple Mac Pro, the S20's prime competition. You also get expansion room, with two open RAM slots, a PCI card slot, two open graphics card slots, and more. The S20's case and internals have an impressive number of Green certifications: EPEAT Gold, RoHS, and Energy Star 5.0.

The S20 also excels in performance. Its score on Futuremark's PCMark Vantage test (7,176) means it is excellent at everyday tasks and moderate multimedia tasks. The S20 also beat the Mac Pro on Windows Media



Lenovo ThinkStation S20

\$3,665 direct



PROS Lots of horsepower. EPEAT Gold certification. ThinkVantage utilities. Easy to service and upgrade. Three-year warranty.

CONS It's big. Some bloatware. McAfee subscription lasts only 30 days.

Encoder and the Photoshop CS4 test. The S20 is less expensive than the 4-core Mac Pro, has a Quadro graphics card, your choice of operating systems, and you get the features and tech support a business needs.
—Joel Santo Domingo

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SPECS 2.93-GHz Intel Xeon W3540 processor; 4GB, 1,066-MHz DDR3 SDRAM; 500GB, 7,200-rpm SATA hard drive; 1.5GB Nvidia Quadro FX 4800 graphics card, dual-layer DVD±RW drive, ten USB 2.0 ports, one eSATA port, Windows Vista Business.

ASUS EeePC 1101HA

An Extra Wide Netbook

It's no secret that Intel and Microsoft have a firm grip on what a netbook may or may not use in terms of features and parts; hence the many lookalikes in this pervasive category. But there are a handful of them that are considered exceptions to the rules. The ASUS EeePC 1101HA is one of maybe three netbooks that use an 11.6-inch widescreen and a higher resolution (1,366-by-768). In exchange for veering from the "guidelines," however, the 1101HA had to settle for a slower Atom processor and a high price for a netbook. Still, it ranks right up there with some of the best oversized netbooks.

The 1101HA has a black lid that is a magnet for smudges and fingerprints, but it is also sleek and lightweight at 11.3 by 7.7 by 1 inches (HWD) and 3 pounds, managing to hide the bulk of the 6-cell battery. This netbook loses points, however, for having an only 92-percent keyboard and sticky mouse keys. It scores points for including a Broadcom 802.11n Wi-Fi chip, a rarity among netbooks.

The 1101HA's 1.33-GHz Intel Atom Z520 processor isn't as fast as the 1.67-GHz N280 processors found in the ASUS 1000HE, Toshiba NB205, and HP 5101, but the Super Hybrid Engine software lets you overclock it



ASUS EeePC 1101HA

\$430 street



PROS Gorgeous 11.6-inch widescreen. Desirable screen resolution. Very slim and light. Battery is designed almost flush with the base. Excellent battery life.


CONS Keyboard only 92 percent for an oversized netbook. Atom Z520 processor is a little sluggish. Not the cheapest 11.6-inch netbook.

to 1.83 GHz. Being restricted to 1GB of memory and Intel integrated graphics didn't help the 1101HA's performance scores much. But it did deliver a good score on MobileMark 2007—6 hours 50 minutes. This is a top-tier oversize netbook, but the Acer A0751h is a better buy.—*Cisco Cheng*

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SPECS 1.33-GHz Intel Atom Z520 processor; 1GB DDR2 SDRAM; 160GB, 5,400-rpm hard drive; Intel GMA 950 graphics; 11.6-inch, 1,366-by-768 display; 3.0 pounds (3.5 travel weight); 3 USB ports; 63-Wh, 5.2-Ahr battery; Windows XP Home Edition.



DESKTOPS		LAPTOPS	
			
HP Pavilion Elite e9120f \$819.99 list		Dell Studio 14z \$1,004 direct	
● ● ● ● ● ○		● ● ● ● ● ○	
PROS	<ul style="list-style-type: none"> • Blu-ray player • Lots of storage and memory • Front-mounted ports • Handsome MediaSmart software 	<ul style="list-style-type: none"> • Large, bright widescreen • Wireless keyboard and mouse • HD-capable screen • DVI output for second monitor support 	<ul style="list-style-type: none"> • Both HDMI and Display-Port • Superb keyboard • Very good battery life • Eye-popping resolution • Reasonable priced
	<ul style="list-style-type: none"> • Can't play demanding games • Limited expandability • Some bloatware 	<ul style="list-style-type: none"> • Remote could be sturdier • Still a little bloatware • Could use a larger hard drive • Poor 3D performance 	<ul style="list-style-type: none"> • No media card reader • No optical drive
BOTTOM LINE	Apart from a graphics card that's better for HD video than for games, the Phenom II X4-powered Pavilion Elite e9120f desktop is an impressive package.	The Averatec D1200 is a large-screen all-in-one PC with TV/DVR capabilities. It can totally replace the TV in a bedroom or a conference room.	It takes guts to omit an optical drive, a media card reader, and VGA-Out, but the Dell Studio 14z does it with style.
	2.6-GHz AMD Phenom II X4 910 processor; 8GB SDRAM; 1TB SATA hard drive; 512MB ATI Radeon HD 4350 graphics; BD-ROM drive; dual-layer DVD±RW drive; Vista Home Premium (64-bit).	2.5-GHz Intel Pentium Dual-Core E5200 processor, 4GB SDRAM, 320GB SATA hard drive, 32MB Intel GMA X4500HD graphics, dual-layer DVD±RW drive, 25.5-inch widescreen LCD, Vista Home Premium (64-bit).	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).
SPECS	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).
	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).	2.4-GHz Intel Core 2 Duo P8600; 3GB SDRAM; 320GB hard drive; 14-inch display; Intel Wi-Fi Link 5100; 4.5 pounds; 74-Wh battery; Vista Home Premium (64-bit).
Product name in RED indicates Editors' Choice.			

NETBOOKS	PRINTERS		
			
Dell Inspiron Mini 10v \$340 street ●●●●○	Canon Pixma MX860 Wireless Office All-in-One Printer \$199.99 direct ●●●●○	Xerox WorkCentre 3220/DN \$549 direct ●●●●○	Epson WorkForce 310 All-In-One \$129.99 direct ●●●●○
<ul style="list-style-type: none"> • Very aggressively priced • Almost 8 hours of battery life • Multiple color options • Option for 802.11n Wi-Fi 	<ul style="list-style-type: none"> • Reasonably high quality output • Prints, scans, and faxes over network • Standalone copier and fax 	<ul style="list-style-type: none"> • Prints, scans, faxes over a network • Standalone copier, fax machine, and e-mail sender • Reasonably high-quality output 	<ul style="list-style-type: none"> • Fast for the price • Ethernet connector • Prints, scans, faxes, even over a network • Standalone copier and fax
<ul style="list-style-type: none"> • Touchpad and mouse buttons are difficult to use • Plain design • Smaller hard drive than competitors' 	<ul style="list-style-type: none"> • Relatively slow • Cumbersome network setup 	<ul style="list-style-type: none"> • Installation guide covers basic installation only, ignoring important setup steps 	<ul style="list-style-type: none"> • Low paper capacity • Although acceptable for most business use, text is relatively low quality
<p>The Dell Mini 10v is one of the most affordable netbooks money can buy, and 8 hours of battery life isn't too shabby either.</p>	<p>The MX860 all-in-one printer offers high-quality output and lots of functions, but it is relatively slow for business applications.</p>	<p>The 3220/DN isn't as easy to set up as it should be, but it offers almost any feature a small office could want in a monochrome laser all-in-one (AIO).</p>	<p>Despite stumbling a bit on text quality, the WorkForce 310 succeeds as a surprisingly capable package at an attractively low price.</p>
<p>1.6GHz Intel Atom N270 processor; 1GB SDRAM; 120GB hard drive; Intel GMA 950 graphics; 10.1-inch screen; 2.9 pounds; 56-Wh battery; Windows XP Home Edition.</p>	<p>Ink-jet AIO; 24 ppm (mono); flatbed scanner; copier; fax; 300-sheet input capacity; 8.9 by 17.1 by 19.4 inches (HWD); 26.4 pounds.</p>	<p>Monochrome laser AIO; 30 ppm (mono); flatbed scanner; copier; fax; 251-sheet input capacity; 15.6 by 17.5 by 16.2 inches (HWD); 30.7 pounds.</p>	<p>Ink-jet AIO; flatbed scanner; copier; fax; 100-sheet input capacity; the 9.3 by 18.1 by 16.2 inches (HWD).</p>

Visit pcmag.com for the full reviews of these and other hardware products.





Kodak Zi8 Pocket Video Camera

\$179.95 list



PROS Nice price. Records 1080p video. 5-megapixel still-image capture. Face detection, electronic image stabilization, and macro mode. Expandable memory. External mic slot. Ships with an HDMI cable.

CONS Jerky zoom. Subpar still image quality. Mediocre built-in mic. Hyper-sensitive buttons. Camera can get very hot.



Kodak Zi8 Pocket Video Camera

Kodak's Pocket Video Wonder



When Kodak introduced its first-ever video camera late last year, the Zi6, we were impressed. In fact, it was our first Editors' Choice in the nascent pocket video camera space. The Zi6 offered a number of features that the famous Flip Ultra didn't, including HD video, still-image capture, and a bigger, better-looking screen. Pure Digital soon hit back with the Flip Mino HD and the Flip Ultra HD. But with its latest, the Zi8 Pocket Video Camera, Kodak again proves that it can create a better product with more features at an affordable price.

The Zi8 is good-looking, well-built, and slimmer than its predecessor, thanks in no small part to the switch from rechargeable AAs to a removable lithium ion battery. The 3.9-ounce camera is still a bit thicker than some of the competition, but it feels comfortable in hand. The sharp 2.5-inch screen is a vast improvement over the dull 1.5-inch LCD on the Flip Mino HD. Beneath the screen are a series of buttons: Tools, Trash, Video, and Playback, with a toggling joystick in the middle, which, when pressed also serves as the Record button. The joystick is a bit too responsive, however. I found myself acci-

dentally recording while attempting to move through menus on a couple of occasions. It also juts out a bit too far, triggering the record function when the camera is laid on a table screen-side-down. You also get 128MB of on-board memory, which is paltry for HD, but you can get an SD card to boost memory to a maximum of 32GB.

The Zi8 also includes a plug-in for an external mic—one of the first cameras we've seen to offer such a feature. This is a welcome addition given the fact that, like nearly every other pocket video camera we've seen, the Kodak's built-in mic leaves a lot to be desired. It fails to pick up subjects' voices if they're farther away than a few feet.

Kodak has also improved the quality of HD video with the Zi8, adding 1080p capture to the mix. The image quality is excellent, but this feature may be overkill for some. The Zi8 also offers 4X digital zoom, twice that of its competitors. Unfortunately, the zoom is a bit jerky, making for a less-than-ideal viewing experience. In short, the Zi8 is one of the least-expensive high-quality pocket HD camcorders you'll find; thus it wins our Editors' Choice.—*Brian Heater*

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RIM BlackBerry Tour 9630
(Verizon Wireless)

Take This Tour



The new BlackBerry Tour is a remix of many of the best BlackBerry features on the market today, packed into beautiful hardware. It's the benchmark for business smartphones, as well as being an excellent music player and social networking tool. My unit was a little buggy, but the Tour is still the best smartphone on Verizon Wireless.

At 4.4 by 2.4 by 0.6 inches (HWD) and 4.6 ounces, the gorgeous Tour looks like a cross between the BlackBerry Bold and the Curve 8900, with the Bold's closer-set keys, but the 8900's softly rounded top. The 2.4-inch screen is so tight, you can't even see the pixels. Although its RF reception is merely average, the Tour has the best voice quality of any Verizon Wireless phone on the market today. Talk time, at 6 hours and 32 minutes, was very good for a Verizon Wireless phone.

If you send messages, the Tour has you covered, whether they're e-mail, IM, SMS, MMS, or social-networking updates. The Tour offers the excellent BlackBerry push e-mail, and the included DataViz software lets you view or edit Microsoft Office docs. The flaws I found with my test unit were that the screen emits a subtle, very high-pitched



RIM BlackBerry Tour 9630 (Verizon Wireless)

\$269.99 direct and up with two-year contract



PROS Excellent hardware design. Global 3G roaming. Lots of media options. Awesome messaging capabilities.

CONS Buggy. Web browser needs a refresh.

noise when it's on and the phone twice suddenly stopped being able to read its memory card. Also, the software was a bit buggy. Still, I recommend the Tour as the best of the Verizon/BlackBerry bunch.—Sascha Segan

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Samsung Reclaim (Sprint)

Samsung's (Very) Green Phone



Samsung hopes to stem the tide of cell phones in landfills with the Reclaim, a tidy, eco-friendly slider. It's also budget-friendly at just \$49.99.

The Reclaim measures just 3.9 by 2.3 by 0.6 (HWD) inches and weighs 3.5 ounces. It's comfortable to hold, thanks to the rounded edges and textured plastic shell that doesn't show fingerprints. The 2.6-inch LCD is bright and sharp, and the buttons, keyboard, and controls are easy to use. Like most Sprint phones, the Reclaim is a dual-band EV-DO (850/1,900 MHz) CDMA device that supports 3G data speeds but not Wi-Fi. But you do get a side-mounted microSD slot for storing photos and music.

On our tests, the Reclaim's reception was middling, and it struggled to hang onto EV-DO mode. However, voice quality was clear and crisp. Battery life was short at just 3 hours 31 minutes of talk time. Also, the Access Web browser was unusually slow to bring up WAP, and HTML pages felt gummy, which seemed more the result of a slow CPU than the browser. In addition, the 2MP camera was disappointing.



Samsung Reclaim (Sprint)

\$49 direct with 2-year contract



PROS Made from mostly recycled materials. Well-crafted slider mechanism and QWERTY keyboard. Solid music performance. Standard-size headphone jack.

CONS Short battery life. Sluggish Web browsing and video streaming. Not the greatest reception.

Most people buying this phone, however, are going to focus on its green credentials. The handset is made from textured bioplastics, comes in recyclable packaging, and the charger is Energy Star approved. With the Reclaim, Samsung proves that though going green is good, it requires some sacrifices.—*Jamie Lendino*

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Sony PlayStation 3 120GB (PS3 Slim)

A Slimmed-Down PS3



To the casual observer, there's nothing particularly slim about the new Sony PlayStation 3's sleek black housing; it's only when you compare it with its nearly three-year-old counterpart that you see how much smaller it is. The bigger news here is the \$100 price drop; The original PS3 retailed for \$600 when it launched in 2006, and up until late August, the least-expensive PS3 you could buy was \$400—with an 80GB hard drive. A more-reasonable \$300 now buys you an incredible console that's more compact, has a roomier 120GB hard drive, and is one of the best Blu-ray players you can find.

In general, the new PlayStation 3 works pretty much the same as the previous-generation console, besides trimming this new model down to 2.5 by 11.4 by 11.4 inches (HWD) and 6.7 pounds. The device still features a 3.2-GHz processor, 550-GHz Nvidia graphics, and the RSX Reality Synthesizer GPU. The changes that are noteworthy are the hard drive bump to 120GB and the com-

Sony PlayStation 3 120GB (PS3 Slim)

Price: \$299.99 direct



PROS New compact and energy-efficient design. Terrific gaming performance. Integrated high-quality Blu-ray player. Hard drive is easily accessible for upgrades. Built-in Wi-Fi, Bluetooth. Support for HDMI CEC and DLNA.

CONS No memory card slots. No Netflix streaming support. Dedicated Blu-ray remote is not included.

pletely redesigned power supply unit and cooling mechanism, resulting in increased efficiency. On our power-consumption tests, the new PS3 used 71 watts during Blu-ray playback, while the older model consumed 104 watts. Also, you can stream content to the PS3 from a host of DLNA-compliant devices, such as digital cameras.

Though I'd like to see a dedicated Blu-ray remote (instead of using the DualShock 3 controller), this new PS3 is nonetheless the best console for gamers and home entertainment buffs who want a versatile media center with Blu-ray.—Zach Honig

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Olympus E-P1

\$799.99 list



PROS Sharp images from ISO 100 through ISO 800. Low noise from ISO 100-1600. Beautiful design. HD video capture (720p30). HDMI port. Three-inch LCD.

CONS Noticeable shutter lag. Slow autofocus. Lens is noisy when focusing. Few Micro Four Thirds Lenses available. No optical viewfinder. No built-in flash.

Olympus E-P1

The Olympus Game Changer

With DSLR-like functionality in a package no larger than a rangefinder, the Olympus E-P1 is truly a game changer. The Micro Four Thirds camera offers spectacular image quality in a compact body, but its auto-focus is slower than expected—slower even than some point-and-shoots. Regardless, this is an amazing first-generation camera; a product impressive enough to cause competitors to scramble to create something even better.

This camera is compact, measuring 2.8 by 4.8 by 1.4 inches (HWD) and weighing 1.2 pounds (with the 14-42-mm kit lens). Also, the build quality is simply fantastic. It was modeled after the 50-year-old Olympus Pen—with a metal chassis and leather-like

grip. The E-P1 is compatible only with Micro Four Thirds lenses. There is also no optical viewfinder, making the 3-inch LCD's large size even more of a necessity.

