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COVER STORY

Annual Reader Satisfaction Survey

56 Is tech support getting worse? For 20 years, we've asked our readers to rate the companies behind the computers and printers they purchase. This year, we saw some surprises, such as new vendors getting top scores. On the flip side, a number of established manufacturers drew harsh responses from customers. What's going wrong with tech support?



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Want more info on your prospective tech purchases before pulling the trigger? Check out our hands-on product reviews in the FirstLooks section of this magazine, then head over to PCMag.com, where you'll find extended versions of the reviews, complete with test results, slide shows, and more.



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FIRST WORD LANCE ULANOFF

PC Tech Support Is Broken

Everyone's angry about the quality of tech support and reliability these days, and as our latest Reader Survey proves, none of the vendors is getting it right. Apple and Velocity Micro are doing good jobs, but for big companies with significant market share, good support and reliability are a major challenge.

Recently I did a couple of tech support jobs for family members, and it drove home the complexity of this enterprise. The first one was for my wife's uncle, who had an old system that had ceased connecting to the Internet. He had managed to keep this clunker chugging for all these years and had also made the surprising decision to switch from cable to the new FiOS fiber-optic online service from Verizon. That decision precipitated problems.

"I can't connect to the Internet; I may need a new PC" was the message I found on my answering machine one night. Getting a new PC for a simple connectivity issue seemed drastic, and I was confident I could get him back online.

I called him back that night and asked if he had checked connectivity settings in Internet Explorer. I grabbed my own laptop so that I could follow along. We launched Internet Explorer together. Mine came up with a Web site, and his with a blank screen noting that the page could not be found. I led him to Tools | Internet Options and asked if he saw the Internet Options dialog box.

"No, I don't see it."

"Try Alt-Tabbing through your open windows," I told him, adding that he should hold down the Alt key while hitting Tab. Unfortunately, all he had was the single IE window. No hidden dialog box. My idea for a quick fix (looking under the Connections tab and the LAN Setting button to see if he was inadvertently set up to view sites via a nonexistent proxy server) failed, so I tried a different tack. "Did you ping—" I began, but he cut me off and said he had spoken to a FiOS tech support

rep who had had him do that very thing. He was getting packets. I asked if he had Firefox installed. He did, and so we opened that. I told him to go to Tools | Options and hit the Connection Settings button.

"I don't have that." I realized he was probably running an older version of the browser.

Frustration growing, I wished I could reach through the phone and work on the system myself. We eventually tried Control Panel and managed to find a different route into the Internet Options dialog box, but it got us nowhere. After 45 minutes, I gave up in defeat. My only consolation was that the Verizon tech had suffered a similar fate. He told my uncle that the problem was likely

this point I got out of the way so that my teenage niece could attack AOL Instant Messenger.

This took me 10 minutes, and I wondered why the HP support tech hadn't simply guided my brother-in-law through these Vista steps. My previous experience with my uncle gave me some insight: Tech support reps can't do it all by phone—they need to be able to see and touch the problem via remote access software. Companies that received some of our best support and reliability scores use remote support regularly.

The scripted responses and outsourced help that Dell and others are using just aren't cutting it. We have to face the truth:

After 45 minutes, I gave up in defeat. My only consolation was that the Verizon tech had suffered a similar fate. He told my uncle that the problem was likely a firewall. Problem was, there was no firewall.

related to a firewall on the old system. Problem was, there was no firewall.

A few days later I walked into my sister's home to find a brand-new HP Vista PC. My family was never happier to see me. "We can't get online," said my brother-in-law. "The HP tech support guy told me to get an Ethernet cable." I could see that was the wrong advice—the cable was connected just fine. I tried to open Internet Explorer 7. I checked the connection settings—no proxy server on this one. I clicked on the Vista icon and followed the menu path to Connect To. This opened a "Connect to a network" dialog box. Then I selected "Set-up a connection or network" and chose "Connect to the Internet."

The system then asked if I wanted it to fix the connection. I selected "Yes" and, moments later, Vista reported success. At

Tech support as it currently exists is broken. I await better ideas.

In This Issue

More than 16,000 readers responded to our 20th Readers' Choice survey, making this our biggest, most surprising survey ever. Here you will see how they rated the support and reliability of laptop, desktop, and printer manufacturers. In an upcoming issue, we'll cover the survey results for phones, cameras, and ISPs, among other tech products. This issue also features ten outstanding small businesses that are using technology in smart, successful ways.

TALK TO THE CHIEF You can contact Lance at Lance_Ulanoff@ziffdavis.com. For more of his columns, go to go.pcmag.com/ulanoff.

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The Crucial Flaw in Server Performance

Today's server technology is designed to withstand critical workloads. But there is still one major flaw, and a secret edge for solving it.

The Importance of Server Reliability

It's important enough that a single user is able to rely on a computer, and that the user's data is always there and quickly retrievable. But when that computer is a server, and when the number of users escalates from one or a few up to thousands, the word "important" as it relates to reliability and uptime becomes a severe understatement. In today's corporate world, servers are the brains and backbones of the enterprise, for executives, employees and, most importantly, customers and prospects. Even a few minutes of server slow-down or downtime impacts the bottom line of the company.

A large part of the reason that server reliability has become so vital is the evolution of the Web. No longer the static display that it once was, the Web is now a place where billions in commerce is conducted, where buyers shop for commodities, pricing and availability, and where customers log in to place and track orders. CRM applications, once only used for internal employees on the phone, now interface with Web applications so that customers and even employees can interact with the company online. Databases such as SQL must be instantly responsive, as these interface with the Web as well.

Server Technology Evolves to Keep Up — Almost

Server technology has some time since passed the point of being single-box/single-disk solution, having migrated into solutions such as SAN (Storage Area Networks), providing scalability, redundancy, reliability, and performance. Technology such as virtualization takes server computing one step further, making more efficient use of resources for greater power to deliver data and services. Chip technology such as quad-core is being marketed to keep pace with the constantly rising need for processing power.

But despite all these advances, the cornerstone to server response remains the hard drives, as they remain the slowest components—the "weakest links." Unfortunately emerging technologies such as virtualization don't change that fact, and actually exacerbate it. While being the weakest links, disks are also the storehouse for all server applications and data. Keeping those drives defragmented for optimum performance has long ago become a "given"—but it's the defragmentation technology that can make the crucial difference between keeping drives at maximum performance and simply "functioning." With



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*Richard B. West,
Systems Management Architect,
IT Solutions and Infrastructure
Engineering, Melbourne, FL*

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FeedBack

Beware of Browser Bob

In the August 7 issue of *PC Magazine*, you mentioned the Browser Bob utility ("Make Your Own Browser," Solutions, page 86). I downloaded the program and tried it. When I finished running the program, I ran the "uninstall" utility and found that it deleted all of the files in the folder I was using. If this had been my main folder, the uninstall utility would have deleted all of my files. The problem was repeatable.

I have reported this problem to bob@browserbob.com, but he hasn't replied. His Web site is also down. Until this problem can be resolved, I think it is important that *PC Magazine* do whatever possible to warn people not to use this utility.—Hilary Jones

Although I think Browser Bob is tons of fun and interesting to use, this Solutions story has caused a few kinds of fuss. Shortly after we published the solution "Build Your Own Browser," Browserbob.com went offline, and the owner hasn't responded to requests for information. Now, this. I've seen this kind of problem before, although it's been quite a while. Programmers take a lazy route, and instead of telling the uninstall routine which exact files to delete, the utility tells the uninstall process to wipe out the whole folder in which those files reside. Unfortunately, there's very little to be done—particularly if the uninstall routine doesn't even warn you. All I can suggest is that you accept the program defaults for installation and file saving, or make new folders for all new installations and carefully keep all related files together.—Sarah Pike

Digging into Dish TV

I appreciated the section "Open Up Your Cable Box" in the "Hack Everything" feature story (August 7, page 67). Have you written anything about the Dish box, specifically the VIP211? If not, could you direct me to anything written on this? Appreciate your time and articles!—Larry Eggers

Sorry, Larry, but as far as I know, the Dish Network is a pretty closed system, and the content protection seems as formidable as the Black Gates of Mordor. Which means, now that I think about it, that it's really crying out for a good hack, isn't it? I'd like to issue a call to action to our readers! Have you found a way in? Can you avoid the burning eye of Sauron?—Jeremy Kaplan

Anybody who thinks that Google lists "all" search results in an unbiased manner is just plain stupid. Just try to get a new Web site to show up on its hit list without paying for the privilege.

From TV to CD

I enjoyed the article "Turn Vinyl into Digital" (September 4, page 62) and think there are variations on this theme that others may want to try. If you have weird musical tastes (like me) that include music that no one stocks and none of the subscription services carry, but that you can find on your cable or satellite music-only channels, try this: Record it on your rusty, trusty hi-fi VCR in SP mode. This gives you a CD-quality master that can be imported via the sound card or a video-capture device. Then manipulate it as the article shows and you have the music you want in the format you desire.—Leland Fiscus

Microsoft Gets the Kid Gloves

In Jim Louderback's First Word column in the September 4 issue, he says, "I definitely gave Microsoft too much of a free pass on this operating system." I have subscribed to *PC Mag* since the late 1980s. For most of that time, it has appeared to me that Microsoft didn't just get a free pass; I consider *PC Mag* to be on the front line of the Microsoft promotion team. You've drooled over every upcoming latest-and-greatest thing from Microsoft and told us how it was going to fix all the problems with the previous latest and greatest. Only rather recently have some cracks started to appear in *PC Mag*'s support for Microsoft. During that time I have used Microsoft stuff—I am forced to. But my personal machines also boot OS/2, so I have had a constant comparison.—Ray Davison

Making a Difference

In reference to your section "Join the Distributed Computing Movement" in the "Reinvent Your PC" feature story (September 4, page 58), I am a father whose daughter-in-law has Huntington's disease. Sometimes I feel helpless as to how I can help. I do all that I can as a caregiver, but that does not seem like much. I will join

Folding@Home (folding.stanford.edu), and it will make me feel as if I'm part of the research team. Thank you so much, and I'm glad that I'm a subscriber.—Robert Walker

Sketchy Wi-Fi Advice?

I appreciate the tips on using a Wi-Fi hot spot securely ("Free Wi-Fi, the Safe Way," Solutions, September 4, page 84). But I don't appreciate the implication that it is all right to poach access from an unsuspecting neighbor. The ethical thing to do would be to obtain permission. The tech-savvy *PC Magazine* reader could even go the extra mile and help the clueless neighbor secure his access point.—Jamie Adams

Google Plays Favorites

I read with some incredulity the "logic" explaining why Google is *not* a monopoly in a reader letter in the September 4 Feedback (page 16).

The reader suggests that Google doesn't charge for its services. Excuse me? Google charges *me* for its services! I run a small not-for-profit Web site telling soccer parents in my county where to find all the soccer fields. Parents, however, couldn't find my Web site because Google refused to list it in the company's search results. So then I started paying Google about \$60 a month to run ads for my Web site. Now—*surprise*—my Web site shows up on Google's hit lists when parents search for it! Or is it that I'm just "giving back" to Google? Anybody who thinks that Google lists "all" search results in an unbiased manner is just plain stupid. Just try to get a new Web site to show up on its hit list without paying for the privilege.—Jim Adcock

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What's New from the World of Tech **FrontSide**



A New Wireless Frontier

Once TV goes entirely digital, the vacated 700-MHz spectrum will present a wealth of opportunity for wireless pioneers.

If everything goes as planned, analog TV signals will go silent in early 2009. The FCC plans to reclaim the 700-MHz spectrum, divide it into blocks, and auction it off to the highest bidders. The FCC's goal is to create a third broadband pipe into American homes. Google has already pledged to bid a minimum of \$4.6 billion, and Verizon and AT&T are also making sure their voices are heard. To the FCC, the 700-MHz spectrum is the best new way to get wireless to reach a broad range of people across the country.

"The upcoming auction presents the single most important opportunity for

us to achieve this [new broadband] goal," FCC Chairman Kevin Martin said in a public statement.

The beauty of the 700-MHz spectrum, according to Eric Epstein, a consultant at communications infrastructure design company Simtec Global LLC, is that no one in the U.S. has been licensed to broadcast anything but UHF in that spectrum. As a result, there is "no noise, no interference—coast to coast," he says.

Another advantage is that much of the infrastructure needed for broadcasting wireless broadband in the 700-MHz spectrum already exists; owners of the spec-

trum could negotiate for space on current broadcasting towers.

"700 MHz is far enough away in frequency to not have problems with existing services," Epstein adds. And depending on how the FCC sells or licenses chunks of the spectrum, providers could offer wireless broadband with download speeds that are 3 to 5 megabits per second faster than Wi-Fi. Though Wi-Fi use probably won't change or go away in the short term, those unhappy with the pricing of EV-DO and other 3G cellular data networks may soon have a cheaper, faster alternative with nationwide coverage.—Frank Washburn

The Fake Software Empire

An FBI sting uncovered a vast network for phony software, but there's more at risk than Microsoft losing money.

No one would be shocked to learn that, along with counterfeit CDs, DVDs, and consumer electronics gadgets, a stream of knockoff software is also coming out of China. But what is remarkable is the scope of this underworld. This was brought into sharp relief during the summer, when the FBI and Chinese officials raided counterfeit software plants and seized more than \$500 million in phony software.

The vast syndicate shipped fake Microsoft and Symantec software to 27 countries on five continents. And it found a lucrative, if unwitting, market. Some 35 percent of software installed on PCs in 2006 in the U.S. was obtained illegally. Unlicensed, counterfeit, and pirated software costs the industry \$40 billion annually, according to a Business Software Alliance and IDC study. Software giant Microsoft claims this can hurt the bottom line almost as much as a worthy competitor can.

"If not our number one competitor, counterfeiting is certainly among our top competitors," says David Finn, an anti-counterfeiting lawyer at Microsoft.

Those unsympathetic to Microsoft's losing money should know that fake software can also pose substantial risks to consumers. A counterfeit product may be



SPOTTING A FAKE Microsoft's Web site has a handy chart that compares the packaging of counterfeit software.

missing essential features, may not work at all, or may contain viruses or spyware that compromise user security. And often, the software comes packaged in look-alike counterfeit boxes and paired with counterfeit manuals and CD sleeves.

Although consumers often wait until they're home to check a product's authenticity, Michael Gartenberg of JupiterResearch says there are in-store precautions users can take.

"Consumers should be skeptical of any deal that sounds too good to be true," he says. Gartenberg also recommended buying from reputable resellers.

Companies are doing their part to thwart the trade. Microsoft Vista products have genuine detection built into them, Windows and Office can be verified online, and Web sites such as www.howtotell.com guide customers through the verification process.—Alison Lapp

GEARLOG

Your Favorite Air Supply Songs on a USB Drive

When people get nostalgic for the bygone days of cassette tapes, it's often for a specific element of that nearly-extinct format: the mix tape. Mix CDs just don't elicit the flood of nostalgia on which *High Fidelity* scribe Nick Hornby and countless followers have based profitable literary careers. And music-carrying flash drives? There's something about handing over your thumb drive to the person you like that seems, somehow, too impersonal. The Mix Tape USB Drive, designed by Suck UK (www.suck.uk.com), is a sweetly retro way to say you care with a gift that keeps on giving—jams by Journey, Foreigner, and Styx, perhaps. No word at press time on capacity or price, but it was slated to be available by the end of September. So start growing your mullet back right now.—Brian Heater

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Doctors Without Wires

New wireless technology could help improve health care and cut medical bills.

Thirteen million baby boomers are currently caring for their elderly parents, either in-home or overseeing their care from afar, according to *Senior Journal*. Keeping tabs on the condition and well-being of parents, as well as getting them to doctor appointments, can be a daunting and stressful job. A new technology is seeking to make that job easier.

Introduced by the University of Florida and IBM, this health-care advancement enables home computers and cell phones—via Bluetooth wireless transfer—to send real-time readings of vital signs from personal medical devices such as glucose meters, body-weight measuring systems, and respiratory monitoring devices to doctors and families—even many states away.

“Connecting health-care devices into today’s range of wired and wireless networks presents us with an opportunity to turn islands of medical information into evolving networks of health-care monitoring and control,” says Scott de Deugd, IBM’s director of emerging technology and standards. He adds that current integrated solutions are inflexible, and that the key to making this new system work is using innovative wireless devices and open standards.

The middleware technology acts as an intermediary to ensure that a glucose monitor gener-



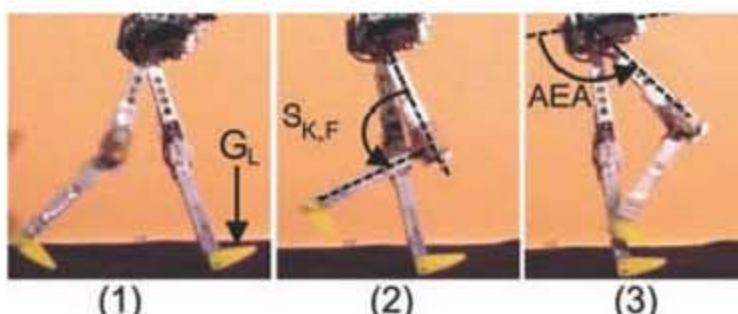
ates data in standardized Web-based formats for health-care providers. To accomplish this, the researchers used a service-oriented architecture. In addition, a network of open-standard computing platforms can be used to develop new solutions with little programming. The regular updates to doctors or family members provide a more unified picture of an individual’s health and allow doctors to be more in touch with their patients’ care while reducing appointments.

According to project leader Sumi Helal, many hospitals have already requested the technology. It’s based on open standards that will make it easy for product developers to tap the technology for new devices, which could be on the market within a year.—Tracy McNamara

FUTURE WATCH

Run, Robot, Run!

Watching a child learn to walk is inspiring—each time she falls, she learns a little bit and tries again. Now there’s a robot that does the same. A team of European scientists has improved upon its speed-walking champion, RunBot. A torsoless contraption about the size of a Barbie doll, RunBot represents a breakthrough in neuronal networking that allows it to learn from its mistakes. On a flat surface, lower-level joint circuitry is sufficient. But on a hill, RunBot loses its balance and falls backward, activating higher-level balance and visual circuitry. After several attempts, RunBot can “see” the hill and correctly adjust its posture and gait. Otto Bock HealthCare, one of the leading prosthetics companies, is working with the scientists to refine the technology. “Future prostheses will contain more and more actuators that need to be coordinated with the movements of the human,” according to Florentin Woergoetter, one of RunBot’s inventors. Lessons learned from RunBot could be applied within a decade.—Daniel Wright



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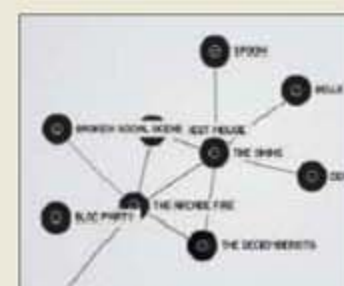
Seenly is a Flash-based Web app that brings photo booth functionality to any PC with a Flash-accessible webcam attached to it. You can choose up to nine effects.



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audiomap.tuneglue.net

TuneGlue is a music-discovery service that’s powered by the music library-sharing site Last.fm’s discovery engine. It has an attractively Spartan interface and a surprisingly deep catalog of artists.—Alan Henry

For more cool Web sites and handy utilities and apps, visit PC Magazine’s blog AppScout (www.appscout.com).

Quantum Computers Get Smarter

A recent innovation could make computing with light viable.

Stanford University physicist Thaddeus Ladd clarifies misconceptions about quantum computers: The futuristic devices will actually be slower than today's transistor-based computers. They will have less storage capacity and will probably never be used as PCs. So what's the big deal with quantum computers?

"Their promise is that they are able to perform algorithms that classical computers simply cannot perform," says Ladd. "Superpositions [of 0's and 1's] could allow a quantum computer to beat IBM's Blue Gene and other supercomputers at certain problems, such as factoring large numbers, because it 'cheats' in the race, or takes a shortcut."

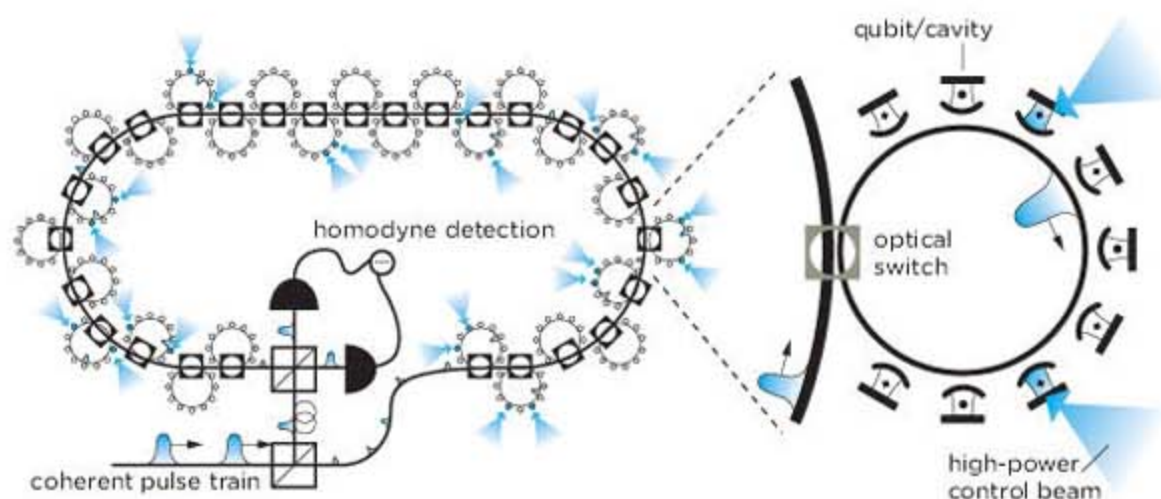
Ladd, who also works at the National Institute of Informatics in Tokyo, is a member of a team led by

Yoshihisa Yamamoto that recently designed a potentially scalable quantum computing scheme in which many quantum bits, or *qubits*, can be added at once. In its "loop qubus," a laser changes the spin of electrons (which act as qubits) held in a loop of quantum dots. For schemes with more than a few bits, the qubus is the fastest design to date.

"The qubus scheme is a way of 'busing' information from one qubit to another—thus the name qubit-bus, shortened to *qubus*—using a pulse of light," explains Susan M. Clark, lead author of the team's recent paper in *Physical Review Letters* (2007).

The team expects to publish ideas soon about how the technology might actually be implemented, with real numbers for speed and cost.—Lisa Zyga

The team has devised the fastest quantum computing method yet, using a "loop qubus" (diagrammed at right), which uses a laser to change the spin of electrons held in a loop of quantum dots.



GOOGLE WORLD

Here's a look at the fastest-growing Google searches around the world (for July 2007):

Afghanistan
Afghanistan
AKO (Army Knowledge Online)
BMW vs. Infiniti

India
Sean Paul (reggae musician)
Aptech (computer training institute)
HindustanTimes.com

Mexico
Pimp My Profile
Manhunt (controversial third-person game)
Harry Latino (Spanish-language Harry Potter site)

Singapore
Camaro
Lacoste
Sentosa (nearby island resort)

United Kingdom
Camelot (the national lottery)
Dermalogica (cosmetic brand)
Hulk Hogan

Source: Google Zeitgeist, 2007

Q & A: STEVE WIEBE, DONKEY KONG CHAMP

He's Got Game

Science teacher Steve Wiebe, 38, holds the disputed world record for Donkey Kong and is the subject of the documentary *King of Kong*. He talks to *PC Magazine* about his rise to the top and ongoing battle with Kong rival Billy Mitchell.

Q: What was your background with playing arcade games, and specifically with Donkey Kong?

A: I played when it came out in '81 and through the eighties. In 1990, I bought my own Donkey Kong machine. I first got to the kill screen during that time. I did it twice, but I didn't know why the game had ended. I thought that was really bizarre. I kept the machine for a few years, and then sold it. In 2000 I went online and found the [record high] score on the Twin Galaxies Web site. I went out to buy another machine.



Q: In the nineties, when you initially got to the kill screen at the end of the game, did it occur to you that you might be one of the best Donkey Kong players in the world?

A: I was wondering. I played for a long time, and I don't remember anyone getting anywhere near those scores of 900,000. At the same time, I didn't think it could be that special. But it turned out that not many people other than Billy [Mitchell] and me can play at that level. There are a few other people who are a few hundred points behind us.

Q: According to the books, you are currently the top record holder for both live and taped games.

A: Yeah. In the 2008 Guinness book, they have the taped score, and my live score at 985,000 is still the current record. Billy reportedly got a higher live score, but it's still being verified. He did it late July, at some mortgage brokers conference. They want to look at the tape he recorded. It's just one of those things, where you have the two top competitors going at each other. It's like tennis—McEnroe and Connors, battling back and forth. That's what this has become.

Q: So, this isn't going to let up anytime soon?

A: No, I don't think so. I might have to take a break for a while because school is starting, and I won't be able to be gunning for the record, like I would have to in order to get it. But yeah, it's going to be a lifetime battle.—Brian Heater

CONNECTED TRAVELER

Stay Fully Charged

With the right gadgets, your devices will always stay powered up and running while you're on the road.

One chapter in the "Inferno" section of Dante's *Divine Comedy* was edited out in the final draft. In this lost chapter, Dante describes an area of Hell reserved for travelers who end up lugging around devices with no battery power. To keep your notebook, MP3 player, cell phone, and PDA running anywhere in the world, you need the help of smart power gadgets.

Every laptop comes with an AC adapter. Often they're called "power bricks"—for a good reason. A slim-and-trim AC adapter option is the **Belkin Power Stack** (\$119.99 direct), which has a handy cord-wrap design and a powered USB port. If you need an adapter with multiple plugs for a car or airplane seat, the sleek **iGo everywhere85** (\$129.99 direct) can charge a laptop and a mobile device simultaneously.

If you don't have an outlet nearby (or a spare battery), the **APC Universal Notebook Battery UPB70** (\$179 direct) and the new **UPB90** (\$249) can get you up to 6 hours of extra juice. And a green way to charge up your gadgets is with the **Solio Universal Hybrid Charger** (\$99.95 direct, new model due in late September), which uses solar or AC power.

Finally, if you're traveling to a foreign country, go for an all-in-one plug adapter, such as the **Kensington Travel Plug Adapter with USB Charger** (\$29.99 direct). Armed with these powerful products, you'll be sure to stay out of dead-battery hell on your next journey.—Erik Rhey



HANDY POWER SITES

Here are some handy resources to answer your questions on power requirements while traveling:

Which airplane seats have power?

With Seat Guru (www.seatguru.com) you can look up the plane you'll be flying on to see which seats have power outlets and what type of plug they take.

Outlet voltage around the world

At kropla.com/electric2, you'll find a useful chart with outlet voltage and amps by country.

Maximizing battery life

The PCMagCast video at go.pcmag.com/batterycast shows you easy ways to extend your battery life.

THE MOUSE OR THE REMOTE?

Which do you spend more time glued to: the Web or the tube? If your answer is the Web, you're not alone. A study from IBM Research shows that Web surfing has surpassed TV watching in the U.S., with 26 percent of survey respondents spending more than 6 hours per day online. This is, perhaps, not so alarming when you consider that many use the Internet during the workday (though only "personal time" was counted for the survey). All five countries surveyed had a higher percentage of people online for 4 hours or more than people watching TV for the same duration.

TIME SPENT PER DAY ONLINE VS. WATCHING TV:

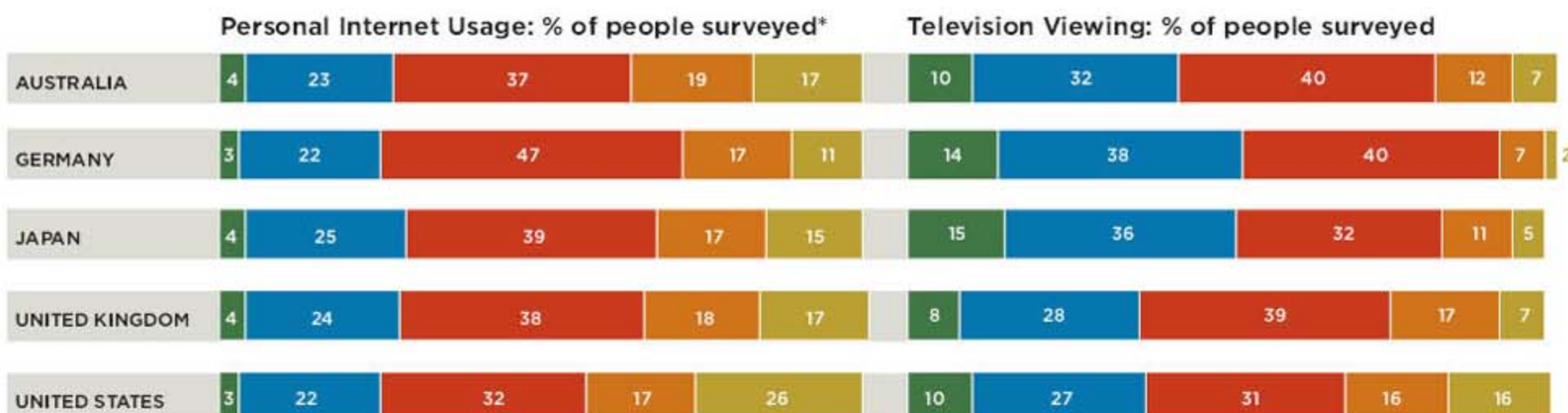
Under 1 hour

1-2 hours

2-4 hours

4-6 hours

Over 6 hours



*Including personal time at work. Because of rounding, the percentages do not add up to 100 percent in every case. Source: IBM Research, 2007

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Apple's Fair Share

Innovative design and an industry-leading user interface help propel Apple to a bigger slice of the PC pie.

Apple's influence on the PC industry is far greater than its market share. Although the company commands about 5 percent of the PC market, it is probably the most widely recognized computer brand in the country. To be sure, clever advertising has a lot to do with it, but so does superior product design.