Operating speed is a mixed bag for the E-P1; it can be very fast, but its sluggish autofocus causes the camera to slow down significantly. Boot up and recycle times are also affected by the slow focusing, with average scores of 3.2 and 2.5 seconds, respectively. However, images produced by the 12.3-megapixel E-P1 are spectacular, competitive with many SLRs. And the ability to shoot HD video is an added perk. Despite its slow focusing, the E-P1 offers one of the best experiences for photographers looking to balance size, image quality, HD video, portability, and nostalgia.—*PJ Jacobowitz*

[>>CLICK HERE FOR MORE](#)



SMARTPHONES		DIGITAL CAMERAS	
			
LG Xenon GR500 (AT&T) \$99.99 to \$299.99 list		Nikon Coolpix S630 \$279.95 list	
		Sigma DP2 \$650 street	
			
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PROS	<ul style="list-style-type: none"> • Solid call quality • Good music and video playback • Compact for a QWERTY slider 	<ul style="list-style-type: none"> • Only prepaid Virgin phone with a keyboard • Good downloadable Web browser and Facebook/MySpace client 	<ul style="list-style-type: none"> • Fast 7X optical zoom lens • Solid wide-angle image quality • Ergonomic design • Negligible shutter lag • Low noise at high ISOs
	<ul style="list-style-type: none"> • Non-standard headphone jack • Bland UI needs a little work in spots 	<ul style="list-style-type: none"> • Poor RF reception • Mediocre call quality • Slow Internet • Limited messaging apps • Cramped keyboard 	<ul style="list-style-type: none"> • D-SLR-quality images • Smaller build than a D-SLR • Fast, high-quality lens • Unique Foveon X3 image processor
	<p>It's tough to fault the LG Xenon, a powerful slider phone that can handle media tasks with aplomb.</p>	<p>The Kyocera X-tc's keyboard makes Web browsing, texting, and Facebook much easier, but its performance overall is lacking.</p>	<p>The Coolpix S630 is a good choice for minimalists who want a compact camera with a powerful optical zoom, but its feature set is lacking.</p>
	<p>AT&T; 2.8-inch, 400-by-240 LCD; 2.0MP camera; 4.2 by 2.1 by 0.6 inches (HWD); 3.8 ounces.</p>	<p>Virgin; 2.4-inch, 320-by-240 LCD; 1.3MP camera; 4.4 by 2 by 0.7 inches (HWD); 4.2 ounces.</p>	<p>Point-and-shoot; 12MP; SD card slot; 2.3 by 3.8 by 1.0 inches (HWD); 5.6 ounces.</p>
BOTTOM LINE		SPECS	

Product name in **RED** indicates Editors' Choice.

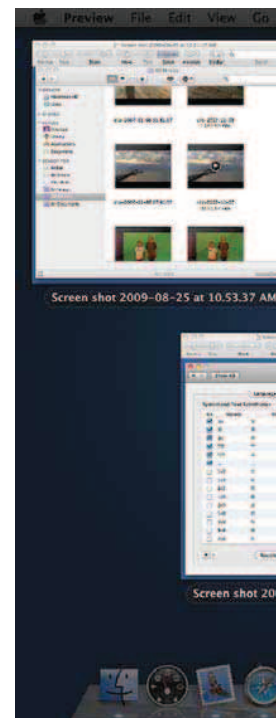
GPS	HEADPHONES		FITNESS GEAR
			
Magellan Maestro 4370 \$299.99 direct	Klipsch Image S4i \$99.99 direct	Shure SRH440 Professional \$99.99 list	Nike+ SportBand \$59 direct
● ● ● ● ● ○	● ● ● ● ● ○	● ● ● ● ● ○	● ● ● ● ● ○
<ul style="list-style-type: none"> • Beautiful, ultra-high resolution screen • Very sharp map and 3D landmark graphics • Accurate navigation • Useful AAA guide 	<ul style="list-style-type: none"> • Built-in iPhone/iPod controls and mic • Works with iPod shuffle's voice-over feature • Strong bass response 	<ul style="list-style-type: none"> • Strong bass response and crisp highs • Ideal for recording or general listening • Detachable, replaceable cable 	<ul style="list-style-type: none"> • Tracks pace, distance, time, and calories burned with near-perfect accuracy • Lightweight • Simple setup and calibration
<ul style="list-style-type: none"> • Touch screen can be stubborn at times • Interface sometimes showed slight lag • Lacks current speed display in map view 	<ul style="list-style-type: none"> • Controls only guaranteed to work with iPhone 3GS and newer iPods 	<ul style="list-style-type: none"> • Can be uncomfortable when worn for long periods 	<ul style="list-style-type: none"> • Low-resolution LCD • Display is not backlit
The Maestro 4370's low price and stellar screen resolution cements its status as a solid navigator, despite touch-screen issues.	For \$100, you get a great-sounding pair of earphones that controls the latest iPods and iPhone, and even works with the iPod shuffle voice-over feature.	The Shure SRH440 sounds fantastic with a wide range of genres—and the price is right for artists and music lovers alike.	The affordable Nike+ SportBand combines an accurate pedometer with a well-executed Web component for a top-notch fitness tracking experience.
Automobile GPS; 4.3-inch screen; SD/MMC card slot; 3.3 by 4.7 by 0.7 inches (HWD); 7.4 ounces.	In-canal earbuds; passive noise canceling; 110 dB SPL per 1 mW sensitivity; 18 ohms impedance.	Circumaural headphones; 105 dB SPL per 1 mW sensitivity; 44 ohms impedance; 9.6 ounces.	Bluetooth capability; sensor, 1.37 by 0.95 by 0.3 inches (HWD); 0.2 ounces.

Visit pcmag.com for the full reviews of these and other consumer electronics products.



THE CAT'S PAJAMAS

Some of the new features in Snow Leopard include a new applications view, the Exposé window preview, and improved TrackPad preferences.



Apple Mac OS X 10.6

Apple's Snow Leopard

Apple has another winner with Mac OS X 10.6, also known as Snow Leopard. This version of the Macintosh operating system is the brainiest, brawniest, and most beautiful consumer-oriented OS available anywhere—and it ships with the best built-in applications and utilities you can find. As its name suggests, this version builds on the strong foundation of OS X 10.5 (Leopard), and offers a smooth upgrade path for existing users (any Intel-based Mac will run it). But you're out of luck if you still have a PowerPC-based Mac.

The new version looks almost identical to the previous one, so there's no new interface

to learn. New features are tucked in unobtrusively on the old interface, so experienced users will find some pleasant surprises in better-organized pop-up menus, as well as networking options, such as built-in support for Cisco VPN. Snow Leopard was also noticeably faster in my testing and requires less disk space. The OS isn't perfect, but it's pretty close. It's the first I've tested in which I found no major glitches at launch.

Snow Leopard includes a few impressive visual changes, including QuickTime X, a completely new QuickTime player with improved performance, a sleek interface, and support for modern video features such as HTTP streaming. The biggest changes in



Apple OS X 10.6 (Snow Leopard)

\$29 direct; 5-license family pack, \$49.



PROS Fast. Elegant. Superb suite of built-in basic apps. Easy to use for those familiar with previous versions. Silky-smooth upgrading for existing users.

CONS A few minor interface glitches. Lacks the range of applications and compatible hardware available for Windows.

rd Roars

Snow Leopard, however, are hidden under its skin. Almost everything uses a new technology called Grand Central Dispatch (GCD), which shares tasks among the multiple cores of modern Intel CPUs and frees developers from the headache of splitting software tasks into separate “threads.”

In addition, almost all the applications in Snow Leopard are now written in 64-bit code for greater speed and increased memory access compared to 32-bit apps. Safari—already speedy under Leopard—now renders JavaScript-rich pages faster than I thought possible.

Another major new feature is full support for Microsoft Exchange accounts in Apple

Mail, so Mac users now have full access to Exchange’s calendar invitations and global address lists instead of using Entourage. Users can also integrate those with the Mac OS Address Book and iCal calendar. And you get the enhanced Exposé feature, which displays reduced images of all open windows at the same time.

The only weakness of Mac OS X 10.6 isn’t in the operating system itself but in the range of applications available for it. Snow Leopard gets more things right than any other operating system, and it throws in striking good looks as a bonus.—*Edward Mendelson*

[>>CLICK HERE FOR MORE](#)



SECURITY SUITES

Your 2010 Security Makeover

The 2010 model year for security suites are rolling out, and we've tested the first crop to see which offer the best protection and easiest operation—without hogging vital system resources. These three suites from BitDefender, K7, and Kaspersky are a good representation of the diversity that has developed in the evolving security market. It's not just Norton and McAfee anymore.

BitDefender Total Security 2010

BitDefender's antivirus technology is certified for virus detection and removal by ICSA Labs and West Coast Labs. This suite promises improved malware detection and cleaning from the previous version, and, indeed, it detected every threat from my infested test systems. However, BitDefender left behind executable files for a third of the threats. It also left tons of file and Registry traces. Even so, it scored an excellent 7.5 out of 10 on our tests. And its multilayered approach at blocking malware is seriously effective.

BitDefender tracked closely with Kaspersky in most of our tests. Its superb malware detection and improved antispam, paren-

tal control, and privacy protection make it a good choice for all-around protection.

K7 TotalSecurity Version 10.0

Never heard of K7? That's about to change with the release of K7 TotalSecurity Version 10.0, the Asian company's first big play in the American security market. TotalSecurity does some things well, but its deficiencies ensure that Symantec, McAfee, and the rest don't need to worry yet.

Despite its dedicated rootkit scanner, K7's score specifically against rootkits was 5.3, a bit below the average. It got high marks on malware blocking, scoring 9.3 of 10 points. In antispam testing, K7 blocked just 2.5 percent of valid mail, which is pretty good. Overall, it has a very small effect on system performance. Spam filtering is decent, but the firewall is fragile and the privacy protection fails in several ways. Basically, for K7 to succeed in the U.S., its next English-language version will have to do better.

Kaspersky Internet Security 2010

On the surface, the latest Kaspersky suite looks more polished than last year's edition, but the actual security features haven't



BitDefender Total Security 2010

1 license, \$69.95 direct; 3 licenses, \$79.95.



PROS Excellent malware detection. Accurate spam filter. Unusually good parental controls. Remote monitoring and management.

CONS Hard to install on a malware-infested system. So-so malware cleanup. Duplicate finder may still remove files it shouldn't.

[CLICK HERE FOR MORE](#)



K7 TotalSecurity Version 10.0

3 licenses, \$44.96 direct



PROS Preinstall scan detects many threats. Detected most malware. Little performance impact.

CONS Incomplete malware cleanup. Did not block rootkit installation. Default firewall settings don't stealth ports.

[CLICK HERE FOR MORE](#)



Kaspersky Internet Security 2010

3 licenses, \$79.95 direct



PROS Improved interface. "Safe Run" virtual environment protects against unwanted changes. Intelligent application control. Hardened against malware attacks. Improved spam filtering. Blocks exploits and leak tests.

CONS Malware cleanup left behind many traces. Slowed system performance somewhat. Antiphishing module less effective. Rudimentary parental controls.





[CLICK HERE FOR MORE](#)

changed much. That's not a bad thing; this suite has tons of features, and the updated user interface makes them more visible and accessible. Rather than attempt to stealth all ports (as most firewalls do), Kaspersky specifically blocks attack-type traffic, an attribute that proved very impressive on our tests. It is also light years ahead of the com-





petition to program control. It also improved on antispam performance.

Kaspersky detected 88 percent of malware samples on our tests (a bit below Norton), and it does take more of a hit on system performance than the others here. But it is still a good choice for basic protection.—Neil Rubenking



	PRODUCTIVITY		MOBILE	
	Doodle Free 	Citrix GotoAssist Express \$69 direct per month or \$660 per year 	Google Voice (BlackBerry) Free 	Google Voice (Android) Free 
PROS	<ul style="list-style-type: none"> • Simplifies event coordination • Easy to use • Well-suited for businesses 	<ul style="list-style-type: none"> • Inexpensive • Easy to set up and use • Remote sessions responded quickly • Service works flawlessly 	<ul style="list-style-type: none"> • Can dial, SMS, or record Google Voice calls from the handset • Plenty of options for managing voice calls 	<ul style="list-style-type: none"> • Plenty of options for managing voice calls • Tighter integration and more features than the BlackBerry version
CONS	<ul style="list-style-type: none"> • Lacks the sleek look and sophisticated functionality of competing services • Doesn't let you confirm attendance 	<ul style="list-style-type: none"> • Offers rudimentary reporting 	<ul style="list-style-type: none"> • Doesn't use BlackBerry's built-in dialer • Somewhat buggy 	<ul style="list-style-type: none"> • SMS messages are still separated from the phone's built-in messaging app
BOTTOM LINE	Doodle is a serviceable, no-frills event scheduling solution that makes it easy to coordinate meet-ups.	GoToAssist Express gives small businesses an affordable, robust, and simple way to support remote users.	Google Voice for BlackBerry lets you make and receive calls and text messages through Google's new "number for life" service, although it's not as tightly integrated as the Android version.	Google Voice for Android is the best way to use Google Voice on a cell phone.

Product name in **RED** indicates Editors' Choice.

MEDIA SYNC		PARENTAL CONTROLS	SOCIAL NETWORKING
Salling Media Sync Free; premium version, \$22 	iTunes Agent Free 	Web of Trust Free 	Xing Basic membership, free; premium membership, \$5.95 per month 
<ul style="list-style-type: none"> • Syncs iTunes playlists easily on many kinds of phones • Available for Macs and PCs 	<ul style="list-style-type: none"> • Syncs iTunes songs and videos with most mass storage devices, including cell phones • Works with a wide variety of devices—even USB flash drives 	<ul style="list-style-type: none"> • Rates Web sites based on community input and other resources • Marks results in over 20 search engines • Can block unreliable or child-inappropriate sites • Doesn't slow browsing 	<ul style="list-style-type: none"> • Strong contact management and comparison tools • Thousands of discussion groups
<ul style="list-style-type: none"> • Free version is too slow for those who sync every day • Paid version is a bit pricey • A few noticeable bugs 	<ul style="list-style-type: none"> • Doesn't work with lower-end phones and certain smartphones • Some Vista installation issues 	<ul style="list-style-type: none"> • Doesn't rate sponsored links in search pages • Some adult sites get past parental-control mode 	<ul style="list-style-type: none"> • Very Eurocentric • Many basic features require paid upgrade to Premium Membership • Of limited use to everyday job seekers
<p>The paid version of Salling Media Sync is an ideal solution for syncing iTunes playlists to your phone, but it's more expensive than alternatives.</p>	<p>This free open-source software is an excellent utility to help you sync your cell phone, PSP, or non-Apple MP3 player with iTunes.</p>	<p>The free Web of Trust browser add-on supplies ratings for over 23 million sites, which it derives from user reports, other Web sites, and malware databases.</p>	<p>Although it may be a useful social-networking service for frequent pond-hoppers, Xing is somewhat lacking in utility for American workers.</p>

Visit pcmag.com for the full reviews of these and scores of other software products.





JOHN C. DVORAK

Where is My Wireless Revolution?

It's great to know that USB 3.0 will soon be available along with multiple core processors and other whiz-bang advancements, so why does the area around my computer still look like a rat's nest of wires?

I can't be the only person with this complaint. My PC's power cord is hooked to a power strip, which is hooked to a UPS forming the backbone of wires. My networking cable is hooked to the "wireless" router, which itself is hooked by a thin nasty looking wire to a brick-like power supply, which is wired to the power strip. The wireless router has four additional wires, including the one to the Internet connection, which, in turn has another brick and three more wires hooked to it including the wire coming in from the cable company, which is also wired to a box and yet another power supply. I haven't even gotten to the speakers, keyboard, mouse, printer, tablet and peripherals.

About once every couple of months I disconnect everything and discover rogue

wires hiding among the wires actually connected to something. These are wires that were used for some reason or another and then disconnected with the thought in mind that they would eventually be reconnected and never were. Often they were never reconnected because it was impossible to find them. So they just build up, tangling within the maz of the other wires.

Many of the rogue wires are actually idiotic variations of the USB connectors. I must have at least six normal variations that I need for one thing or another. USB is USB, so why do we have so many variations? There should be two USB cables. There should be the original giant USB connector with the big rectangular universal connector on one end and the big square connector on the other. Then all the manufacturers should pick one and only one mini USB design. I don't even care which one; just pick one! The only reason for the variations is because these companies must think it's funny. I can't see that these various connectors are any cheaper or better than each other.

So where is the wireless revolution?

The only place I can kind of find it is with the Nintendo Wii.

These various USB wires get tangled in the mess, and when you need one of the oddball ones for some stupid device that uses it you have to look all over for the thing. If they color-coded the wire (red, green, blue?) that would at least help. How about yellow so the cable screams out, "Hey! Here is your weird USB cable you can never find!" That would help.

My myriad mess of wires gives me a headache every time I look at it. So where is the wireless revolution? The only place I can kind of find it is with the Nintendo Wii. The Wii is amazing. It hooks to the Internet almost seamlessly with an excellent Wi-Fi connection. There are no wires to controllers and just the power cable and wires to the TV display. The wires to the display are an issue, but at least it's not like the computer mess.

Perhaps the trend to use notebooks as desktop substitutes stems from this nightmare. I can't figure out why people prefer a dinky laptop to a big and powerful tower, but this could be the reason. And exactly how or why computers are stolen is beyond me. It would take 10 minutes to unhook all the wires. Laptops are easy to snag.

Bluetooth keeps getting upgraded, so where are my Bluetooth connections? While it's not a wildly fast connection, does the transceiver cost so much that, for exam-

ple, all keyboards can't be Bluetooth rather than wired with a long cable and connector? Shouldn't every computer motherboard have built-in Bluetooth?

Well, not if nobody uses it. I have seen cameras and printers and various peripherals come and go all bragging about the built-in Bluetooth. But there is generally something missing from the mix, like no Bluetooth on the motherboard. Then again, I have a laptop with Bluetooth and, to be honest, the interface software stinks. To actually do something is awkward and stupid so I never use it. Maybe making the thing more transparent and slick would be a good thing.

And whatever happened to the wireless USB dongles? Another technology that never quite caught on.

So here I sit with a supposed wireless revolution upon me, and the only items around that take full advantage of it are the Wii and the cellular mobile phone, which does little more than replace a phone wire, which is still used to hook to a phone anyway.

I give up on this. All that is missing is the rat to live in the nest. And, to be honest I'm not sure there isn't one in there.

DVORAK LIVE ON THE WEB John's Internet TV show airs every Wednesday at 3:30 ET on **Cranky-Geeks.com**. You can download back episodes whenever you like.





SASCHA SEGAN

Why Can't Smartphones Kill Netbooks?

Here's a great idea, and one you may have had: the shape-shifting computer. It's a little box, the size of a pack of cigarettes, or maybe it looks just like an iPhone. Maybe it is an iPhone. Pop it into a big screen and keyboard, and pow, you have a netbook. Slide it out, and you've got a smart phone. Attach a slim, stylish handset with Bluetooth, and you have a fashion-oriented voice phone.