The original iMac was one of the first all-in-one systems (those that essentially integrate the hardware components with the monitor), and the new Apple iMac (20-inch Aluminum) takes the form factor to new levels of performance. With an iPhone-inspired design, a 2.4-GHz Intel Core 2 Duo processor, and a huge 20-inch LCD screen, the

latest iMac now finds itself as much at home in the office as in the kid's room.

Likewise, Apple has been pushing the limits of notebook design. From the integrated camera to the magnetic pull-away power adapter, Apple's notebook line has been consistently innovative. Now the company is using LED backlighting to extend battery life in its MacBook Pro line. Apple isn't the first vendor to offer a notebook with an LED backlight, but, as always, it is in the vanguard.

Through all the various design changes over the years, Apple has continued to provide a user interface that is both intuitive and forward-thinking.

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Apple iMac (20-inch Aluminum)
\$1,499 direct, \$1,649 with 2GB of RAM



PROS Sleeker and thinner than the previous iMac. More recyclable materials. Energy Star 4.0. Powerful, even in Windows Vista with Boot Camp. iLife '08 suite is improved and still standard. Good price.

CONS No media card slots. No TV tuner option. Glossy screen is a bit reflective, with no option for antiglare. Not quite full HD resolution. Wireless keyboard and mouse are extra.

For more:
go.pcmag.com/imacalum

Apple iMac (20-inch Aluminum)

Apple promised a “computer for the rest of us” in its original Macintosh ads, and the fourth generation of the iMac certainly delivers. Unlike the previous white plastic iMac—marketed as the “consumer Mac” while the Mac Pro was the “professional Mac”—Apple’s latest desktop straddles the line between home and office, and does so with style.

The new iMac is an overall design wonder: a sleek, suspended slab with smooth tilting action and only a power cord running from the back. Taking design cues from the iPhone, the computer sports panels of aluminum and glass on the front and polycarbonate black plastic on the back, materials that make it a “more recyclable” system.

The iMac’s glossy 20-inch display has a resolution of 1,680-by-1,050, so it’s optimal for displaying 1,280-by-720 HD content at full resolution, though 1,920-by-1,080 HD content needs to be scaled down. This will bother only the most exacting of users, but

it’s worth noting. Playing back QuickTime-encoded movie trailers at 480p, 720p, and 1080p full-screen was smooth and stutter-free.

The LCD screen is clear and bright, with colors that “pop” off the screen, but, as with other built-in displays, I did see some noise on large swaths of solid colors from extreme angles. This problem shouldn’t bother most users, but in case you want to hook up another monitor, there is a mini-DVI port on the back. (You’ll need a separately available adapter to use it, however, and if you decide to use an HDMI adapter, you’ll also need a separate audio cable.) If you’re hypercritical, the full-size desktop Mac Pro is still available, as are professional workstations from Dell and HP with separate monitors.

The new Apple wired keyboard is very much like the MacBook’s in style, with flat, shallow keys. Using it is similar to using the MacBook keyboard: It has enough travel and “bounce” to make typing comfortable for most users. Made of aluminum and plastic, it’s much thinner than the old all-plastic one, so the new typing position may take some getting used to. Although it lacks an ergonomic “curve,” the keyboard is quite usable.

The iMac runs on an Intel Core 2 Duo T7700 processor. Using this 2.4-GHz notebook-class CPU reduces heat and saves energy, and fortunately, it sacrifices very little computing power. It ran our Adobe Photoshop CS2 test slightly faster than the previous iMac did and performed even better with Photoshop CS3. Aided by an ATI Radeon HD 2600 PRO graphics card, it easily handled casual games as well as the less-demanding 3D titles.

PERFORMANCE TESTS

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

	3D TEST ▲	MULTIMEDIA TESTS		
	3DMARK06 1,280 x 1,024**	WINDOWS MEDIA ENCODER ▼ min:sec	CINEBENCH 9.5 ▲	PHOTOSHOP CS2 ACTION SET ▼ min:sec
Apple iMac (20-inch Aluminum, Vista)	3,784	1:16	745	0:58
Apple iMac (20-inch Aluminum, OS X)	N/A	N/A	734	1:25
HP TouchSmart IQ770*	2,296	2:10	440	1:38

* Editors’ Choice, reported for comparison. ** Anti-aliasing/anisotropic filtering was set to Default. N/A—not applicable: The operating system does not run this test.



Apple MacBook Pro 15-inch (LED)

\$1,999 direct



PROS Battery-conserving LED screen. Fast processor. Awesome graphics card. Best bundled software suite out there. Lightest 15-inch laptop on the market.

CONS Laptop heats up running Windows XP Pro under Boot Camp. Needs more USB ports.

For more:
go.pcmag.com/macbookproled

One reason the new iMac falls short of a perfect rating is that it lacks a built-in digital card reader, a feature most multimedia-oriented desktops manage to include. But otherwise, the wonderfully integrated iLife '08 software suite makes the iMac a perfect home for your digital media. By combining superior performance with economical design, Apple's latest desktop sets a sleek new standard for other all-in-one PCs to follow.—*Joel Santo Domingo*

Specs: 2.4-GHz Intel Core 2 Duo processor; 2GB DDR2 SDRAM; 320GB, 7,200-rpm hard drive; 256MB ATI Radeon HD 2600 PRO graphics card; Mac OS X 10.4

Apple MacBook Pro 15-inch (LED)

The MacBook Pro may not represent a remarkable upgrade in visuals or design, but the most compelling improvements are within. Now that Apple has included components from Intel's newly launched Santa Rosa platform in its latest MacBook Pro 15-inch (LED), the gap between the MacBook and the MacBook Pro has widened. More specifically, the MacBook Pro 15-inch (LED) is 21 percent faster than the MacBook 13-inch (Core 2 Duo T7200), according to their respective SYSmark 2007 Preview overall scores.

The LED backlighting technology featured in the Pro 15-inch (LED) doesn't slim down the screen as it did other laptops, but, at 1 inch thick, the new MacBook Pro is still the trimmest 15-inch laptop out there. The visual improvement from the LED screen is hardly noticeable; photos on an older lamp-lit MacBook Pro actually show better contrast. But

combined with better power management, the LED display leads to longer battery life: I estimate 3 to 4 hours when running everyday tasks.

The keyboard and mouse buttons still work well together, and the iSight camera's picture quality is phenomenal compared with Windows PC webcams. Heat management has also been improved: Temperatures now range from 92 to 96° F; in the MacBook Pro 15-inch (Core 2 Duo), they rose above 100° F.

Gains in performance from the Santa Rosa platform and the new nVidia GeForce 8600M GT graphics chipset make the MacBook Pro 15-inch (LED) a powerful gaming machine as well. And the improved hardware and battery usage are strong assets. The total package warrants our Editors' Choice and may convince some non-MacBook Pro owners to give it a try. The line is due for a design upgrade in January, though, so current MacBook Pro owners may do well to wait.—*Cisco Cheng*

Specs: 2.2-GHz Intel Core 2 Duo T7500 processor; 2GB DDR2 SDRAM; 120GB, 5,400-rpm hard drive; 512GB nVidia GeForce Go 8600M GT graphics; Mac OS X 10.4.9

PERFORMANCE TESTS

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

	BATTERY RUNDOWN SCORE ▲ hr:min	SYSMARK 2007 PREVIEW: OVERALL ▲	MULTIMEDIA TESTS ▼	
			WINDOWS MEDIA ENCODER min:sec	PHOTOSHOP CS2 ACTION SET min:sec
Apple MacBook Pro 15-inch (LED) - Boot Camp	2:44	100	1:29	1:29
Lenovo ThinkPad T61 Widescreen*	1:57	109	1:21	0:57

*Editors' Choice, reported for comparison.



Measures 4.9 x 11.3 x 12.6 inches (HWD)

Canon
CanoScan 8600F
\$180.00 street

●●●●○



PROS Scans slides and strips of film. Comes with optical character recognition (OCR) and document management software.

CONS Scans only four slides at a time. Tends to lose detail in bright areas.

For more:
go.pcmag.com/canoscan8600f

CANON CANOSCAN 8600F

This Scans Easily

Considering the impressive quality of its predecessor, the 8400F, the CanoScan 8600F has a lot to live up to. Fortunately, the new and improved model not only handles prints, slides, and film better than the previous model, but its scan quality and versatility rivals the competition as well.

The CanoScan 8600F comes bundled with software for document management and photo editing, including ScanSoft OmniPage SE 4.0 optical character recognition software to convert text into

an editable format. The driver also includes software for color restoration and dust removal, both of which work reasonably well.

The scan process itself is run either using the scan-control software or by hitting one of the six scan buttons on the machine, with options such as scanning directly to a PDF, e-mail, or a printer. Unfortunately, the lack of an automatic document feeder makes scanning multiple-page documents a hassle, since you have to place each page on the flatbed individually.

With its claimed optical resolution of 4,800 pixels per inch, the CanoScan 8600F's scan quality for photos and film is more than acceptable for family snapshots. I also appreciate Canon's back-light correction feature, which offers three levels of correction to bring out detail in your photographs.

—M. David Stone

LEXMARK X9350

This AIO Does Duplex

Lexmark, which actually manufactures some of Dell's printers, sometimes releases a very similar product of its own. The Lexmark X9350, for example, has many of the same features as the Dell Photo All-In-One 966 Printer. But despite the nearly identical appearance, the X9350 is an entirely different machine—in some ways for the better and in some ways for the worse.

The X9350 all-in-one ink jet can handle tasks in both the home and the home office. It connects directly to digital cameras and memory cards, and a color LCD screen lets you preview photos before you print them. For your home office, it can function as a standalone copier and fax machine, and it connects easily to either wired or wireless networks. An advantage the X9350 has over the Dell 966 is the easier-to-use software for scanning to or faxing from your PC.

In terms of print speed, the X9350 matches the Dell 966's sluggishness, taking even longer for photo



printing—an average of 2:19 (min:sec) for a 4-by-6 color photo. The output quality for graphics and photos was a bit poorer than the Dell 966's, but the X9350's graphics and text quality is about typical for ink jet AIOs. Unless you need absolutely professional-quality documents, the X9350 should be just fine for home and personal business use—and at a lower price than Dell's comparable model.—MDS

Lexmark X9350
\$280 street
●●●●○

PROS Duplexer for printing on both sides of a page. Scans and faxes over a network. Stand-alone copier and fax.

CONS Slow. Text quality is at the low end of the typical range for ink jet AIOs.

For more:
go.pcmag.com/x9350

Toshiba recommends Windows Vista® Business.

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widescreen 12.1" notebook with an optical drive¹

World's lightest

widescreen 12.1" notebook at 1.72 lbs. with solid state drive and no optical drive²

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battery life in a widescreen 12.1" notebook³

World's first

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Samsung YP-U3

\$90 list



PROS Tiny. Bright screen with cool graphics. Easy navigation. Great FM radio. Voice recording. Flat, touch-sensitive buttons.

CONS Buttons are easy to trigger accidentally. Earbuds are so-so. Mediocre battery life. No FM recording.

>>For more:
go.pcmag.com/ypu3



SAMSUNG YP-U3

Cheap, Slick, and Cool



Actual size

Just when I thought that SanDisk had designed the perfect tiny flash media player with its excellent and affordable Express, along comes Samsung with a truly impressive competitor. There can be only one reigning Editors' Choice for the cheap portable media player category here at *PC Magazine*, and the well-crafted YP-U3 earns the award.

Measuring a minute 3.2 by 1.0 by 0.4 inches, the new 0.8-ounce YP-U3 (we'll call it the U3) has a built-in USB connector, which eliminates the need for a cable. The U3 comes with 2GB of storage; it has Samsung's familiar graphics and touch-sensitive flat-surface buttons. And, compared with the Express, the U3 has a slicker look and a radiant screen.

A bright 1.8-inch OLED display occupies the left half of the front face. There's nothing special about the organization; navigation is easy and straightforward. The main screen has five icons: Music, FM Radio, Voice Record, Settings, and Now Playing.

Holding down the power button for a couple of seconds unleashes a flashy start-up graphic in Samsung's typical blue-on-black theme. If you have the player set to Resume (an item in the Settings menu), whatever song you were last playing will start up from the moment you left off. If not, it will still cue up the track but will revert to the beginning and won't automatically start playing. Now Playing is the default start-up screen, but by using the back button, you can easily access all menus. There's no FM recording to be found, which is a surprise, considering the U3's inclusion of voice recording. (The Express offers both FM and voice recording.)

One slight annoyance is that it takes five steps to get to the main menu from the Now Playing screen (navigating backwards through song, artist, etc.), but navigation is quick nonetheless. It would have been better, however, if Samsung had thought to use the multifunction User Button on the top as a main menu button to bypass backwards navigation. This button is assignable only to Repeat A-B, DNSe (Samsung's plethora of avoidable EQ settings), Play Speed, and Play Mode (Normal, Repeat, and Shuffle).

File compatibility is limited to MP3 (all bit rates), WAV, and WMA (including protected and lossless). The U3 has no photo or video function, which is perhaps a blessing. That's because most players that have tiny screens yet include these functions usually have to charge more for what ends up being a lousy feature. Unfortunately, the player also comes with so-so earphones. As usual, I seriously suggest upgrading to something better. And the U3's battery life isn't much to brag about. My test player yielded 12 hours and 3 minutes. (The Express didn't do much better, at just 14 hours.)

Knocking the Sansa Express off its pedestal is a difficult feat. When the 1GB Express came out earlier this year, I was thrilled to see such a simple, good-looking, easy-to-navigate device for only \$60. (The 2GB model goes for \$80.) Technology is not all about price, however, and although the U3's memory isn't expandable like that of the Express, the U3 strikes me as a slightly better value. It's skinnier, a little slicker, and costs only \$10 more than the Express with the same capacity.—*Tim Gideon*

B&W ZEPPELIN

Stratospheric Sound and Design

B&W's graceful new iPod dock provides excellent audio, but it's large and heavy. Yes, this Zeppelin sports a glowing LED behind its cloth grill. But for \$600, most consumers expect a feature-packed dock like Chestnut Hill Sound's George, which has an excellent remote that replicates the iPod's interface, radio, programmable alarms, and very customizable EQ settings.

The Zeppelin weighs 16 pounds and measures 8.2 by 25.2 by 6.8 inches (HWD). Though it looks and sounds amazing, it doesn't offer much in the way of extras. There's no radio or alarm clock, and don't expect to browse your iPod's library on the egg-shaped, screen-less remote. But S-Video and composite-video outs let you view iTunes videos on

your TV while listening through the Zep. Bass from the 2.1 system is powerful without getting muddy, and each left and right channel has a woofer and tweeter to ensure that frequencies from the low midrange and higher are tight and clear.

The main reason to buy this dock, however, is to elicit *oohs* and *aahs* from your friends. Would it cost half as much if it didn't look so cool? Possibly, but you probably wouldn't have considered it if it wasn't so easy on the eyes. Audiophiles: If you aren't picky about extra features and are willing to pay a premium, your iPod dock beckons.—Tim Gideon



B&W Zeppelin

\$599 list

●●●●○

PROS Excellent sound. Exotic design. S-Video and composite-video outs for iPod-to-TV. USB connection for software updates. Rubber mount to change speaker angle.

CONS Limited remote. Takes up a lot of space. Expensive for a feature-less dock.

For more:

go.pcmag.com/zeppelin

FERGUSON HILL FH007 AND FH008

High-Style, High-End Audio

There's no shortage of luxury design pieces that sound great and cost a fortune these days. And boy, does this set look cool! Everyone who saw it on my testing bench wanted to steal this speaker and subwoofer combo to set up at home.

The price is, in my opinion, way too high, but there's no denying that the FH007 speakers—unique in that the woofer and tweeter are in completely separate enclosures—sound crisp and beautiful, if occasionally too bright. For those who care about an accurate stereo field (and if you spend this much money, I hope you do), placement can be an issue. You have to mark off exact distances between woofer and tweeter and maintain them for the left and right channels. Additionally, you'll want to make sure that the woofer sphere and tweeter horn are firing at the same angle. And since these speakers are made of lightweight acrylic, you'll need to use the optional, unsexy rubber feet for the legs to prohibit movement.

The FH008 subwoofer (not shown) is a must for popular music fans, but classical music enthusiasts and jazz lovers might be able to survive without it. Personally, I wouldn't want to use the FH007 without the well-defined low end the FH008 brings to the table. Buy them if you've got the money to burn.—TG

Small but powerful amp



Ferguson Hill FH007 and FH008

FH007, \$995; FH008, \$595

●●●●○

PROS Super-cool design. Good audio quality. Booming subwoofer. Works with iPods, PCs. Comes with a white glove for handling—seriously.

CONS Placement can be difficult. A bit bright at times. Expensive.

For more:

go.pcmag.com/fh007_8



CANON POWERSHOT SD750

Stylish Simplicity

Like the PowerShot SD1000, our current Editors' Choice for compact cameras, the SD750 features 7-megapixel resolution and a 3X optical zoom, and it has a similar "box and circle" design. The differences between the two models are subtle: For example, the SD750 lacks the optical viewfinder found on the SD1000. In addition, the SD750 is a bit bigger and sports a more contoured, stylized design plus a larger, 3-inch LCD.

On my tests, color was excellent and vibrant, though not quite as sharp as on the SD1000, and there was just a small amount of fringing. Otherwise, the camera had very good dynamic range, with good



Large, 3-inch LCD

contrast and a strong flash that didn't blow out highlights. When recording video, the SD750 showed pleasing color and good contrast too, picked up sound well, and adjusted quickly to different lighting situations. It also performed well, registering a very speedy 1.6-second boot-up time and virtually no shutter lag. In burst mode, the camera can shoot continuously to the capacity of the card. I also liked the included face-detection feature.

Canon PowerShots are definitely the compact cameras to beat. The SD750 is an excellent device, particularly if you're looking for a large display and a stylish design.—Molly K. McLaughlin

Canon PowerShot SD750

\$250 street



PROS 3-inch LCD. Pleasing picture quality and speedy performance. No shutter lag. Uses face-detection technology.

CONS Wide-angle lens could be wider. No MPEG-4 encoding for video.

For more: go.pcmag.com/sd750



Hot shoe

Quick access to frequently used functions

Nikon Coolpix P5000

\$399.95 direct



PROS Good ergonomics and compact design. Wide range of exposure settings and other advanced controls. Optical viewfinder. Support for external flash units and lens converters.

CONS Limited zoom range. Noticeable shutter lag. No RAW file support.

For more: go.pcmag.com/p5000

NIKON COOLPIX P5000

Compact Camera with Control

With a wide range of exposure controls and a comfortable and efficient design, the 10-megapixel Coolpix P5000 is an ideal everyday companion for experienced photographers.

The P5000 has a nice selection of modes, including High ISO and Anti Shake, either of which can be used to reduce blur in low-light or action shots. You get a lot of flexibility when shooting at the wide end of the camera's zoom range—36mm—with ten aperture settings. This, combined with the P5000's effective lens-based optical image stabilization and its maximum ISO of 2000, make it a versatile low-light photographic tool. The camera includes a hot shoe and a variety of flash settings as well. Whatever the lighting situation you're dealing with, you'll appreciate the P5000's high-quality LCD—particularly its wide viewing angle.

In testing, I found that colors were realistic, and the automatic white balance didn't produce any color casts. Video quality was quite good for a compact camera, although audio quality was less than ideal.

This camera shares some of the shortcomings of its competitors, including noticeable image noise at higher ISO settings and less-than-optimal shooting speed. Its appeal lies in its combination of advanced features—including the external flash support—and its pocketable, comfortable design.—Aimee Baldrige

Glossy surface enhances color but heightens reflection



52-inch screen

SAMSUNG LN-T5265F

An HD Detail Destroyer

Here's a set that proves that 1080p resolution doesn't always guarantee a great picture. Though on paper this colorful and high-contrast 52-inch LCD HDTV has everything needed to produce a stunningly sharp picture, out of the box its high-def imagery was fuzzy, and efforts to solve the problem through a software upgrade further complicated the situation.

Removing the LN-T5265F from its factory-sealed cardboard box revealed a fully assembled HDTV complete with a rectangular-shaped swivel stand. The LCD's glossy black bezel sports an unobtrusive Samsung logo and soft blue light centered along the lower edge. But when checking the viewing angle, I saw noticeable loss of color saturation at 15 degrees off-axis that became worse at 20 degrees.

Samsung's new T-series LCD now contains some menu options that were long overdue. At the top of the list of new items is a Just Scan picture size mode that attempts to display every pixel of an HD video signal. I say "attempts," because initially I found that 720p, 1080i, and 1080p60 HD video delivered via HDMI was cropped by two or three pixels around the TV's perimeter. Also, the HD component video input displayed an unacceptable 7 percent overscan of the screen. Only VGA input at 1080p60 and HDMI input at 1080p24 produced an image that exhibited no signs of this picture-softening overscan.

Although the LN-T5265F proved itself capable of delivering good color and contrast post-calibration, during my first round of tests its video processing unacceptably degraded the quality of HD video. My HD HQV Benchmark test results revealed that the LN-T5265F's HDMI input was sacrificing up to half of the visual information contained within the signal of video and film-sourced content. Testing with a selection of HD DVD and Blu-ray movies confirmed that the LN-T5265F's missing picture detail softened the image to the point of being blurry. To address this, Samsung provided me with a firmware upgrade. This update corrected the LN-T5265F's most severe video-processing errors with 1080i HDMI input and also enabled underscan for HD component video. But folks, don't get too excited. Unfortunately, the new firmware shifted the LN-T5265F's 1080i HDMI problems to the TV's component video inputs.

In Samsung's defense, the company stated that models shipped after mid to late July 2007 should feature the updated firmware; affected owners can also call the Samsung service center and request the latest firmware available. Still, there's no way I can recommend a \$4,000 HDTV that delivers a blurry, practically half-resolution picture either over HDMI or component video connections.—Robert Heron

Samsung LN-T5265F

\$3,999.99 list

●●○○○

PROS Excellent color quality. Excellent image contrast (after calibration).

CONS Loss of image detail when using HDMI inputs. Excessive overscan with HD component video. Poor out-of-box image contrast. Ineffective noise reduction with component video input. Poor video processing with HDMI input.

For more:

go.pcmag.com/lnt5265f

PORTS INCLUDED

HDMI	3
Component	2
Composite	2
DVI	0
IEEE 1394	0
RF	2
S-Video	2
VGA	1
CableCARD	0

Note: Since the two composite and S-Video ports are shared connections, two TV inputs can be used on any of them, but not simultaneously.

Bigger, more powerful wheels



Soft-touch front bumper now senses objects



Wall-cleaning brush uses longer spokes

IROBOT ROOMBA 560

A Better Robot Vacuum

The latest robot vacuum from iRobot takes a while to get the job done, but it does boast a slew of new features and improvements.

Though it still relies on a floor-situated Home Base for charging, the Roomba 560 is now beefier in size and weighs a full 8 pounds. The 560's round, flat body is propelled by two primary wheels, each with its own motor and suspension system. The wheels are larger than in previous versions, allowing the 560 to ride higher off the ground. In addition, iRobot claims that the wheels' motors provide more torque than ever before, helping the 560 power over plush carpeting and area rugs.

Other upgrades include a bigger dust tray (30 percent bigger, in fact) and a redesigned spinning wall brush for a longer reach. Better yet, the main chassis

housing the Roomba's sensors is now sealed, protecting against overload from dirt and debris. Also new: an onboard scheduler that lets you program the 560 to clean automatically, and a multi-room cleaning function that relies on "Virtual Wall Light-house" units you deploy, with care (placement is important), around your house. During my tests, the Roomba could vacuum multiple rooms at a time, but sometimes had trouble returning home to recharge.

All in all, even though it takes longer than a regular upright, this robot vacuum is a nifty little cleaning machine.—Brian Bennett

iRobot Roomba 560

\$349.99 direct

●●●●○

PROS Sealed chassis. Bigger wheels, more powerful motor. Modular design. Multi-room cleaning. Anti-tassel technology saves rug fringes. Scheduler function.

CONS Still gets caught on cords and loose wires. Multi-room cleaning is far from perfect. Takes a lot longer than a regular upright.

For more:
go.pcmag.com/roomba560

NETROPA INTELLINAV 3

GPS That's Priced to Move

Not only does Netropa's latest navigation device cost less than many other GPS products, it also comes with plenty of features usually found in pricier machines.

Measuring 3.2 by 4.0 by 0.8 inches (HWD) and weighing 6.8 ounces, including the built-in lithium ion rechargeable battery, the Intellinav 3 is relatively slim and trim. Unfortunately, though, the device's 3.5-inch touch screen has a reflective surface, making it difficult to view the display under bright, sunny conditions. Running the system is the Windows CE 5.0 OS and a SiRFstarIII GPS receiver.

A fat 2GB memory card holds a POI (points of interest) database with six million entries and includes data for Canada, Puerto Rico, and the U.S. Virgin Islands as well as for the U.S. Historical traffic patterns are also stored and can be used for calculating more efficient routes. The device also offers a pedestrian profile.

On the road, the Intellinav 3's text-to-speech engine did a good job of pronouncing street names, and it generated the same routes as other Navteq-based GPS products I've tested. I recommend it as a good choice for budget-conscious shoppers.—Craig Ellison



Netropa Intellinav 3

\$329.99 list

●●●●○

PROS Text to speech. Multi-segment routing. Large POI database. Easy-to-use menu system.

CONS Reflective screen. Can't search for POIs near a destination or a specific address. Weak suite of multimedia players.

For more:
go.pcmag.com/intellinav3



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- 15.4" WXGA display with BrightView™
- Windows Vista™ Business Edition



\$1099⁹⁹
CDW 1208221



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BitDefender Total Security 2008

Three installations, two years, \$79.95 direct

OVERALL RATING ●●●●○

Antivirus ●●●●○

Antispam ●●●●○

Antispyware ●●●●○

Firewall ●●●●○

Privacy/parental control ●●●●○

PROS Good protection against viruses and spyware. Accurate content-based spam filtering, backed by whitelist. Suite now includes backup and performance tune-up modules.

CONS New tune-up features are weak. Registry Cleaner is uninformative. Duplicate Finder can be dangerous. Firewall lacks advanced program control.

For more:

go.pcmag.com/bitdefender2008

Completely new main window gives top-level security overview

BITDEFENDER TOTAL SECURITY 2008

A Friendlier Foe Fighter

You'll find the essentials—firewall, antivirus, and antispyware modules—in BitDefender Total Security 2008 (BD2008), as well as spam protection and parental control. This version adds backup and system tune-up features, putting it head-to-head with Symantec's Norton 360 and Microsoft Windows Live OneCare. A completely new user interface makes the product much easier to use. Clicking just one button fixes any outstanding issues.

As always, the antivirus module gets recognition from the independent labs, and now the software fully integrates spyware scanning. BD2008 is well armored against attempts to balk its installation or destabilize a scan. In spyware removal testing, it scored almost as well as the top standalone antispyware products. It blocked spyware installation better than Spy Sweeper but not as well as Spyware Doctor.

The firewall keeps hackers out and controls which programs can access the network. Though it still doesn't protect against leak tests, it now detects whether a Wi-Fi network is unsecured and notifies you when a new computer joins the wireless network. The firewall is also much tougher than before. I could still kill it, but I had to get seriously devious.

The antispam module filters based on content and fine-tunes using a whitelist/blacklist. In testing with about 2,000 real-world messages, it didn't mark a single personal e-mail as spam, though it mislabeled a few valid bulk e-mails. It marked less than 0.5 percent of valid mail as junk and caught all but about 22 percent of spam,

thus exhibiting performance roughly equivalent to ZoneAlarm's antispam. But a glitch forced me to use Outlook Express rather than Outlook for testing.

The suite retains its full-featured parental control, with per-user settings, Web site blocking, time scheduling, and an option to bar specific programs. When it blocks access, it now explains why, and it logs blocked attempts (though it didn't seem to log *all* attempts). Parental control is tough (assuming you use a strong password) and browser-independent.

Privacy control includes features beyond the expected protection against the sending of specified private information via Web forms or SMTP-based e-mail. There's an antiphishing feature for Internet Explorer, though IE7 alone blocked twice as many fraudulent sites. The utility can also warn users on the occurrence of specific Registry, cookie, and script actions. And to satisfy the total technoid, BD2008's System Info panel digs deeply into more than a dozen sensitive system areas.

BD2008 now has a full-featured backup and restore utility. Wizards keep both simple, if you wish, and the product supports all local backup destinations. The only feature it lacks is hosted online backup à la Norton 360. Performance tune-up, also new, includes Internet file cleanup, defragmentation, Registry cleanup, and a duplicate file finder—but I found these features either redundant or potentially dangerous. The next version will surely do better.—Neil J. Rubenking



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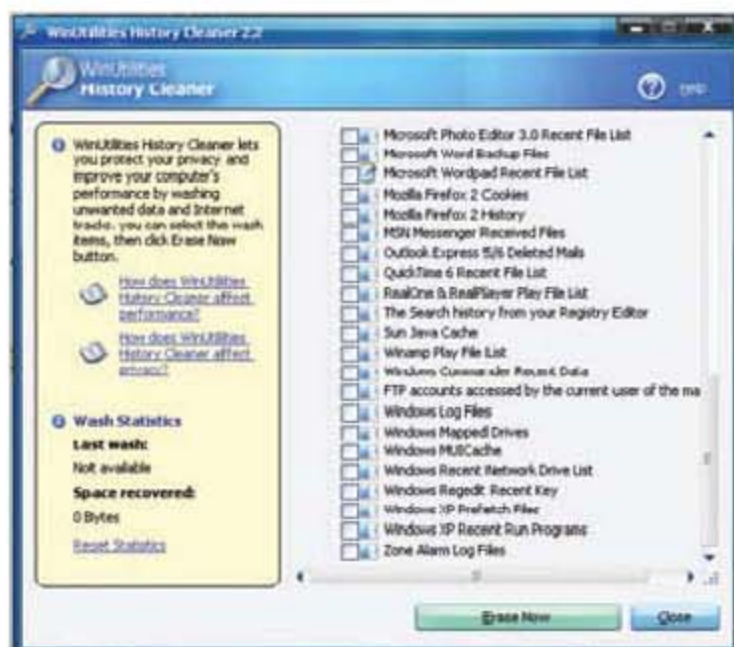
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WINUTILITIES 5.27

A Cleaner Vista

When you use Windows for any length of time, performance-sapping junk piles up, as does information you might not want others to see. WinUtilities 5.27 gives Windows XP and Vista users the tools for cleaning up, improving performance, and automating tasks. Its Disk Cleaner, for example, eradicates various types of temporary files and more. Registry Cleaner searches for and lets you delete useless entries in Windows' huge information database. History Cleaner can erase not just browsing records but also the logs many applications keep.

A System Optimizers section includes Duplicate File Finder, Shortcuts Fixer, and Memory Optimizer. The last tool worked better with XP than with Vista, but it proved useful with both operating systems for clearing up memory to load a large graphics file. The Task Scheduler app lets you set up automated processes for the three cleaners, as well as for launching programs and shutting down or putting the system into hibernation. Rounding out the package are sev-



eral miscellaneous tools, such as one that permanently wipes files, frees drive space, and more. Some components are only variations on Windows' own utilities, but they go further and have useful help info. WinUtilities 5.27 even makes the operating system's built-in tools easier to access.—Neil Randall

Choose from nearly 50 types of history files to delete

WinUtilities 5.27

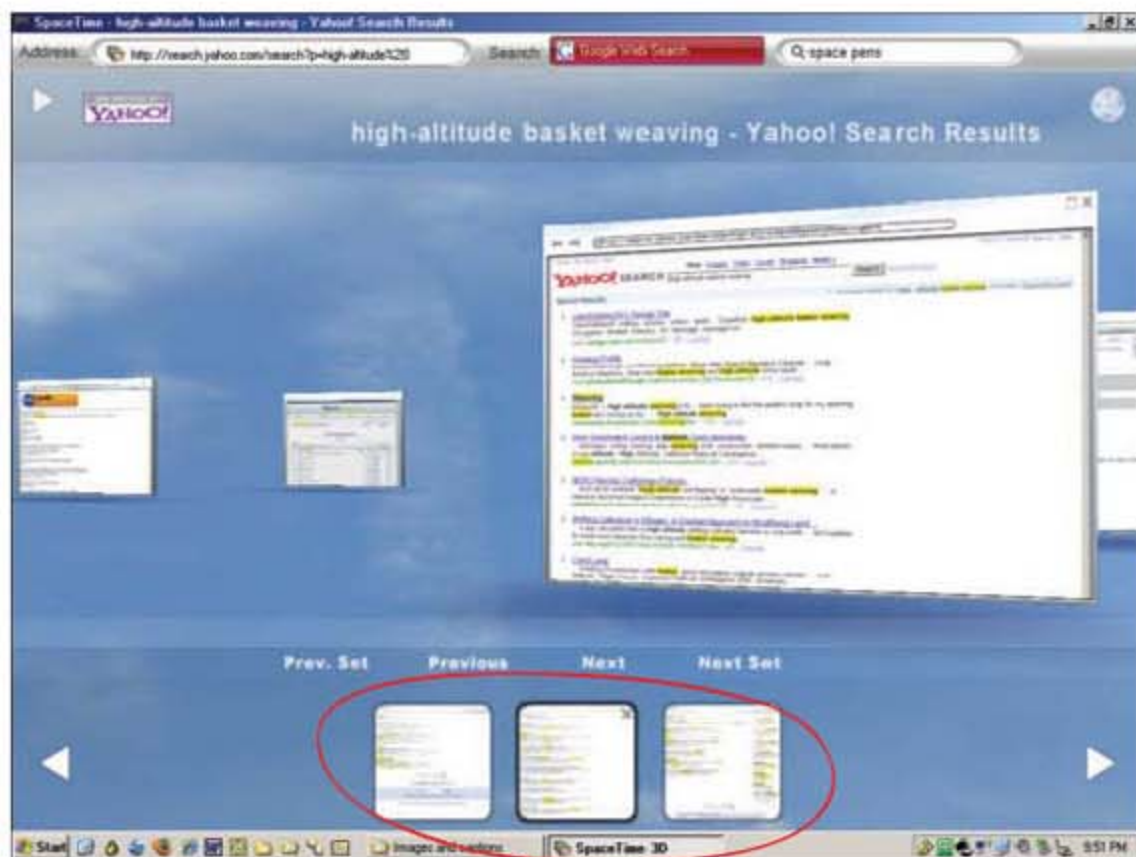
\$39.99 direct, \$69.99 for five-PC license

●●●○○

PROS Vista-compatible. Can make deleted files unrecoverable. Provides easy access to Windows utilities as well as its own.

CONS No anti-malware. Doesn't offer full range of Windows tweaks. Many utilities somewhat duplicate those in Windows.

For more: go.pcmag.com/winutilities5_72



Quickly switch among search stacks using timeline icons

SpaceTime Beta 0.9

Free

●●●○○

PROS Beautiful interface. Optimized for eBay, Google, and Yahoo! image searches and browsing. No pop-ups.

CONS Many PCs won't meet the minimum hardware requirements. No Mac support. Not extensible the way Firefox and other mainstream browsers are.

For more: go.pcmag.com/spacetime09

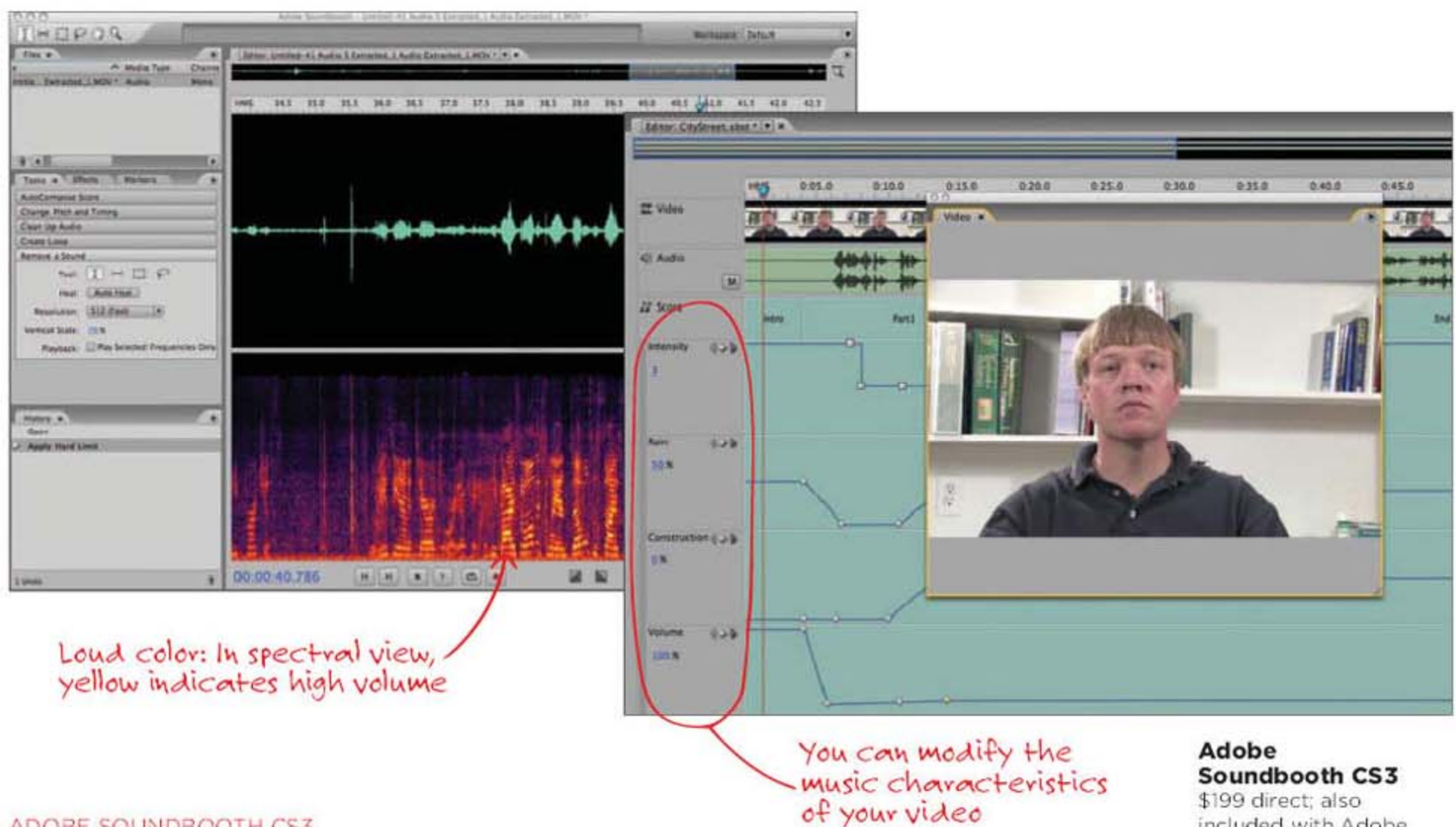
SPACETIME BETA 0.9

A New Web Perspective

View Web searching and browsing from a new perspective—3D. The free SpaceTime Beta 0.9 simplifies surfing by organizing items in a spatial way, as you would in the real world. Web pages appear as large thumbnails, one behind the next, in a *visual stack* that recedes into the distance. Pages browsed by URL go into a browsed-image stack. Search stacks show thumbnails of the results listing followed by the pages it cites. Every search produces another stack. Stacks float on an invisible plane. Within a stack, you can quickly move back and forth using your mouse's scroll button. You'll also find navigation tools in a band below the stack area. Keyboard cursor arrows let you "fly" through the 3D environment or move stacks. Double-clicking on a thumbnail maximizes it into a browsable window.

With certain sites, the application can display search results in its interface rather than as normal 2D Web pages. Currently this capability works with major search engines and a number of RSS feeds. SpaceTime's eBay search integration is the most impressive. The software isn't a full-blown browser, though, and it requires a pretty powerful Windows XP or Vista PC (Mac and Linux versions are in progress), but it's definitely worth checking out.

—Davis D. Janowski



ADOBE SOUNDBOOTH CS3

Even the Score in Your Video

You get a good blend of usability, audio recording capabilities, and video-centric audio editing features with Adobe Soundbooth CS3. But if you've used its predecessor, Audition, to manipulate your video's sound, you'll miss the multitrack interface, and you'll grumble about other—mostly minor—differences. Still, the Mac and Windows versions of Soundbooth will meet the needs of most video producers, and the excellent interface helps novices navigate.

Soundbooth lets you record audio and assists you with a volume meter—a nice enhancement. You can also open an existing file (video with a soundtrack as well as audio) or—in Premiere Pro CS3—right-click on a file and choose *Edit in Adobe Soundbooth*. When editing, you can undo operations from a history panel, but only sequentially.

Automatic pop and click removal worked poorly. The Auto Heal function is the best tool for removing this kind of transient noise; its split-screen waveform/spectrum view is helpful because some noises appear more clearly in one view than the other. Auto Heal produces such natural sound that, for some projects, it alone is worth Soundbooth's price. Unfortunately, the Soundbooth filter that removes steady noises, such as microphone hum, doesn't let you listen to what you'll be eliminating. That can make the process harder and result in unnecessary distortion.

The audio compression tool has different customizable presets for various types of music and speech. A new effect for voice-over recordings reduces sibilants (s-sounds), plosives (p-sounds), and microphone rumble. It also applies compression you can customize for male or female voices. You can't increase volume and apply compression simultaneously, which will probably irritate Audition users, but novices won't notice, and Soundbooth still gets the job done. These filters don't offer the visual feedback that Audition provides, but otherwise, the editing tools are very visual. For audio editing and related chores, I find Soundbooth quite usable and very capable.

On the other hand, the new AutoCompose Score—a feature designed to enable nonmusicians to create background music—aims at a problem already solved by SmartSound Software's impressive SonicFire Pro 4.5. If SonicFire is too expensive, check out SmartSound QuickTracks, which is free for Premiere Pro users (although *not* free for Premiere Pro CS3 users).

All in all, Adobe Soundbooth CS3 is good product for recording and typical video-related audio editing—but laying out hard cash for fewer features than Audition offers is less than satisfying. If the company can build on the good bits, though, it could have itself a real contender.—Jan Ozer

Adobe Soundbooth CS3
\$199 direct; also included with Adobe Creative Suite 3

●●●○○

PROS Visual, task-oriented workflow. Excellent Auto Heal function. Good noise-reduction and compression functions.
CONS Single track only. Lacks preview tools for noise reduction. Auto-Score feature is weak.

For more:
go.pcmag.com/soundboothcs3

Combine multiple tables, images, and text blocks on the Numbers layout canvas



iWORK '08

Polished Apple Office Suite Shines

iWork '08

Single user, \$79 direct;
5-user family pack, \$99



PROS Innovative, easy-to-use spreadsheet. Word processor layout is graphics-rich, and so are the presentation app's transitions, now.

CONS Not as powerful as Microsoft Office. Not enough automation features for corporate use. Mail merge can't use spreadsheet data.

For more:

go.pcmag.com/iwork08

The latest Apple productivity suite combines a brand-new spreadsheet program—Numbers—with updates of the Pages word processor and Keynote presentation packages, creating a real (and low-priced) Microsoft Office alternative. The suite, iWork '08, imports Office documents, including those created in Office 2007, and exports to the Office 97–2003 format, which Office 2007 can read. To open documents from other suites, such as WordPerfect for the Mac or OpenOffice.org, though, you have save them (in their native apps) as Word-compatible files or use a third-party translator.

All iWork applications use a common interface. At the top you'll find a toolbar in which most icons have drop-down options. A context-sensitive Format Bar displays choices suitable to what's currently selected—text, a graphic, or a table. The most impressive graphics option, *Instant Alpha*, lets you easily remove background color regions in an image. It works better than any corresponding feature I've seen in high-end graphics programs.

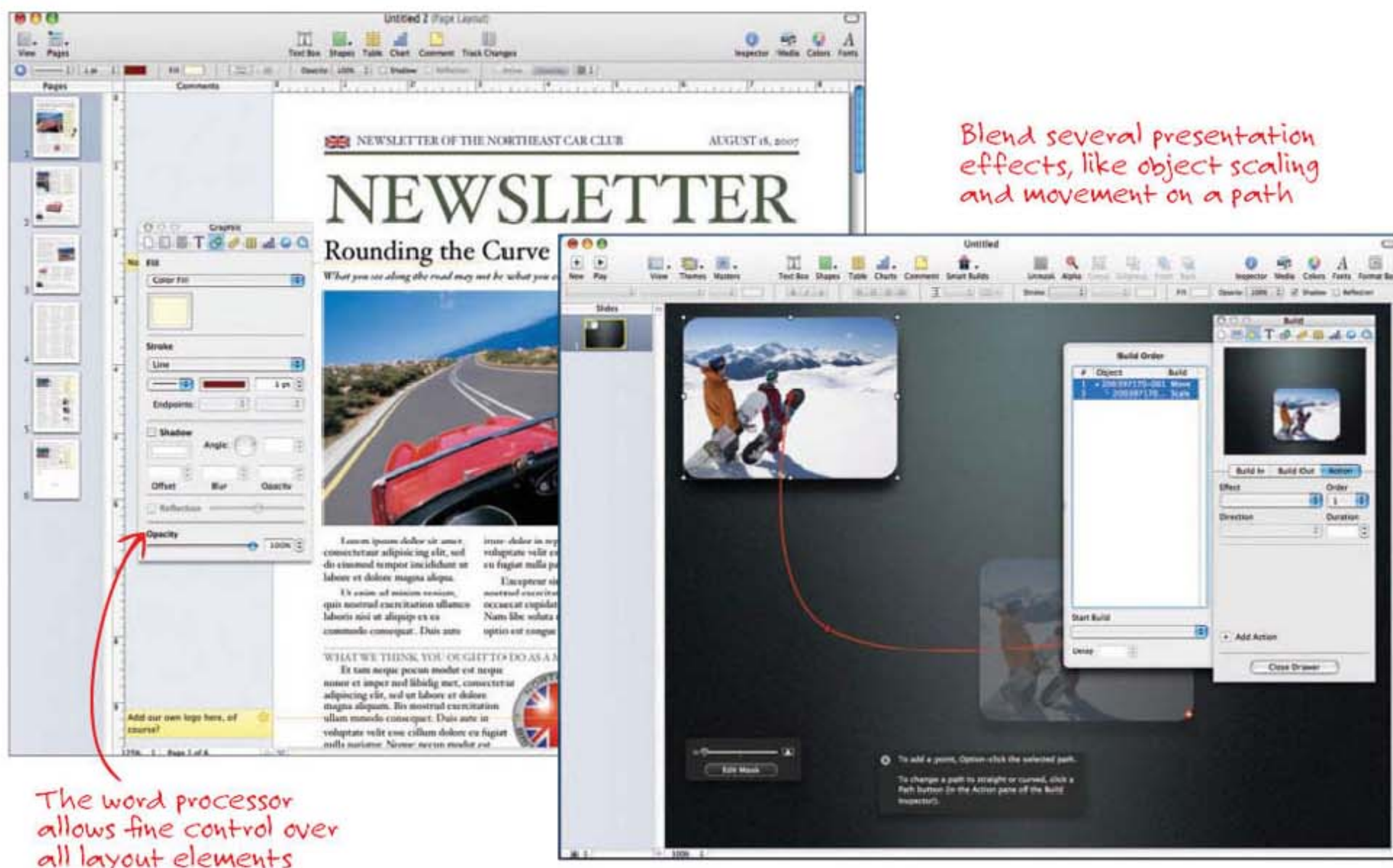
Numbers is the biggest spreadsheet innovation to come along in the past two decades. You create your documents on canvases where you place charts, graphics, text blocks—almost anything in any quantity—in an easily tweaked layout. A panel

shows a tree view that lists the objects on the page, and you can create multisheet files.

Blank Numbers documents look like traditional spreadsheets, but aren't. For example, you can click on the corner of a table and move or resize it. You can add controls to individual cells that let the spreadsheet's users choose a value from a pop-up menu or adjust a value by dragging a slider or clicking on up/down arrows—a feat that's difficult to accomplish in Excel but effortless in Numbers.

The 150 functions in Numbers tables provide all I'm likely to need, but advanced and corporate users will be disappointed to find no equivalent of Excel's PivotTables, and complex Excel spreadsheets generally won't import well. You won't be turning your Excel macros into AppleScripts, either: You can't write programs that create or modify tables. And though charts look beautiful, you won't find the more sophisticated features, such as error bars.

You do get some impressive powers out of the box, however. The 18 supplied templates jump-start budgets, return-on-investment calculations, and other tabular functions. To create a chart, you just select some data, click on *Charts* in the toolbar, and select a type (such as a histogram). The chart appears with all data correctly labeled and lets you apply 3D



effects. As with the rest of the suite, Numbers gains from tight OS X integration: For example, you can build a name-and-address table simply by dragging a group of contacts from the OS X Address Book.

Previously, the Pages word processor was more of a page layout program: Using canned templates, you created newsletters, posters, and other graphics-heavy documents. Now you choose from one of two editing modes when you first create a document. Page Layout mode works much as before: You start from one of dozens of templates or from a blank canvas, then add text and graphics boxes. The new Word Processing mode lets you begin with a template or blank page and create documents in which text flows freely from page to page, as in traditional word processors. Both modes let you insert text boxes and link them so that copy flows from one to the next, and the modes support revision tracking. Pages files transferred to and from Word retain their revision tracking.

You can't build automated templates that prompt you to fill in fields, and compared with Word, Pages has limited capabilities for creating footnotes, endnotes, and tables of contents. Also, the mail-merge feature works only with the OS X Address Book, not with Excel or Numbers data. But Pages outclasses

Word in text formatting because it has access to OS X capabilities, so the application offers advanced typographic features like ligatures.

Keynote finally records spoken narration for a whole presentation, and its graphic enhancements might be enough to dislodge PowerPoint from some Macs. As in PowerPoint, slides can now include animations in which objects move along predefined paths while growing, shrinking, fading, or rotating—but Keynote makes the process easier and more fun. Still, despite nifty graphics features such as transparency effects in videos, nothing in Keynote matches Microsoft's Smart Art feature, which creates easily modifiable diagrams out of text data.

Microsoft Office for the Mac is \$149 for students and teachers and \$399 for everyone else. It includes the Entourage mail client and PIM. By contrast, iWork '08 costs just \$79 and works closely with the mail and information management software in OS X. For long, complex, automated documents, you'll still need Office. But for graphics-intensive home, student, and small-office use, iWork is, in many ways, very much an improvement over Office. And once you've broken out of the grid-only Excel interface by using numbers, you may never want to go back.—Edward Mendelson

**Dell Vostro 200**

\$899 direct (E-Value Code OCbrde2ph)



PROS No extra included software (aside from Google Desktop and Toolbar). Intelligent port covers. Dual-core performance. Large expansion space. Offers 10GB DataSafe online backup.

CONS New model name may confuse new users. No included Internet security software.

For more:
go.pcmag.com/vostro200

DELL VOSTRO 200

Powerful Desktop for Small Biz

It used to be that a small business had two choices: Buy a consumer-rated PC with all the bloatware that comes with it, or go with a corporate-level model and hope you could figure it out without IT support. Now, fortunately, there are business desktops such as the Dell Vostro 200, a mainstream PC specifically tailored for smaller, independent offices.

The newly launched Vostro line comes with "small-business resources" that include an online community, forums, and published case studies. Dell also offers Vostro owners tech support oriented toward small businesses and a utility that lets a support expert troubleshoot your PC remotely. Perhaps even more useful is DataSafe, an online backup service with 10GB of space to back up all your important business documents automatically.

My review system came with Windows Vista Business, but you can opt to ship your Vostro systems with Windows XP, Red Flag Linux, or FreeDOS, whichever is more compatible with your business applications. You can also choose between a minitower desktop and a space-saving slim tower for more crowded desks.

The Vostro 200—at least in the configuration I tested—was plenty powerful, with 2GB of RAM, a dual-core E6320 processor for the multitaskers, and an nVidia GeForce 8300GS graphics card for people who do multimedia work. You can also store plenty of documents on the system's 160GB hard drive and distribute them via a built-in dual-layer DVD burner.

Although I would like to see Dell offer an option for an Internet security subscription (beyond the 60- to 90-day trials bundled with the system), the Dell Vostro 200's decent specs and specialized small-business support resources make it worth keeping in mind for a new office desktop.

—Joel Santo Domingo

Specs: 1.86-GHz Intel Core 2 Duo E6320; 2GB DDR2 SDRAM; 160GB, 7,200-rpm hard drive; 128MB nVidia GeForce 8300 graphics; Windows Vista Business.

PERFORMANCE TESTS

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

	SYSMARK 2007 PREVIEW ▲				
	ELECTRONIC LEARNING	VIDEO CREATION	OFFICE PRODUCTIVITY	3D MODELING	OVERALL
Dell Vostro 200	103	91	130	98	104
Lenovo ThinkCentre M55e*	81	79	78	95	83

* Editors' Choice, reported for comparison.

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on parts and labor. An upgraded
3-year, 24x7, on-site repair with
a 4-hour response is available.
PN: 21P2078, \$600.00



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OR \$69/ MONTH¹

PN: 7979EAU

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3-year on-site limited warranty² on parts and labor. An upgraded 3-year, 24x7,
on-site repair with a 4-hour response is available. PN: 21P2078, \$600.00



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OR \$111/ MONTH¹

PN: 172621E

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EIZO FLEXSCAN S2111W

Stunning Monitor for Imaging Pros

Not your typical 21-inch widescreen monitor, this 1,680-by-1,050-resolution LCD offers outstanding image quality. Just fire up the EIZO FlexScan S2111W and you'll see one of the brightest monitors around, with color and grayscale reproduction perfectly suited to the graphics professional.

The S2111W's superior performance comes from using a Super Patterned Vertical Alignment (SPVA) panel instead of the Twisted Nematic (TN+) film technology in most LCDs. Although the pixel response times of an SPVA panel don't quite match those of a TN+ panel, the SPVA panel does allow the S2111W to display even the subtlest shades of light and dark gray, as well as primary and secondary colors that are vivid and rich in tone. Other EIZO technologies such as Outline and Contrast Enhancers make still images even sharper and more detailed.

Supporting the S2111W is an ArcSwing2 stand, which lets you tilt, swivel, and adjust the height of the screen but not pivot it to portrait mode. Two HDCP-compliant DVI ports and an upstream USB port are located behind the panel.

The S2111W comes with a generous five-year parts-and-labor warranty, but even so, the one-grand price tag is pretty high for the average consumer. For the imaging pro looking for outstanding performance, however, the S2111W is worth every penny. —John R. Delaney

**EIZO FlexScan S2111W**

\$1,099 list



PROS Outstanding image quality. Super bright screen. Five-year warranty.

CONS Expensive. Lacks pivot ability.

For more:

go.pcmag.com/eizos211w

CANON IMAGECLASS MF4690

Compact AIO with Awkward Extras

Here's a printer that comes close to being a perfect all-in-one machine for personal or small-office use. The Canon imageClass MF4690 functions as a standalone copier and fax machine, prints and faxes from a PC on a network, and its flatbed scanner comes with a 35-page automatic document feeder for multipage documents. The MF4690 also offers some relatively rare features: You can scan to a USB key, send e-mails directly from the unit, and forward faxes as PDF or TIFF attachments.

Unfortunately, the poor implementation of these features limits their usefulness. Scanning to a USB key is convenient, but scanning directly to a networked PC would be even better. Setting up the e-mail and fax forwarding features is a tedious process, not clearly explained in the manual and performed using a numeric keypad on the MF4690's front panel.

But even without these extras, the MF4690 provides decent performance for a monochrome laser



250-sheet
input tray

AIO. Its speed on our business application suite was the fastest I've seen in its price class, and the output quality was fine for basic fonts and everyday business graphics. The MF4690 can be a worthy choice for the home or a small office, and even better if you have the patience to put the e-mail and fax-forwarding features to use. —M. David Stone

Canon imageClass MF4690

\$399 list



PROS Small size. Scans to USB key. Standalone copier, fax machine, and e-mail sender. Can forward faxes to an e-mail address.

CONS Can't scan to a PC over a network. Setup for direct e-mail is cumbersome and poorly explained.

For more:

go.pcmag.com/mf4690

DELL COLOR LASER PRINTER 1320C

Color Laser Quality At a Good Price

Though a \$300 color laser printer is no longer quite as exciting now as it was last year when the first one was announced, the Dell Color Laser Printer 1320c has enough speed and quality for it to make somewhat of a splash.

The 1320c has a claimed rate of 16 pages per minute for black-and-white printing and 12 ppm for color, although users will likely leave it on color mode by default. Its tested time of 12 minutes 57 seconds on our business applications suite is substantially faster than that of the HP Color LaserJet 1600, our current Editors' Choice for low-cost color lasers.

Output quality for text is just below the norm for laser printers. A few minor flaws showed up in graphics, but the quality is generally sufficient for handouts, reports, and other internal business needs. On photos, the 1320c's performance is even stronger, approaching photo quality except for a few jagged edges.



37.8 pounds—relatively light for a color laser

Paper handling is limited to a 250-sheet tray

Dell Color Laser Printer 1320c

\$299.99 direct

●●●○○

PROS Low price. Reasonably fast. Reasonably high-quality output.

CONS Limited paper-handling capability. Effective monochrome speed is below the rated speed. Relatively complex setup.

For more:

go.pcmag.com/dell1320c

Keep in mind that setup for the 1320c is a bit more involved than for most printers. You'll have to open the front cover, extract what Dell calls the Printhead Device Unit, remove eight restraining ribbons, then reinsert the device. Once the inexpensive 1320c is set up, though, it can deliver reasonably fast, high-quality printing to a small office.

—M. David Stone

Measures 7.9 by 14 by 15.6 inches (HWD)



OKI PRINTING SOLUTIONS B4400

Print More, Pay Less

At first glance, this personal monochrome laser from OKI Printing Solutions seems a bit more expensive than other entries in its category. But with the B4400's claimed printing cost of 1.9 cents per page—a significant penny less than what most competitors offer—you may save money in the long run if you print enough pages.

Actually, the B4400 uses LEDs rather than true laser technology, but LED printers are similar enough to lasers to be classed in the same category. And although the B4400 is fairly small and light, at 7.9 by 14 by 15.6 inches (HWD) and 22 pounds, its

speed and paper handling are more along the lines of a small-office or workgroup machine. The engine is rated at 27 pages per minute, and the 250-sheet paper tray can be upgraded to 750 sheets.

In terms of output quality, the B4400 comes in about average, if not a bit below. Text printing is good enough for most documents with normal-size fonts, but some flaws in graphics and photo output may keep you from using the B4400 in more professional situations. Do enough printing, though, and the low cost per page could offset a price that's a tad high for its quality.—MDS

OKI Printing Solutions B4400

\$230 street

●●●○○

PROS Small, lightweight. Reasonably fast. Low claimed cost per page.

CONS Although text is highly readable at the most commonly used font sizes, small fonts are subpar for a laser.

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2001



IT ALL CAME CRASHING DOWN

Even before the bursting of the tech-stock bubble and that cloudless, dark day in September, the PC industry was showing signs of maturing. The PC celebrated its 20th anniversary, and Microsoft announced it was dropping support for its operating systems older than Windows 98. Our coverage in 2001 focused on making good use of the Internet: Improving site "stickiness," online accounting services, and privacy concerns all came to the fore.

INNOVATORS Asa Dotzler



In 2001, anti-Microsoft sentiment was at its peak, and many watchers expected the Department of Justice to break up the Redmond giant. It was in this petri dish of discontent that Mozilla coalesced. Formed in 1998 by Netscape, mozilla.org was the most ambitious open-source project launched to date. "The usability and security situation on the Web had really gotten unbearable for most people," recalls Asa Dotzler, one of Mozilla's earliest volunteer contributors. "First it was flashy banner ads, and then came pop-ups, viruses, and spyware. The Web was turning into an extremely hostile environment."