Why hasn't this happened yet? I'm asking because several people have recently asked me why they can't netbook-ize their smart phones, which nowadays have fast processors and gigabytes of storage. I'm not talking about "smartbooks," which are just netbooks running ARM processors. I'm talking about true shape-shifters where you can bring along a full keyboard and big screen, or not, as you choose.

Over the past decade, the industry has gone backwards on this issue. There hasn't been a new Bluetooth keyboard for smartphones since 2006. Phones with video-out

ports for large displays come and go without much notice. But three companies have recently attempted to make smartphones convertible. Celio has had the most success with Redfly, a brainless \$199 laptop that you connect to a Windows Mobile phone. It works, but without music or video support—and it's clunky. A company named i-mate showed me an elegant handheld back in February that slots into a laptop-style body, but I haven't heard from the company since. Modu has been showing off little CPU units that fit into various interchangeable phone bodies for two years now; they're rumored to launch soon, but only in Israel.

So why can't smartphones give netbooks a run for their money? Let's take processing power off the table, as that won't be an issue within a year or so. Here are some ideas.

The OS Problem

I cover what our laptop analyst, Cisco Cheng, derisively calls "things without a real OS." He means "things that don't run Windows XP or Vista."

Docking your smart phone won't happen until carriers can make money on it.

Most of the leading smartphone operating systems are “real” operating systems, but they all lack critical Web components and mainstream office software. But that doesn't change the fact that many smartphone manufacturers force software developers through painful hoops, either making them work in Java with one hand tied behind their backs (BlackBerry, Android), giving them no access to hardware at all (Palm, WebOS), or forcing their every move to be approved by the random whims of faceless apparatchiks (Apple).

Most working folks also demand Microsoft Office to get their jobs done, and Microsoft refuses to program a version of Office for the ARM chips that smartphones run on.

Smartphone software developers have been working hard within these limitations. Considering there are now 65,000 iPhone apps, it's hard to believe that there aren't thousands of people who want to use those apps with a nice big keyboard and screen.

Hybrid Devices: Clunky and Expensive

That's the lesson we could learn from Redfly. It's a common, lazy argument that's always true until it isn't. Combining e-mail and a voice phone looked clunky until BlackBerries did it; music phones looked clunky until the iPhone came along.

Hybrid devices tend to cost more, and netbooks are unusually cheap. But that hasn't stopped smartphone makers from includ-

ing cameras (and cutting into digital camera sales) or including music capabilities (causing trouble for the non-iPhone music player market.) Offering a dock option for your smartphone doesn't seem beyond the pale.

So we have to look deeper and follow the money, to what I think is the real answer.

Carriers and Apple Don't Want It to Happen

Almost everyone in the U.S. now has a mobile phone subscription. So a key way that carriers expand is to sell each customer more than one subscription, a strategy that Verizon CEO Lowell McAdam once described, unintentionally lewdly, as “500-percent penetration.”

If you buy a smart phone and a netbook, that's two subscriptions. But if your smart phone becomes your netbook, that's only one subscription. That's why Sprint doesn't allow tethering on the Palm Pre; it wants to sell additional USB modem plans.

There will also probably never be a keyboard for iPhones because Apple doesn't want to endanger MacBook sales. Docking your smart phone sounds like a terrific idea for users, but it just won't happen until carriers and smartphone makers are confident they can make money on it. Check back in early 2011.

STAY PHONE-SMART Keep up with the latest on smartphones by reading Sascha's column at go.pcmag.com/segan.





DAN COSTA

Things Not to Do While Driving

A report out in August shows that drivers are 23 times more likely to get into an accident while texting than while not texting. The study, conducted by the Virginia Tech Transportation Institute, found that in the moments before their accidents, drivers spent an average of 5 seconds looking away from the road. At highway speeds, that is enough time to cover the length of a football field.

This news has legislators across the country working on laws to ban Driving While Texting (DWT) in order to get drivers to, well, watch where they're going. But that isn't the only technological threat that needs to be addressed. There are a host of other tech tasks that can put you and other drivers at risk.

WHILE DRIVING, DO NOT TALK ON THE PHONE

Unlike texting, talking on the phone provides the benefit of being able to watch the road. Nonetheless, distraction can cause accidents. A study by the Univer-

sity of Utah found that drivers on cell phones are 18 percent slower to react to brake lights. Another study performed by the Insurance Institute for Highway Safety Motorists found that talking on a phone made drivers four times more likely to get into a serious crash. Making hand-held calls is already banned in California, Washington, New York, Connecticut, and New Jersey, with exceptions for calls using Bluetooth headsets. Just let it go to voice mail.

WHILE DRIVING, DO NOT TWITTER

PCMag.com readers know full well just how awesome Twitter is for fun and shameless self-promotion. (Follow me at @dancosta!) That said, Twittering is texting. And texting kills people.

WHILE DRIVING, DO NOT RE-PLOT YOUR GPS

Most GPS devices have a warning screen that makes you promise not to operate the unit while at a certain speed. And most of us ignore it. Minutes later we have one hand

Making calls while driving is already banned in several states. Just let it go to voicemail.

on the wheel and another tapping in street numbers. Regardless of how big the screen is, GPS still requires too many taps to enter an address. And that next tap you feel might be the bumper of the car in front of you.

WHILE DRIVING, DO NOT WATCH TV It is one thing for the kids to watch SpongeBob in the back seat on the way home from Grandma's house. It is quite another thing when you climb in back with them to see the end of the football game. Not only does the game distract you from ever-changing road conditions, it is also very difficult to reach the pedals from the back seat.

WHILE DRIVING, DO NOT DOWNLOAD COPYRIGHTED MUSIC Just because you love that new Green Day track on the radio doesn't mean you should fire up your laptop, load BitTorrent, and start downloading it. Artists deserve to be paid, and now that iTunes offers DRM-free tracks, it really isn't that much of a hassle. Stealing is wrong at any speed!

WHILE DRIVING, DO NOT E-FILE YOUR TAXES Online tax preparation saves countless hours of frustration, but driving 65 mph down the expressway is not the best time to do it. Yes, the IRS tends to be very picky about its deadlines, but it is worth waiting until you're in Park. Estimates by tax spe-

cialists Dewey, Cheatem & Howe show a significant increase in misfilings by users who prepared their returns while driving.

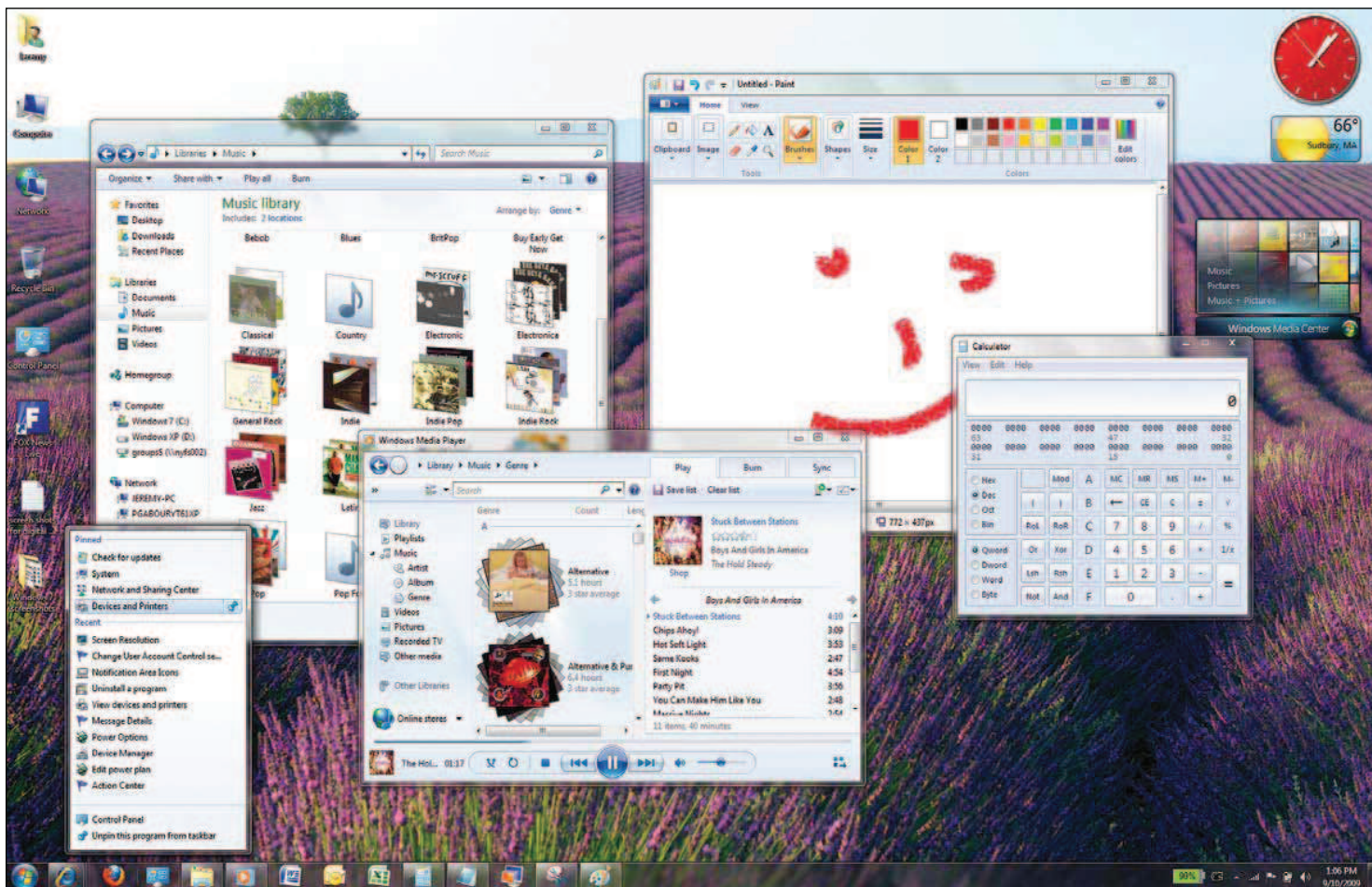
WHILE DRIVING, DO NOT BUILD AN AMD-BASED GAMING PC I know what you're thinking. Yes, using AMD components will save you a few hundred bucks and you can get a system that has some sweet performance. And it isn't hard to do. Still, spreading that thermal compound over the CPU is a delicate process. And that SUV in the left lane never uses his signal lights.

WHILE DRIVING, DO NOT TAKE A SHOWER A truck driver in China was recently pulled over for taking a shower in his truck—while driving on the Jinji Expressway. Evidently, his A/C broke, and he wanted to stay cool. Researchers are still investigating how showering while driving affects your accident risk, but early results indicate it can't be good. And all that water will wreak havoc with your dashboard.

Let me be clear, driving while texting is clearly very dangerous. It has nothing to do with the technology; it has to do with the fact that you are taking your eyes off the road and your hands off the wheel. That is just dumb. Maybe we need laws to keep us from behaving stupidly, but common sense would be even more useful.

TALK BACK TO DAN E-mail your thoughts to dan_costa@pcmag.com.





INSIDE W

We're mere weeks away from the public release of Windows 7. To give you a sneak peek, we've test-driven the final version of the code.

By Jeremy A. Kaplan and Michael Muchmore

The future of Windows is upon us. In just a few weeks (October 22, to be exact), the final version of Windows 7 (called GA, for "general availability") will ship. Of course, we couldn't wait, so we took the final code, which was released to manufacturers (RTM) over the summer,



THE NEW START MENU

When highlighted, certain apps feature a Jump List, showing the most recently or frequently opened files.



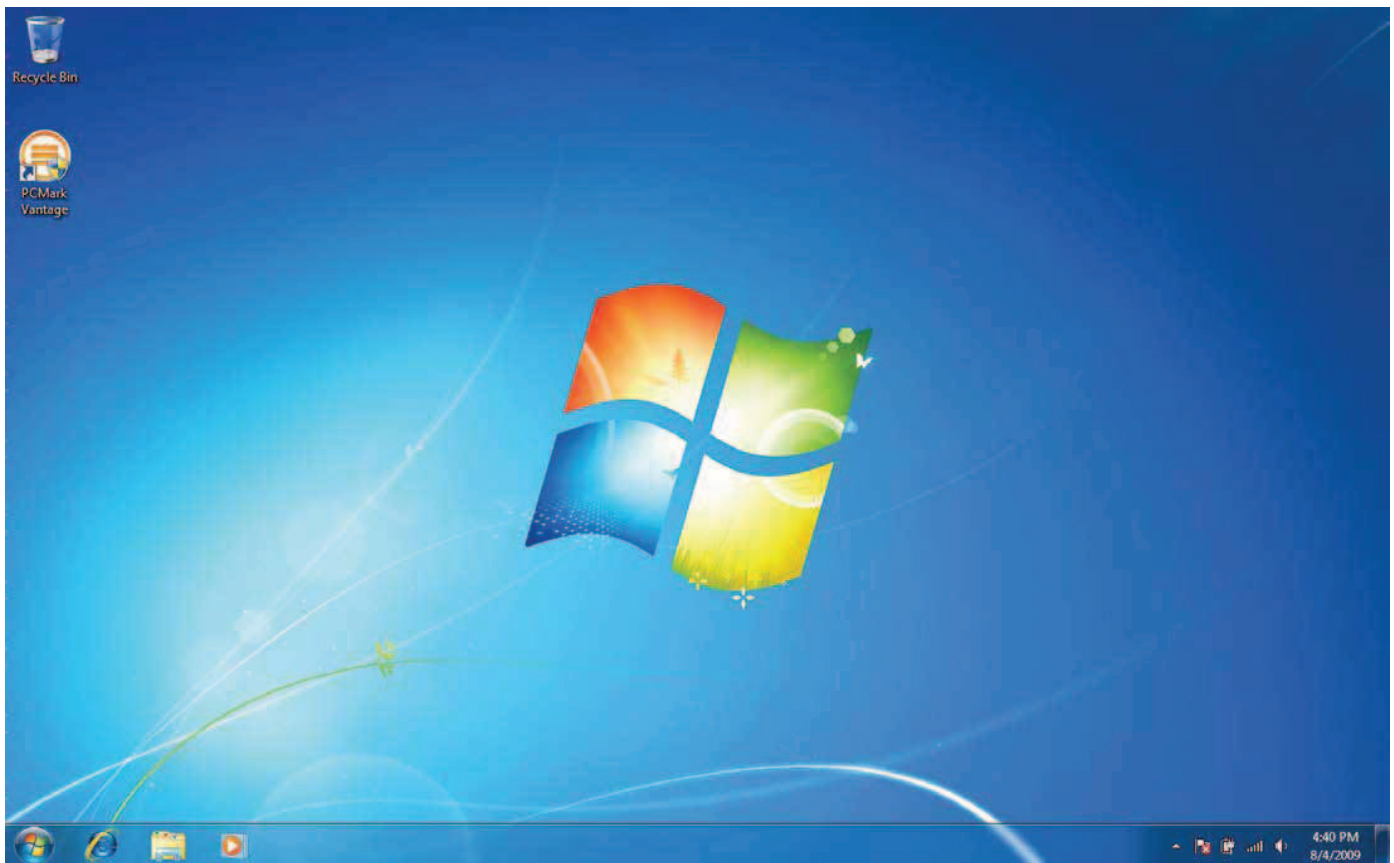
WINDOWS 7

out for a spin. And we have to say, it continues to look solid. It's bolder in terms of new capabilities and user interface design than Apple's Snow Leopard, but it shares with that update a firm basis in its predecessor OS, Vista.

The new streaming media functionality, together with Windows 7's new taskbar, Device Stage, HomeGroup networking, and

XP Mode make this Windows far more than a service pack for Vista—though the two operating systems share much underlying plumbing. That means we shouldn't see the compatibility hassles we saw with Vista. But Windows 7's lighter system footprint makes for faster start-up and slightly faster performance. Cap all this with rock-steady reliability, and Microsoft may just have a





THE NEW DESKTOP In the default theme, the Windows flag is now adorned with plants and animals.

winner. The price (from \$120) is lower than the price the company originally asked for Vista (upgrade price \$129.95, and full price \$259.95). One major issue, however, is the upgrade path from XP, which affects a lot of users who bypassed the much-maligned Vista. Fortunately, Microsoft is offering upgrade pricing for Windows XP and even Windows 2000 owners.

Editions and Setup

There will be just three editions of Windows 7 for sale: Home Premium (\$199.99), Professional (\$299.99), and Ultimate (\$319.99). Most users will want to opt for one of the first two, with Professional obviously suited to workplaces and hard-core techie users. Ultimate includes everything from the other editions, but doesn't add much more than the abilities to encrypt USB drives and switch

to any of 35 languages. (Gone are the "Ultimate Extras" of Vista days.) A fourth edition, Starter, will come preinstalled on some netbooks, but won't be available at retail outlets. Starter won't run eye candy like Aero Glass, and most netbooks can run the higher versions with peppy-enough performance, as we've seen in several units in the labs. The Home Basic edition, seen in Vista, is gone in the United States; Home Premium is the only home choice here. Note also that these are list prices and you can expect to see markdowns after the October 22 launch.

There will also be Anytime Upgrades from the lower editions of Windows 7 to the higher editions. Upgrading from Starter to Home Premium will cost \$79.99, from Home Premium to Professional will cost \$89.99, and from Home Premium to Ultimate will cost \$139.99. Finally, a Family Pack pricing

Upgrading to Windows 7? Here Are Some Installation Options

Upgrade from:	Windows 7 Home Premium	Windows 7 Professional	Windows 7 Ultimate
Windows Vista® Home Basic	Upgrade	Custom	Upgrade
Windows Vista® Home Premium	Upgrade	Custom	
Windows Vista® Business	Custom	Upgrade	
Windows Vista® Ultimate	Custom	Custom	
Windows XP/ Windows Vista® Starter/32-bit to 64-bit	Custom		
Custom Installation	A custom installation enables dual booting or the ability to replace your existing operating system with Windows 7. Your programs, settings, and data will be removed if you opt to replace. Back up all of your data and ensure you have your original program disks available before doing a custom installation.		
Upgrade Installation	An upgrade installs Windows 7 retaining all your programs, settings, and documents after installation.		

option will allow installation of Windows 7 Home Premium on three PCs for \$149.99—a pretty sweet deal compared to the individual licenses. Note also that Microsoft recently announced volume discounts for business customers.