In 2001, the relicensing of the browser's source code began, leading to the release of Mozilla 1.0 a few months later. But the real work had yet to begin. "One challenge was the entrenched monopoly of Internet Explorer," says Dotzler, now director of community development at Mozilla Corp. When the successor to Mozilla, Firefox 1.0, was released in 2004, IE was the browser being used by 98 percent of Web surfers. Today, almost 15 percent of surfers worldwide use Firefox.—*Jamie Bsales*



PRODUCT FLASHBACK

Apple iPod

\$399 list



PROS Slick circular navigation control. 5GB hard drive. IEEE 1394 connection. Merely the size of a deck of cards.

CONS Mac only. Syncs music with only one PC.

BOTTOM LINE If the original iPod were released today, its limitations would doom it to failure. But in 2001, it was portable-music perfection.

Leave it to Apple to come out with the world's coolest—and dare we say best—MP3 player. Its usefulness and simplicity make it a standout product, even for the price. We hope to see a Windows-compatible version in the near future.—*Troy Dreier, December 26, 2001*

Where were you when the tech stocks crashed?

Send your memories and hot stock tips to pcmag@ziffdavis.com with "PC Mag Anniversary" in the subject line.

READERS RESPOND The Clutter in the Closet

Somewhere I still have the floppies with DOS 1.1, 2.1, 3.0, plus SideKick, and Framework, and VisiCalc, and MultiPlan, and Windows/386, and OS/2 1.0 (all the alphas and betas stayed with my erstwhile employers). My first 300-baud modem (a snip at \$200 in 1983) still gathers dust, along with the Hercules Card and the Osborne portable. Oh yes, I still love PCs, and this industry. At least once a week, I boggle at the ridiculously low price of a gig of RAM, or a 500-gig drive, or a modern CPU. Your retrospectives remind me of that. Now I just have to upgrade!—*Arthur Williamson, Johannesburg, South Africa*

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JOHN C. DVORAK

Then There Was One: China

The news that Acer will buy the old-time American PC maker Gateway (along with the eMachines brand that Gateway owns) reduces American computer makers to the Big Three, just as we all predicted back in the early 1980s. The analogy we used back then to explain the PC phenomenon was the automobile industry, and it's still a fitting analogy today. The three major PC makers in the United States are now HP, Dell, and Apple. Apple is the oddball in the group, though less so since its move to Intel innards.

The one interesting aspect to the analogy nowadays is the worldwide configuration of players. We have the Big Three in the U.S. and the Big Two in Japan. Just as

The buyout of Gateway by Acer might be taken as a parallel to the buyout of Chrysler by Mercedes, but how does the decline of the U.S. automobile industry fit into the analogy? What best matches the quality issues that plagued the U.S. industry during the 1970s and 1980s, the era when the Japanese benefited the most? Is it possible that the Japanese won't benefit at all in the computer industry, since most of the machines from U.S., Japanese, and Chinese companies are actually made in the People's Republic?

Can you imagine an automobile industry where all the cars came from just a single nation? Just imagine what it would be like if all Fords, Chryslers, Toyotas,

problem is that the best-price approach to everything is often at the expense of the best quality.

The idea of advertising is something foreign to most Chinese companies, and I sense it pains them to advertise at all. But a new breed led by Lenovo is emerging from the mainland. Lenovo actually advertises its products and, more important, uses very stylish designs. The first time I visited a Lenovo booth at a trade show, I was impressed by some of the cool-looking products.

The problem I see developing is that once the Chinese get a real clue about marketing, no country will be able to compete with them except as a sales conduit. The one thing the general public doesn't quite realize—despite all the “Made in China” labels—is that almost all of our electronic gear is made in China. In fact, most laptops and desktop computers are made in one or two massive and highly integrated factories in China.

Though complaints about slave labor, cheap labor, and child labor proliferate, the real players are moving to robots in their manufacturing facilities. Sure, you can get plenty of handmade products from China made by cheap labor, but in electronics, more and more operations are becoming automated. Curiously, we could use the same automation in the U.S. if we wanted to. But apparently, we'd just as soon let the Chinese do the manufacturing, while we do the selling.

This is where we depart from our automobile analogy. At least with cars, the nation seemed to know it was important to produce them here just to keep an industrial base at work. Apparently, with electronics and computers, we just don't give a damn.

Can you imagine an auto industry where all the cars come from a single nation? Just imagine all the Fords, Chryslers, Toyotas, and Mercedeses coming from a factory in China. That is essentially what has happened to the computer business.

there are Toyota and Nissan in cars, there are Toshiba and NEC (even the letters T and N match, no?) in PCs. And, of course, there are numerous smaller players in the PC industry. In the automobile analogy, Sony with its laptops would match Honda with its small cars.

What's missing from this picture? The Europeans. Where are France, Germany, and Italy in computer manufacturing? They are not represented in the analogy. Instead, all that could be European has moved to China. Instead of Mercedes, Renault, or Fiat, we have Lenovo and Acer and whoever else shows up on the China scene. Has anyone in Europe noticed this disaster? An entire and massive industry has no real manufacturing foothold in Europe.

and Mercedeses were made in a factory in China. That is essentially what has happened to the computer business. The big three American computer manufacturers have two things in common: They use x86 processors made by Intel or AMD, and the machines are all made in Asia—in China for the most part.

At first, the Chinese were glad to make machines for all the various brands, but then they decided to develop their own brands and cut out the middleman. Luckily, their marketing prowess focuses on one thing: best price. It's amusing to ask reps of Chinese companies about their marketing strategies. “Best price,” they'll say. Ask them why their product is better than the competition: “Best price.” The

DVORAK LIVE ON THE WEB John's Internet TV show airs every Wednesday at 3:30 EST on CrankyGeeks.com—and you can download back episodes whenever you like.

Dvorak's InsideTrack

The Plot Thickens Dept.: The competition between HD DVD and Blu-ray took a surprising turn recently, as Blu-ray jumped ahead by landing some huge accounts and outselling HD DVDs by a factor of 2 to 1. Then boom, out of the blue (as it were), Paramount **decides to dump its support** of Blu-ray and switch over to the HD DVD camp. I found this to be peculiar, since Paramount was the only movie company that showed any marketing interest in either technology. Both sides put on great dog-and-pony shows with zero follow-up. I've been to these events over and over, and it's kind of funny. But Paramount **actually mounted a promotional campaign** for Blu-ray that I think was having an impact. The talk around town is that some behind-the-scenes deal derailed the whole Paramount-Blu-ray relationship.

The battle is **getting ugly**. And among this crowd there was talk of a special **combo disc** with a Blu-ray movie on one side and an HD DVD movie on the other, which seemed like more trouble than it was worth. I'd prefer a good combo player.

Lame Excuses Dept.: I wonder how many of you out there were laughing out loud over **the weird excuse** the Skype folks were making for the service's dying for two days. They claimed that so many **people had rebooted** their computers after downloading a Microsoft patch (upon rebooting, the computer pings Skype automatically to reconnect) that the Skype servers overloaded, and **the whole system collapsed** because of it. As if that excuse was to be believed. First of all, what had really changed, since Microsoft is upgrading constantly? After a few days of **endless hounding** by the media, the Skype folks relented and took full responsibility. Ha.

Sprinting Ahead Dept.: Shortly after I berated the wireless scene and said that the WiMAX standard was toast, Sprint announced that it would bring back its wireless initiative and use WiMAX as the base technology. Hey, I never said toast was a bad thing. **I like toast**. Yum. In the meantime, people on the WiMAX forum complained bitterly that I would ever suggest that the standard was going nowhere.

The fact is, if Sprint rolls out its wireless **Internet service**, to be called Xohm, we should adopt it like crazy. I used the original Sprint Broadband connection service—which was point-to-point—and found it to be a decent way of bypassing the telcos and the cable companies. Sprint discontinued the old system and was supposed to have a better one in place long ago. Xohm is apparently it. With WiMAX, Sprint will not need the **point-to-point** technologies, and the speeds it's discussing hover around **70 Mbps**. I could go for that. If Xohm delivers 5 Mbps, it would be better than DSL. I think 30 Mbps is the sweet spot, since all the IPTV folks say this is where you can begin to add new services without affecting normal online activity.

It seems as if the service will be named Sprint Ahead! It is supposed to be **rolled out in Chicago** and D.C. by the end of this year and in the rest of the country in 2008. If priced right, it should help drive connectivity prices down. I'd use it.

So Will Microsoft Buy Yahoo!? Dept.: I don't know why this keeps cropping up in the conversation, but it does, and people go on and on about how great it would be for both companies. I'm thinking that it would be great too: It would be a **fun-to-follow fiasco** for so many reasons, not the least of which is **the redundant products** (search, free e-mail, groups, and more). My question is, why buy the company when you can buy the key executives for less money? But I was also a skeptic regarding HP's purchase of Compaq. Redundancies were thematic.

Microsoft has to do something to get life back into the company, as it now seems to be in the shadow of Google. Can it buy a buzz?

Trojan Horse Trickery Dept.: I was amused that the job search site Monster got raided for e-mail addresses and who knows what else from the database. Most hacks like this are done through the installation of a Trojan or code that gives you **remote access and control**. Now it is expected that the users of the service will be **scammed** somehow. I find it disturbing that the lowlife spammers are going after people who are **probably unemployed** and looking for work. Sick.

People should be particularly aware of the **new pop-up scam** where the window controls are changed so that when you click X to close the window you are actually clicking on OK to install some onerous software. Good active antivirus and antispyware software should catch this error, but most people are probably vulnerable. The software that gets installed is usually a Trojan, and your machine is turned into a spambot. Do us all a favor and **unplug the Internet** at night!

Interesting but Obvious Research Dept.: IBM, of all companies, has released a report saying that the TV **is no longer** the main media-service device. In other words, people are watching less TV and going online or listening to Apple iPods or whatever. I know my TV viewing is way down from years ago. I spend more time on the Internet than watching TV simply because the Internet is **more entertaining**. There seems to be some sort of talent drain away from TV, and I assume it is because the networks are all run by bottom-line accountant types who are just not paying enough for high-quality skill sets. It's amazing to **watch all the botches** that take place with live TV. Heck, if we are going to watch low-paid amateurs in broadcasting, we may as well watch low-paid amateurs on the Net.

WANT MORE DVORAK? John writes a weekly column for our Web site, too. Log on to go.pcmag.com/dvorak. Or you can e-mail him at pcmag@dvorak.org.





JIM LOUDERBACK

My Guide to Social Networks

Suddenly it seems everyone's gaga about social networks. I don't know about you, but every day my inbox overflows with invitations from "friends" to add me to their buddy lists. It's become a new sort of spam. Oh, and the bad guys have caught on, too. Now, in addition to legit messages from fake friends, I'm getting fake messages from hackers. And that's more than annoying. That's downright dangerous.

Social networks can be helpful and fun. Some let you rub elbows with celebrities; some help you advance your career. Walk into others, though, and you'll be slum-

for fun; you go to suck up to clients and your boss by buying them exotic martinis and first-growth Bordeaux. LinkedIn is like that. It's a great place to further your career. Just don't expect to have any fun.

Plaxo

At least Morton's has good food. When I worked on Wall Street, I used to hang out at this dive bar called Liquid Assets. I'd wake up the next morning with a headache and stomach cramps, along with a pocketful of business cards from my new best friends—sketchy characters I'd never want

was tiny, tawdry, and very exclusive. But if you were invited once, you were in forever. Oh, and because it was so small, it sheltered no secrets—everyone heard everything you talked about. After a late night there, I wasn't sure why I went, didn't remember what I did, and promised myself I'd never go back. But something seductive kept drawing me in, night after night. Pownce is like that. Founded by Web wunderkind Kevin Rose (whom I work with at Revision3), it's where the super-cool Web 2.0 kids hang out now—if they can get in.

Twitter

Did you ever attend open-mike night at a comedy club? Twitter is like that. Everyone gets on stage but can only say 25 words. Sure, it's inane and superfluous, but as with Skittles and Doritos, it's impossible to eat just one. And it's as nourishing as a mouthful of cotton candy.

Facebook

I used to live near a bar called Lucy's in Manhattan that was a great, quiet place for a cocktail—until suddenly everyone wanted to go there. Its unique combination of surf culture, fruity drinks, and plastic animals became an unbeatable combination that spelled fun. That's Facebook today. But crowds can be fickle. Lucy's stayed hot for years, then suddenly it just faded away. Facebook could suffer the same fate.

My advice? Stop by Facebook now and check it out, but be ready to jump on the next big thing. Use LinkedIn for your career. Oh, and try to wrangle an invite to Pownce, just to feel all superior and smug. But beware of those invites from strangers to a service you've never heard of. It'll be like following a stranger down a back alley after midnight. You might get lucky, but chances are you'll just get rolled.

KEEP IN TOUCH Contact Jim Louderback at Jim.Louderback@ziffdavis.com. For more columns: go.pcmag.com/louderback.

Stop by Facebook now, but be ready to jump on the next big thing. Use LinkedIn for your career. Oh, and try to wrangle an invite to Pownce, just to feel all superior and smug.

ming with those nebbishes from middle school. In fact, social networks are just like posh nightclubs, swanky lounges, and dive bars. But how can you tell what's real? Here's my guide to the best—and worst—of today's social networks

MySpace

Remember that first college bar? Mine was called the Bone. We packed in like lemmings for cheap pitchers of bad beer. By graduation, however, I shuddered at the hazy memories of cheap benches, tacky floors, and bad food. MySpace is the Bone of social networks. Great for beginners, but horrifying today. Unless you like playing quarters, stay away.

LinkedIn

Did you ever go to the bar at Morton's Steakhouse? Decorated in early-American Man Club, there's a lot of wood paneling, leather, and dark lighting. You don't hang out there

to meet in the light of day. Plaxo is like that, but without the bad food.

Orkut

When I was in high school, a girlfriend's brother was the bouncer at the original Studio 54. He would sneak us into the oh-so-exclusive nightclub, where we'd ogle movie stars and dance the night away with Eurotrash posers. When I finally moved to New York years later, the club had suffered the same fate as Yogi Berra's old hangout: "Nobody goes there anymore, it's too crowded." Google's social-network experiment Orkut is like that. It used to be the playground for cool Web kids. Now it's overrun with, oddly enough, Brazilians.

Pownce

I remember when I first heard about the Candy Shop. Tucked behind a real candy store in New York's SoHo, it opened around 4 a.m. and closed sometime after sunrise. It

[illegible]



DAN COSTA

This Is No Video Game

Orson Scott Card's sci-fi classic *Ender's Game* is practically required reading for high-school students these days, and that's probably a good thing. Just like the book's Ender Wiggan, today's young people are being trained to wage war by playing video games.

This past summer Hezbollah, the Lebanese-based Islamist paramilitary group, released *Special Force 2*, a first-person shooter based on its pointless 34-day war with Israel in 2006. In the game, players are asked to destroy Israeli tanks and launch Katyusha rockets at Israeli towns. Hezbollah even held a launch party in Bei-

the resistance to children: that occupation must be resisted and that land and the nation must be guarded."

The news coverage about *Special Force 2* elicits two responses from the American public. The first is something like, "Wow, they can make video games over there?" To which the answer is clearly yes. In fact, they've been doing it for years. (The original *Special Force* came out in 2003, but no one cared because the graphics were hopelessly unrealistic, even for jihadists.) The second response is, "Whoa, what kind of morally bankrupt society would produce such a product and then sell it to

Xbox version is launching this fall. Knowing it is under the microscope, the developers of America's Army avoid re-creating specific real-life battles—don't expect to see the Battle for Tora Bora anytime soon. But although the Army takes pains to talk up the team-oriented, values-driven nature of the game, there is still a fair amount of running and gunning. For what it's worth, America's Army kills *Special Force 2* when it comes to pure polygons-per-second graphics power.

Of course, the private sector, too, wants to profit from virtual warfare. Kuma Reality Games specializes in re-creating real-world battles drawn from recent news events. The company often uses stories from soldiers and satellite maps handed over by the U.S. military to build its scenarios. From the infamous "last stand" in Mosul of Saddam Hussein's sons Uday and Qusay to a brutal assault on a Baghdad police station that left 17 Iraq officers dead, the game is ultrarealistic. Kuma's Web site urges readers: "Stop watching the news and get in the game!"

Maybe this phenomenon isn't very different from re-creating Omaha Beach in *Medal of Honor*, or *Law & Order*'s "ripped from the headlines" formula for its weekly episodes. Maybe it is just following too closely on the heels of the events, or is too real, or too unreal. Or maybe it is just in extremely bad taste. We are playing games on virtual battlefields before the blood has dried on the real ones.

Kuma's perspective is pretty straightforward, and its tagline doesn't do anything to obscure it. "In a world being torn apart by international conflict, one thing is on everyone's mind as they finish watching the nightly news: 'Man, this would make a great game.'"

Maybe, but that isn't a game I want to play.

VOICE YOUR OPINION Debate Dan on this topic at go.pcmag.com/costa.

"What kind of morally bankrupt society would produce such a product and then sell it to kids?"
To which the answer is: a society a lot like ours.

rut for the game's release, decorated with disabled tanks and Israeli helmets captured during the conflict.

Hezbollah has gone to great lengths to declare the war a victory for its side. Most estimates put the death toll at 158 Israelis, mainly soldiers. More than 1,200 people, mostly civilians, were killed in Lebanon.

But that is in the real world. In the game, the more Israeli soldiers you kill, the more weapons and points you get. And whoever gets the most points wins. Evidently, *Ender's Game* has been translated into Arabic.

If this sounds like a blatant propaganda tool for reaching a new generation of potential militants, it is. And a statement from Hezbollah's media official makes the game's purpose clear. Oh yes, Hezbollah has a media official. In fact, it has an entire Internet division dedicated to getting its message out to the world and attracting supporters. The official, Sheikh Ali Daher, said, "This game presents the culture of

kids?" To which the answer is: a society a lot like ours.

Let me confess here and now, I really like first-person shooters. I remember acquiring a prerelease copy of *Doom* on floppy disk in 1993, rushing back to my PC, and then blasting away at demons well into the night. I may have lost a step or two since then—I don't tend to last too long in online Halo tournaments—but I can still kill hours playing *Medal of Honor* or *Resistance: Fall of Man*. Even so, there comes a time when we should take a hard look at the implicit—and explicit—messages in the games we play.

Besides, it isn't as if we didn't beat Hezbollah to the video-game-as-recruitment-tool party. U.S. taxpayers paid for the development of the U.S. Army's official game, *America's Army*, a tactical multiplayer first-person shooter. Since it launched in 2002, AA has been downloaded 40 million times, and it now has more than 8.5 million registered users. An



SASCHA SEGAN

Kneel Before Xohm

Does Sprint actually get it? Pardon me for blinking, batty-eyed. I'm just not used to a wireless carrier getting it, it being the wild, world-changing ride that the Internet has been, driven by open access and open standards.

Yet now we have Xohm: Sprint and Clearwire's new WiMAX service. Xohm may die simply because Xohm has one of the worst names in the history of consumer electronics, right up there with ooma (a phone service) and the iYiYi (an AM/FM iPod dock). Xohm is finally coming to a city within about 1,000 miles of you early next year. Just for clarification, you pronounce it *zome*. Nothing that needs a

compliant nature of Wi-Fi with the long range of cellular Internet, or at least that's what Sprint wants us to believe. Sprint promises that it will pop up in 50 million gadgets by 2010.

This is not about cell phones, and it isn't about laptop cards and a DSL alternative. It isn't even about VoIP upsetting all of the wireless voice apple carts. WiMAX shouldn't be seen as "an upgrade to 3G" or "like wireless DSL." With any luck, the cheap devices, open nature of the network, and high bandwidth will create entirely new uses.

PCs could be at the hub of all of this, provided home servers get a *lot* easier

If Sprint resists the temptations of the tyrannical phone-company mindset, it could finally bring the Internet to absolutely everything. That's a future worth looking forward to.

pronunciation key should be allowed to survive in the world of technology, but I digress.

Xohm, ideally, means Internet everywhere in everything. With the help of \$20 WiMAX chipsets, digital cameras could (hopefully) Xohm their pictures directly to Flickr. Camcorders could Xohm video streams directly onto the Net. Cars could Xohm Internet radio stations and podcasts. Podcasters could Xohm on location, directly from wireless microphones up to their sites. Handheld Nokia Internet tablets could Xohm an infinite amount of children's programming from your home server into the backseat of your car, to shut up the kids.

Wi-Fi devices promise a lot of that already but can't deliver because of the current patchwork nature of hot spots. WiMAX combines the cheap, standards-

to configure. There's really no reason to rent online storage when it's so cheap to own. Most home networks, though, are hidden behind a confusing maze of NAT problems and ISP IP address assignments. And if you open up your home server to the Internet, you open it up to all the script kiddies who want to hack into it, too. I'd still love to have a toaster-size device with modular, multi-terabyte storage for my Xohm-uploaded videos.

At a big powwow in Virginia recently, I heard Sprint executives say all the right things about making Xohm open to anyone who wants to create devices and applications for it. That could encourage a lot of very cool uses, like the ones I listed above. But during lunch afterward, I came up with another fear: Xohm will be cheap, and Xohm will be open—but will Xohm be neutral?

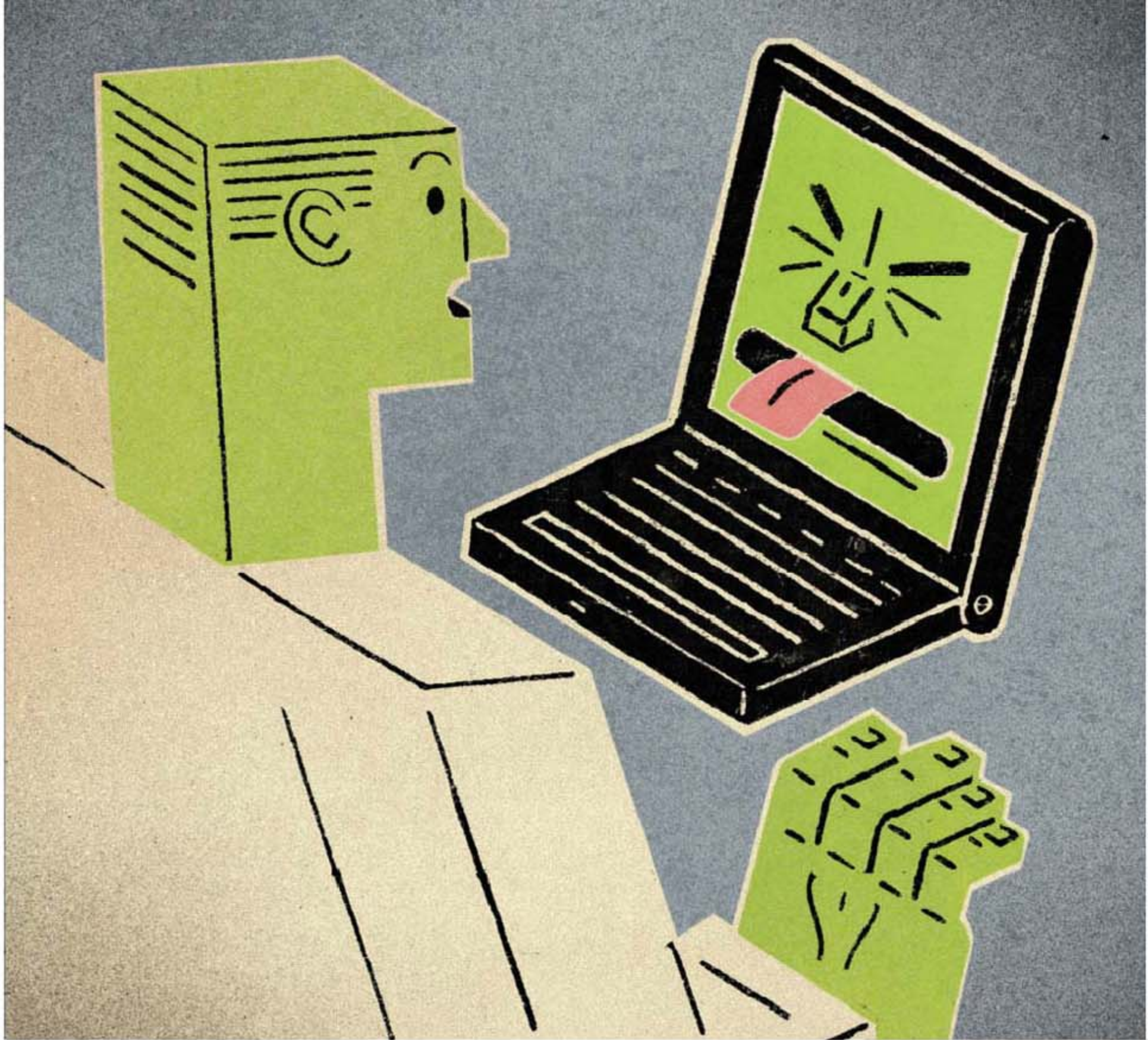
Yup, here we go with Net neutrality again. Though the general Internet started out neutral, Xohm may never be. That would be dangerous. If Sprint starts playing favorites—giving people lots of Xohm to Picasa but only a little bit of Xohm to Flickr, or cutting off Skype out of sheer spite—it endangers the attractiveness of the network to the huge ecosystem of developers and manufacturers who are key to creating it. Nobody likes a bully, and nobody wants to play with one, unless forced to do so.

VoIP services may be the canary in the oppressive mine here: If Sprint can't resist the temptation to strangle VoIP competitors, it will have slipped down the slope toward evil. Sprint is the best of the wireless carriers when it comes to understanding the PC/Internet mentality. It allows third-party Java applications on its handsets and sells devices with unlocked GSM SIM slots—but it's still a phone company, after all.

Xohm needs competition, too. I don't think relatively slow, thinly financed municipal Wi-Fi will be up to the challenge. The wireless guys have technologies coming up around 2010 called UMB (ultramobile broadband, Verizon) and LTE (long-term evolution, AT&T), but they're a ways off. Anyway, I haven't heard anything about an open Internet mentality from either of those companies. If Google manages to get a chunk of the 700-MHz spectrum this year, it could turn out to be a real spoiler, but it'll also be a few years behind.

So here's rooting for Xohm. If Sprint resists the temptations of the tyrannical phone-company mindset, it could finally bring the Internet to absolutely everything. That's a future worth looking forward to. But it should still change the name.

MORE SEGAN ONLINE Check out Sascha's latest PC Labs-tested and rated reviews of mobile gear at go.pcmag.com/pdas and go.pcmag.com/cellphones.



Is Tech Support Getting Worse?

INSIDE

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If your desktop, notebook, or printer heads south, will your manufacturer be able to help? For our landmark 20th annual survey, over 16,000 readers told us who's tops in tech support. *by Eric Griffith*

HIGHLIGHTS FROM OUR SURVEY

It's not enough to just buy a new computer with great specs and good looks. You need to know if the manufacturer will stand behind its product, be it your always-powered-up desktop, your travel-abused notebook, or the ink jet printer that delivers something to hang on the refrigerator. For almost 20 years *PC Magazine* has asked our readers to rank the vendors they use, and this year is no exception.

We received detailed information from users of 20,690 PCs, both desktop and notebook, as well as over 21,000 printers running the gamut from inexpensive color ink jets to color lasers with integrated scanners and fax capabilities, or AIOs (all-in-ones). A lot of the top-rated players remain the same—hello, Steve Jobs!—but you may be surprised at some of the vendors that are clawing their way to the top of the Reader Satisfaction Survey ratings.

Even more telling may be the scores that have gone down this year. And most of them did. Why? What's changed? And what should you be watching out for? Before you buy, read this essential guide to make sure the vendor you're considering will give you the same consideration in return.

Desktops

We admit it. Sometimes from year to year, not much will change amid the scores the big-name PC vendors receive in this survey. Readers shook things up this year,



Boutique desktop makers (Cyberpower, Velocity Micro, and Systemax) enter list with decent ratings.



Average reliability of Windows desktops and notebooks is down.



Notebooks and printers less than a year old have higher overall and reliability scores than older ones.



Desktop vendors eMachines and Lenovo drop from 2006.



Gateway support, repairs, and recommendations for notebooks all improved from 2006.

however, adding companies that have never made the desktop list before (Acer, Cyberpower, and Velocity Micro) and adding back one that didn't make the cut last year (Systemax) despite a good showing in 2005.

Velocity Micro is the company to watch. It swept in with the highest overall score among Windows PC manufacturers, 8.6 out of 10. Systemax also did very well with an 8.2. Only Apple and Gateway managed to keep the same overall score as last year.

Every other company from the 2006 list fell in terms of service and reliability, a couple of them substantially: eMachines went from 7.8 to 7.4, Lenovo from 7.4 to 7.1. They

had the worst scores in the group. Why are readers so grumpy this year? Simply put, more and more Windows PCs require tech support just to set them up properly or, worse yet, require a full-on repair.

Still, the average overall score for Windows-based desktop PC makers is 7.8 out of 10, the same as last year's. That's down from 7.9 in 2005. The reason the average stayed up is that new entries like Velocity Micro and Systemax kept it up. Without them, it would have been 7.6. (For this score we don't count the nonbranded, self-built PCs or clone/white-box PCs.)

Of course, no Windows machine comes close to Apple's 9.1 overall score. But even Apple was down from last year in just about every category except technical support, which went up to 8.4 points. Apple's high marks extend even into areas we don't have room to print charts for, such as the 85 percent rating for the reliability of software included on the computer (aah, iLife), the 93 percent score for new desktops working right out of the box, and the 9 out of 10 score for the attitude of the tech-support provider. Even the Apple.com Web site gets kudos for how much information it makes available.

The big loser this year, at least compared with previous years, is Sony. Last year you gave the company a Readers' Choice recommendation, but the drops in score and increases in repairs needed pulled it out of the running for 2007. Read-

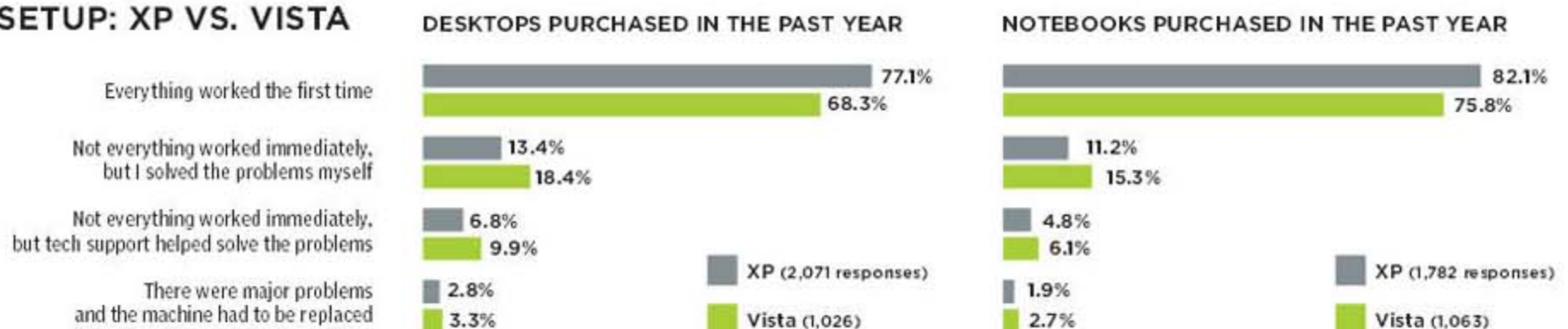
VISTA SETUP WOES

You can't have a problem in the world today without someone to blame. With reliability down across the board for Windows desktop and notebook PCs, the obvious place to lay the blame, at least with newer computers, is with Microsoft's Windows Vista OS.

At first we didn't think we could. Windows PCs purchased over the past six months, split pretty evenly between Win XP and Vista, had just about equal scores for satisfac-

tion. But a closer look at the initial setup experience shows that it is much worse with Vista desktops: Only 68.3 percent of Vista users said everything worked fine on the first try, compared with 77.1 percent of XP buyers. Vista users did fix more initial problems (by themselves or with tech support's help) than XP users did—but that's because Vista created more problems that required a fix. Notebook users had similar results with Vista versus XP.

SETUP: XP VS. VISTA





ers didn't find the software Sony includes as reliable (though Sony wasn't alone there; HP's software is also considered less reliable). Sony also didn't get enough responses for desktops less than a year old to be included in that part of the chart, which made us wonder if the Japanese giant is losing market share.

Reliability

The biggest problem readers told us about: The overall reliability of Windows PCs is down. For example, last year, MPC received an 8.3, the best reliability score among those manufacturers preinstalling Windows XP. Its 8.0 this year doesn't inspire as much confidence.

Velocity Micro once again surprises with a very fine showing of 8.6 for reliability—higher than any other Windows PC vendor's score, this year or last. That's even higher than the reliability of desktop PCs self-built by the reader technorati. Those savvy readers gave their own handcrafted systems an 8.5 score. And the score of 8.6 for likelihood of recommending shows their confidence in their own skills.

Likelihood of Recommending

The rumors are true: Even Windows users sometimes recommend Apple's Macintosh computers. And the numbers show that people already using Macs almost always recommend Macs. The score of

Desktops | Apple

What's left to say? If you buy a Mac, not only will you in all likelihood love it, but you're also going to recommend it to your friends while enjoying all the time you can spend not fixing it.

Desktops | Velocity Micro

Despite over 25 percent needing tech support of some kind, readers gave this new addition to the Readers' Choice list a lot of high marks. It's the next-best thing to building your own.

9.4 out of 10 for Apple is the highest ever seen in any of our surveys. And this significantly better-than-average score goes for Macs under four years old (our cutoff date for computers in the survey).

The only Windows PCs that come close? Self-built. Those who roll their own think everyone should. Though there's a lot to be said for knowing all of your components inside and out, there are plenty of people with no desire even to open up the case. For them, Velocity Micro scores highest again, with a better-than-average 8.3 score. Last year MPC was close, with 8.2 out of 10 in the recommendation category, but the company has stumbled sharply since last year, to 7.5.

Behold the power of a household name, as the overall scores of the vendors don't always correspond with the likelihood someone will recommend them. Dell and

HP don't have great overall scores, but still manage a good likelihood of recommendation. Likewise, relative unknown Velocity Micro's recommendation score doesn't equal what it got overall. Apparently, word of mouth isn't the best way to find a reliable computer these days.

Percentage Needing Repair

This is getting a little ridiculous. For 6 of the 12 companies listed, more than 20 percent of the desktops reported on needed repair! That includes an all-time high of 28 percent for Cyberpower, 27 percent for MPC (more than double last year's repair rate), and 26 percent each for Systemax and Velocity Micro.

Just as bad were those systems we call "clones," the white-box PCs purchased from no-name or local vendors. Twenty-eight percent of those computers had to go back for a fix, the same percentage as last year. Even self-built systems didn't fare too well, with 24 percent needing a fix.

Apple's repairs also were up, from 8 to 10 percent year-to-year, but that's still the lowest on the list. Only Acer comes close to Apple's low repair rate, with 13 percent.

Work and Home

Apple once again has top honors in both the business and home PC categories, making especially nice gains in the overall score for business and likelihood of being recom-

INSIDE VELOCITY MICRO

Breaking Rules Is Rule #1

Indicative of Velocity Micro's attitude regarding customer service is that minutes after I finished discussing this very topic with president and CEO Randy Copeland, one of his tech support specialists called me, prepared to carry the discussion even further. Copeland says Velocity Micro's greatest strength lies in the caliber of his phone support staff. He keeps that quality high by seeing to it that they all do double duty. "The person who answered probably also works on the production floor," he says. The 20-person support staff is also the in-house repair team. The company has no outsourced or even off-site support agents taking calls. Copeland says that "they're in-house, well paid, [with] low turnover."

Velocity Micro has used proprietary diagnostics to troubleshoot user systems remotely for a couple of years, hunting for both hardware and software problems. "I don't think we give an inch to any multinational [competitor]," Copeland says. He himself doubles as senior product

designer and takes support calls when needed. He says that using off-the-shelf components is key in building systems that are easy to fix and maintain.

If there's anything that could be Velocity Micro's undoing in the future, it could be too much success. The company has outgrown two phone systems in the past year. Yet differentiating through its responsive support, rather than copying those that went before, remains its goal.

Take the "concierge desk." Copeland says he aims to staff it with "people who are better at handling issues and breaking rules." To this end he advertised for concierges within the hospitality industry. You can vent at them or make requests—and sometimes they'll even give you something extra, if you've made a good case for it. You might end up talking to the top tech, or moving up the queue for shipping. "We wanted total customer service there, not just techs," says Copeland. "Breaking rules is important in that job."

mended for an office. The work numbers are just two-tenths of a point shy of equaling the home scores, putting to bed forever the ridiculous, ancient argument that Macs aren't suitable for getting real work done.

Sony should stick to what it does best: making products for consumers. Thirty-six percent of its (few) office desktops needed to be fixed, whereas it turned in relatively strong marks in the home space. eMachines, not a brand one tends to think of for the office, managed a pretty strong showing in the business category—stronger than its results for home, in fact.

As in last year's ratings, Dell managed to score better with home machines than it did overall—and its overall score was better than its rating for business desktops.

Notebooks

A lot of companies make both notebooks and desktops. Alas, few do both well. For example, Lenovo/IBM scores terribly with desktops yet does very well with laptops. Apple is the exception, as usual. Scores for the Cupertino, California-based company in both categories are outstanding.

Apple's overall notebook scores are, in fact, identical to last year's, with the exception that it has fallen one-tenth of a point (to 8.4 out of 10) in tech support. This year enough readers volunteered info to give Apple a score for the quality of its repairs; at 8.1, it's still eight-tenths of a point better than the nearest repair score. And readers scored Mac notebooks a full 100 percent for ease of setup. Simply amazing.

Where does that leave Windows notebooks? All the vendors garner what we consider "very good" overall scores, ranging from 7.0 (Averatec) up to 8.4 (Fujitsu). With the exception of Fujitsu, Gateway, and HP (the latter two with 7.8), all Windows notebook manufacturers' overall scores are down. Averatec fell the most, from 7.5 to 7.0; Acer did only a bit better, going from 7.9 to 7.5. There were no new vendors added to the notebook list this year. With mostly lower individual scores, the overall average score for Windows notebooks dropped to 7.8 from 8.0 in 2006. Clearly, readers are less happy this year with their computers.

Particularly worth mentioning is Dell. The company unquestionably leads in market share among our readers (see the sidebar). Yet Dell never quite makes it as a leader in our Annual Reader Satisfaction

DESKTOPS

- ▲ Significantly better than average*
- ▲ Better than average**
- Within the average range
- ▼ Worse than average**
- ▼ Significantly worse than average*

RED denotes Readers' Choice.

	OVERALL SCORE*	POOR (1-2.4)	FAIR (2.5-4.4)	GOOD (4.5-6.4)	VERY GOOD (6.5-8.4)	EXCELLENT (8.5-10)	RELIABILITY	TECH SUPPORT	REPAIRS	PERCENTAGE NEEDING REPAIR	LIKELIHOOD OF RECOMMENDING
ALL DESKTOPS											
Apple (501 responses)	9.1 ▲						9.2 ▲	8.4 ▲	7.8 ▲	10% ▲	9.4 ▲
Velocity Micro (70)	8.6 ▲						8.6 ▲	—	—	26% ▲	8.3 ▲
Self-built (3,934)	8.3 ▲						8.5 ▲	—	—	24% ▲	8.6 ▲
Systemax (73)	8.2 ▲						8.3 ▲	—	—	26% ▲	8.1
MPC (51)	8.0						8.0	—	—	27% ▲	7.5
Sony (350)	7.9						8.0	6.5	6.5	19% ▲	7.6
Cyberpower (57)	7.8						7.5	—	—	28% ▲	7.3
Gateway (719)	7.8						7.9	6.5	6.3	19% ▲	7.7
Locally built/clone (711)	7.8						8.0	7.7 ▲	7.6 ▲	28% ▼	7.5
Dell (5,797)	7.7 ▼						7.9	6.7	6.7 ▲	18% ▲	8.0 ▲
Acer (104)	7.5						7.6	—	—	13% ▲	7.2
HP (2,912)	7.5 ▼						7.7 ▼	6.3 ▼	6.2 ▼	19% ▲	7.7 ▲
eMachines (368)	7.4 ▼						7.7	6.7	6.8	21% ▲	7.6
Lenovo/IBM (309)	7.1 ▼						7.6 ▼	7.0	6.6	18% ▲	6.6 ▼
Avg. of Windows PCs	7.8						7.9	6.6	6.5	21% ▲	7.6
BUSINESS											
Apple (146 responses)	9.0 ▲						9.2 ▲	—	—	10% ▲	9.3 ▲
Self-built (797)	8.1 ▲						—	—	—	—	8.5 ▲
Sony (64)	7.9 ▲						8.1	—	—	36% ▼	7.5
eMachines (67)	7.6						8.0	—	—	21% ▲	8.0 ▲
Dell (2,747)	7.5 ▲						7.8	6.9	6.7 ▲	19% ▲	7.9 ▲
Gateway (238)	7.5						7.8	6.9	—	20% ▲	7.4
Locally built/clone (267)	7.5						7.9	7.9 ▲	7.7 ▲	25% ▲	7.4
HP (1,022)	7.1 ▼						7.5 ▼	6.4 ▼	6.0 ▼	19% ▲	7.3
Lenovo/IBM (226)	6.8 ▼						7.4 ▼	7.0	—	17% ▲	6.2 ▼
Avg. of Windows PCs	7.4						7.8	6.8	6.3	22% ▲	7.4
HOME											
Apple (355 responses)	9.2 ▲						9.2 ▲	8.3 ▲	—	10% ▲	9.4 ▲
Self-built (3,136)	8.4 ▲						—	—	—	—	8.6 ▲
Dell (3,047)	7.9 ▲						8.0 ▲	6.5	6.8 ▲	18% ▲	8.1 ▲
Gateway (480)	7.9						8.0 ▲	6.3	6.1	19% ▲	7.8
Locally built/clone (444)	7.9 ▲						8.1 ▲	7.6 ▲	7.6 ▲	29% ▼	7.5
Sony (286)	7.9						8.0	6.4	—	15% ▲	7.6
Acer (72)	7.8						7.8	—	—	14% ▲	7.5
Cyberpower (51)	7.8						7.5	—	—	29% ▲	7.3
HP (1,487)	7.8						7.8	6.2 ▼	6.3	18% ▲	8.0 ▲
Lenovo/IBM (83)	7.8						8.0	—	—	22% ▲	7.8
Compaq (403)	7.5 ▼						7.7	6.6	6.8	19% ▲	7.6
eMachines (301)	7.4 ▼						7.7	6.7	6.7	21% ▲	7.5
Avg. of Windows PCs	7.7						7.8	6.4	6.5	19% ▲	7.7
DESKTOPS LESS THAN A YEAR OLD											
Apple (208 responses)	9.2 ▲						9.3 ▲	—	—	9% ▲	9.4 ▲
Self-built (1,452)	8.7 ▲						—	—	—	—	8.8 ▲
Locally built/clone (186)	8.4 ▲						8.6 ▲	7.8 ▲	—	19% ▼	8.3 ▲
Dell (1,468)	8.1 ▲						8.2 ▲	6.9 ▲	6.6 ▲	15% ▼	8.2 ▲
Gateway (222)	8.1 ▲						8.3 ▲	6.8	—	11% ▲	8.2 ▲
eMachines (84)	7.8						8.2	—	—	11% ▲	8.0
HP (957)	7.7						7.9 ▼	6.3 ▼	5.8	14% ▼	7.9
Acer (65)	7.6						7.7	—	—	11% ▲	7.2
Lenovo/IBM (79)	7.3 ▼						7.9	—	—	8% ▲	7.1 ▼
Avg. of Windows PCs	7.8						8.0	6.7	6.2	12% ▲	7.8

* At least 2 confidence intervals from the average. ** 1 confidence interval from the average.

*Overall score is based on the answers to the question "Overall, how would you rate this desktop PC?"

It is not the average of the other scores in the table.

Except for Percentage Needing Repair, scores are based on a scale of 1 to 10, where 10 is best.

A dash indicates that we do not have enough survey data to give the company a score.



Survey. This may be due to its extreme scores—in the wrong direction: It received a worse-than-average software reliability score (68 percent) and a significantly worse percentage of notebooks needing tech support (37 percent), for example.

Reliability

Apple and Fujitsu both manage to keep their reliability scores from last year intact (9.2 and 8.6, respectively), but after those two, everyone takes a dip, with the exception of Gateway, holding onto 8.0.

The sharply lower scores for Acer and Averatec continue to indicate severe problems. Averatec first appeared in the survey as recently as 2005. The company's very respectable scores at the time have dropped in the two successive years. Reliability for Averatec systems is a worse-than-average 7.3 (down from its 2005 high of 8.4); things are only slightly better, at 7.7, for Acer systems less than a year old.

Acer's modest 7.8 score for reliability may seem surprising, given that it has the lowest percentage of units needing repair (15 percent), a full point less than Apple's. But Acer has other problems, like only 58 percent resolution in calls to tech support on issues with its notebooks.

Likelihood of Recommending

Remember what we said about recommending Apple Macintosh desktops?

Notebooks | Apple

Even long before there were Intel chips inside, Apple's notebooks were loved by our readers. 2007 is no exception, as indicated by their incredible recommendation rate.

Notebooks | Lenovo/IBM

Fujitsu's 8.4 is an impressive score, but it represents few respondents. The sheer number of fans, and much better than average ratings, earn Lenovo the nod.

Read it again, but substitute the word *notebook* where appropriate. The numbers are eerily similar. Apple notebook users would recommend another Macintosh to people 9.4 times out of 10—and an astonishing 9.5 times if their Macs are less than a year old.

On average, new Windows notebooks are more likely to get a recommendation, with a score of 8, than all notebooks under four years old, which managed only a 7.7. It would have been a 7.9, but Averatec's significantly worse-than-average 6.4 recommendation rating dragged the figure down. The company received the same poor showing for recommendations under home notebooks. Averatec didn't even make the list for notebooks less than a year old.

Notebooks Less than One Year Old

Newer computers should get more and more reliable. And for the most part, that's

what's happening: The average number of repairs for notebooks less than a year old was down one percent from last year (in this case, lower is better) but up individually for Apple, Dell, and HP.

Gateway managed a respectable drop from 15 to 12 percent on newer systems needing repairs. In fact, Gateway improved its overall numbers for support, repairs, and the likelihood of recommendation, all notable in an otherwise down year. But almost all vendors (Apple is the exception) saw a substantial drop in their scores when it came to newer laptops. In the area of technical support for new systems, Toshiba fell by eight-tenths to a woeful 6.2; HP fell seven-tenths to 6.3.

We had enough responses from readers to give repair scores on new notebooks to only Dell and HP (we encountered the same issue last year). No surprise, both were down, Dell to a 6.8 and HP to a 5.9. Both vendors were at the high end when it came to percentage of new notebooks that required a tech support call (35 and 36 percent, respectively). Only Sony was worse, at 37 percent.

Readers went after HP in particular, assigning low scores for tech-support issues such as how fast they connected, providers' expertise, and the amount of time it took to rectify a problem. The company took a beating when readers were asked if they were inconvenienced when

INSIDE DELL

400,000 Calls a Week

Success ain't always easy. Look at Dell, the obvious market-share leader among our readers, who rated 32 percent more notebooks from Dell (a whopping 3,066) than the nearest competitor (HP/Compaq with 1,920). Dell had almost double the number of HP desktops rated: 5,797 versus 2,912. And for a decade ending in 2005, the company was a consistent Readers' Choice. This year, its overall scores fell again in both desktops and notebooks.

We asked Dell for its perspective on the company's customer support. Dick Hunter, the vice president of global consumer service and support at Dell, thinks the key is "getting the right kind of tech support agents." The problem is, a tech expert isn't likely to be giving you help. Hundreds of thousands of calls per week requires "thousands and thousands" of support personnel (he won't say precisely how many). They're spread across the globe, with over 50 percent outside the U.S., in countries including Canada, El Sal-

vador, Manila, and India. All support staff are tested before being hired to make sure they know English, and Hunter maintains that none are asked to do fake U.S. accents for the comfort of customers.

The typical agent gets 14 weeks of training. Those with more technical acumen are "badged" early and put on the phones.

The company is experimenting with a new remote diagnostic called DellConnect. The user runs a small applet that lets a Dell tech log on to the PC remotely and look around. "We can do everything, and the customer can stop us anytime by hitting the escape key," says Hunter. He claims DellConnect is getting a lot of praise from the five million customers who've used it as of this writing. How would Hunter compare Dell's support with the competition's? "No one is doing a stellar job, and it's one of my key initiatives to up the game in support."

new notebooks needed support, with a 5.1 out of 10.

Printers

Not much has changed in the world of printers since last year's survey. Canon retains its lead, followed by Oki Data, Brother, and HP. Shocked to see HP with a Readers' Choice again, despite that overall score of 8.0? Based on the sheer number of responses from HP users—five times that of top-rated Canon—we can safely point to HP as worthy.

Oki Data didn't earn a Readers' Choice because the number of responses from Oki users were barely 1/18 of the Canon users. It comes down to the confidence intervals, based on the number of responses, that we can attribute to each score.

Tech Support

Though scores for reliability are relatively consistent with last year's, readers have less love for their printers' technical support.

Canon dropped more than a full point, from 8.1 last year to 7.0, although both numbers remain in our "very good" range. But Canon is not alone in faring worse. The only company with an increased score for tech support is Brother. Lexmark showed improvement across the board this year, but not enough to bring it out of the low-slung slot that the company has occupied for years in our survey.

Dell has the worst tech support score for printers this year, at just 5.8 (and a mere 5.5 when only home printers are considered). This is consistent with how readers felt about Dell's ability to understand a problem, its expertise and attitude, and its ability to speak clearly to the customer: all low grades between 6.1 and 6.3. The only break-out top score in that area was HP's, with a 7.9 for support speaking in a clear manner. But that didn't save the company from a 6.5 score for tech support on the whole.

Home and Business

When it comes to what readers think of as a business printer, Canon again takes the lead. In 2006, HP was a clear contender for the top spot for business. Not so this year, and not because HP has slipped. Its 7.9 overall score remains intact. But this year, Samsung, Epson, Oki Data, and Brother all delivered enough of a gain to score higher for business overall and for reliability.

NOTEBOOKS

▲ Significantly better than average*
▲ Better than average**
Within the average range
▼ Worse than average**
▼ Significantly worse than average*
RED denotes Readers' Choice.

	OVERALL SCORE*	POOR (1-2.4)	FAIR (2.5-4.4)	GOOD (4.5-6.4)	VERY GOOD (6.5-8.4)	EXCELLENT (8.5-10)	RELIABILITY	TECH SUPPORT	REPAIRS	PERCENTAGE NEEDING REPAIR	LIKELIHOOD OF RECOMMENDING
ALL NOTEBOOKS											
Apple (509 responses)	9.1 ▲						9.2 ▲	8.4 ▲	8.1 ▲	16% ▲	9.4 ▲
Fujitsu (84)	8.4 ▲						8.6 ▲	—	—	15%	8.2 ▲
Lenovo/IBM (927)	8.2 ▲						8.4 ▲	7.7 ▲	7.3 ▲	19%	8.1 ▲
Sony (378)	7.9						8.0	6.3	5.9	19%	7.8
Toshiba (928)	7.9						8.0	6.6	6.4	19%	7.9 ▲
Dell (3,066)	7.8						8.0	6.8 ▲	6.9 ▲	21% ▼	8.0 ▲
Gateway (372)	7.8						8.0	6.7	6.6	18%	7.7
HP/Compaq (1,920)	7.8						7.9	6.4 ▼	6.2 ▼	20%	7.8
Acer (290)	7.5 ▼						7.8 ▼	6.1	—	15% ▲	7.5
Averatec (74)	7.0 ▼						7.3 ▼	—	—	30%	6.4 ▼
Avg. of Windows PCs	7.8						8.0	6.6	6.6	20%	7.7
BUSINESS											
Apple (143 responses)	8.9 ▲						9.1 ▲	8.0 ▲	—	16% ▲	9.2 ▲
Lenovo/IBM (657)	8.1 ▲						8.3 ▲	7.7 ▲	7.3	21%	7.9 ▲
Sony (113)	7.8						7.8	5.8 ▼	—	24%	7.7
Toshiba (236)	7.8						8.0	6.9	6.8	25%	7.8
HP/Compaq (624)	7.7						7.9	6.7	6.5	25%	7.7
Acer (59)	7.6						7.8	—	—	19%	7.4
Dell (1,508)	7.6						7.9	7.2 ▲	7.1	24%	7.9 ▲
Gateway (97)	7.5						7.6	—	—	19%	7.4
Avg. of Windows PCs	7.7						7.9	6.9	6.9	22%	7.7
HOME											
Apple (366 responses)	9.2 ▲						9.3 ▲	8.7 ▲	8.4 ▲	15%	9.5 ▲
Lenovo/IBM (269)	8.5 ▲						8.6 ▲	7.8 ▲	—	16%	8.6 ▲
Dell (1,554)	8.0 ▲						8.1 ▲	6.3	6.6	19%	8.1 ▲
Sony (264)	8.0 ▲						8.1	6.6	—	17%	7.9
HP (987)	7.9						8.0	6.1 ▼	5.9	17%	7.9 ▲
Gateway (273)	7.9						8.1	6.5	—	18%	7.8
Toshiba (690)	7.9						8.0	6.4	6.2	17%	8.0 ▲
Compaq (308)	7.7						7.9	6.4	6.4	19%	7.7
Acer (229)	7.5 ▼						7.7 ▼	5.9	—	14% ▲	7.6
Averatec (57)	6.9 ▼						7.2 ▼	—	—	30%	6.4 ▼
Avg. of Windows PCs	7.8						8.0	6.5	6.2	19%	7.8
NOTEBOOKS LESS THAN A YEAR OLD											
Apple (284 responses)	9.3 ▲						9.4 ▲	8.5 ▲	—	8% ▲	9.5 ▲
Lenovo/IBM (335)	8.3 ▲						8.4 ▲	7.6 ▲	—	11%	8.2
Sony (140)	8.2						8.3	6.8	—	9%	8.1
Dell (1,101)	8.1 ▲						8.3 ▲	6.9	6.8 ▲	14% ▼	8.2 ▲
HP/Compaq (776)	8.0						8.2	6.3 ▼	5.9	14% ▼	8.1
Toshiba (331)	8.0						8.2	6.2	—	9%	8.2
Gateway (141)	7.9						8.1	—	—	12%	7.9
Acer (139)	7.4 ▼						7.7 ▼	—	—	9%	7.4 ▼
Avg. of Windows PCs	8						8.2	6.8	6.4	11%	8

* At least 2 confidence intervals from the average. ** 1 confidence interval from the average.
*Overall score is based on the answers to the question "Overall, how would you rate this notebook?" It is not the average of the other scores in the table. Except for Percentage Needing Repair, scores are based on a scale of 1 to 10, where 10 is best. A dash indicates that we do not have enough survey data to give the company a score.

MORE STATS, CHARTS, ANALYSIS, AND DATA ON THE WEB

Information from over 16,000 readers goes a long way—much farther than a mere eight pages, unfortunately. Good thing we've got a Web site! Online you'll find all the charts on photo printers and all-in-ones, some fascinating data on how readers really felt about the tech support reps they spoke with over the past year, and an analysis of their satisfaction with various types of contact, from e-mail to phone calls.

For the complete results of our survey, visit us online at go.pcmag.com/sr



At home, we find the biggest surprise of the survey this year: Xerox squeaked into the top spot with an 8.5 score overall and for reliability. *Squeaked* because it just made the cutoff with 51 responses from *PC Magazine* readers. Last year it didn't even make the home list. Surprised to find Xerox on the home side of the list? You shouldn't be: Xerox sells a color laser—an Editors' Choice—for as little as \$450. The company also has mono lasers starting at \$349. Either one qualifies as a personal printer suitable for a home office by any definition.

Even so, Xerox has by far the highest percentage of home units that need repairs (10 percent). Oki Data, Canon, and HP are the best bets for home printing if you go by the overall scores in the home category. Epson is rated the best for ease of setup.

Percentage Needing Repair

Last year we eliminated high-volume/high-maintenance floor-standing printers from the analysis (this is *PC Magazine*, after all, not *Big Enterprise Weekly*) and saw a drop in the percentage of units needing repairs. Happily, there was another drop this year, from 8 to 7 percent. Just about every printer manufacturer had fewer or the same percentage of repairs except Canon, which went up one percentage point. The company went up much more when the results for business printers are broken out: from 6 to 9 percent.

Xerox again has an inexplicably high percentage of products needing repair,

Printers | Canon

Despite slightly worse scores across the board compared with 2006, Canon's printers continue to rate higher and get more recommendations from *PC Magazine* readers than any other.

Printers | HP

The power of the company's numbers keeps HP in the winner's circle for another year. The brand gets high recommendations despite a few shortcomings.

though that number dropped to 22 percent (from 29). Still, Xerox skews the overall percentage of products needing repair 2 percent higher than it would otherwise be.

Canon did better with newer printers. In fact, the overall average for new printers requiring repairs was down a full percentage point this year. Every vendor did better in this respect except Dell, which jumped from 6 percent requiring repairs last year to 10 percent this year.

Ink Jet Printers

No one touches Canon in the area of ink jet printers, the most popular type of printer in America, not just with *PC Magazine* readers. Canon has enjoyed this comfortable lead since our 18th Reader Satisfaction Survey in 2005, after having nicely tied with HP in 2004 (see www.pcmag.com/sr for previous Reader Survey results).

That said, Canon hasn't seen much improvement since last year. Its overall scores are down for both standalone and

all-in-one (AIO) ink jet printers. Even its percent needing repair is a little worse. But it hardly seems to matter: Readers give Canon high ratings on the cost of consumables, whether for photos or documents. Readers even prefer the quality of Canon-brand photo paper. But Brother outdoes Canon for consumables on ink jet AIOs.

Laser Printers

Since Canon doesn't play much in the world of laser printers, HP should own this, right? Not quite. Mathematically, Brother and HP have the same overall score of 8.2, and even received the same reliability rating of 8.5. And plenty of readers use monochrome laser printers from the two companies. If there's any tie breaker, it's HP's 8 percent of mono laser units needing repair. Brother's repairs were only 4 percent (up from 2 percent last year for stand-alone lasers). HP still has a slight edge on reader recommendations, even with all the repairs—and even in the category of AIOs, where Brother otherwise rules.

The land of color laser printers, once reigned over by HP, has a new ruler: Oki Data, which last year didn't even make the color laser list. Dell took the biggest hit here, dropping half a point from last year to 7.6 in overall score, but still was awarded very good numbers. Color lasers have the dubious distinction of being the category of printer with the highest percentage needing repair, 11 percent, compared with other types of printers—but

INSIDE CANON

Keeping Support at Home

Larry Hardin, director and assistant general manager of Canon Service Operations, says his team strives for "continuous improvement in every customer access channel," maintaining a "customer-first" culture. It's hype, sure, but at least Canon has the numbers from our readers to back it up.

When it comes to ratings about specific tech-support questions, Canon was second only to Brother in areas such as how fast a user connected with a real person or the overall expertise of Canon's tech-support team. In internal surveys, Hardin says Canon has a resolution rate of 82 percent in a first-contact situation with a customer. He also claims 80 percent of phone calls made to Canon are answered in 60 seconds or less.

High scores when it comes to the ability to understand tech-support staff may stem from Canon's centralized sup-

port. Instead of distributing support offices and personnel around the globe, Canon has one contact center only—and it's in the United States. "We directly control all customer-contact experiences related to our products and support," says Hardin.

Canon's repairs were tops among readers, though still a relatively low 7.1 out of 10. Hardin says turnaround time for fixing a typical consumer printer is three or four days. And if you pay for it, you can get next-day turnaround. Canon doesn't provide loaners while it's fixing your printer, however.

When asked what Canon could improve, Hardin gives this cryptic response: "Focus more effort on capturing the voice of the customer and translating that information to industry-leading deliverables." If that means "We'll do more of what customers want and expect," then more power to them.

this is again skewed by Xerox's 28 percent needing repair.