Last May's Release Candidate (RC) put finishing touches on some new features, uncorked a few extras, and added a good deal of polish to Windows 7, and none of this

changes in RTM. The install routine has new icons and a few splash screens ("Checking video performance," and so on) with a new starburst effect. Even the Starting Windows and log-on screens have gained a leafy, patterned background. The installation smartly wouldn't allow us to set up the OS while our laptop was unplugged. As with the RC, the RTM looks for updates on first run; we recommend installing them.



Windows 7: What Each Edi

VERSION	PRICE			
	NEW			
	Single	Family Pack (3 licenses)	From previous Windows version	To H
Starter	N/A*	N/A*	N/A*	\$79
Home Basic	N/A	N/A	N/A	N/A
Home Premium	\$199.99	\$149.99	\$119.99	N/A
Professional	\$299.99	N/A	\$199.99	N/A
Ultimate	\$319.99	N/A	\$219.99	N/A
Enterprise	Variable	N/A	Variable	N/A

* Preinstalled only

If you want to do an upgrade installation, you must be running Vista SP1 or SP2 and have 12.9GB of free disk space. Remember, upgrade installations, in which all your programs and documents are maintained for the new OS, are only available to Vista users. Users of XP and other versions of Windows

will have to choose Custom and do a “clean” install.

We installed Windows 7 RTM on a Dell netbook, a Dell XPS M1330 notebook, and an HP TouchSmart. The installer can format or create new partitions with its advanced choices. Installation took 30 minutes for a

tion Costs

			FEATURES
UPGRADE			
Anytime Upgrade			
Home Premium	To Professional	To Ultimate	
199	\$114.99	\$164.99	<ul style="list-style-type: none">• Does not support Windows Aero• Not available in a 64-bit version
A	N/A	N/A	<ul style="list-style-type: none">• Available only in emerging markets
A	\$89.99	\$139.99	<ul style="list-style-type: none">• HomeGroup networking• Multitouch and improved handwriting recognition• Windows Media Center
A	N/A	\$129.99	Same as Home Premium, plus: <ul style="list-style-type: none">• Back up to home or business network• Domain join• Encrypting file system• Location aware printing• Remote desktop host• Windows XP Mode
A	N/A	N/A	Same as Professional, plus: <ul style="list-style-type: none">• BitLocker drive encryption• Support for 35 languages
A	N/A	N/A	Same as Ultimate, but available in volume licensing only

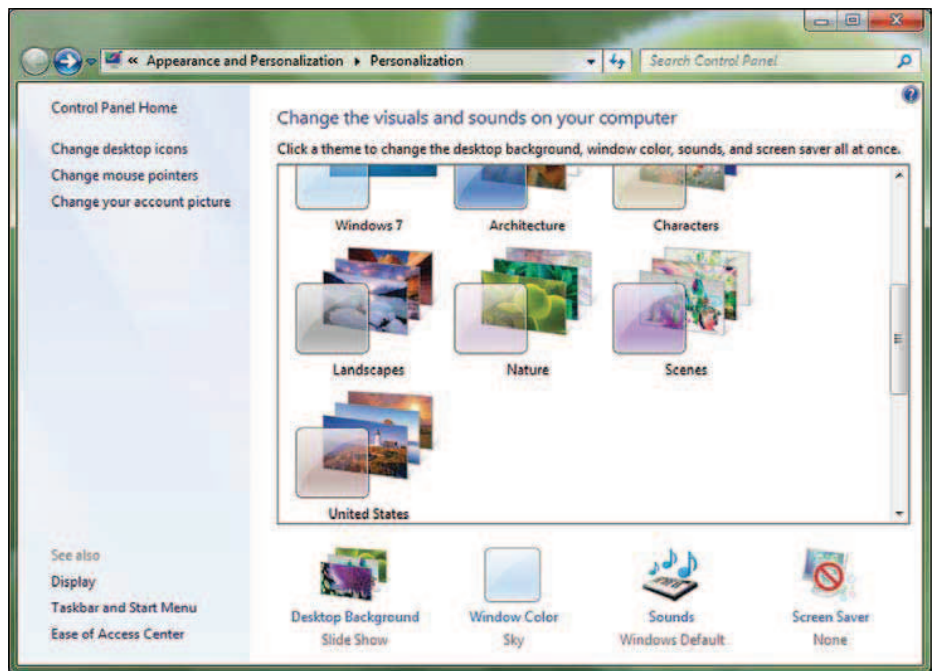
machine that already had the release candidate of Windows 7 installed, longer than the 20 minutes RC took on a blank partition. The installer copies programs and data from the previous installation to a “windows.old” directory, as Vista did. Installing to a blank new partition doesn’t require that step, so

installation went faster, at 24 minutes—still slightly slower than it took to install the RC.

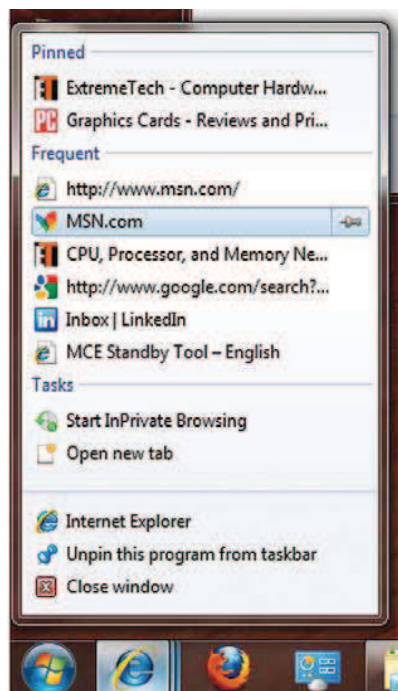
After installation, however, we had a problem with the laptop’s graphics driver—our Windows Experience Index was 1.0, and we couldn’t see Aero desktop effects. Getting the correct driver installed was far less



PERSONALIZE IT You can make your system your own by choosing your own sounds, background, and screen saver from the Control Panel.



automated than it should have been. We had to go to Dell's site and find the driver. The installer found and installed the correct driver on the HP TouchSmart and a few netbooks we tested, but one netbook had the same graphics driver problem. By the time Windows 7 is available to the public, this nuisance had better be gone, if the company wants to avoid the hassles that accompanied the Vista rollout.



TASKBAR IMPROVEMENTS

The taskbar buttons are taller, glow when you hover over them, and display thumbnails of any documents each app has open.

Interface and Taskbar

After a year of displaying the Siamese Fighting Fish, aka Betta (get it? Beta?), the RTM now displays as its central desktop image a redesigned Windows flag. One startup characteristic that disappoints us is that the sound is identical to Vista's startup sound. You'd think Microsoft would commission a new startup sound for such a hot new OS. The default theme of the interface has its own new look, yet Vista users will feel mostly at home. Even upgrading XP users will have little trouble with the UI, but neither will they be able to cling to the past. There's no XP emulation theme in Windows 7, as there is in Vista. There is, however, a Windows XP Mode for XP emulation—more on that later.

When you start up the OS, you see some snazzy eye candy: colored glowing dots that become the Windows flag. The taskbar



TAKE A PEEK If your desktop is crowded with windows, you can choose to just look at one and make the others transparent.

also has more noticeable changes; for an in-depth look at this new interface cornerstone, check out the article “The New Windows 7 Taskbar,” by Jason Cross.

In a nutshell, taskbar buttons are taller than before (although you can make them smaller again). You can choose whether to combine all instances of one app in one button or keep all separate, or to combine them only when space is short on the taskbar.

Taskbar buttons glow when you hover the mouse over them, with related buttons glowing the same color. They also display side-by-side thumbnails with filenames of any documents the app has open. Clicking a thumbnail opens the app, with the doc in question loaded. If an app’s window is open, moving the cursor over each taskbar thumbnail switches to that document in the app window. You can now move buttons to whatever position on the taskbar you like. Finally, an option lets you pin (or permanently set) a taskbar icon so that it’s

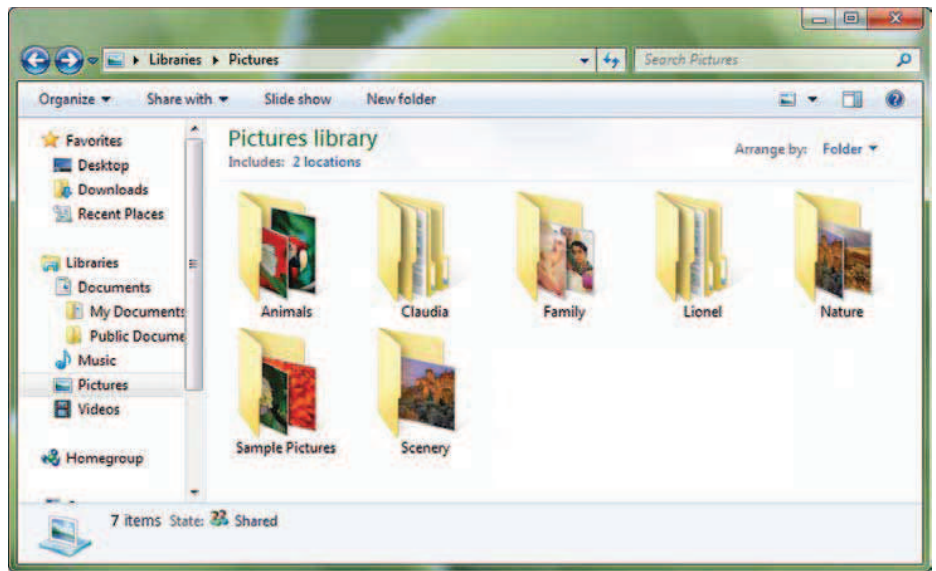
always present. That’s a good thing, since Quick Launch icons have disappeared in Windows 7.

The Windows 7 Start menu is nearly identical to Vista’s, except that each application entry now displays what’s called a **Jump List** when you hover the mouse pointer over its entry. This list presents a choice of the files most recently and frequently opened with that program. Note, however, that it works only for the large Start menu choice, not when you click on All Programs. We wish it worked for both. Another Start menu difference is in the options that appear to the right of the program list: **Network** and **Connect To** are gone, and a **Devices and Printers** choice has been added. Presumably, Microsoft now trusts users to visit the **Network and Internet** control panel for networking tasks.

Gone, too, is the **Sidebar**, although the gadgets that once lived in it can now float freely anywhere on the desktop. If your screen’s covered with application win-



GROUPING PHOTOS With the new Libraries feature, you can group photos regardless of where they're located (separate drives, networked PCs, and so on).

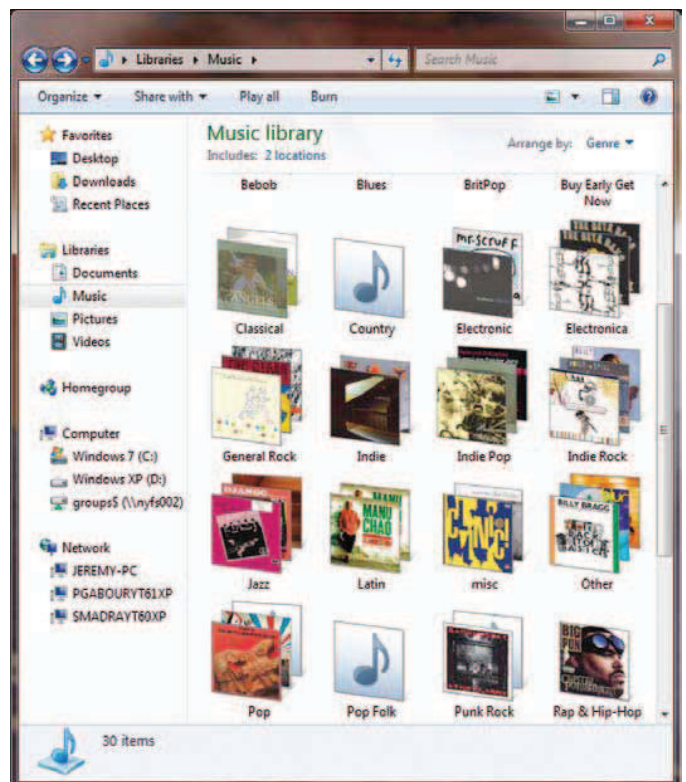


dows, the new **Desktop Peek** function can reveal these gadgets by making all windows on the desktop transparent when you hover the mouse in the lower-right corner of the screen. I prefer the explicit nature of the **Show Desktop** icon in XP and Vista, rather than the nonintuitive clicking on the unmarked corner.

Peek is known as an Aero Desktop Enhancement. Another such enhancement is the new behavior that maximizes a window when you drag it to the top of the screen. Drag it back down and it returns to its previous size. “Shaking” a window—clicking on the top window bar and shaking the mouse—minimizes all other windows on the screen. Finally, moving two windows to opposite sides of the screen causes each to take up half the screen. For this to work, you have to grab the title bar with the mouse pointer and drag it all the way to the edge of the screen. We’re not thrilled about dragging up to maximize. This could be annoying if you just want to move a window without expanding it. Double-clicking maximizes the window anyway. The shaking option, however, is nifty.

Libraries

When you open Explorer windows in Windows 7, you get a new choice on the left side: Libraries. These group related files regardless of location, whether on separate drives or networked PCs. Four preset libraries are included: Documents, Music, Pictures, and Videos. You can create as many new Librar-



EASY LISTENING Libraries make it easy for you to group and view music by genre, date, or tags.



FEWER UAC POP-UPS Microsoft promises to reduce the number of UAC interruptions with Windows 7.

ies as you like, and when you navigate to any directory, an **Include in library** selection at the top of the window lets you add it to the library of your choice. For more details, check out “Windows 7 Libraries.”

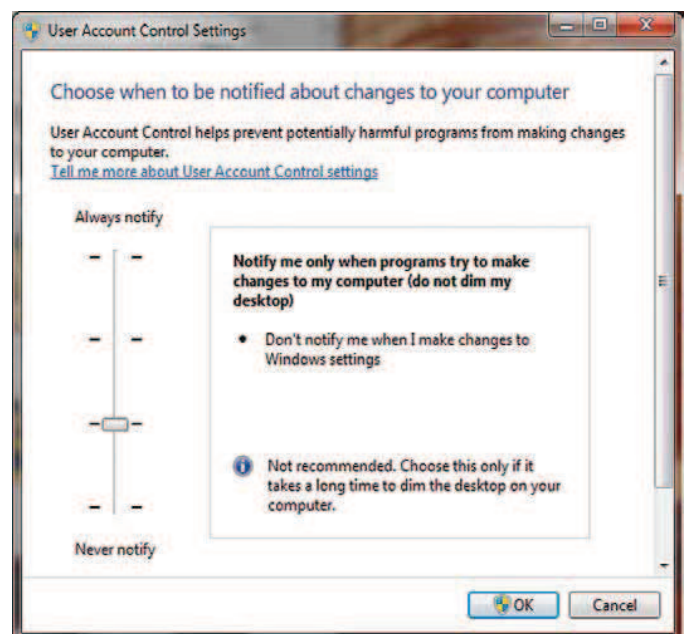
One note: When in a library, you can arrange the contents not only by folder but also by date or tags. Letting people group content in ways defined by use rather than storage location is a move in the right direction. Still, Microsoft could even take it a step further by letting you create a library based completely on content type—say, all videos—rather than making you specify which folders should be included.

The UAC and Other Interruptions

The barrage of messages from User Account Control (UAC) has been a constant source of complaints about Vista. Install a program or make any kind of system-level change, and you get interrupted. Microsoft designed UAC to make Windows more secure by preventing unwanted program installations and system setting changes. The company claims that, as a result, 60 percent fewer malware infections have occurred in Vista than in XP SP2. Maybe so, but the feature seriously annoys users. You *can* actually

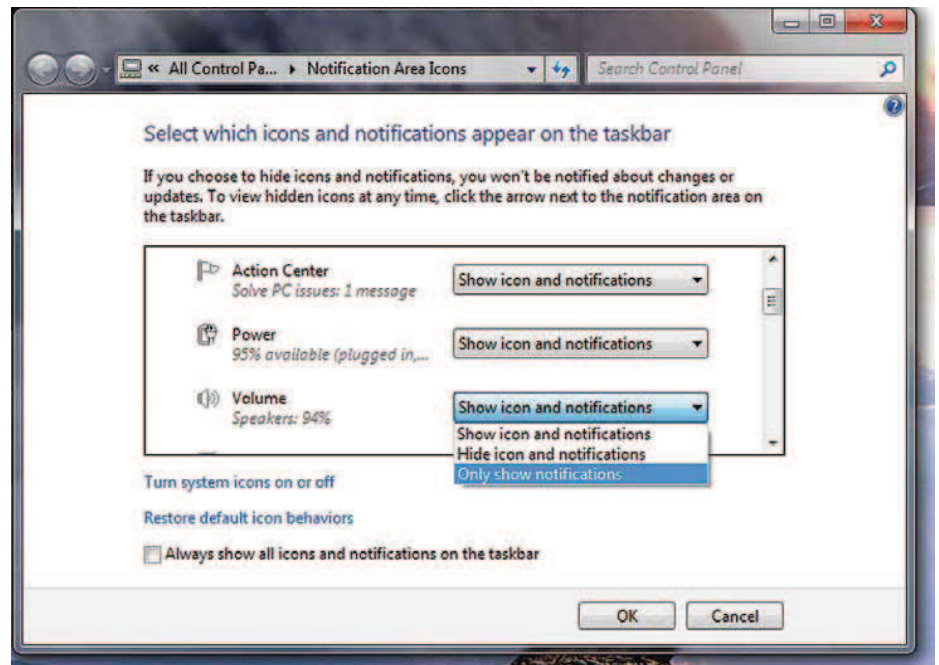
turn off these interruptions in Vista, but that hasn’t stopped the chorus of disapproval. Windows 7 aims to reduce the number of actions that pop up the dialogs and give you finer control over what triggers them.

In the new UAC’s settings panel is a four-position slider whose two ends are **Always notify** and **Never notify**. This won’t solve all UAC annoyances, but at least it gives users more control than just “on” or “off.” Another new Windows 7 strategy designed to reduce interruptions is the “Auto-Elevate” list—a whitelist for apps that are green-lighted to



CRANK UP OR DOWN THE UAC You can choose how often you want UAC to notify you.

BETTER ICON CONTROL Windows 7 gives you more control over which icons and notifications you see in the lower right corner of your screen.



bypass UAC confirmations. For a deeper look at the UAC, see our story “Security in Windows 7: UAC and You.”

Windows 7 also reduces distractions from system tray notifications. The OS gives fine-grain control over what balloons a program pops up from this lower-right area of the screen. The icon area itself has been relieved of clutter. By default, you see only a few icons, with the rest accessible via an up arrow. If you like to see all the icons, however, you can set Windows to show them. You can turn icons on and off—even system icons like Clock, Volume, and Network icons. One new system tray entry, **Action Center**, takes over for the Security Center icon in previous Windows versions. Action Center also handles notifications from several other Windows features, including Updates, Backup, and UAC. Many will welcome the reduction of tray clutter. Personally, we prefer to see all the icons.

Microsoft has also modified a trait of the Vista shutdown button that confused some people. By default, clicking on the red “off

sign” button in Vista put the computer into sleep mode. This allowed for a much quicker restart—a few seconds on some PCs. But users thought clicking the button would completely shut down the machine. Now there’s no ambiguity left: Shutdown is the default, and only after clicking on the arrow next to it will you see sleep, hibernate, log out, and lock.

Security

The new UAC philosophy naturally has security implications, and security guru Neil J. Rubenking has produced a series of articles addressing those and other Windows 7 security considerations. Security comes into play right from the get-go—that is, at setup, and “Security in Windows 7: Setup” addresses this—particularly noting that the OS lacks built-in antivirus software, although the OS’s Solution Center does grumble about the need for it, as well as suggesting that you activate automatic updates.

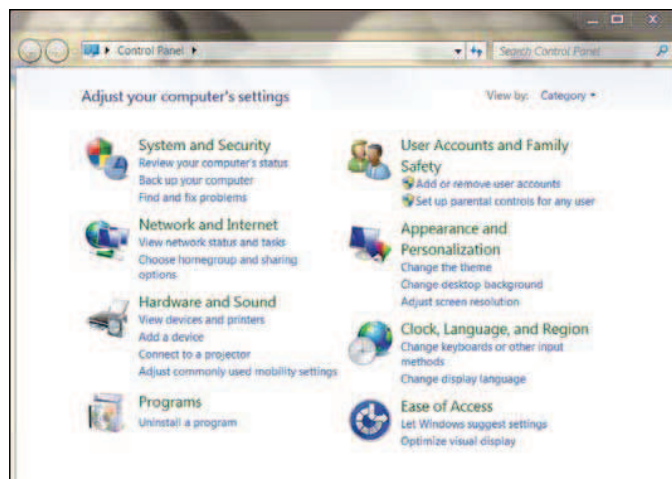
The firewall in Windows 7 has been much

improved. It makes configuring home networks smoother and offers separate configuration settings for private (Home or Work) and public networks. Other security-related goodies in Windows 7 are discussed in “Security in Windows 7: BitLocker and More,” including BitLocker To Go (encryption for removable drives), AppLocker, and System Restore. In general, the verdict is that security in Windows 7 has been tweaked and a few new niceties added, but it’s not a quantum leap in strategy the way Vista was.

One final step Microsoft has taken to improve security is removing Autorun from non-optical drives connected to a PC. This prevents malicious code on a USB key from contaminating your PC by running when you insert it. The infamous Conficker worm has been known to use this method of infection. And the Engineering Windows 7 blog quotes a finding in a study by Forefront Client Security that “malware that can propagate via Autorun accounted for 17.7 percent of infections in the second half of 2008—the largest single category of malware infections.”

Managing Devices

In addition to new icons, the Control Panel has a versatile new jump list, as you’ll see if you pin it to the Taskbar and right-click on the buttons. The Control Panel itself gets a few minor tweaks. A new **View by** menu appears beneath the Control Panel search box. This lets you switch from the default category view to a view that shows all Control Panel items. The Windows 7 Beta had



CONTROL PANEL MAKEOVER A new **View By** option lets you view all or sort by category.

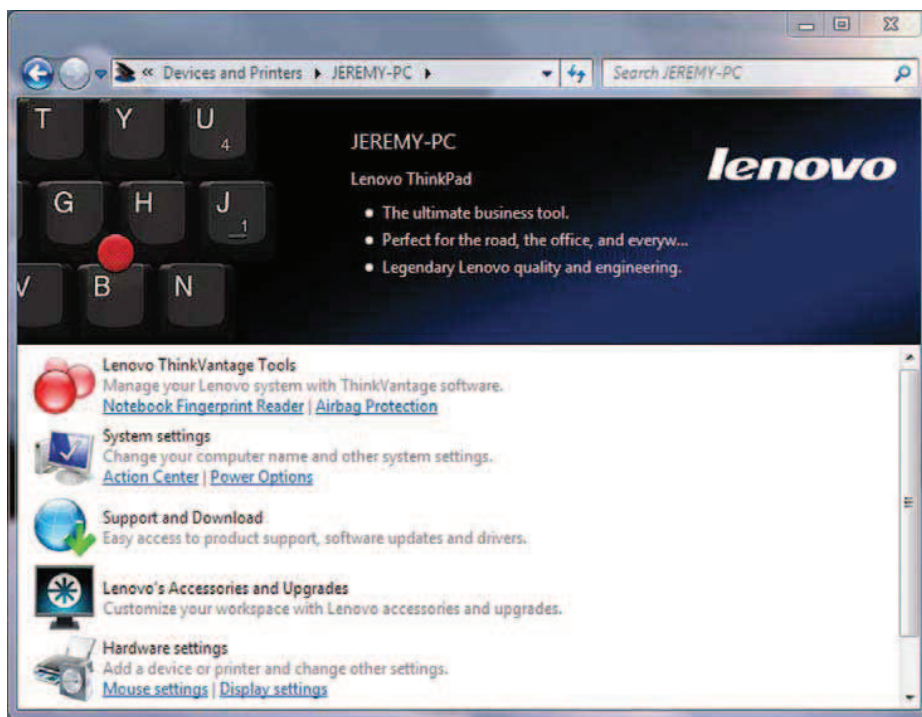
a whopping 59 Control Panel items; the RTM gets the number down to 47. Gone are Biometric Devices, ClearType Text Tuner, Default Location, Feedback (released just for the beta, this one doesn’t really count, we suppose), Game Controllers, iSCSI Initiator, Offline Files, Pen and Touch, System Icons, Tablet PC Settings, Text to Speech, and Windows SideShow.

Many of these features have been subsumed by the **Devices and Printers** control panel, or moved elsewhere in the OS. The **ClearType Text Tuner**, for instance, is still easily found in the Display control. Some of the changes are surprising, however. What’s happened to **SideShow**? For anyone interested in this long-neglected technology, don’t worry. I added a **SideShow** device to Windows 7 (a beta version of the now-canceled Ricavision remote control) and installed the drivers, and the Control Panel appeared. It seems that certain items are keyed to appear only if relevant—which makes sense.

Device Stage

Connecting devices to your PC and getting





DEVICE STAGE Each device in your network gets its own page, describing its capabilities, with **Device Stage**. Here's the main page for our ThinkPad, for example.

what you want from them has always been a pain. Connect a cell phone, for example, and you have to decide whether you're interested in the music, contacts, or pictures. The situation is similar for other devices, too. Many printers do fax and scan, in addition to printing. Microsoft **Device Stage** provides easier access to all a device's capabilities. For more on this feature, check out "Windows 7 Device Stage."

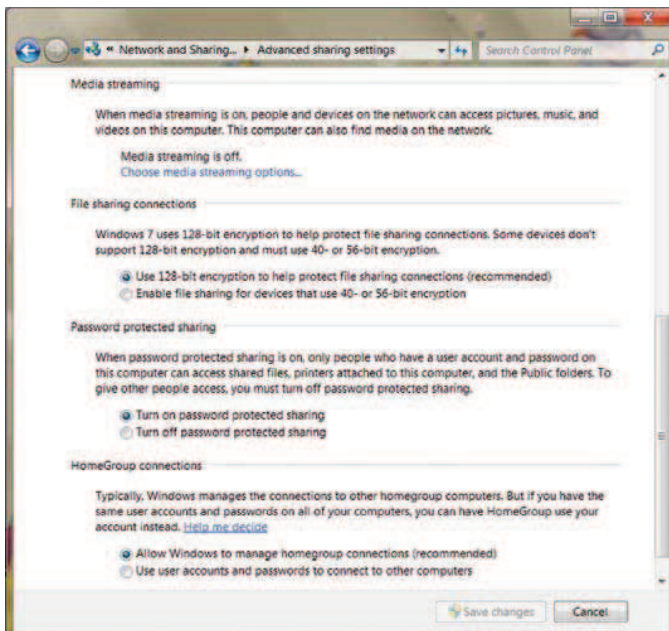
For each device, **Device Stage** shows a page with a picture of that exact piece of hardware and icons for all its capabilities. Manufacturers create the page in an XML format freely available from Microsoft. Media syncing between a phone and the PC is an example of a task Microsoft hopes Device Stage should make easier. As with Vista's initial driver problems, it's up to the hardware vendors to make this work. If they don't provide the data, a standard property dialog will display. If they do supply the data, everyone wins. But only time will tell if all the parties play ball. In the RTM version, we still

get a picture of a digital camera when we plug in our iPhone.

Another hardware-related feature is Windows 7's Bluetooth setup process. Just click on the Bluetooth system tray icon and choose **Add a device**. When your phone or other device is discoverable, Windows generates a password to type into the device. If it's a keyboardless device, you can enter a code printed on a compatible device, or pair without a code (for things like mice). I tested the process with an iPhone, and the pairing worked easily. I could then view my iPhone in **Devices and Printers** (accessible from the Start menu). That's a very cool setup system.

Designed for Touch from the Ground Up

Microsoft is betting that the future of PC computing is touch, and has put a lot of thought into making Windows 7 work with it. We tried the touch interface on an HP TouchSmart, and it's impressive, although we initially had a little trouble resizing pic-



SHARING Windows 7 makes sharing data easy.

tures by pinching and spreading two fingers. The OS can pop up a mini-keyboard for “touch typing”—something that points to keyboardless tablets. We should note that multitouch wasn’t operational right after OS installation; we had to download and install additional drivers—hopefully this step will be bypassed after October 22.

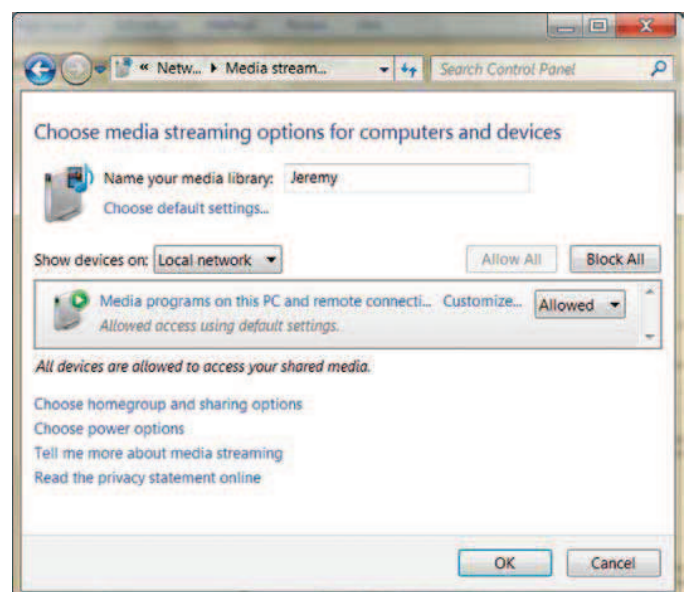
One cool thing you can do is draw in Paint with two fingers at a time. When you touch the screen, the location where you touched it, or “touch point,” can be represented by a mouse image. You can then click the left or right button of this virtual mouse, but we find it easier to use the default “water drop” feedback image when your finger touches the screen.

HomeGroup Comes to Networking

One goal of Windows 7 was to make home networking simple enough for any user. HomeGroup is the result. When you join a wireless network, you can choose to set it as home, work, or public. Choose the first and you have the option of creating a home-

group—provided you have the right version of the OS. Note that although any Windows 7 installation can *join* a homegroup, the Home Basic and Starter editions can’t *create* a homegroup. Assuming you’ve got the right version, you specify which libraries and devices you want to share, and, when you hit “Create now,” Windows will generate a password. Joining a homegroup with another PC is a simple matter of entering the homegroup’s password in the joining PC’s network options.

A neat advantage of the HomeGroup feature is that if you move between work and home with your laptop, you won’t mistakenly print that recipe Web page to your work printer from home. It automatically goes to your default home printer, since you’re now connected to the homegroup. Making home networking this smart and simple to set up could really be a feather in Windows 7’s cap. You can read more about HomeGroup in our



STREAMING You can easily set media-streaming options for all of your devices.

WHAT'S ON

Windows 7 combines both regular TV listings with Internet TV listings in its guide.



article “Windows 7 HomeGroup: Networking Made Easy.”

In a smaller networking improvement, the new system tray networking icon also simplifies connecting to Wi-Fi. Clicking the icon pops up a window showing all available connections. This saves you from having to open the networking dialog and choose to show available wireless networks. It’s a small touch, but it makes a lot of sense for the typical laptop usage scenario, where you might be shifting from network to network quite often.

More Media in More Places

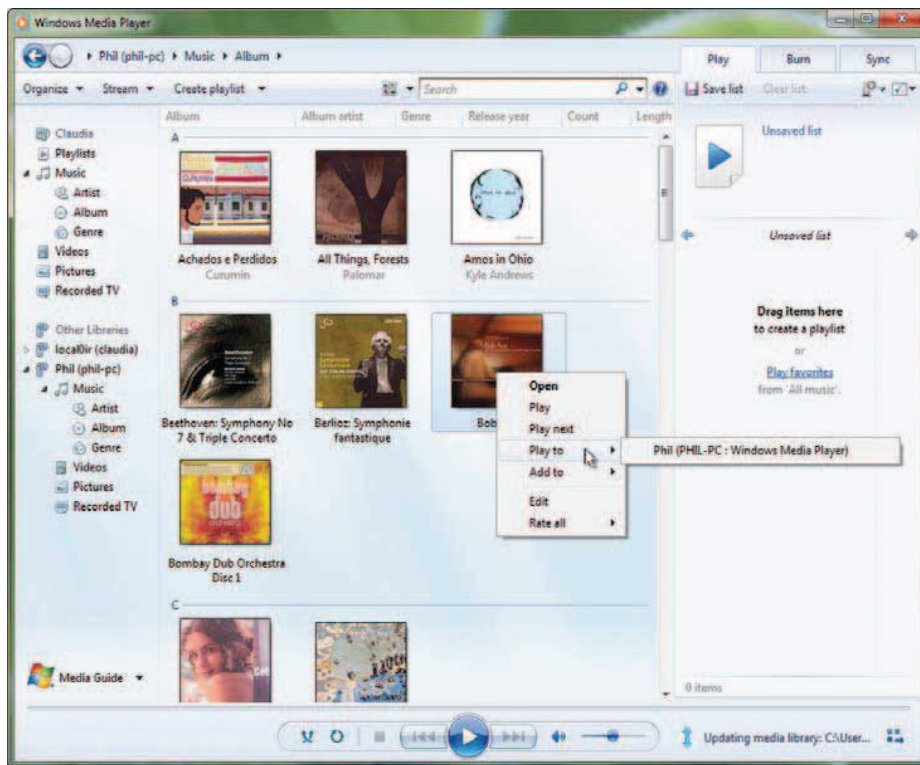
Windows Media Center has gone through dramatic changes between Windows Vista and Windows 7. Eagle-eyed users will note that **PlayReady**, Microsoft’s new DRM scheme for protecting recorded television shows, gets updated to version 1.3 (you can see this in the **Programs and Features** control panel, once Media Center installs).

The inclusion of Internet TV in the Guide is a big leap forward, exposing even those

without an integrated TV tuner to the fun of IP-based TV. This feature was in the Beta, and despite the efforts to organize items under Movies, News, Sports, and other categories, content is simply too sparse; the hoped-for integration of Hulu, TV.com, and other IP-based TV doesn’t exist. Yet. Microsoft did, however, recently show off touch-enabled Netflix integration with Windows 7 Media Center, and hinted at more such announcements as we get closer to the GA date.

DLNA technology, a standout feature of Windows 7, enables something neat for PCs connected on the same network. A contextual **Play To** menu item lets you send a video, photo, or song to another PC or device. Microsoft has tweaked Windows Media Player a bit, however, and it’s a real challenge to find the feature. In the Beta, Windows Media Player (WMP) had a **Share** menu, which had an option to **Receive media on your network**. If you selected it a dialog explained that the feature let other devices on your network push media to you.

That menu has been renamed **Stream** and



PLAY TO This cool menu item allows you to send a video, photo, or song to another PC or device on your network.

expanded; again, **Play To** (here called **Allow remote control of my player**) is disabled by default. Enable it on one PC and you'll be able to send files to that PC from others on the same homegroup, either from Windows Media Player or by directly clicking a file in Windows Explorer. This brings up a separate application. This worked impressively in our testing.

Unfortunately, **Play To** is a WMP technology, not a Windows Media Center technology, even though Center relies heavily on Player's capabilities. This means that, ostensibly for security purposes, the **Play To** menu exists only when both PCs have WMP actively running.

Microsoft is also making it easier to access content remotely in WMP. One new feature that jumps out is the ability to allow access to home media via the Internet. From the Stream pull-down menu in WMP, select the option **Allow Internet access to home media...**, from which you can link an online

ID. At present, only Windows Live online IDs are recognized.