Only HP got enough responses to make the list for the new color laser AIO category.

Photo Printers

Little has changed from 2006. Canon and HP both received improved scores for the percentage of photo printers needing repair, though HP's overall reliability rating was down for both photo printers and photo AIOs. Canon also bested HP when it came to the quality of ink and toner.

New to the photo AIO list this year is Epson. It even overtook HP, which last year had the category all to itself. HP scored better than Epson on the cost of its ink here, however, with 5.8 to Epson's 5.0. But both are scores that we deem only "good." □

METHODOLOGY

We e-mailed an invitation to *PC Magazine* readers to take our Web-based survey, hosted by Equation Research (www.eqr1.com). Respondents told us about the computers and printers they personally use at home and at work, and any support or repair incidents they had within 12 months prior to taking the survey. Respondents who completed the survey were entered into a drawing to win American Express Gift Checks or prizes provided by b2 (www.b2stuff.com) or ThinkGeek (www.thinkgeek.com). The survey was in the field for three weeks, from June 27 to July 18, 2007.

We scored only those vendors represented by at least 50 entries—computers or printers. Fewer would not allow for statistically valid comparisons. We used a t-test on each vendor's score on each question against the average of all the companies' scores to determine whether the scores are significantly different at a 95 percent confidence level.


The t-test considers a company's score for each measure, the total number of responses, and the variability of the responses in calculating the *confidence interval* for each score—the range in which we are 95 percent certain that the score is representative. If the score is more than one confidence interval above or below the average, we state that the score is better than or worse than average. More than two confidence intervals above or below and it is significantly better or worse.

PRINTERS

▲ Significantly better than average*
▲ Better than average**
Within the average range
▼ Worse than average**
▼ Significantly worse than average*
RED denotes Readers' Choice.

	OVERALL SCORE*	POOR (1-2.4)	FAIR (2.5-4.4)	GOOD (4.5-6.4)	VERY GOOD (6.5-8.4)	EXCELLENT (8.5-10)	RELIABILITY	TECH SUPPORT	REPAIRS	PERCENTAGE NEEDING REPAIR	LIKELIHOOD OF RECOMMENDING
ALL PRINTERS											
Canon (2,249 responses)	8.2 ▲						8.4 ▲	7.0 ▲	7.1	4% ▲	8.5 ▲
Oki Data (126)	8.2 ▲						8.5 ▲	—	—	6%	8.2
HP (11,334)	8.0 ▲						8.2 ▲	6.5	6.5	5% ▲	8.4 ▲
Brother (1,034)	8.0 ▲						8.2 ▲	7.2 ▲	6.9	5% ▲	8.1 ▲
Epson (1,876)	7.9						8.1	6.4	6.5	4% ▲	8.1 ▲
Samsung (359)	7.9						8.4 ▲	—	—	3% ▲	8.1 ▲
Xerox (197)	7.9						7.8 ▼	7.4 ▲	—	22% ▼	7.7
Konica Minolta (214)	7.7						8.0	—	—	6%	7.4 ▼
Dell (676)	7.4 ▼						7.8 ▼	5.8 ▼	—	7%	7.1 ▼
Lexmark (1,182)	7.3 ▼						7.6 ▼	6.0 ▼	6.0	4% ▲	7.3 ▼
Average	7.8						8.1	6.6	6.6	7%	7.9
BUSINESS											
Canon (307 responses)	8.2 ▲						8.5 ▲	—	—	9%	8.5 ▲
Samsung (73)	8.2 ▲						8.6 ▲	—	—	4% ▲	8.4 ▲
Epson (257)	8.1 ▲						8.3 ▲	—	—	5% ▲	8.3 ▲
Oki Data (60)	8.1						8.2	—	—	10%	8.1
Brother (336)	8.0 ▲						8.3 ▲	—	—	8%	8.2 ▲
HP (3,947)	7.9 ▲						8.1 ▲	6.7	6.7	10%	8.3 ▲
Xerox (146)	7.6						7.6 ▼	7.3	—	27% ▼	7.5 ▼
Dell (210)	7.4 ▼						7.7 ▼	—	—	10%	7.1 ▼
Konica Minolta (67)	7.4 ▼						7.7	—	—	10%	7.2 ▼
Lexmark (304)	7.3 ▼						7.6 ▼	6.4	—	10%	7.2 ▼
Average	7.8						8.1	6.8	6.7	0.1	7.9
HOME											
Xerox (51 responses)	8.5 ▲						8.5	—	—	10%	8.2
Oki Data (66)	8.3 ▲						8.7 ▲	—	—	2%	8.3
Canon (1,942)	8.2 ▲						8.4 ▲	7.1 ▲	7.0	4%	8.5 ▲
HP (7,387)	8.0 ▲						8.2	6.3	6.2	3% ▲	8.4 ▲
Brother (698)	7.9						8.2	7.1 ▲	—	4%	8.1
Epson (1,619)	7.9						8.1 ▼	6.2	6.2	4%	8.1 ▲
Konica Minolta (147)	7.8						8.2	—	—	4%	7.5 ▼
Samsung (286)	7.8						8.4 ▲	—	—	3%	8.0
Dell (466)	7.4 ▼						7.8 ▼	5.5 ▼	—	6%	7.1 ▼
Lexmark (878)	7.2 ▼						7.6 ▼	5.8	—	3% ▲	7.4 ▼
Average	7.9						8.2	6.3	6.5	4%	8.0
INK JET											
Canon (1,061 responses)	8.1 ▲						8.4 ▲	7.2 ▲	—	4%	8.5 ▲
HP (2,844)	7.8 ▲						8.2 ▲	6.5	5.9	2%	8.4 ▲
Epson (822)	7.7 ▲						7.9 ▲	5.9	—	3%	8.0 ▲
Lexmark (252)	6.9 ▼						7.3 ▼	—	—	1% ▲	7.0 ▼
Dell (57)	6.3 ▼						7.2 ▼	—	—	4%	5.9 ▼
Average	7.4						7.8	6.5	5.9	3%	7.6
MONO LASER											
Brother (496 responses)	8.2 ▲						8.5 ▲	—	—	4% ▲	8.3 ▲
HP (3,100)	8.2 ▲						8.5 ▲	7.1	7.0	8% ▼	8.5 ▲
Samsung (280)	7.9						8.5 ▲	—	—	2% ▲	8.2 ▲
Dell (112)	7.8						8.0	—	—	6%	7.5
Lexmark (217)	7.6 ▼						7.8 ▼	—	—	9%	7.3 ▼
Konica Minolta (81)	7.4 ▼						7.8 ▼	—	—	6%	7.0 ▼
Average	7.8						8.2	7.1	7	6%	7.8
COLOR LASER											
Oki Data (74 responses)	8.5 ▲						8.6 ▲	—	—	4% ▲	8.5 ▲
HP (499)	8.2 ▲						8.4 ▲	6.8	—	9% ▲	8.6 ▲
Xerox (83)	8.0						7.7 ▼	—	—	28% ▼	7.8
Konica Minolta (121)	7.8						8.2	—	—	6% ▲	7.6 ▼
Dell (134)	7.6 ▼						7.9	—	—	10%	7.4 ▼
Average	8						8.2	6.8	—	11%	8

* At least 2 confidence intervals from the average. ** 1 confidence interval from the average.
*Overall score is based on the answers to the question "Overall, how would you rate this printer?"
It is not the average of the other scores in the table.
Except for Percentage Needing Repair, scores are based on a scale of 1 to 10, where 10 is best.



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Small Biz, High Tech

In our second annual awards, we discover ten innovators using tech in smart ways to run their businesses. *by John R. Quain*

For this year's small-business awards, we considered more than 150 nominees—many named by our readers—that are saving money, improving customer support, developing better products, or beefing up the bottom line through the smart use of technology. Our outstanding winners come from a wide variety of businesses, from an organic-food delivery service to a maker of interactive DVDs for movies. And many of them are virtual companies, with employees or contractors working from home in different states or countries. The technologies that are making the

biggest impact aren't necessarily expensive or complex. In fact, they're technologies—wikis, VoIP, open-source software—that seem tailor-made for small operations on a budget. Each winner is an inspiration to anyone running a small business or dreaming of launching one someday.

To nominate your company for next year's award, fill out our online nomination form at go.pcmag.com/smb2008. To qualify, your business must have fewer than 300 employees and have been in operation for at least one year. Good luck.

High-Tech Produce Delivery

GREENLING ORGANIC DELIVERY

Size: 12 employees

Headquarters: Austin, Texas

Key Tech: Open-source software

Business: Organic-food delivery

www.greenling.com

Going green is a growing business for Greenling Organic Delivery, which supplies organic groceries and fresh produce directly to customers. Started in May 2005, the company now has 500 customers, with about 10 percent growth per month, says Greenling's president, Mason Arnold. Working with local farmers and organic producers in California and Colorado, Greenling takes orders online from shoppers and performs the routing and distribution through its automated systems.



THE GREEN GANG Open-source software has helped this small outfit reach 500 veggie-loving Texans and 10 percent growth per month. Next stop: Dallas.

"Customers can place a regular order once, and never have to go back," Arnold says. Not having to fill out an order form for each order, he adds, "allows us to do just-in-time delivery." And that's important to satisfy demanding customers who want fresh produce. Of course, customers can go in and change their next order anytime they want.

Greenling built its system on open-source software, such as MySQL and Ruby on Rails. The entry cost was significantly less than traditional enterprise software and services, which would have cost four times as much.

Greenling also uses unique technologies to help its specific business, including temperature-data loggers. "We put them in the delivery boxes to see what temperatures groceries are delivered at and see how long a box sits on someone's porch," Arnold says. Customers, who receive a small gift as an incentive, then return the Lascar Electronics USB Temperature Data Loggers to Greenling.

To track trucks and perform additional quality assurance on deliveries, the company uses the Car-Chip data logger. This device plugs into a vehicle's onboard diagnostics port to record information, including the distance traveled and speeds. At the moment, Greenling serves customers in the Austin area but is looking at GPS tracking technology as it expands regionally, into the San Antonio, Houston, and Dallas markets.

Dynamic DVD Production from Home

METABEAM

Size: <20 employees

Headquarters: Virtual

Key Tech: Open-source wiki

Business: Software for DVDs

www.metabeam.com

Hollywood giants Walt Disney Co., Lion's Gate, Warner Bros., and others turn to tiny start-up Metabeam to create interactive DVDs for their movies. For its latest proposals, Metabeam will equip Blu-ray and HD DVD movies with search capabilities so home viewers watching a Harry Potter movie can input, say, "Dumbledore," and jump directly to desired scenes.

Metabeam software also lets moviemakers offer services such as sending video clips to cell phones. "DVD features to go. That's our killer app," says CEO and founder Chris Brown, who runs his business virtually, with fewer than 20 employees working from their homes in Seattle and the Bay Area. "We're a distributed company. People don't show up in the same place on the same day," Brown says.

Yet in Hollywood, collaboration is the name of the game, so Metabeam uses the latest in collaboration software and Internet connections. His staff—mostly sales execs, but also programmers and engineers—meet in video chat conferences via the Macintosh, and a few of them run Verizon FiOS lines to their homes to get speeds of up to 20 Mbps downstream. The company also relies heavily on Drupal,

the open-source wiki tool, to create proposals for customers. "It's a really clever way to get something written. The wiki is one of those quiet revolutions."

So far, the recipe is working. Brown says his company, launched in 2005, made \$1 million in revenues the first year and has enjoyed healthy growth, with more than \$2 million expected this year. Now that's a blockbuster.—Carol L. Gonsher



INTERACTIVE MOVIES With its entire staff working from home, Metabeam relies on Drupal, an open-source wiki tool, for collaboration.

Support à la Carte

YOUR TECH ONLINE

Size: <100 employees

Headquarters: Kelowna, British Columbia, Canada

Key Tech: VoIP

Business: Tech support

www.yourtechonline.com

YourTechOnline started with one simple question: It's 9 o'clock at night and you have computer trouble, so who are you going to call? Formed in 2000, YourTechOnline offers customers around-the-clock online and phone tech support. Prices range from 99 cents to \$1.63 per minute, depending on the package people sign up for. Whenever there's trouble, YourTechOnline's experts spring into action online, fixing system settings, zapping rootkits, and slaying viruses. The company, which received a *PC Magazine* Editors' Choice in 2005, has gone from about 20,000 customers two years ago to more than 40,000 today, says CEO and founder Chris Wandler.

The two technologies intrinsic to the company's business are Mitel's VoIP system and Citrix's GoToAssist desktop-sharing software. "We need the best agents and have to be able to hire them where they are at, not put them in a brick-and-mortar environment," says Wandler. For him that meant a VoIP solution that would work the minute the phone was plugged into a router in order to connect agents from Saskatchewan to Mexico. Indeed, 95 percent of the company's agents work from home and are monitored using Mitel's CCM6110 call-center software,



TAKE CONTROL YourTechOnline relies on Citrix's GoToAssist desktop-sharing software to solve PC problems for its 40,000 customers.

which lets people at headquarters see which agents are logged in and even monitor live calls.

To do the work on customers' computers, YourTechOnline uses GoToAssist. Still, the software is just a tool; the important part of the business is the expertise of the human agents. "But we would never be able to do this without VoIP," Wandler says. "It just wouldn't work without it."

Of course, even with the most advanced communications systems, there are limits to what YourTechOnline can do. "We can't fix the hardware," admits Wandler.

Common Credentials Online

MEDKINETICS

Size: 12 employees

Headquarters: Franklin, Tennessee

Key Tech: RAID storage

Business: Health care

www.medkinetics.com

"We slave away, working in the background of an obscure area," says Jim Cox, founder and president of Medkinetics, a small business that automates two processes in the health-care industry known as "credentialing" and "privileging." Credentialing involves collecting and submitting for approval all of the information about a doctor's qualifications. Every hospital and insurer requires a separate credentialing process, and the average application is 20 pages long. Furthermore, every hospital and insurer uses a different form. Medkinetics reduces the paperwork by allowing doctors and hospitals to

enter the information once. The company's Web-based software fills in all the necessary forms, which can often stretch to over 400 pages.

Privileging permits doctors to perform certain procedures within a hospital. Typically, privileging information is filed away on paper forms. "There are about 4,000 procedures," Cox says, and with new technology, those procedures and the associated permissions are constantly changing. So Medkinetics provides hospitals with online privileging information to check on doctors' permissions in real time, as well as to find and assign specialists instantly when needed. Doctors without the proper credentials and privileges can cost hospitals hundreds of millions of dollars in malpractice cases.

For both these tasks, Medkinetics uses a Web-based solution based on a Cold Fusion and .Net hybrid. "The high availability of data is also really important to us," notes Cox, who says that terabytes of inexpensive but secure RAID storage are what makes Medkinetics services possible—and what has enabled the company to triple in size in the past four years.

For all of Medkinetics' automation and ability to work with scores of insurers and hospitals, hospitals will not accept digital applications, so the forms must be printed and mailed out. Clearly, there's still lots of work to be done in bringing the health-care business into the digital age.



DOCTOR DOCS Medkinetics' Web-based solution automates vital administrative tasks for hospitals.

Anywhere Test Prep

PREPME

Size: 5 employees

Headquarters: San Francisco

Key Tech: Managed hosting service

Business: Education

www.prepme.com

One of the most stressful events in a student's life is taking the dreaded SAT for college admissions. An estimated 1.6 million students take the test annually, and many seek outside help to prepare. But some can't afford the time or money for a private tutor or regular class, so PrepMe offers an alternative.

"Most classes aren't tailored to a specific student's needs," says Avichal Garg, the company's CTO and a cofounder, "so we use technology to customize that to the student." PrepMe offers indi-

vidualized online courses for SAT, PSAT, and ACT test preparation, as well as personal tutors online. Students can converse with tutors at top colleges via instant messaging or on the phone. PrepMe relies on Vonage's VoIP service to connect tutors with students and uses Skype's videoconferencing for company communications.

"We have tens of thousands of students all over the world, from Africa to Asia," Garg says. The benefit for those students is that no matter where they are, they can access the training tools and have access to a tutor. And it saves families money. A typical classroom test-preparation course can cost from \$800 to \$1,000, versus PrepMe's \$300 to \$500 fees. PrepMe claims that the average student experiences a 300-point increase on his or her SAT results.

To keep its services up and running around the clock, PrepMe relies on ServePath, a managed hosting and colocation provider. PrepMe's platform was built on open-source software, including Apache and MySQL, but is hosted by ServePath, which eliminates much of the IT overhead for the company and handles tasks such as load balancing to maintain reliability. It also provides additional security. Garg estimates that using a hosted service saves the company about \$50,000 a year in personnel costs.



GLOBAL REACH PrepMe's CTO and cofounder Avichal Garg runs classes around the clock and around the globe.

Viral Media-Tracking Guru

TEN MINUTE MEDIA

Size: 1 employee

Headquarters: Virtual

Key Tech: Ten Minute Media Viral Tracking System

Business: Interactive media for music industry

www.tenminutemedia.com

In between classes at Hampshire College in western Massachusetts, Brendan Ciecko, the 19-year-old CEO of Ten Minute Media, developed a sophisticated Web market-research tool that has music-industry execs jazzed. Ciecko creates media players for record companies, basically Flash-based presentations of an artist's music, video, tour dates, and albums. His client list now includes SonyBMG, Universal, Warner Music Group, and EMI.

When execs at Capitol Records were considering taking London-based artist Lily Allen international, they asked Ciecko to gauge the response to the hype. He devised a viral tracking applet that would deliver just the demographic data they needed. Ten Minute Media launched Ciecko's player on Allen's MySpace page; as people watched it they pasted the applet into their own Web sites, and it reported back their demographics. Tying together the media player with the viral tracking system was marketing genius, enabling the record execs to track where and when the video was played. Based on the response, Capitol calculated that Allen would indeed be a hit in the U.S.

So how does a one-man operation manage revenue growth of 200 percent last year? Ciecko distributes his workload to 15 contractors located in the U.S., Canada, Germany, Poland, Spain, and Austria. The Cracow-based group is composed of Flash-remoting experts, and the Barcelona group specializes in PHP and Ajax. "Remoting via AMF-PHP is one of the most effective ways to send and receive data between the Flash player and PHP. We are using it on projects that are required to seamlessly communicate," Ciecko says. He's currently on a leave of absence to start a new online venture.—CLG

MUSIC MARKETER

Ten Minute Media CEO Brendan Ciecko gauges the hype on the Web.



Red-Tape Reducer

ENERGOV SOLUTIONS

Size: 30 employees

Headquarters: Atlanta

Key Tech: Interactive voice response

Business: Government/IT

www.energov.com

You may not be able to fight City Hall, but you can certainly help streamline it. Take EnerGov Solutions, which provides software services to city and county governments to automate building permit and licensing processes. Typically, contractors and builders have to wend their way through a paper bureaucracy to apply for permits and licenses and to get inspections performed. EnerGov works with municipalities to automate the process, providing online documents and approval forms tailored to

a specific local government's zoning and building codes. Developed in-house on the Microsoft .Net platform, the system can even be used by inspectors in the field using laptops.

Each client receives a solution customized to the specific municipal regulations, as well as training for government workers and inspectors. EnerGov stresses the convenience and efficiency of the services, and claims a municipality can recoup its investment within one or two years.

"But a lot of times, contractors are out on the road using cell phones," points out Ryan Hountz, EnerGov's executive director of marketing. So the company uses Voice XML, which allows its systems to call a contractor back with an automated response when an inspection has been completed. Contractors can also check the status of a project online using EnerGov's Citizen Access Web Portals or phone in to check the status of an inspection or to request a new inspection. Calls are converted into online requests, routed to the appropriate department, and in some cases a specific inspector in the area, say, an electrical inspector, is automatically scheduled for the job.

Such interactive voice response is essential to construction-business users, says Hountz. "And we now have about 130 clients at the local or city government level in 25 states, from Alaska to Florida," he says. EnerGov is now adding 25 to 30 new clients a year.



UP TO CODE EnerGov's handheld, Web-based solutions expedite tedious permit and inspection tasks.

Poverty Crusader

CHILDS CAPITAL

Size: 14 employees

Headquarters: New York City

Key Tech: Tablet PC

Business: Financial services

www.childscapital.com

"It's small in head count but global in impact, thanks to technology," says Donna Childs, founder and CEO of Childs Capital, a consulting and financial services company whose mission is to help alleviate poverty in developing communities in sub-Saharan Africa, China, Latin America, and Russia. To stay connected to offices in Connecticut, New York, and New Jersey, she uses VoIP technology, including Cisco's Unified Communications Small Business System UC520, configured with IP phones and Wi-Fi access points.

Childs needs to stay in contact with employees who work from home, corporate clients, and groups around the world. One current project involves a Land O'Lakes farmer-to-farmer program in Guinea, a country that imports about 80 percent of its food. "Farmers can't get information about prices there," she explains, "so we're helping to train them on the use of technology."

To stay in touch, the company makes extensive use of Microsoft Office Live Meeting, using it to conduct Web meetings with clients and for internal communications. Also invaluable is video conferencing in Microsoft Messenger, which Childs used



TEACHING TO FISH Technology enables Childs Capital to reach developing areas around the world.

recently during a trip to Kenya. She uses an HP tablet PC for taking discreet notes where typing on a laptop would be too disruptive or considered rude.

The combination of these technologies allows Childs to reach people and places with services they would otherwise be unable to obtain. "We're working in tsunami areas in Asia to develop a pilot micro-insurance program," she says. The program would let people in afflicted areas affordably insure things such as a \$100 fishing boat, which can be essential to a family's livelihood.

Real-Time Retail Response

ZAPTEL

Size: 9 employees

Headquarters: Elk Grove Village, Illinois

Key Tech: Open-source CRM

Business: Reselling prepaid long-distance service

www.zaptel.com

With just nine employees, only one of them a full-time programmer, tiny ZapTel raked in \$3 million in revenue last year, selling a couple million minutes a month's worth of prepaid phone cards from its Web-based store to customers all over the world. Tens of thousands of the cards go to support personnel from the Philippines and India who are sta-



CALLING CARDS Open-source VoIP software keeps ZapTel's Web-based phone-card store buzzing.

tioned in Iraq, so they can call home, says CEO Ron Reimann. And since the cards are virtual, not physical, he doesn't need to ship a thing.

With the help of a Web analytics program called Index Tools, Reimann can track prospective customers in real time as they search the store for the best phone rates on international calling, alerting him of the countries for which demand is greatest at any time. He also relies on a bundle of other technologies, many open source-based, to keep the store going. "I'm able to run my business from a boat on Lake Michigan," he says.

The open-source Asterisk VoIP virtual PBX software and Cisco VoIP phones keep his distributed customer support staff (located in four different states) connected. The CRM system runs on the open source-based Sugar CRM. And the e-commerce store was developed in Cold Fusion and hosted by Denver-based Paravance.

The technology investment is paying off, with revenue growth reaching 300 percent, says Reimann.—CLG

A Dolphin Safe Net

DOLPHIN STADIUM

Size: 120 employees

Headquarters: Miami Gardens, Florida

Key Tech: Wireless networking

Business: Sports venue

www.dolphinstadium.com

Going to the game isn't just about cheering on the home team anymore. It's also about being connected. Reporters and photographers need to send news and pictures instantly. And fans want to order drinks from their seats, rather than standing in line and missing a big play.

So Dolphin Stadium, the 78,000-seat home of the Miami Dolphins and Florida Marlins, deployed a wireless mesh network to keep up with the demand. Using equipment from BelAir Networks, a company in Kanata, Ontario, the stadium's 29-node mesh system covers over 2 million square feet and provides

fans with high-speed Internet access. It's also the world's largest wireless point-of-sale system in a single venue, according to the company. So whether football or baseball fans are in the nosebleed section or ensconced in the executive suites, they can order refreshments from their seats and shop for team souvenirs without missing a kick or a pitch. (Items are delivered to fans, but only during Marlins games). It's not only convenient for customers, but also much more efficient for concessions operators, who can sell more items more quickly.

"It also reaches out to the parking lot," says Tery Howard, vice president of information technology, adding that the wireless 802.11g-based network reaches speeds of up to 54 Mbps. It enables Kodak, for example, to provide sports photographers with wireless communications so that they can send images directly from the venue to their local newspaper, national magazine, Web site, or broadcast outlet. And reporters can file up-to-the-minute news stories. The company notes that the same wireless mesh network could be used for security cameras as well, and it plans to install such a system by the end of the current football season.

The stadium also boasts the largest high-definition video boards in professional sports (50 feet high by 140 feet long) and the longest LED ribbon display (4 feet high by 2,105 feet long). It's technology like this that helped it host the 2007 Super Bowl so successfully that it has been awarded the privilege of hosting the 2010 Super Bowl as well.□



MESHED IN MIAMI Dolphin Stadium's wireless mesh network keeps fans filled with high-speed Web access and refreshments.

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A few minutes a day of personal surfing, online shopping and chatting may seem harmless, but consider this...

A recent study concluded that employees spend an average of 75 minutes per day using office computers for non-business related activity (surfing porn, gambling, shopping or even searching for sex online). That translates into an annual loss of \$6250 per employee or more than \$300,000 per year down the drain for a company of just 50 employees.

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And unlike many filtering and blocking tools, Spector CNE Investigator records everything they do in exact visual detail. So, you have absolute proof that goes way beyond just knowing they visited porn.com.

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**I pass
company secrets
via the web**

**I surf porn
websites from
inside my cubicle**

**I shop online
after closing
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Business Scanners Get Personal

Office scanners don't have to be enormous machines that need a desk to themselves. A personal scanner might fit your workplace better. *by M. David Stone*



Canon DR-1210C

\$400 street



This is one of the least expensive flatbed document scanners on the market, yet it does an impressively good job. The 12-ppm scan rate with the 35-page ADF is slow, but Canon's extraordinarily fast CapturePerfect OCR utility compensates superbly, and the unit is as small as you could hope for.

Most people, hearing the terms *business scanner* and *document scanner*, tend to think of workgroup workhorses that can plow through large stacks of paper but are way too big to fit on anyone's desk. The term *personal business scanner*, therefore, may sound like an oxymoron. But although scanners small enough to fit unobtrusively on a desk might be deadly slow by workgroup standards, they can still be a tremendous convenience for single users.

When you need to fax or copy a few pages, a scanner on your desk can save you a trip to a fax machine or copier—which may, if our office is any indication, be in use or out of order anyhow. Simply scan the pages and send them through your fax modem or to a nearby printer (ideally, the personal printer on your desk). A personal

scanner can also make it easy to scan and send pages as e-mail attachments, scan pages to recognize the text and send it to a word-processing program for editing, or scan pages for desktop document management to keep track of scraps of paper you might otherwise lose.

If any of these possibilities sound useful, you're a candidate for a personal business scanner. Before you start shopping for one, however, there are a few things you need to know about business scanning.

Scanning in the Office

Office scanners are different beasts from home scanners. For home scanners, photos are a key focus—often *the* key focus. For office scanners, photos are irrelevant. Scanning in an office almost always

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Visioneer RoadWarrior

\$170 street



Although larger than the OpticSlim M12 Corporate, the RoadWarrior closely matches it in portability and, like the M12, is powered via USB for quick, easy setup. The bundled software, geared to business travelers, scans business cards, manages documents, performs OCR, and more.

involves documents. Even if your documents include photos, chances are you won't be concerned with reproducing them at photo quality.

The focus on documents means that some things that are important for home scanners hardly matter when it comes to office use. High on that list is resolution. For office tasks, a 300-pixel-per-inch (ppi) resolution will almost always be enough to retain readability and give text-recognition engines what they need for maximum accuracy. Anything above 600 ppi is overkill. Virtually any scanner can deliver high-enough resolution to handle office tasks.

Bit depth—the number of bits a scanner uses to define gray levels—is another non-issue for office scanning. For scanning in general, 24 bits is more than enough, unless you intend to be working with film (negatives and positives)—something you're not likely to be doing in an office. Again, virtually any scanner you pick will deliver all the gray levels you'll need for business use.

The things that matter for personal office scanners are paper-handling features and how much desk space the device will make unavailable for other work. The general rule is that an office scanner needs a sheet feeder, because feeding sheets into

a slot is easier and faster than positioning individual items on a flatbed by hand. Differences in paper handling and size help define categories of scanners.

Pick the Right Category First

You can separate personal document scanners into three categories reasonably well. There's no established terminology, but I sort the various products into these divisions: highly portable scanners, behind-the-keyboard models, and ones that come with automatic document feeders (ADFs).

Highly portable scanners, such as the Plustek OpticSlim M12 Corporate and Visioneer RoadWarrior, are small and lightweight enough for you to take them wherever you go without a second thought. The products in this category get power through their USB cables. That eliminates one cord, so you need to pack just a single cable—convenient when you want to travel light.

These scanners can also serve as compact desktop scanners for people who are low on space. They tend, however, to be slower than the less-portable behind-the-keyboard scanners. The main reason for getting a highly portable scanner is for scanning on the road: to scan and fax, scan and e-mail, or scan the day's business cards and expense receipts.

The next step up in size is the behind-the-keyboard category, which includes scanners such as the Visioneer Strobe XP 220. Scanners in this category don't have to sit between your keyboard and the monitor, but they're designed so that you can put them there, where they are convenient for use and take up hardly any room. Typically, they let you choose, when you set the paper path, whether the paper goes straight through or curls up at the back of the scanner to come out in front of your monitor. They may get power over USB, or they may need a separate power cord. These scanners aren't quite as portable as the ones in the first category, but they're a little more convenient for the desktop. This is the obvious category to look at if you want something on your desk for scanning one or a few pages at a time.

Scanners in the first two categories don't include ADFs, which is their key shortcoming. Not having that feature is fine if you typically scan only one or two pages, but feeding paper manually quickly becomes tedious when you have to deal

FIVE SCANNER SECRETS

SIGN DOCUMENTS TO FAX OR E-MAIL WITHOUT PRINTING THEM. Scan your signature, crop the image to just the signature, and save it as a graphic that you can insert into documents.

DO-IT-YOURSELF BUSINESS CARDS. Almost out of business cards? Scan one and print as many as you need on business-card paper, available from your local office supply store.

IMPROVE THE READABILITY OF HARD-TO-SCAN PAGES. Even if your scan program lacks digital enhancement, you can often improve readability by experimenting with scan settings. For example, some scan drivers let you adjust the threshold for determining what levels of gray are scanned as black and what levels are scanned as white in black-and-white mode. The right setting can make the difference between turning highlighting black and hiding the text, or turning it white to reveal the text underneath.

IMPROVE THE ACCURACY OF RECOGNIZED TEXT. Scanning at 600 ppi instead of the typical default setting of 300 or even 200 ppi for OCR will slow down the scan but can improve text recognition accuracy, particularly for smaller fonts.

SKIP BLANK PAGES. Some document scanner drivers give you the option of throwing out any page that's blank. This is particularly useful when you are scanning to a PDF file that you want to archive strictly for future reference.

Plustek OpticSlim M12 Corporate

\$265 street



Looking for one of the most portable scanners on the market? Try this small, light USB-powered wonder that can handle pages up to legal size. The bundled software focuses on text recognition and document management with a full-function OCR program and the ability to scan and recognize text in one step.



Visioneer Strobe XP 220

\$299.99 direct



Although less portable than the M12, this scanner can sit between a keyboard and monitor. The bundled software includes programs for document management, OCR, and file indexing. The most intriguing feature, however, is a tool that makes literally unreadable documents perfectly legible.



with many pages at a time. Although sheetfed scanners with ADFs are typically too big to bring along with you, they can be small enough to fit comfortably on a desk. If you regularly scan multipage documents, you'll want a scanner with an ADF. A few scanners in this category, notably the Canon DR-1210C, also add a flatbed so you can scan book pages that won't fit through a sheet feeder.

Features

When you're considering buying any scanner, the two hardware-related issues you'll want to check on are warm-up time and whether the scanner has duplexing (scanning both sides of the page at

once). Warm-up time is important if you have small scanning projects and don't scan often enough to keep the machine from powering down between uses—having to wait for the scanner to warm up every time you want to use it can be annoying. If you typically scan larger documents, or scan several different documents in the same session, warm-up times are less of a concern.

If you scan both sides of the page for many documents, you may find it worthwhile to invest in a duplex scanner, which has two scan elements, allowing it to scan both sides in a single pass. A duplex scanner costs more than an equivalent "simplex" scanner (which scans only one

side at a time), but it can process both sides of a page just as quickly as it would one side, saving you a lot of time.

Raw scan speed, on the other hand—in seconds per page for scanners without an ADF or pages per minute (ppm) for scanners with an ADF—isn't much of an issue. For scanners that lack ADFs, you'll typically be scanning only a page or two at a time, so even a relatively slow scan speed should be acceptable. For scanners with ADFs, the scan speed is less important than the length of time it takes for the combination of scanner and bundled software to scan *and recognize text* in a document. The recognition step can take longer than the scan itself, or it can add

PERSONAL BUSINESS SCANNERS

For more: go.pcmag.com/personalbizscan

denotes Editors' Choice.

Products are listed from best to worst by rating.

	RATING	PRICE	WEIGHT (IN LBS)	SIZE (HWD, IN INCHES)	FLATBED/ADF*	PROS	CONS
Canon DR-1210C	●●●●○	\$400 street	13.4	6.5 x 18.5 x 15	✓	Low price. Fast OCR. Easy to use.	No duplex scan. Low raw scan speed.
Plustek OpticSlim M12 Corporate	●●●●○	\$265 street	0.7	1.3 x 10.8 x 1.9		Small, light, portable. USB powered. Capable software.	Sheetfed only. Will damage photos.
Visioneer RoadWarrior	●●●●○	\$170 street	0.7	1.5 x 11.4 x 2		Portable. Scans and manages docs, receipts, biz cards.	Sheetfed only. No receipt text input. Will damage photos.
Visioneer Strobe XP 220	●●●●○	\$299.99 direct	1.5	2 x 11 x 2.5		Portable. Capable software. Enhances poor originals.	Manual sheetfed only. Will damage photos.

*Automatic document feeder

EXPERT VIEW • BY M. DAVID STONE

What About Business Cards?



I've skipped one type of personal business scanner in this Buying Guide: devices dedicated to business cards. You'll find a fair number of reasonably good models, but as personal scanners have become more versatile, these dedicated scanners have become less compelling.

When I first saw a business-card scanner a little over ten years ago, most standard low-cost scanners were flatbeds. That made processing multiple items a chore, so a specialized device made sense. The software didn't work very well, but even in 1996, manufacturers had the hardware down; thus changes to the scanners themselves have been relatively minor.

Today's business-card scanners have switched from parallel or serial ports to USB, which also supplies power, eliminating the need for separate electrical cords. The scanners have sped up a bit, too, and they now typically do color scanning. But in general, they look about the same as they did before: They're just big enough for business cards, and although they have feed mechanisms, you have to insert cards one at a time.

The Big Guys Muscle In

The big change has been in the software. The first generation was like a "dancing bear"—it couldn't dance well, but we were impressed it could dance *at all*. The state of the art for OCR (optical character recognition) has improved, particularly in business-card software. Programs still make mistakes, but almost all of the current crop can get the information into your computer faster than you can. The best programs—notably the Neat Business Cards program that comes with the Neat Business Cards scanner and CardScan, supplied with the CardScan Executive and other models—make few enough mistakes to save significant amounts of time.

Unfortunately for business-card scanners, now that they've got their collective act together on the software side, personal document scanners are giving them competition on the hardware side. If you already have a regular scanner that can cope with business cards, adding another,

smaller scanner just for business cards won't do much beyond clutter up your desk. That's doubly true if the scanner already on your desk has an ADF that works with business cards, since you have to feed business-card scanners manually. Similarly, for scanning on the go, there's no good reason to carry two scanners if one will do.

What's more, if you already have a personal document scanner, odds are that you already have a business-card program. Even if you don't have one included in the software bundle, or if the one that came with the scanner doesn't work well, you can buy a business-card program for less than the price of another scanner. CardScan, for example, sells its CardScan software for \$149.99 (direct, www.cardscan.com)—far less than the price of a dedicated card scanner.

Down but Not Out

Even if you *don't* already have a document scanner, the case for a business-card scanner is still weak. Most business-card scanner packages cost between \$125 and \$260, a range that overlaps the \$150 to \$300 price for most portable and behind-the-keyboard scanners (at least for those that scan only one side of a page at a time). None of these personal document scanners takes up much more space than a business-card scanner. They all can scan letter- or legal-size pages as well as business cards. Most come with an assortment of software, so they can also handle things like faxing, copying, and document management—which you can't do with a business-card scanner.

That said, there's still a niche—however small—for business-card scanners. If you're reasonably sure you'll never need to scan anything but business cards while sitting at your desk (or on the road), and you want a scanner that takes up the least amount of space, I'll concede that a business-card scanner is probably your best choice. For everyone else, however, a portable or behind-the-keyboard document scanner will give you a lot more capability at the cost of only a little portability or a few square inches of desk space. For me, that adds up to a no-brainer. In the vast majority of cases, a personal document scanner is the preferred choice for business cards, too.

almost no time to the scanning process at all. The difference in recognition speed can literally be enough to make one scanner package with a slow ppm speed significantly faster than another with twice the speed in ppm but slow recognition software.

Keep in mind, too, that one of the most important features for any scanner is its

software bundle. Without the right software, you can't do much with scanned files. If you often deal with hard-to-scan originals—pages with highlighted text, for example—look for digital enhancement features, either as part of the scan utility itself or in other software.

More generally, look for programs with the functions and features you need—doc-

ument management, desktop indexing, business-card software, and so on. When you compare scanners, add in the price of any additional software you'll have to buy. If an expensive scanner comes with all the software you need, it may still be a bargain compared with a less-expensive choice that has equivalent hardware but fewer programs. □

Solutions

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Vista's Flash for the Rest of Us

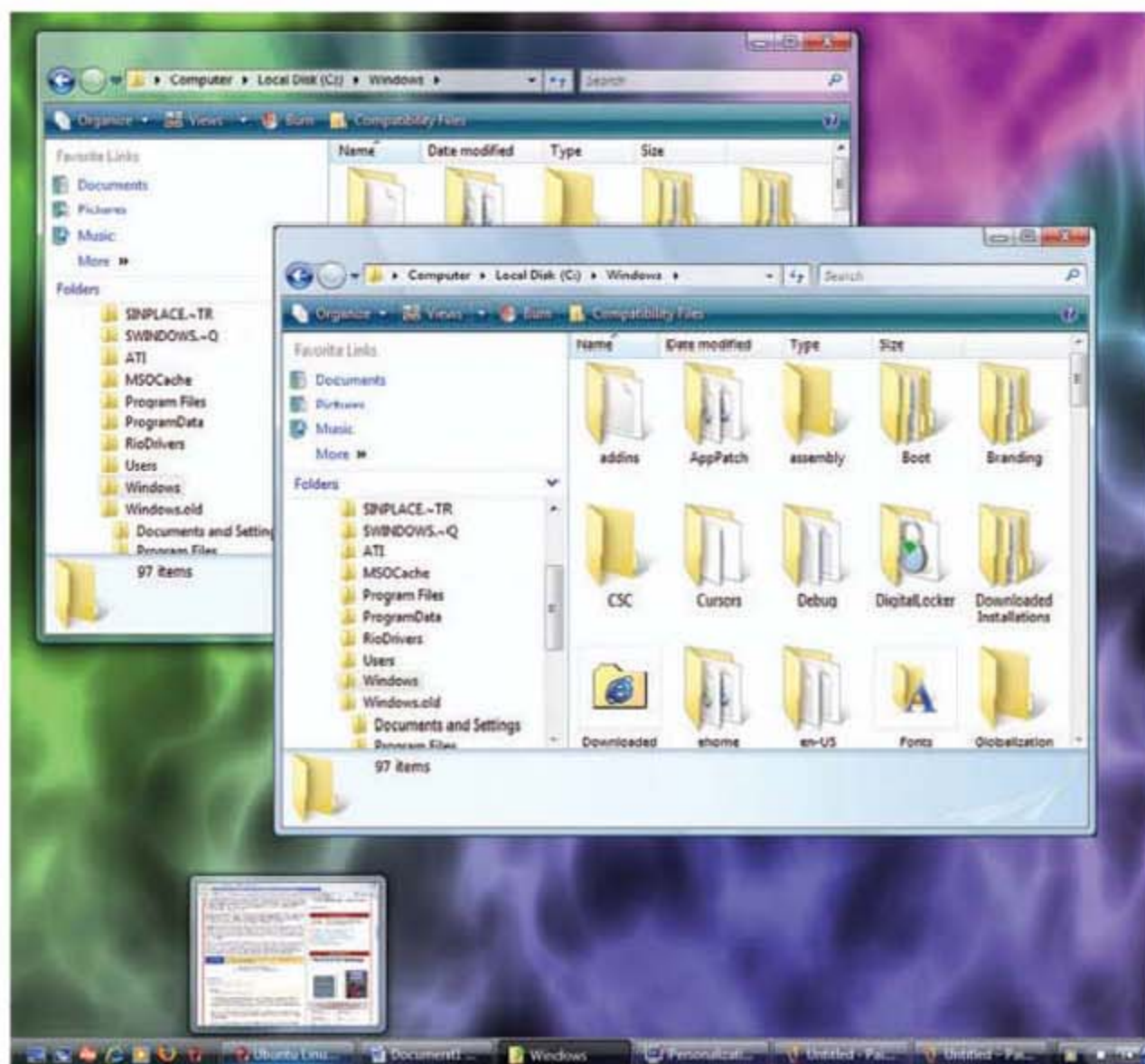
For eye candy, Vista's funky Aero interface carries a high cost—hefty hardware requirements, not to mention the cost of the OS—but even XP users can press their faces to the window. *by David A. Karp*

We're all suckers for a pretty face. Aero, the shiny, translucent new interface in Microsoft Windows Vista, is one of the things that'll convince a lot of us to endure a grueling OS upgrade this year. The Aero look is a welcome change from the homely, cartoonish look of Windows XP, and its transparent window borders are a convenient way to see what's behind the window on top. Aero also includes some flashy goodies, such as live thumbnail previews of running tasks in the taskbar and Alt-Tab window and the Flip 3D Rolodex-style task switcher (Windows key-Tab).

The glass won't be half full for everyone, however. For one thing, Aero has somewhat hefty requirements, not the least of which is a video card with a minimum 64MB of video memory (or more for higher resolutions), a Vista-friendly driver (available from the video-card manufacturer), and a 3D/gaming feature called

EDITOR'S TIP

ON THE ROAD? Aero needs a lot of processor power, and processors need juice. To make your laptop battery last longer, use Aerofoil (free, www.silentsoftware.co.uk) to switch Aero on automatically when you're on AC power, or off when you're traveling.



THROUGH THE LOOKING GLASS Here's the full Aero interface, with semitransparent window borders and thumbnail previews of running tasks, both on the taskbar and the Alt-Tab window, compared with the basic Aero theme, seen in the frontmost window.

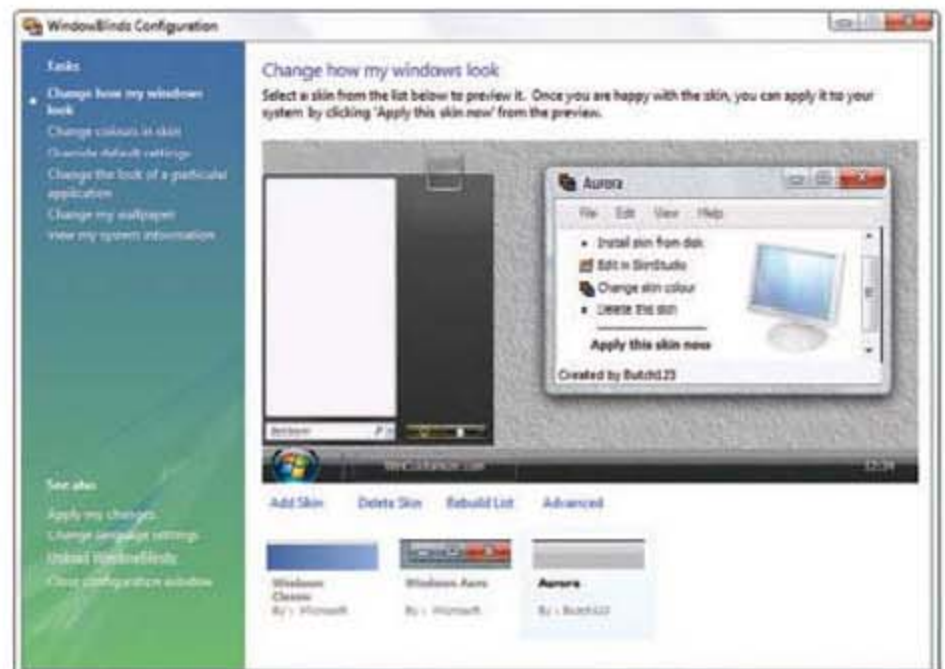
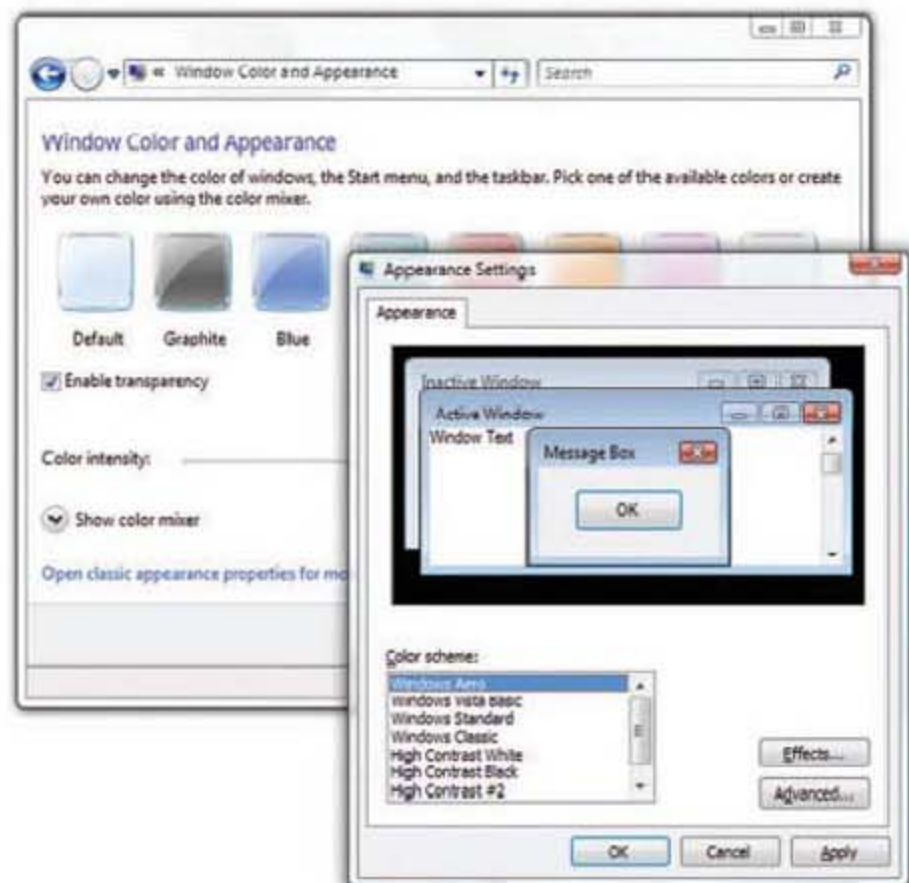
Pixel Shader 2.0 in hardware. And since Aero guzzles CPU cycles, you'll want a fast processor and a fast video card to enjoy it. Finally, you'll need Vista Home Premium or better for the full effect.

So, what if you're using the Home Basic edition, or just have an older PC? Or perhaps you have the goods but can't convince

Vista to show off its new look? Here are a few utilities that work on most PCs, but as they say, your mileage may vary.

And here's a tip for upgraders: If you've got an older system you want to polish but don't want to shell out the cash for a new PC, a high-end video card should do the trick. Most new video cards are designed

for the PCI Express slots found in new PCs; if you've got an older desktop system that takes AGP cards, get the fastest card with the most memory you can afford and let it shoulder most of the burden. Hint: The nVidia 6800 Ultra 256MB AGP card, though discontinued, can make Aero fly and can be snatched up used on eBay for a song.



2 BACK TO BASICS

Alas, Vista Home Basic doesn't support the Aero interface, but you can mimic it with Stardock's WindowBlinds, above (\$19.95, www.stardock.com; for ExtremeTech's review, see go.extremetech.com/windowblinds55), and a Vista theme from Stardock (free, www.wincustomize.com). At the WinCustomize site click on *Gallery*, then *Themes*; then within DesktopX Themes, OS. (There's a Registry hack floating around the Net that promises to get you Aero in Vista Home Basic, but it's just a leftover from some of the early betas.)

1 NO AERO FOR YOU?

Got all the requirements for Aero but can't get it to work? First, install the latest video driver from your video card manufacturer. If your video card is integrated into your motherboard (as it would be on a laptop), enter your PC's BIOS setup screen (check your manual for details), and allocate the maximum amount of your PC's memory for your video. Also, increase the AGP aperture size to its maximum setting. Back in Windows, open Control Panel, go to *System and Maintenance* | *Performance Information and Tools*, and then click the *Refresh Now* button. When it's done recalculating your score, return to the Control Panel home, go to *Appearance and Personalization* | *Personalization* | *Window Color and Appearance* | *Open classic appearance properties for more color options*, and then from the Color scheme list, select *Windows Aero* (see above). Click *OK* when you're done.

3 AERO ON XP, FREE!

A couple of free utilities, including FastAero (FastAero's site has been taken down, but the open-source download has been archived at www.sendspace.com/file/u415e7) and VystalVivid (www.vystal.de.vu), shown at right, give you a faux Aero effect on Windows XP. But you're unlikely to get stellar performance from either one without the hardware to support true Aero effects.

Use Visual Task Tips (www.visualtasktips.com) to get taskbar thumbnails, and Shock Aero (www.docs.co.kr) if you like Vista's Flip 3D task switcher.

And if you want to do Vista one better, check out Trans-Bar (www.home.no/aksoftware) for a transparent taskbar.





AskNeil

Tweaking SendTo in Vista

Q The SendTo PowerToy works in Microsoft Windows 95 through Windows XP. There are two files associated with it, *sendto.inf* and *sendto.dll*. These files are both dated 1996, but I've noted they work fine in all versions up through Win XP. I was trying to install the PowerToy into Vista and it doesn't work (this is pretty well documented on the Web, but I didn't know that when I tried).

Is there any way around this? Or do we have to wait until someone at Microsoft brings out a new version of the SendTo PowerToy?—Henry S. Winokur

A The Send To submenu is one of the options that show up when you right-click a file. That SendTo PowerToy added a number of items to this menu. My favorite was *Send To Clipboard as Name*—a nice way to get a list of files from Windows Explorer into a document. Another handy one was *Send To Any Folder*, which let you quickly copy the selected file or files to a new location. My crystal ball is cloudy as far as when Microsoft might re-create these tools for Vista, but you can make some simple SendTo enhancements yourself.

By default, the Send To menu lets you copy selected files to any removable drive. In previous Windows versions, it was easy to add a menu item that would send files to any specified folder on your hard drive. You just copied a shortcut to the folder into *C:\Documents and Settings\username\SendTo* and gave the shortcut a name like "Send to Project Folder." You could do something similar if you wanted to send files to a particular application: Just

FALSE TRAIL You can still enhance the SendTo menu in Vista, but the obvious location is a trick—it's just a pointer to the real location.

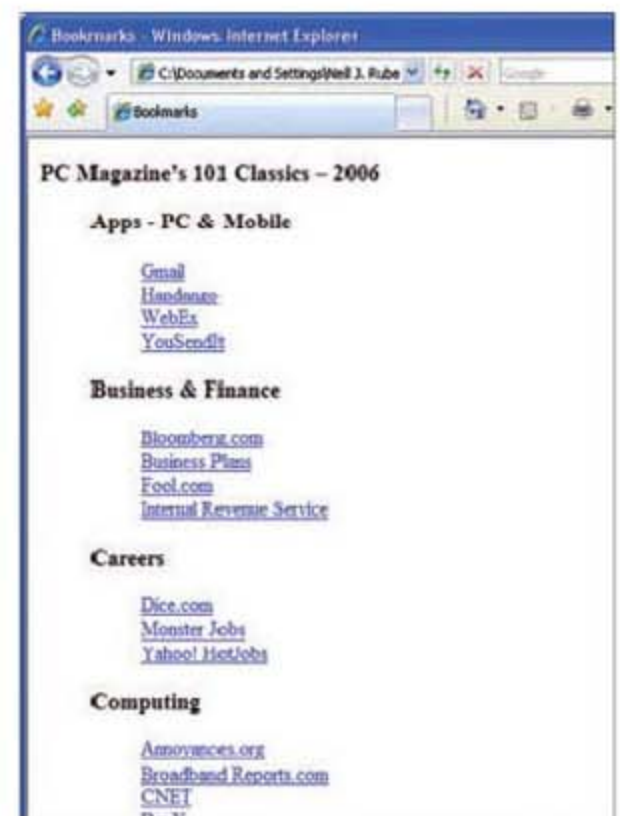
drag a shortcut to that application into the SendTo folder. This didn't work with every application and didn't always work with multiple files selected, but it was easy and worth a try.

Alas, you can't do the same thing in Vista. The folder *C:\Users\username\SendTo* is forbidden—you can't access it at all in Windows Explorer. If you try to view this folder using the Command Prompt, you'll get a clue about why it's inaccessible. Where other folders are identified as "<DIR>," this one says "<JUNCTION>." And after the name SendTo, you'll see a lengthy pathname in brackets, like so: "[C:\Users\username\AppData\Roaming\Microsoft\Windows\SendTo]." Aha! If you drop your shortcuts into the folder defined by that path, they will appear in the SendTo menu. You won't get the ability to send filenames to the clipboard, but it's a start.

Print and Transfer Bookmarks

Q I want to know how to print Firefox bookmarks and Internet Explorer Favorites, as well as how to copy them to removable media. Is there a hassle-free way of doing this?—Jorge de la Rosa

A For Internet Explorer Favorites, choose *File | Import and Export* from the menu. IE7 users, if you don't see a menu, press the F10 key to display it. Click *Next*, choose *Export Favorites*, click *Next* twice, check *Export to a File*, and select the location and filename for the resulting HTML file. Click *Next*,



RETRO BOOKMARKS To print IE Favorites, export them to a file and then open that file in IE.

then *Finish*, and you'll have a nice HTML page containing all your Favorites, organized in a sort of outline form that corresponds to any subfolders within the Favorites collection.

Firefox bookmarks are already stored in HTML form; you just have to find the file. It's located in *C:\Documents and Settings\username\Application Data\mozilla\firefox\profiles\random\bookmarks.html*, where *username* is your username and *random* is a random folder name.

To get a printout, simply open the HTML file in your browser by launching it and then print it as you would any other Web page. To transfer the selections to another computer, transfer the HTML file using a USB thumb drive, e-mail, or even a floppy disk. Then import it into the other computer's browser.

NEED ANSWERS? PC Magazine's software expert, Neil J. Rubenking, tackles your toughest software and Internet problems. Send your questions to askneil@ziffdavis.com.





AskLloyd

A Bad Power Button?

Q I can restart my PC (using Windows shutdown/restart) with no problem at all—it saves settings and automatically reboots A-OK.

But if I shut down completely I have trouble with a “cold” boot. Here’s what happens:

I push the power button and immediately I get a flash of the Num Lock and Caps Lock diodes on the keyboard. I watch the console and see the hard drive orange diode flash two or three times, and then nothing. No matter how long I wait, nothing.

And so I push and hold the power button until it powers off, which it does “normally.” I wait and then push the power button again and the same thing happens. I keep doing this on/off thing repeatedly until finally the PC mercifully comes on. It took about 75 times to get it going this time. Needless to say, I don’t power off unless I have to. My sense is that it is a hardware problem, but is it?—Sheldon Buckman

A I’ve seen this kind of behavior before, and there are several possible solutions. The most obvious cause is something wrong with the power switch. But it doesn’t sound as if that’s the problem here.

In a modern PC, the power switch actually connects to a pair of pins on the motherboard. When you press the switch, it generates a signal through the motherboard, to the power supply. It also launches

the boot process. For this reason, connections of this sort are called “soft power switches,” since it’s actually the motherboard BIOS that’s doing the power-up. The power supply is typically on, but in a very low power state.

Given the behavior you’ve seen—that the switch works but the system isn’t actually powering up completely—I’d suspect the power supply. You might take it in to a repair shop and have that tested.

But It’s a Genuine Microsoft CD!

Q I am working on a “homemade computer” and just replaced a defective hard drive with a new Western Digital 250GB IDE drive.

My operating system CD is Windows XP Pro with SP2, which I bought new. After formatting and trying to install XP, I get setup errors telling me particular files (it names them one at a time) “can’t be copied. Check with vendor of the CD.” This is what the screen says. The CD appears to be clean and blemish-free and is Genuine Microsoft. I have changed the IDE cable as well and switched the cable on the IDE Controller. I have reseated the memory also. What’s going on?—Rich Vatalaro

A Some optical drives are more sensitive to contaminants on a particular piece of optical media than others. Quite frequently, a CD or DVD may have thin traces of them—typically oils—that can create false errors. The way to fix this is to take the CD and wash it with a soft cloth using warm water and standard dish-washing soap (not dishwasher detergent). I’ve fixed vast numbers of supposedly defective optical discs with this little trick.

More Power

Q Ever since I added a second Radeon X1950 for CrossFire, my PC has randomly hung, crashed, and rebooted.

I’ve already returned the card and replaced it with another, brand-new one, but the same thing keeps on happening, even with the newer card. What gives?—lazyman

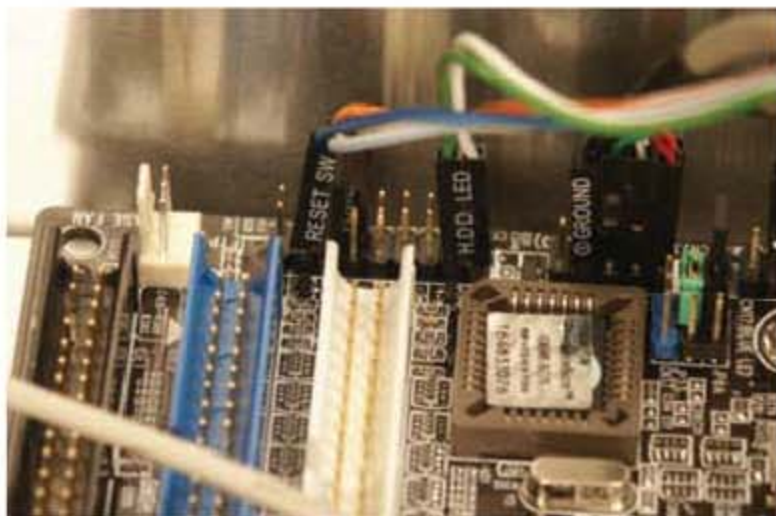
A The symptoms you’re describing could come from a number of problems. You’ve already ruled out one of them—a bad card. From what you wrote, however, I have a strong suspicion that your computer’s power supply is either old or inadequate.

Older power supplies, even those that are new enough to be ready for SLI/CrossFire, often cram too many components onto one power rail. While the power supply itself might provide enough juice for all of your components overall, it still might not be efficient at using its own internal circuitry to spread the components out among its various rails (which are basically separate circuits). If you have, say, two graphics cards on the same 12V rail, the power supply might have trouble keeping enough wattage going to that one rail—and the symptoms you described are exactly those of a failing power supply.

Alternatively, your power supply might not provide enough overall power for your system with the CrossFire graphics card included. Because I don’t know what other components your PC has, it’s impossible for me to estimate how much wattage your system actually needs.