Link your Windows account to the online account on two computers and you can access media stored on one PC across the Internet, by logging into the online account on the other. Take your laptop to the local coffee shop and you can remotely stream your music from your desktop PC at home. That media shows up as a shared library in WMP—assuming you've left your home computer on and running.

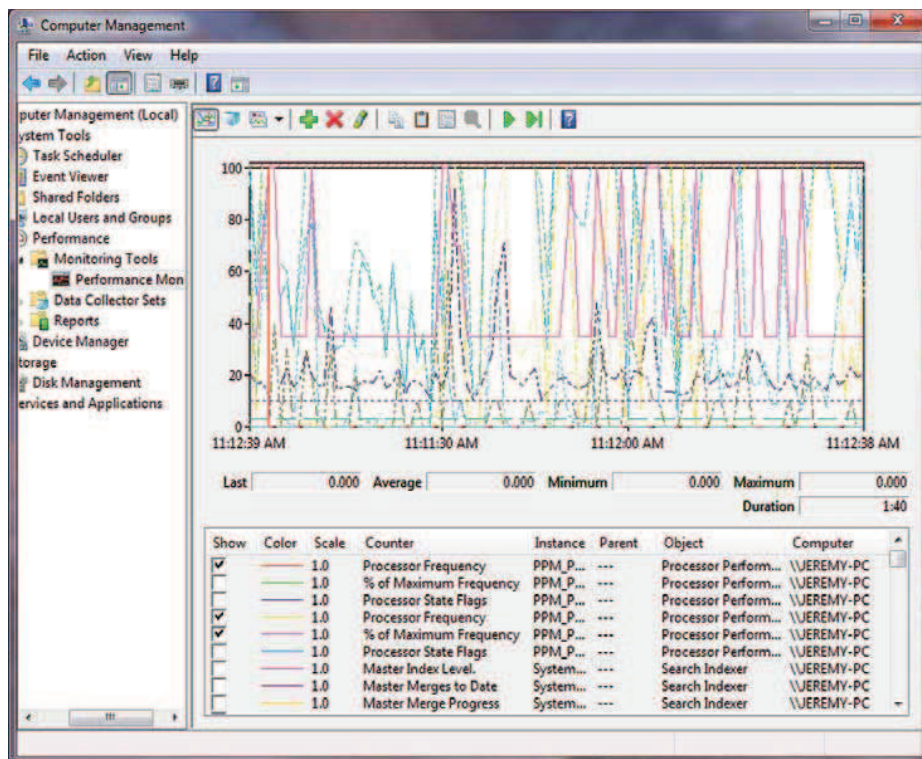
Another area where WMP has seen improvement is in media-file and codec support. Now it can play MOV files. Files it can't play, such as Apple's lossless M4A or H.263 MPEG-4, won't be displayed in its music or video view. In addition, WMP can resume playback from a hard drive after the OS returns from sleep.

One of the coolest possibilities of this codec support is that the OS will transcode media files on the fly as you drop,



GRANULAR MONITORING

Windows 7 allows you to track the performance of your system at a whole new level.



say, a movie file icon onto a video-capable MP3 player's icon. This was demonstrated at COMPUTEX this year, but support from device makers is critical—note that iPods aren't yet supported. The transcoding will also take advantage of graphics hardware, although this means the graphics vendors need to add support to their own drivers. We haven't had a chance yet to test drag-and-drop transcoding, but look for future stories on Windows 7 media at PCMag.com.

Performance and Stability

In PCMag Labs' use of Windows 7 over the past few months, we've found the OS to be rock solid. For performance testing, we used the same 2-GHz dual-core Intel laptop with partitions holding Windows 7 RTM, RC, Beta, and Vista, with Windows Live installed. In terms of start-up times, we noticed a slight improvement in the RTM over RC, but both started up significantly faster than Vista, which took 1 minute and 2 seconds,

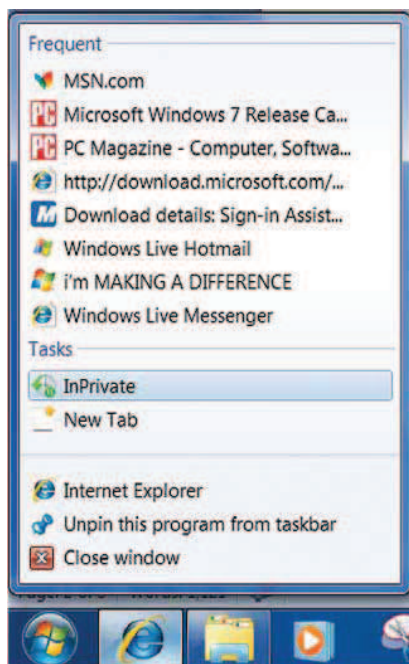
compared with Windows 7's 34 seconds. That's not surprising, given that Microsoft has significantly cut the number of system processes that start with the OS and made other boot optimizations. Shutdown speed, too, has improved: Vista took 25 seconds, as compared with 16 seconds for Windows 7 on an identically configured machine. We should note that these times actually sped up after multiple tries—something you'd be unlikely to see in Vista.

We also ran PCMark Vantage, one of the more realistic tests that runs through a bunch of tasks users might perform, such as viewing and editing photos, video, music, and other media, as well as gaming, communications, productivity, and security trials. The results should be taken with a grain of salt, since the test is intended specifically to benchmark-test hardware running on Vista. (But remember that Microsoft has said that Windows 7 should run everything Vista does.) On PCMark Vantage, where higher

numbers are better, the Windows 7 RTM scored nearly identically to the Windows 7 RC with overall scores of 4,107 and 3,919, respectively, compared with Vista's 3,567. So the new OS's score was a 15 percent improvement over Vista's on a test that's not even approved to run on Windows 7.

We also ran the SunSpider JavaScript benchmark, which tests Web browsers' speed in rendering JavaScript, but also reflects system speed. In Windows 7 RTM's IE8, the score was 4,770, where under RC it was 4,950—a slight improvement, but pretty much within the margin for error.

One remaining, unwelcome part of the Windows legacy is that Windows 7 keeps the **System Registry**, often a major cause of system slowdown because of installed programs and hardware drivers that fail to clean up their Registry entries. Microsoft has made some tweaks to how the Registry operates, but it remains to be seen whether the same



INPRIVATE This new feature in Internet Explorer 8 allows you to hide activity from your browsing history.



A NEW AND IMPROVED IE Included with Windows 7, IE8 offers security on steroids and some terrific new browsing features.

system slowdowns result from it after long-term heavy PC use. And Microsoft tech Mike Angiulo, leader of the Windows PC Ecosystem and Planning team, didn't have a clear answer when asked if any mechanisms in Windows 7 combat Registry clutter.

Windows Live and Internet Explorer 8

In an effort to trim disk requirements and install times, Windows won't come preloaded with an e-mail program for the first time in a decade. Furthermore, photo, video, and blog editing, along with instant messaging, have been offloaded to a download in the form of Windows Live Essentials. The updated apps you get there include a new look and some spiffy features. The Mail app, for example, lets you aggregate all your POP or IMAP accounts into one interface.

The Windows Live Web services have been updated with social-networking features, such as status updates from members you invite to your "network." Groups can share pictures and conversations using

Can Your System Run Windows 7?

You're more than sold on installing the new OS, but can your desktop or laptop handle it? Our experts weigh in.

By Cisco Cheng and Joel Santo Domingo

If you use Windows XP or Vista right now, but are champing at the bit for Windows 7, you need to make sure your system has what it takes to run the new OS.

Systems running Microsoft Windows Vista OS, particularly Home Premium (most consumer desktops that shipped beginning in January 2007 do), most likely meet the current requirements of Windows 7.

Most desktops bought in 2006 or after should be able to run Windows 7 fine, particularly if you bought yours with future-proofing in mind. As for laptops, those as

old as five or even six years can run Windows 7, and simple hardware upgrades can be made to ensure an optimal user experience. If your laptop can't run Windows 7, it probably belongs in a museum. Any laptop older than six years most likely runs a Pentium II or III chip, which probably isn't worth the hassle of upgrading unless you're a real DIY geek.

If your desktop or laptop is on the borderline in terms of age and/or doesn't run Vista, you should run Microsoft's Upgrade Advisor. This tool will let you know if you need a minor upgrade (more hard drive

the Web services and Live Messenger. A key feature in the new Windows Live Hotmail lets you send pictures without clogging your contacts' inboxes, simply by storing the photos on Web servers instead. The Live apps aren't as slick as Apple's iLife apps, but in some cases the Live Services actually offer more. And free Web space is included, whereas with the Mac you have to pay a hundred bucks a year for a MobileMe account, which gets you pretty similar capabilities. Windows Live seems to us a far bet-

ter deal on this score.

The OS does include Internet Explorer 8. IE8 is, at least, a notable improvement over its predecessors. The browser delivers category-leading security and adds some pretty slick browsing aids, such as **Web Slices** and **Accelerators**. It defaults to a more standards-compliant mode but still offers a backward-compatibility button. A predictive address bar brings it closer to Firefox, but the lack of a download manager and robust extension ecosystem hold

space, more memory, discrete graphics), or if it's a lost cause (too-slow processor, older integrated graphics with no upgrade slot). Remember, there's no shame if you keep XP running or maybe try out Linux to freshen up that old system.

Still not sure if your system can handle Win 7? See if it has the following:

A PROCESSOR RATED AT 1 GIGAHERTZ OR FASTER Even low-powered cheap desktop PCs will have at least a 1.6-GHz processor these days, and likely have 2.0-GHz or faster CPUs. If it has a dual-core or quad-core processor, you're all set. Even if you bought a laptop in 2003, when the first batch of Pentium M processors (code-named "Banias") came out, Windows 7 appears to have it covered as well, as long as you have at least 1GB of memory, 16GB of hard drive space, and a DX9 graphics card.

1GB OF RAM (2GB for 64-bit Windows 7) If you bought your system in 2008 or later, you're almost guaranteed to have at

least 1GB of RAM; even in 2006 and 2007, only the cheapest PCs had 512MB or less. It wouldn't hurt, though, to drop in some extra memory, particularly if you like to keep a lot of windows open.

AT LEAST 16GB OF STORAGE SPACE (20GB for 64-bit Windows 7) If you have less than this, it's probably time to recycle your system anyway. If you have a system with less than 20GB of free drive space, consider buying a new drive, installing Windows 7 on it, and of course, backing up your old drive.

A DX9-COMPATIBLE GRAPHICS CARD, WITH THE WDDM 1.0 DRIVER. A desktop or laptop with an ATI or nVidia chipset is a really good sign that it'll run Windows 7, but make sure you have the latest graphics driver handy. Better yet, look for the words "HD" or "PureVideo" somewhere on the packaging or cardmaker's Web site. You want better graphics mainly for Web video, rather than games. If your desktop has an empty AGP graphics card slot, consider a new PC.

the browser back. For the first time in over a decade, the OS lets you completely uninstall the browser if you choose.

New Accessories

At Microsoft's Professional Developer Conference, Windows head honcho Steve Sinofsky joked that the team decided it would be a good idea to update the Paint and Calculator accessories at least once every 15 years. Accordingly, the two applets *finally* get a refresh that includes the ribbon interface

introduced in Office 2007. Office's "fluent UI" takes some getting used to, but in Paint it's pretty simple, making cropping images and so on much easier. The ribbon also makes a lot of sense if you're using a touch interface.

The new Calculator adds Statistics and Programmer modes, and you can cut and paste from it—finally! Calculator also now has a history feature, so you won't have to redo entries you've closed and need again. Templates for common calculations like gas mileage, mortgage estimations, and leases



THE NEW PAINT One of the cool new features in Microsoft Paint is that you can draw with two fingers at the time when you touch the screen.



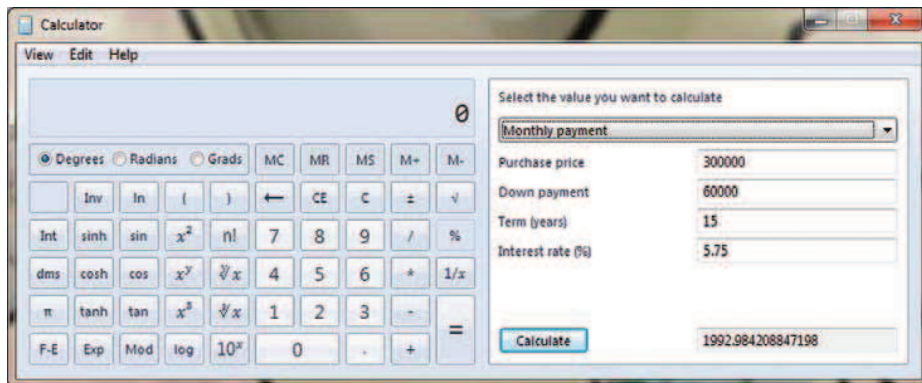
have been added. Unit conversions are a snap now, too. The new accessories are long overdue, but welcome nevertheless.

XP Mode

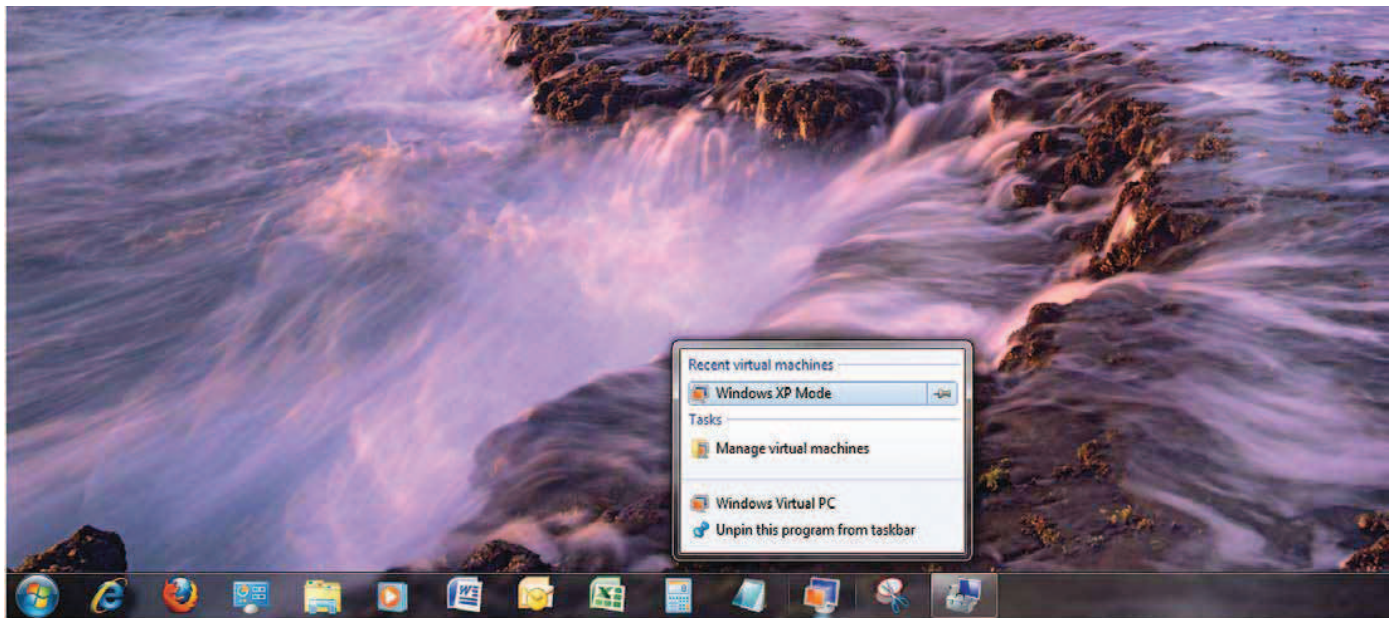
When RC hit, perhaps the most touted piece of news was a feature that had little to do with the OS itself: **XP Mode**. Primarily targeting corporate users who run legacy custom applications coded for Windows XP, the mode takes advantage of a new version of Virtual PC. Our Ed Mendelson has done a full hands-on with the Windows 7 XP Mode, and found a lot to dislike about it. You can read more about which PCs will support

this feature in Cisco Cheng and Joel Santo Domingo's piece, "Most PCs Can't Run Windows 7 'XP Mode'." The feature will only be available in the Professional and Ultimate editions, and it's still in its RC version as of Windows 7 RTM.

In fact, XP Mode doesn't actually come with Windows 7; you have to download the virtualization software to get it to work, and you'll need a high-end PC to run it. XP Mode offers two options, one that's a full XP desktop and one that's a "seamless" app window. You can install an XP app in the Mode, and seamless apps can access the drives and folders of the host Windows 7 OS. You



CALCULATOR FACELIFT The calculator now offers statistics and programmer modes, a history feature, and templates like this one.



XP MODE Windows 7 allows you to run a full XP desktop or an XP app window.

can even cut and paste between the host and the virtualized OS.

But Mendelson found that the method for setting up a network printer was far too obscure, requiring hit-or-miss entry of Terminal Service port numbers. Additionally, changing settings such as available RAM was arduous, requiring a full restart. He also noted that Microsoft's Customer Experience Improvement Program generated an error when he was switching from seamless to full mode, and that you couldn't drag-and-drop files between host and XP Mode.

Lucky Seven?

Despite some pundits claiming that Windows 7 is no more than a Vista service pack, there's a lot more to it than that. Microsoft has certainly addressed many of the complaints surrounding Vista, such as the lack of backward compatibility, the lengthy start-up and install times, the broad disk and memory footprint, and the inability to remove IE. But the company has also added a number of new interface helpers that will

make the new OS more pleasurable and efficient to use. Figure in improved performance and networking, a smaller disk and memory footprint, and slick handling of devices, and it's really hard to call this anything other than a full-fledged OS.