I suggest you replace the power supply, making sure—through research and through reading the minimum specifications of your PC’s components—you get one with enough power. Get an SLI- or CrossFire-certified power supply, which will guarantee that it spreads the power-hungry components among its various 12V rails. —By guest expert Joel Durham Jr.

NEED ANSWERS? ExtremeTech.com’s editor, Lloyd Case, tackles PC Magazine readers’ hardware problems in each issue. Send him your toughest ones at asklloyd@ziffdavis.com.



POWER UP The motherboard conveys a signal from the front-panel power switch to the power supply.

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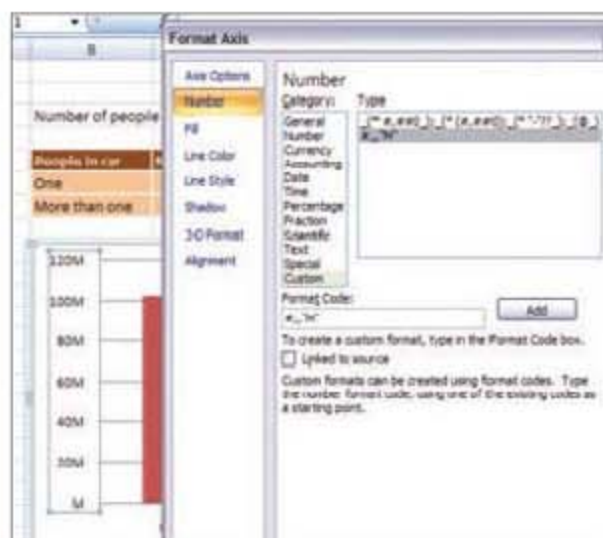
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Give Your Charts a Makeover

Sift through the pages of *The New York Times* and you'll notice that the charts used to illustrate the stories don't look like typical Excel offerings. They're uncluttered and attractive, and even though they're mostly monochromatic, they make good use of differing grays. Their designers also manage to jam a lot of useful information into a very small amount of space. Still, the distance between a *Times*-style chart and an Excel one really isn't that great. You can

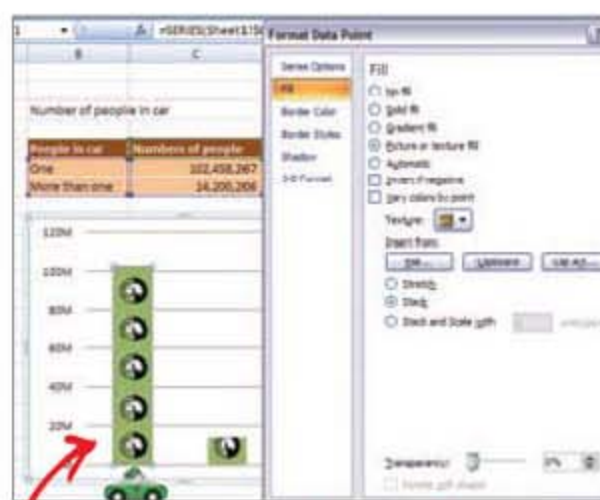
create charts that are as good in Excel with a little additional time spent on design—and a little additional Excel know-how.

Graphical niceties such as shadows and photo images, minimal chart axes, grouped multiple charts—all the features of a *Times* chart can be reproduced in Excel 2007, so you too can produce great-looking pieces of informational art. Here are some makeover techniques to use on your own charts.—Helen Bradley



SHRINK THE SIZE

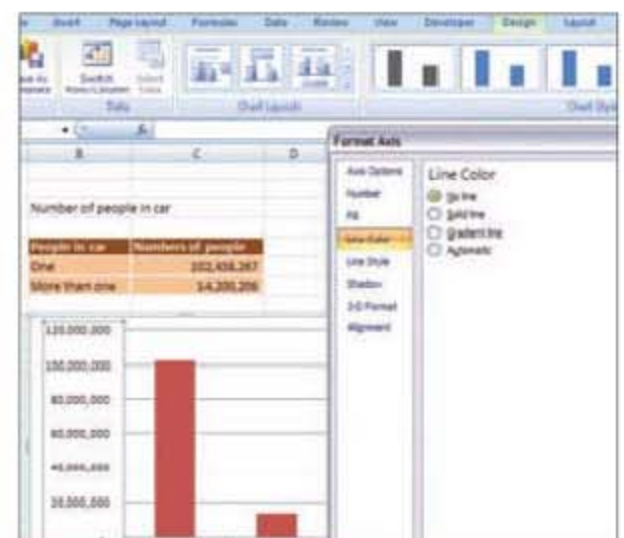
The plot area does not have to take up the entire chart area; you can reduce its size to make room for other elements. To do this, click the plot area to display the sizing handles, and then drag them to shrink the plot area or to move it inside the chart area. You can also change font and size, and shrink large numbers by formatting them to show as millions. Enter the custom Format Code `#,,"M"` and click *Add* to reduce millions to a shorter display format.



Clip art can be decorative and informative

ADD ARTWORK

You can format the shapes in your chart with more than colors and borders. Select *Format Shape*, then *Fill*, and click the *Picture or Texture Fill* option. Select a texture or image to place inside the shape. You can then configure the border and transparency of the picture fill so that it either stands out or blends in.



GET RID OF THE EXCESS

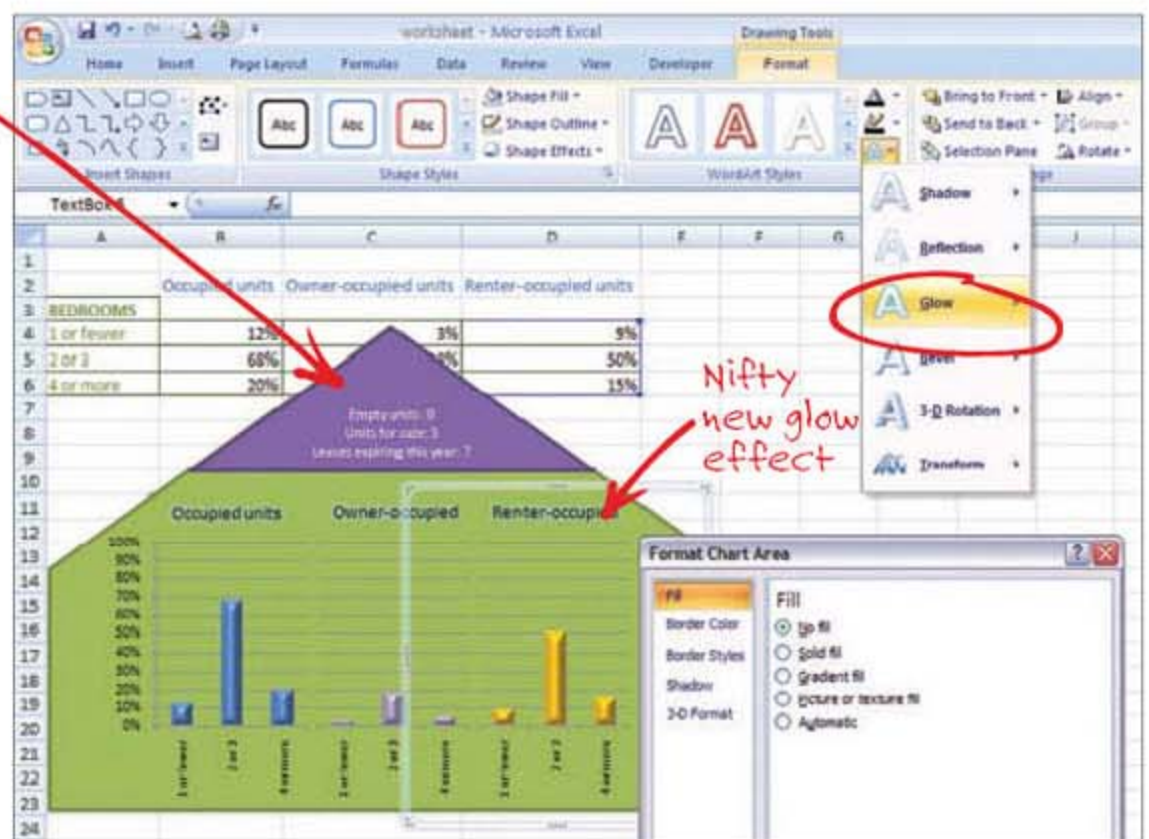
To declutter a chart, hide or de-emphasize parts of it. Select any chart object—say, a gridline, legend, or axis—by clicking on it; right-click; and choose *Format <chart object>*. Then, for example, to remove the line from an axis, click the *Line Color* option, then *No Line*. The *Format Object* dialog in Excel 2007 stays open but lets you click on various areas of a chart to modify them.

A FEW MORE TRICKS

By some careful arrangement, you can make a series of different charts look as if they are all part of the same chart. To do this, create a shape such as a rectangle and then move two or more charts onto the shape. If the y-axes of all the charts are on the same scale, you can remove the axis from every chart but one and line the charts up so they share the single visible axis. To make them look less like individual charts, remove the border from around each of them and use the *No fill* option, as shown here.

Text boxes are particularly useful with grouped charts, and if you insert them *in* a chart, they'll move with the chart. Click the chart to select it, then insert a text box and type text into it. You can use text boxes to create chart titles as well as to place additional data that's relevant to the purpose of the chart but not actually charted.

Use a text box for uncharted information



Nifty new glow effect

Microsoft on the .Info Block

Note to software giant: Applying blanket rules isn't good security. *by Larry Seltzer*

Microsoft has always tried to block transmission on the Messenger network of certain link references that are considered malicious. But recently they ratcheted up the standards. Blogger Joost de Valk recently determined that Microsoft is blocking all transmissions that reference a site with a .info domain name. For example, just try sending the following message:

The Metropolitan Transportation Authority's Web site is www.mta.info.

MTA.info is among the best-known .info sites, but as a top-level domain, .info is largely a failure. Conventional wisdom holds it is a haven for malware distributors. But even text strings that clearly aren't links are blocked, such as *Messenger blocks strings with ".info" in them.*

Why? Microsoft claims that there was a "malicious advertising effort" targeting Windows Live Messenger users. The messages had URLs with "either .info or another URL," and the site they led to asked for the user's Windows Live user ID and password. If the user complied, everyone on their contact list received the string.

Pretty standard worm stuff. But Microsoft went on: *This was not a Microsoft sponsored effort, and in order to prevent the spread of it through our service, instant messages that include the words ".info"*



and a few additional key words have been blocked. This action may block some safe, reputable sites and we apologize for any inconvenience this may cause our customers; however, given the circumstances this action was necessary. We are investigating options to ensure legitimate domains that have ".info" in part of their name and other key words are not blocked and will have an update to share in the near future.

Whoa there! Some .info domains were used for the attacks, therefore all uses of the string ".info" are blocked? This is a pretty serious overreaction, even given .info's bad reputation and assuming that Messenger's filtering capabilities are primitive and can't do anything more intelligent than this. Give us back our .info!

STAY SAFE! Find the latest tech security news in PC Magazine's Security Blog, at blogs.pcmag.com/securitywatch.

.INFO MEANS MALWARE? Say what you will about NYC transit, but the MTA.info site ain't malware.

VWho's Next?

We first pointed out the use of the double v to fake a w a few weeks ago, noting that *vwindows.com* and several similar domains had been registered. Now Sunbelt Software is reporting more vv domains.

The target this time is VWestern Union, better known as Western Union. It looks as if there are multiple offenders here. Different people have registered *vwesternunion.us* and *vvesterunion.us* (yes, the first *n* is missing in this second instance), as well as other variants in .com. The *vvesterunion.us* site is a phishing attack against the real Western Union and is detailed in the Sunbelt blog.

How should you avoid these sites? Pay attention! Does something about the URL look off? Does the linked text match the URL (mouse over the link to check)? Copy and paste URLs into Windows Notepad or another text-editing program and see if that thing that looks like a w lets you insert a space in the middle of it.

THE MOST DANGEROUS FILE FORMAT?

The newest trend in spam has been the use of new file types attached to spam messages, the favorite format being Adobe's PDF. It has been especially popular in spreading "pump-and-dump" stock spam. But don't worry! Adobe recently sought to reassure users with this statement: "PDF is no more able to embed malware on an unsuspecting user's system than any other typical e-mail attachment."

This may well be true; many typical e-mail attachments are capable of spreading malware. In fact, PDFs were probably chosen by spammers because Word files are infamous as vehicles for malware. It is true that there are no known examples of PDF spam being used to spread malware (though past vulnerabilities in Acrobat Reader let PDFs compromise a PC). PDF spam represents an annoyance more than anything. For now, at least.

DNS ATTACKS

A recent independent study, as reported by Yahoo! Finance, reveals that despite costly and often complex security measures designed to keep their DNS (domain name system) servers protected from attackers, many businesses remain vulnerable. More than 50 percent of respondents reported having fallen victim to some form of malware attack—more than a third of the total had been hit by a denial-of-service attack, specifically. Respondents were also asked to assess likely impact of a loss of Internet connectivity.

If you lost Internet connectivity for a significant period of time, what would happen?

Loss of productivity

74%

Unable to conduct the most basic business functions

54%

Substantial loss of revenue

40%

Brand would suffer

39%

Would be extremely or somewhat likely to go out of business completely

12%

Research by Mazerov Research & Consulting LLC of Denver, 2007

SMB BOOT CAMP

Web Site Analytics

Find out if your Web site is earning its keep. *by Matthew D. Sarrel*



Chris Basham, president

TRACKVIA

Size: Five full-time employees

Challenges: Reduce the time and effort spent analyzing site traffic; gauge efficacy of AdWords spending.

Solution: VisiStat 5.0

Results: Decreased AdWords spending by approximately 50 percent while increasing new customers.

Trackvia, a database software-as-a-service company, provides a customizable Internet database for small businesses looking to step up from using spreadsheets to manage information. A typical customer will find the company through a search engine or Google AdWords, go to *trackvia.com*, and ultimately sign up for a trial subscription. According to president Chris Basham, "We're doing a lot of online advertising and sort of living and dying by our daily traffic."

Trackvia used Google Analytics and the AdWords interface for its first year, but Basham began to feel that "there was a big gap between our AdWords spending and results," so he started shopping for a Web-analytics solution that would provide real-time traffic analysis in either individual or aggregate form.

Basham now uses VisiStat 5.0 to analyze to what extent money spent on AdWords results in customers who sign up for a trial and eventually convert to a sale. He uses click-path analysis to see where visitors enter the site and when they decide to sign up—or, though he doesn't mention it, when they leave. He's also able to see how customers use Trackvia's service. This insight has brought real returns, says Basham. "We eliminated 50 percent of our AdWords spending while maintaining or even increasing the number of paying customers." □

How You Can Analyze Your Own Web Site

Web-site analytics technology has advanced dramatically in the past few years. Admins used to have to import, parse, and analyze Web server logs manually. And if your site was distributed across many servers, you needed to combine separate logs for analysis. As you can imagine, it was quite difficult and time-consuming, especially for large sites.

The current analytic standard is to use small snippets of code, usually JavaScript, typically hidden within each page's footer. This code, when combined with a cookie, reports back to a server hosted by your Web-site analytics vendor and fills a database with information about each user's activity. You no longer have to manage your Web server log and manipulate it to generate reports.

Analytics vendors typically focus on either simplicity (of use) or complexity (of analytic information). This means that before you begin shopping for a solution, you need to decide which you want. Do you want to understand the basics of your site's traffic quickly and easily, or do you want to create custom fields and reports and conduct complex analyses? For simplicity, look to VisiStat, nextSTAT, and ClickTracks as market leaders. For complexity, look to WebSideStory, WebTrends, and Omniture. Google Analytics falls somewhere in the middle, and most people I've spoken with find it neither easy to use nor powerful and customizable.

Overall, the goal is to understand how customers interact with your site so it can be tweaked to better serve those customers.

Rank	Keyword/Key Phrase	Total Searches
1.	trackvia	(411)
2.	online database	(261)
3.	trackvia.com	(77)
4.	database	(52)
5.	track via	(39)
6.	online databases	(44)
7.	real estate software	(36)
8.	web database	(34)
9.	web databases	(32)
10.	single database	(30)

ADWORD EFFECTIVENESS VisiStat tells Trackvia which keywords are used most commonly in searches that resulted in click-throughs to the company's site.

Essential Features

SEARCH ENGINE ANALYSIS. It's best to know the exact query string and which search engine people are using to find your site. Then you can tweak your AdWords spending and perform search engine optimization.

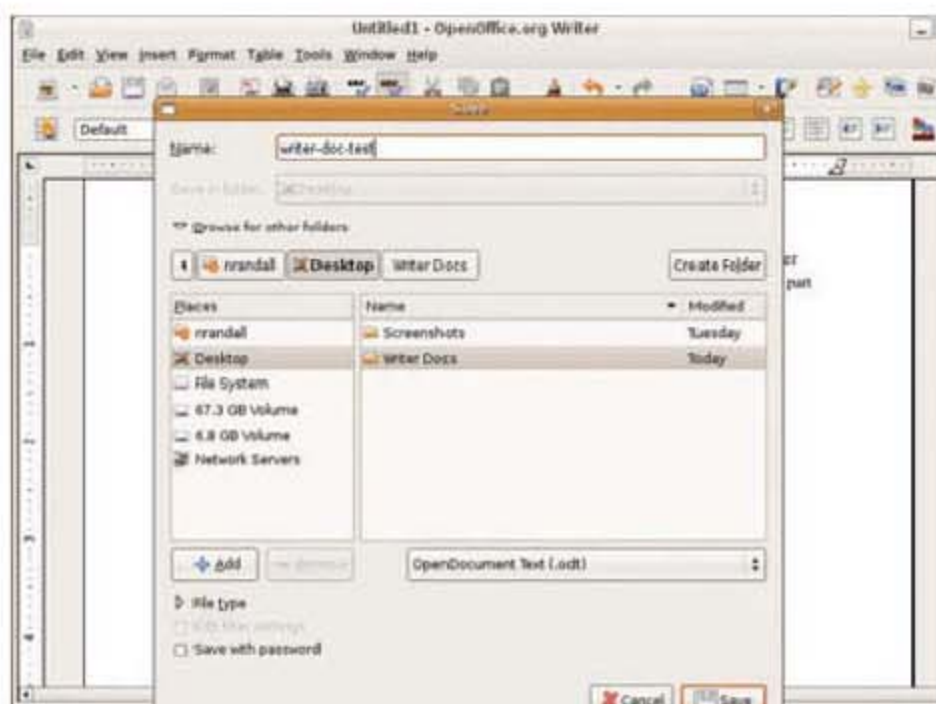
CLICK-PATH ANALYSIS. Learn how people use your site so you can promote popular pages and, if necessary, rearrange navigation to make it more enticing and to help people find what they need. For example, if visitors hop around randomly, then search just for a specific thing, you have a navigation problem.

CONVERSION FUNNELS. Track customers through each step of the acquisition process and look for where potential buyers drop out. Then adapt the process iteratively to make it as efficient as possible.

I've Got Ubuntu. Now What?

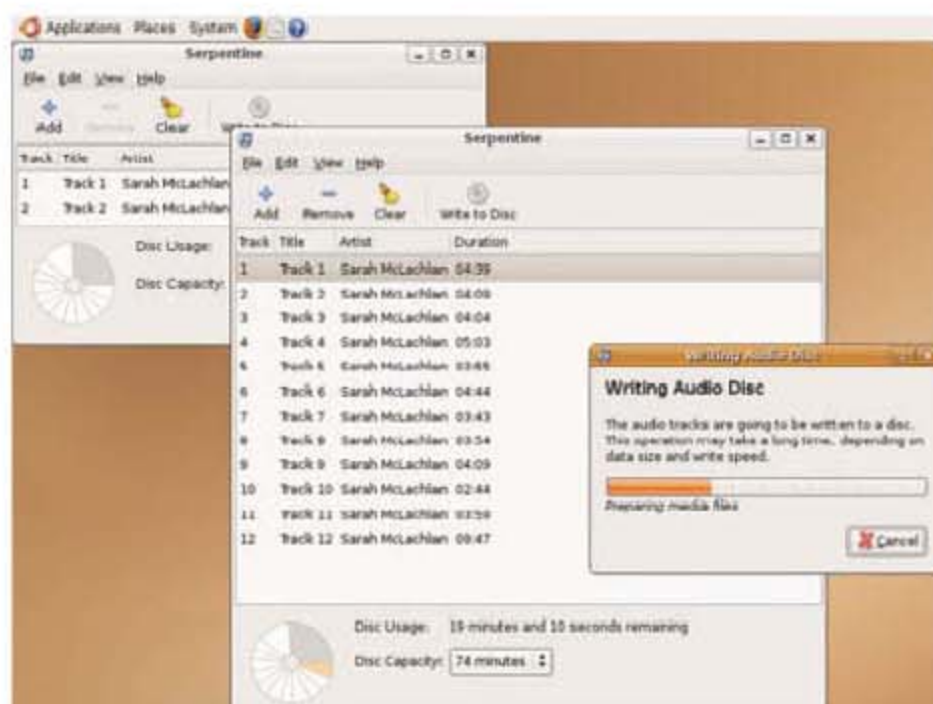
Ubuntu's desktop design makes getting up to speed with Linux quick and easy. Click the Firefox icon on the top panel to launch the familiar browser. Click the envelope icon right beside it to set up a POP or IMAP e-mail account—but if you're used to storing the messages from your POP account in Microsoft Outlook, be

sure to tell Evolution to leave the incoming messages on your mail server (it's an option during setup). Once you've explored these programs a bit, pull down the *Applications* menu and see what Ubuntu has installed for you. OpenOffice.org is one, and we'll use it as a starting point.—Neil Randall



1 FAMILIAR GROUND

Even if you've never used OpenOffice.org (reviewed at go.pcmag.com/openoffice2), you should find its modern office-suite feel relatively familiar and easy to get to know. Experiment a little with Writer, then give the other OpenOffice.org apps a whirl, just to see what productivity tools you have at your disposal.



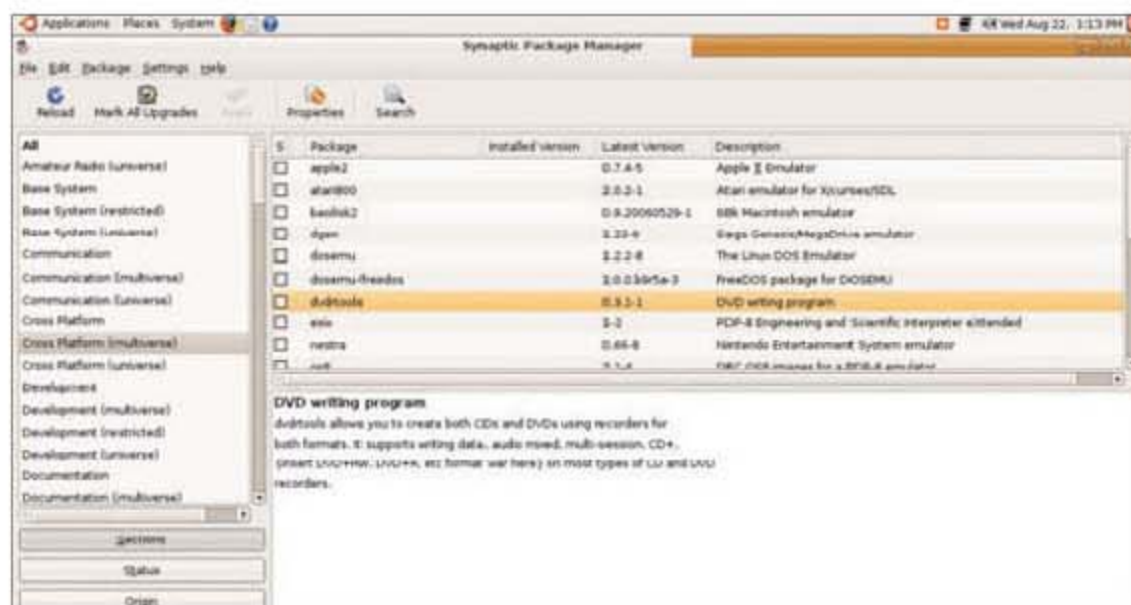
2 MUSIC AND ART

Next, take a bit of time to work with CDs. Sound Juicer CD Extractor lets you rip CDs, and Serpentine Audio CD Creator compiles and burns them. Once you've ripped an album, play the tracks in Rhythmbox Music Player to make sure that Ubuntu has recognized your PC's audio hardware. To work with graphics files, launch GIMP and the F-Spot Photo Manager from *Applications | Graphics*. Scan a graphic with XSane Image Scanner, accessible from the same submenu.



3 SETTINGS

Now, start configuring. Right-click the desktop and choose *Change Desktop Background*—click *Add Wallpaper*, navigate to your graphics files, and grab the one you want, or launch Firefox and find an image online. Under *System | Preferences*, choose *Main Menu* and set default menu commands. Also from the *Preferences* menu, open *Screensaver* and choose from the large array, then click *Power Management* to determine power settings.



4 EXPLORE AND ACQUIRE

Finally, explore the items in the *Administration* menu under *Systems*. Be sure to peruse the Synaptic Package Manager. Choose the category from the left and scroll through the options on the right. Click on any packages that sound interesting to see what they do, then click on the ones you want to download and choose *Mark for Installation*. In the toolbar, click *Apply*, and the installation begins. When it's finished, find the newly installed program in your *Applications* menu, launch it, and enjoy.

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Has spyware infected your computer

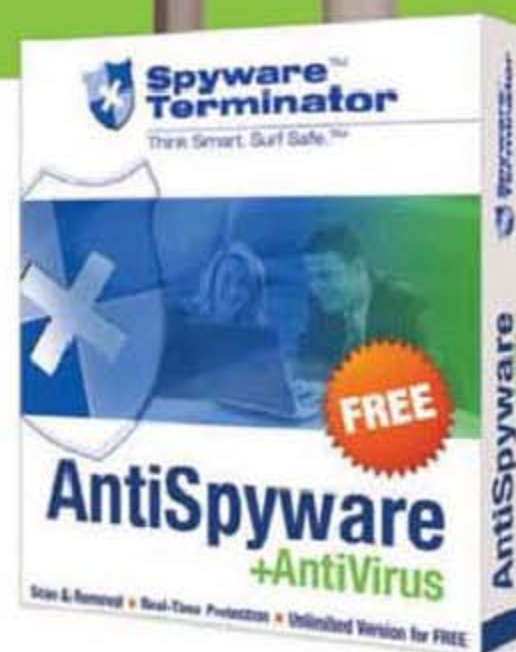


Eliminate spyware and protect your computer with **totally free** new Spyware Terminator™ 2.0 Internet security suite. Prevent identity theft and invasion of your privacy. Get full real-time spyware detection, removal and protection. Use what millions of people rely on every day at home and work.

Get Total Protection – Totally Free!

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ABC's 20/20 "SPEED DATE" TEST SHOWS ATHENA PHEROMONES CAN INCREASE SEX APPEAL.

MESSAGE FROM DR. CUTLER

When ABC 20/20's television crew came out to Athena Institute to interview me, I had no idea of what "test" they might perform on my two pheromone cosmetics. And I did not suggest one. When I saw their 12/9/05 telecast, I found out. ABC 20/20 cleverly picked a "speed dating" contest with identical sets of twins.

One twin had been wearing Athena Pheromone 10X for men and one Athena Pheromone 10:13 for women. I knew that in two published scientific studies, my fragrance additives worked for 74% to increase sexual attractiveness. So you can imagine my pleasant surprise, that our Athena pheromones were successful in this non-scientific speed dating trial in 19 out of 20 trial "dates".

Dr. Cutler has a Ph.D. in biology from University of Penn, post-doc at Stanford. Co-discovered human pheromones in 1986 (Time 12/1/86; and Newsweek 1/12/87).

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BackSpace

EDITED BY DAN EVANS

OUR FAVORITE SPAM THIS WEEK This missive about the cocoa business touched our hearts.

Dearest One,

Please permit me to inform you of my desire of going into a relationship with you. This to the best of my knowledge will establish an everlasting relationship between me and your family.

That would be disappointing

Yeah, "suspense" accounts are the best

The cocoa business is life & death

I am Juan Minnawi the only daughter of the late Mr. and Mrs. Bassie Minnawi, a known wealthy cocoa merchant here in Abidjan who went on helping people but later was **disappointed by his close relatives and business friends. My father was poisoned to death** by his business associates on one of their outings on a business trip. While my mother died when I was a baby. My father took me so special before his unfortunate death that kept me an orphan today without a family of a brother or sister. Before the death of my father on March 2005 in a private hospital here in Abidjan he secretly called me on his bed side and told me that he has the sum of **(\$8,500,000) which he deposited in a suspense account** in one of the prime bank here in Abidjan Cote d'Ivoire that he used my name as his only daughter as the next of Kin in depositing the fund. He also explained to me that it was because of this money that he was **poisoned by his business associates**. He then advised that I should seek for a foreign partner in a country of my choice where I will transfer the fund into for investment.

I am honorably seeking your assistance.

And here I thought this was just a social note

Thanks and God bless.

Sincerely,
Juan Minnawi

ABORT, RETRY, FAIL *by Don Willmott*

Obituaries Find Profiles w/Pics of People you have lost. Start now and Re-connect
www.reunion.com

Sounds as if there could be some very interesting "reunions."



It's clear that at this hotel the public computer is sorely lacking a spell-checker.



In this Radio Shack ad it looks like "Mr. Fix It" has just destroyed a hard drive.



ARF on the Beach: Negril, Jamaica.

ARF NEEDS YOU! If your entry is used, we'll send you a PC Magazine T-shirt. Submit your entries via e-mail to arf@ziffdavis.com. Ziff Davis Media Inc. shall own all property rights in the entries. Winners this issue: Matthew Fuller, K.M. Peterson, Sean Sengenberger, and Nathan Watson.

STATS

Number of Sony PlayStation 3 consoles sold in the U.S. as of Q1 2007:

4.48 million

Number purchased by PC Magazine staff members:

1

PC Magazine staff members who took part in a recent Nintendo Wii tennis tournament:

50



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say, "call office"

say, "shuffle on"



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