Just as we haven't been Vista bashers—we actually love a lot of its features—neither are we fawning all over Windows 7. We like a lot of things about Windows 7, but Vista frankly had a lot going for it, too, despite its lack of initial driver support. Either, however, is a vast improvement over XP. We still wish Windows 7 had dropped the System Registry, which slows down systems over time. But it looks like Microsoft is making the right moves in turning around the Windows ship following its ill-fated Vista voyage. We'll be running and testing the OS extensively to make sure that Windows 7 continues to live up to its hype in the way that Windows Vista didn't; check back in a few weeks on PCMag.com for our final evaluation and score of Microsoft's biggest release of the year. ■



Upgrading to Windows 7 the Easy Way

If you upgrade, do you risk losing all of your apps and data? Not if you use Windows Easy Transfer. *By Jeremy A. Kaplan*

Are you planning on upgrading your computer to Windows 7 in a few weeks? Especially if you're running Vista, Windows 7 offers a compelling combination of faster boot times, improved responsiveness (since there are fewer processes running at any given time), and several fun and practical user interface enhancements.

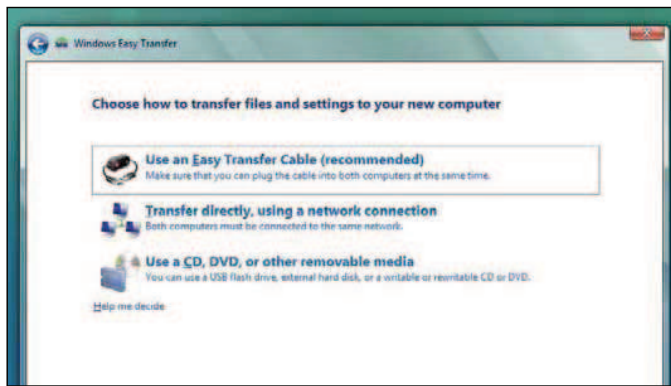
But what about your stuff? You've installed a bunch of applications and utilities, you've ripped gigabytes of music, and you've probably collected, cataloged, and Photoshopped to perfection a few thousand photos. If you upgrade, do you risk losing all of that? It's a common fear, to be sure. Fortunately, Microsoft includes a handy tool that eases your migration to a new Windows installation. Called Windows Easy Transfer, the wizard gathers up the various photos, videos, songs, and other documents (not to mention the program settings from all of your applications) and stores them in one ginormous, semi-convenient file. Once you've installed the new OS or set up your new computer, you can run the wizard again

and import all of those files.

Windows 7 is designed to upgrade from older iterations of the OS, but if you're at all like me, you've been installing and uninstalling apps and utilities, rolling back your system installation after crashes, hacking software packages and DLLs, or even adding and changing registry entries. Sure, you can upgrade your current computer to the new operating system, but it might pay to create a fresh installation and do away with the gunk of years of computing.

If you're interested in a clean slate, use Windows Easy Transfer to port everything to an external drive. Over one weekend, I did just that, using the tool to export all my stuff before wiping my main system clean and installing Windows 7 Ultimate.

When you first launch the wizard, you'll walk through some simple screens that close any open programs before asking whether you're at the new PC or the old PC. It then prompts you to choose a location to store your files temporarily. Because the Transfer wizard created a fairly sizeable 122 GB file for



TRULY EASY TRANSFER Windows Easy Transfer shows you how to export your data, wipe your system clean, then install Windows 7.



me, I stored on a network attached storage (NAS) device, though a simple USB drive will do. For a rough estimate, add up your music, photo, and video storage folder sizes.

My network is gigabit Ethernet, which is noticeably faster than standard, 100-Mbps Ethernet. Still, backing everything up took over two hours. Once I was finished, I was free to boot from the Windows 7 disk, use the included partitioning tools to erase all the partitions on my PC, and install a clean copy of the new operating system. Windows 7 installation is remarkably quick, especially relative to XP and Vista installs, which really do takes as much as an hour. Next I set up separate user accounts for myself and for my wife off the bat.

My PC has two drives, a smaller, faster SSD for the operating system and a bigger, slower disk for storing files. Knowing that the majority of files I had were music and photos, I remapped the My Music and My Photos folders for both accounts to folders I created on the larger, second drive in my PC. To do this, simply right-click one of those folders and select **Properties**. Click the Location tab and either

Move... the folder or select **Find Target...**

When I ran the wizard again from the new operating system and pointed it to the saved file, Windows seamlessly moved all my files and settings back into place, copying my music and photos into the new locations on the larger drive. Phew! Because my old setup didn't have separate accounts, Windows gave me the option to remap the files to a different account, which may prove a useful option for some. Easy Transfer copied the folders and files, desktop picture, and settings for miscellaneous apps perfectly to my new installation.

The downside to this technique, of course, is the need to then reinstall all of the programs I use on a daily basis, things like Firefox, Microsoft Office, the Google Toolbar, and so on. Because I had created a directory on my NAS with all of these programs ahead of time, I was free to install them at my leisure. Sure, this all might seem like a somewhat more involved process than simply clicking the upgrade button. But sometimes, a clean slate is worth jumping through a few hoops. ■



Solutions

Capture and Show Off Your Big TV Moment

With a TV tuner and a Windows Vista Media Center PC, you can easily preserve your (or anyone's) TV appearance. *By Bill Dyszel*

The 15 minutes of fame that Andy Warhol promised you are due to arrive anytime now, as you're aware, no doubt. But when your turn comes, how will you preserve your moment for posterity? Because truly, you may never be in the spotlight like this again?

If your computer has Windows Vista Media Center and a TV tuner, you're in luck. You can record and preserve your TV news sound bite in perpetuity. You don't need any third-party software, and you can even post the news clip to your Web site if you take the right steps.

Before you do any of this, you need to set up your Vista Media Center PC to watch TV, either via cable or over the air. If your com-

puter has a built-in tuner and you haven't tried it yet, fire up Windows Media Center and choose **Tasks | Settings | TV | Set Up TV Signal**, then follow the prompts and let Media Center identify the channels available to you. Once you've done that, you can record your legendary appearance by finding it in the Windows Media Center program guide. The guide is organized by time, date, and channel, so if you've ever browsed TV listings, its operation will be pretty obvious. When you find the program in which you appear, click the **Record** button to tell Media Center to record that program when it occurs. You can also wait until the show comes on, then press the record button on your PC's remote control to make Media Center record the show you're watching.

73 AT WORK

Use Peachtree
Accounting
Like a Pro

78 OFFICE/OS

Turn Excel into
an architectural
design tool

81 SECURITY

Which browser
is safest to use?



SAVE IT IN A SAFE PLACE

You can tell Windows Vista Media Center to save recorded TV programs in the location of your choice.

Find Your Recorded TV

If you want to find and preserve your recording, you need to open the location at which Windows Media Center saves recorded TV shows, usually a folder named Recorded TV. (You can also change the drive to which Media Center saves recorded programs by choosing **Settings | TV | Recorder | Recorder Storage**, but Media Center will still create a folder called Recorded TV on the drive you designate.) Once you've found the correct folder, you can identify the program you saved by its file date, which should correspond to the date when you recorded the program.

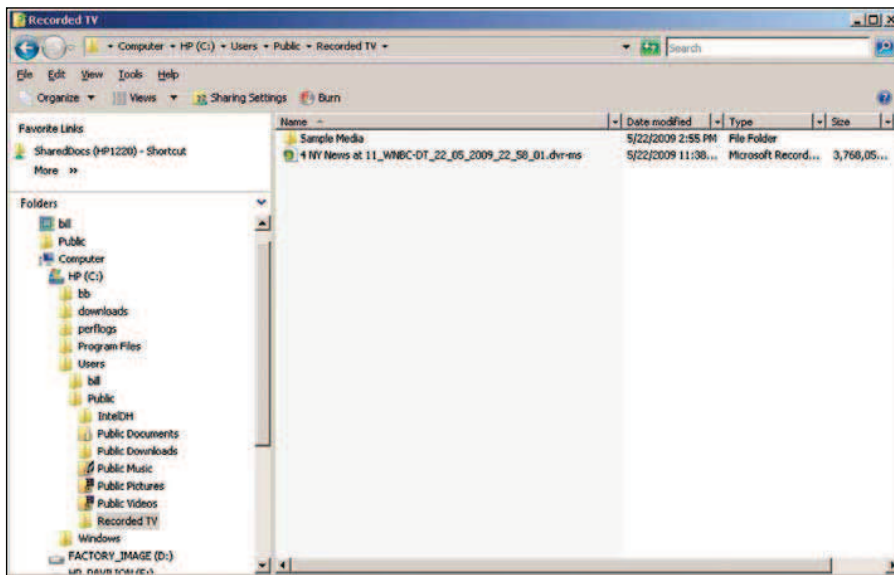
The DRM Dilemma

Windows Media Center records TV programs in the .DVR-MS format, which

includes DRM features, so if the broadcaster who made you famous marked its broadcast as "do not copy," your fame may be fleeting. Windows Vista Movie Maker can open unprotected DVR-MS files, but the XP version of Movie Maker can do so only with the help of some heavy-duty Registry hacks.

Microsoft seems to change its mind periodically about how seriously to take DRM. At the moment, the wizards of Redmond are a little less stringent, but that could change at any moment.

Most popular video-editing programs can't do the job either. But if you're running Vista, you might just try opening the file in Windows Movie Maker, cutting the video as you see fit, and then saving the result as a WMV file.



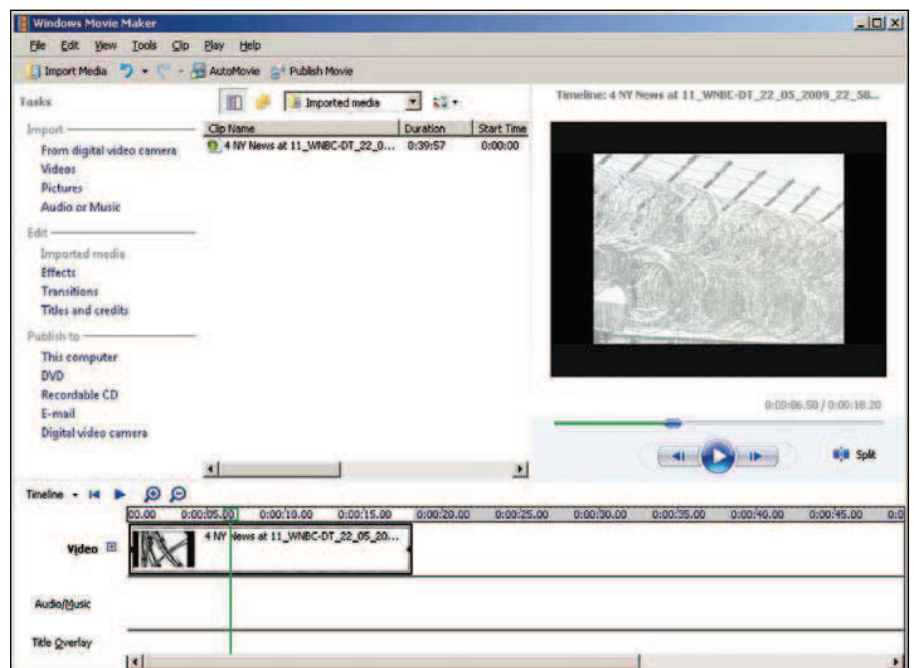
EASY TO IDENTIFY No matter what location you choose for file storage, Media Center creates a folder called Recorded TV.

Vista Media Center: All You Need

As most of us already know, there are many other paths to capturing broadcast clips for use on your computer. And there are also numerous third-party applications that can help you convert DVR-MS files. But why go through the trouble if you don't have to? If you own a Vista Media Center PC with a digital tuner, you already have everything you

need to capture, save, and edit broadcast footage in full HD quality, rather than forcing it through lower resolution media like DVD or VHS tape. That way you can display your immortality in high definition on computers that don't have Windows Media Center, or post your footage to the "I Love Me" page on your Web site for the whole world to see. ■

EDIT YOUR APPEARANCE The version of Windows Moviemaker that comes with Vista can open recorded TV files created by Windows Vista Media Center so that you can edit the files and save to WMV format for playback on other computers.



Use Peachtree Accounting Like a Pro

Although quite comprehensive, Peachtree is not the easiest accounting app to use. Try these tips and keyboard shortcuts to use the software to best advantage. *By Kathy Yakal*

Peachtree Software has been around longer than most vendors of small business accounting software. In the early 1990s, the company got serious about the small- to medium-size business market and Windows and started producing a line of desktop programs that address the needs of very small, small, and—with its latest Quantum product—not-so-small businesses.

Peachtree accounting software is probably the most feature-packed SMB accounting package, though it's not as easy to use or integrated as close competitor QuickBooks. Its complexity can stump the neophyte at times, though the software builds in a ton of help features.

If you're really ambitious and want to understand what you're getting into before you get there, you can read the entire User Guide found in the Help menu, but that

seems excessive. The first thing to do when approaching any Peachtree program is to learn its keyboard shortcuts. Here are some of the most often used.

Ctrl Shortcuts

Ctrl-X Cut

Ctrl-C Copy

Ctrl-V Paste

Ctrl-E Delete record

Ctrl-F Find

Ctrl-D Find next

Ctrl-N New company

Ctrl-O Open company

Ctrl-B Back up company

Ctrl-R Restore company

Ctrl-P Print displayed report, invoices, quotes, payments, and so on.

Function Keys

F1 Displays online help topic for the current window



Shift-F1 Changes mouse pointer to “What’s This?” help selector

F3 Find transactions

F5 Saves records and posts (or saves) transactions in certain windows

F7 Check spelling

F10 Toggles between the open window and the menu bar

Ctrl-F4 Closes the current document window

Alt-F4 Closes the application window

Ctrl-F6 Moves to the next window

Shift-Ctrl-F6 Moves to the previous window

There are other tasks you’ll perform often that, once learned, will make day-to-day use of the program easier. Here are some examples. Tips may not apply to all versions, especially First Accounting; consult your help files if you encounter trouble.

Help on Help

Peachtree accounting software is intuitive enough that you may be able to dig in and get started, especially if you have some accounting knowledge. The programs are divided into several functional areas, including Customers & Sales, Vendors & Purchases, and Company. Some versions have a Business Status feature, a dashboard that displays your key numbers as lists and graphs.

These “modules” are represented by tabs that run in a vertical pane. Click on one and the main screen will display an interactive process map that illustrates the primary tasks in that area. Lists of related informa-

tion like vendors and reports are on the right.

Peachtree’s help is voluminous; here are some tips on how to best use it.

- Read through the Getting Started section.

- To see if a word or phrase contained in a topic is in the help index, select the word, and then press F1.

- Experiment with the sample companies. Peachtree comes with two; they can give you a good idea of what your fleshed-out screens will look like.

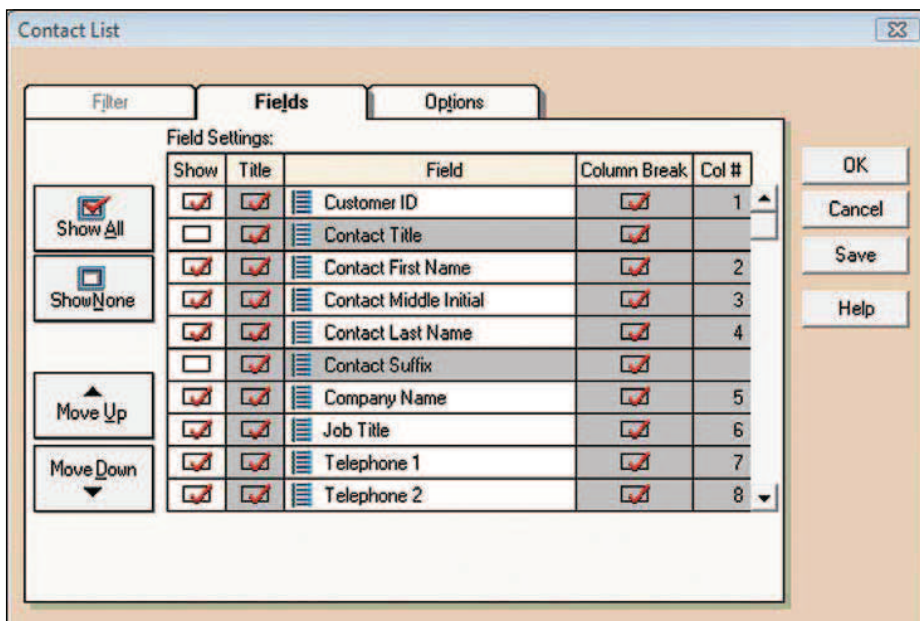
- Click **Help | Peachtree Accounting Guided Tour** to get a good look around before you start.

- Click **Help | Show Me How To** for viewing demos of common tasks like changing accounting periods.

System Tips

- Sometimes you need to enter a transaction in a past or future accounting period. To do so, click on **Tasks | System | Change Accounting Period**, and select the one you want. Follow the same path to get back to the current period. Remember that this will have an impact on your reports from past periods.

- Financial data **must** be backed up. Take it from someone who’s had an accounting system meltdown without a current backup. Click **File | Back Up** / (or Ctrl-B), and select from the options there. You can set a reminder for a specified number of days, and select a drive as the destination. Peachtree offers 100MB online backup free



CSV FILES Peachtree can both import and export CSV files.

for one year from installation (for 2009 version; owners of versions 2006 to 2008 must pay \$99).

- Entering customers, vendors, and employees can be time-consuming. And very boring. If you already have at least some of these records stored in Outlook, you can set up a synchronization with Peachtree. Click **File | Sync With Outlook**. **Before you do this, read the associated help file.**

- Peachtree software imports and exports CSV files. Click **File | Import** and pay close attention to the field map posted there, so you can be sure your incoming files are in the right order and all the data end up in the correct fields.

- Before you create a new company using the Create A New Company Wizard (**File | New Company**), have information available. You'll need to enter the company name and select a business type, choose between cash and accrual accounting (you won't be able to change this after creating the com-

pany, so know for sure), and decide on your accounting periods and fiscal year.

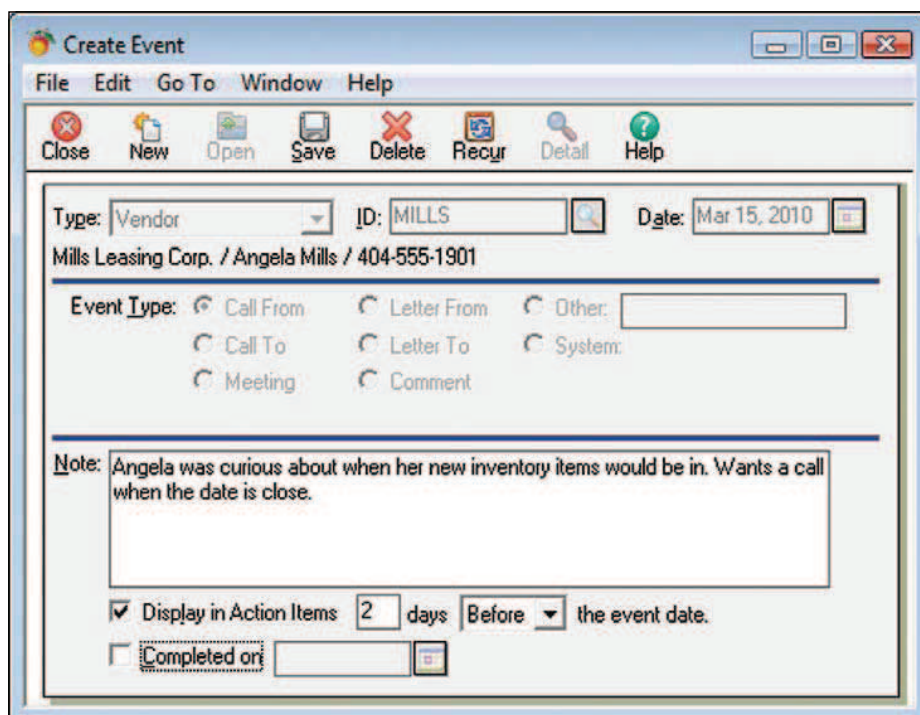
Transaction Tips

- You can “memorize” some frequently used transactions in Peachtree software. Open or create a sales invoice, for example, and click the arrow next to the Save icon. Click on **Memorize**. The Maintain Memorized Sales Invoices window opens. Enter a Transaction ID and Description and click **Save**. You can also enter the invoice information directly here. To access memorized transactions, click the **Maintain** menu, then **Memorized Transactions**.

- Use Peachtree's Office link to create letters to customers, vendors, and employees. Click **Tasks | Write Letters**, and select **Customers**, for example. Select a template from those supplied, such as Collection Letter 1 (for overdue invoices in Aging Period 1). Click on **Edit Letter Template** to view the letter and make any changes. Click



LOG AN EVENT You can create events, such as calls or meetings you need to make with vendors, and keep them in your records, then check them when they're completed.



Send Letter and change any of the options there—including e-mail options—if necessary, then click the **Word** or **E-Mail** button to generate your mail merge.

- Every module in Peachtree has its own defaults. You should look at these before you start processing transactions. Click **Maintain | Default Information**, then select a module, like **Customers**. Defaults here are in the areas of Terms and Credit, Account Aging, Finance Charges, Pay Methods, and any custom fields you may have created. Simply change any that aren't what you want.

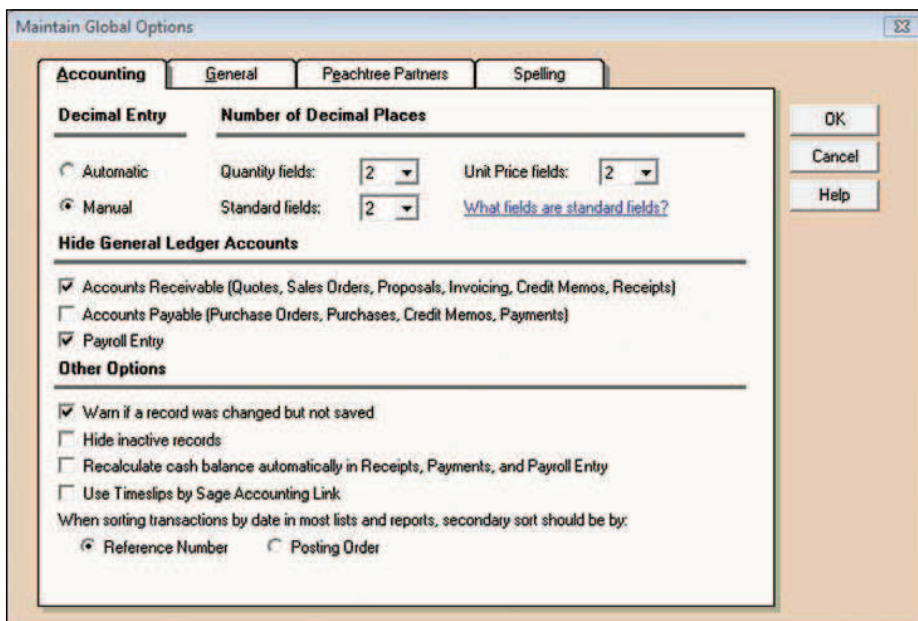
- Use Event Logs in records. Open a record in the Vendor module, for example, and click the **Log** icon. You'll see a list of events like Check to Vendor and Vendor Invoice Due. You can add your own here by clicking **Event** and selecting the type of event you want to document, like Call To, Meeting, and

Letter From. Make a note and check a box if you want advance warning in Action items, and check when completed. That item will then appear in the Action Items.

General Tips

- You should look at global options carefully before you start. Click **Options | Global** to open the Maintain Global Options window. Numerous options can be toggled here, such as whether to hide inactive records, use spell check, or automatically create IDs on maintenance windows. You can also set a security level for Peachtree Partner applications.

- Peachtree's home page does a good job of providing easy-to-use navigational aids. But you can make it easier by customizing the list of shortcuts that appear in the left vertical pane. Click the **Customize** link and change the order of the existing shortcuts,



GLOBAL OPTIONS You can change settings such as security levels and hiding inactive records in the Maintain Global Options menu.

delete or rename them, or add your own by clicking on **Add a Shortcut**.

- Use customer code types. Peachtree lets you assign code types to records. These don't appear on invoices or statements, but you can use them to streamline reports. You could, for example, code each customer by geographical region.

- Peachtree allows multiple custom fields in records. You can define these either within the record itself, or by clicking **Maintain | Default information**, and then selecting the record type. In your employee records, for example, you might add fields for position, spouse, and review date.

- You can set up e-mail alerts for specific conditions. Click on **Tasks | Action Items**. Click the **Alerts** icon. You can set up alerts for customers, vendors, employees, inventory items, and G/L (general ledger) Account. For example, you might want to know when a sales item hits a certain level. To find out, you would select **Inventory Item**, the spe-

cific item or range, the type of alert (say, Sales Volume—Current Period), the condition (\geq or \leq), and the amount. If you want the alert e-mailed to you and, say, your inventory clerk, check the e-mail box and enter e-mail addresses. You can also select events that should appear in the Action Items list, such as quotes expiring and check to vendors (\times number of days before the event date).

Peachtree software is very deep, and not all of its capabilities are obvious. You'll need to do some digging to find everything. That's the value of playing around with the sample files before you start using your live data: You can explore, see what's there, and add sample data of your own to see how it works.

Peachtree also offers a lot of integrated add-on services, like credit card processing, bill-pay, and remote access. Be sure to visit the Peachtree site to see what your options are before diving in. ■



Use Excel as an Architectural Design Tool

It's not just a spreadsheet app. Excel can help you to design and build simple projects such as decks, porches, dog houses, and even furniture. *By Julie Sartain*

Excel is so much more than just a spreadsheet or a simple database for cataloging your DVD collection. One of its many additional functions includes using it as an architectural design tool. Although it's not recommended for building bridges or shopping malls, and certainly not for taking the place of a qualified engineer, you can use it to design and build simple projects such as decks, porches, dog houses, fences, playhouses, potting sheds, and even garages. It's also handy for building furniture such as bookshelves, Adirondack chairs, rocking chairs, front-porch swings, and picnic tables. Homeowners can also use it for interior design (placement of furniture) and landscaping projects.

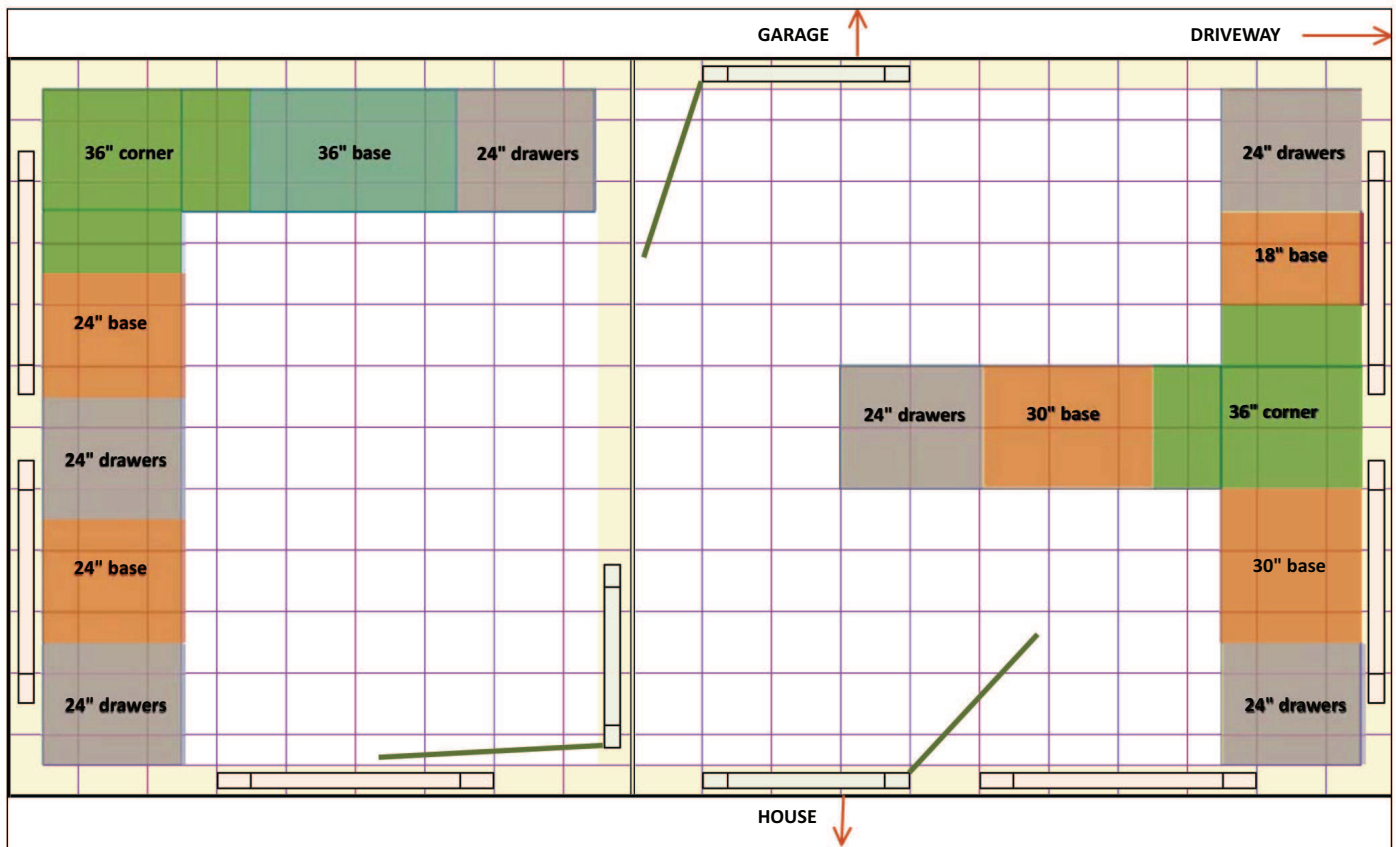
If you already own Excel and know your way around it, using it for small building projects can save you time and money; there's little to no learning curve and you

don't have to purchase a separate specialty program. Excel designs are accepted by most building inspectors as official blueprints, so you don't have to hire an architect or engineer for these simple projects.

Excel provides a number of shapes and graphics that you can use for furniture and/or landscaping placement, plus you can import or copy and paste graphics from almost any graphics program. You can also capture images from various sources and use them to show the arrangement of assorted plants and trees for your landscaping projects, or to illustrate how you plan to remodel your kitchen.

Design Project, Step by Step

Say, for example, you wanted to build a workshop with two rooms (his and hers) added to the side of an existing garage. Excel can make planning and designing this an easy task. The following instructions can



HOME IMPROVEMENT, CELL BY CELL Once you learn how to set up your worksheet, you can design projects like this two-room workshop with Excel easily and painlessly.

guide you through the process:

1. Open Excel. A new, blank worksheet appears.
2. Press **Ctrl+A** to select/highlight the entire worksheet.
3. Select **Format > Column Width** and enter the number 1.
4. Select **Format > Row Height** and enter the number 9.

Now your screen/spreadsheet looks like a sheet of grid paper. The size of each square relative to your project can be any number that best fits your project; for example, each square equals one foot, or one inch, or three inches. If your project requires exact measurements, then one inch per square (or 12 squares per foot) would be the wis-

est choice. If your project is a bit looser, such as landscaping, then three inches (or four squares per foot) would likely suffice.

The instructions and graphics for this sample are designed using three inches per square (or four squares per foot). Say the homeowner poured a concrete foundation of 240 square feet; that is, 20 feet wide by 12 feet deep. So first, you should add an outline of the full area, then fill in the separate spaces.

5. Drop down about six squares from the top and the left, or just position your cursor in cell G7. At four squares per foot, highlight an area that's 80 columns wide and 48 rows tall (or deep) for the required space of 20 feet wide by 12 feet deep. That would be G7



through CH54.

6. Select the Outline option from the Borders task bar menu, or select **Format > Cells > Border** from the Main Menu.

8. Choose the thick Outline border from the options provided.

9. You can also add interior outline borders to define each square foot of space. This sample uses the interior borders to make the division of space easier to view.

Adding Walls, Windows, and Doors

The homeowner in this example decided to build 2-by-6 walls instead of 2-by-4 because of the colder winters in his area. A 2-by-6 board is only 5.5 inches wide, but if you add .5 inches for the interior wall covering, that equals six inches, or two of the squares. The total interior space is now 11-by-19.

10. First, use a light color to block out the exterior walls.

11. This space is divided into two rooms, so add a double-line border 9 feet from the left wall. Fill in two columns (to the left of your double line) with the yellow shading to indicate the interior wall.

12. Next, decide where you want the windows and doors. Use one of the basic shapes to draw these, such as the rectangular Flowchart shape with the side panels.

13. After you place the doors and windows, use the Basic shape rectangle to sketch in the location of the cabinets.

In this example, there are six windows (orange) and three doors (green). There are also a series of cabinets, both wall and base. Since the windows, doors, and cabinets are

all drawn using Excel shapes, you can move them around until you find an equitable arrangement. The homeowner had originally positioned the doors and windows in different locations, but after showing the drawing to his wife, he changed the layout.

She wanted the door going to the house beside the door going into her area of the workshop, so she didn't have to walk through his dusty workshop to get to her craft room. She also pointed out that she wanted wall cabinets, so the original 48-by-48-inch windows were replaced by 24-by-48-inch windows and positioned up high above the wall cabinets. And, he had originally included windows on the north wall, but his wife said she didn't need a window looking into the garage. He agreed, so he removed them.

From Worksheet to Blueprint

After rearranging the layout of the cabinets several times, he was ready to submit his plans to the building inspector and get started on the project. Excel designs are accepted by most building inspectors as official blueprints, so you don't have to hire an architect or engineer for these simple projects. And, any experienced plumber or electrician can use these drawings as a blueprint for the plumbing and electrical installations.

Note: This example does not show the roof, but it was also designed using this same process. The homeowner completed this project in four long weekends (about 16 days) and it cost approximately \$12,000. ■

Safe Browsers: Who Comes Out On Top?

The top five browsers are put to the test. *By Larry Seltzer*

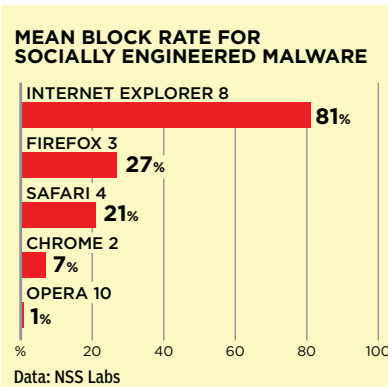
Ever wondered which browser will protect you the most while you're going about your daily business on the Net? Two tests by NSS Labs compared popular browsers for their ability to block Web sites pushing malware and phishing. These browsers were compared:

- Apple Safari 4
- Google Chrome 2
- Microsoft Windows Internet Explorer 8
- Mozilla Firefox 3
- Opera 10 Beta

Internet Explorer 8 wiped the floor with the other products in the malware tests, blocking 81 percent of live threats. Firefox 3.0.11 was closest at 27 percent, with Safari 4 at 21 percent, Chrome 2 at 7 percent, and Opera 10 beta at 1 percent. NSS Labs says it confirmed these results are the same with Firefox 3 and 3.5, as well as Opera 9 and 10.

Microsoft has actually expanded what was already a large lead in this area in tests by the same labs earlier this year.

The test details show that Microsoft updates its lists much more quickly than the



others, three of which rely on the Google Safe Browsing API. The fact that Firefox does so much better than Safari and Chrome shows that it's not just using the API that matters, but how you use it.

An even bigger discrepancy was observed in the

NSS phishing tests. IE8 was also at the top of the charts, blocking 83 percent of phishing URLs, but only slightly ahead of Firefox 3, at 80 percent. Opera 10 beta was far behind at 54 percent, but well ahead of Chrome 2 at 26 percent and Safari 4 at 2 percent.

IE8's rate of 81 percent for blocking malware may look good when compared to those of its competitors, but it's not so great overall. Indeed, even if it were 100 percent—not a realistic possibility—Microsoft would insist that such protection is but one layer in a well-designed system of defense-in-depth. You also need a solid anti-malware protection in your system, DEP, ASLR and up-to-date patches, to name a few. Only when you take advantage of all of these, and use good common sense, can you feel secure.

>>FOR NSS LABS' FULL REPORT, [CLICK HERE](#).



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