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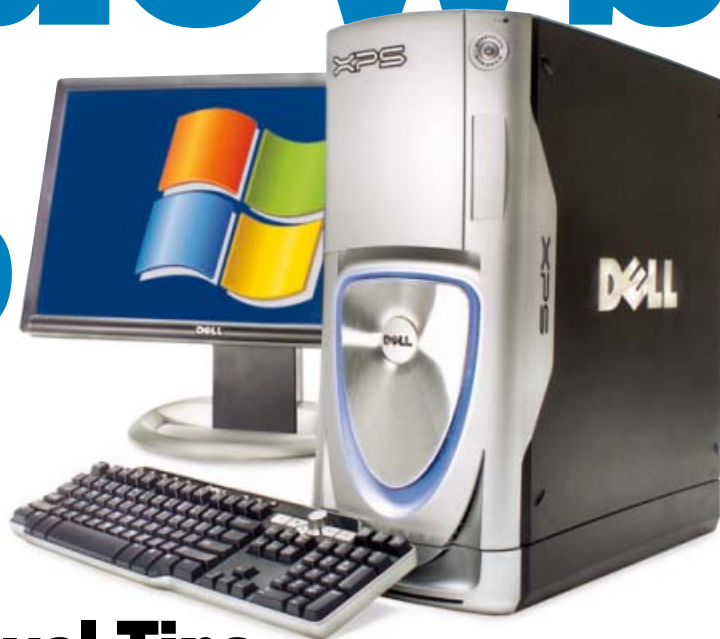
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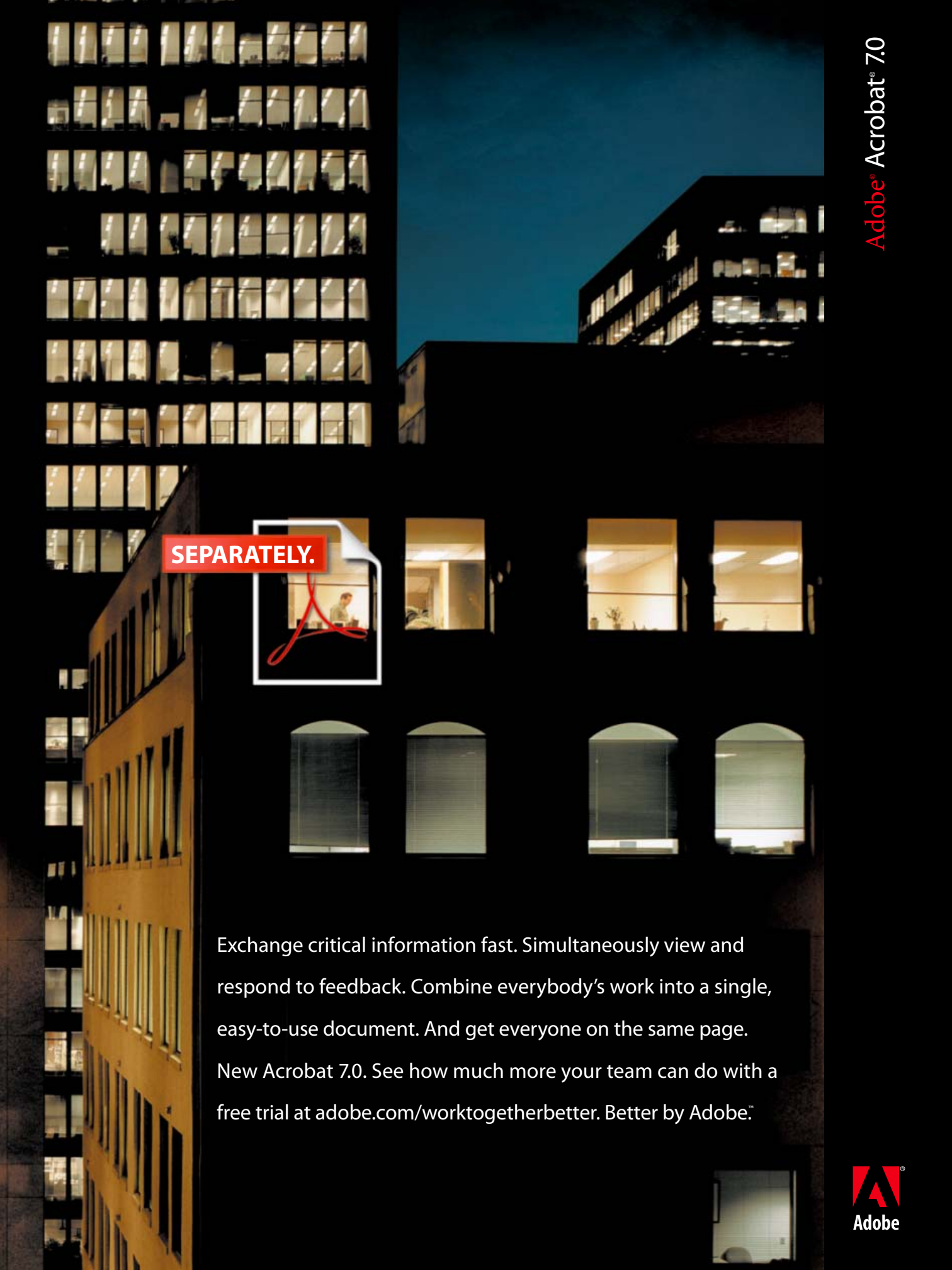
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September 2004

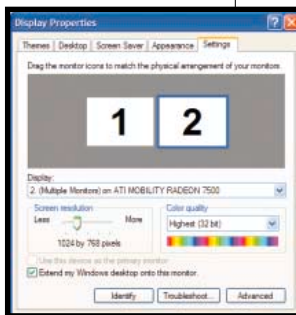
Forward Thinking



Making Windows Your Own

As the industry is abuzz with talk of Microsoft's upcoming Windows release, code-named Longhorn, Windows XP continues to dominate the desktop. I can easily see why: You can find Windows software for just about every imaginable application, from general-purpose productivity tools to vertical-market software for different industries. A large part of Windows' success lies in its tremendous flexibility, which has enabled lots of developers to write software for it.

Just as important, for many of the applications in the operating system you can find alternatives. Don't like Internet Explorer? Run Firefox, Netscape, or Opera. Don't like Windows Media Player? Run iTunes, Musicmatch, Napster, RealJukebox, or Winamp. Don't trust the built-in firewall? Choose one from Computer Associates, McAfee, Symantec, or Zone Labs. For more examples, see our annual util-



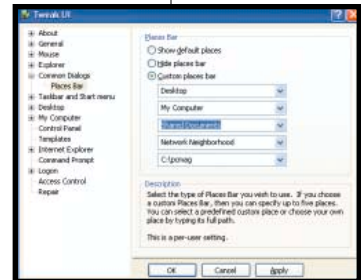
MULTIPLE MONITORS: Extend your desktop in a snap.

ity guide in our May 24 issue, where we review 156 add-ons for Windows (go.pcmag.com/utilityguide).

In addition to the utilities that make Windows so flexible, there are an amazing number of adjustments you can make to the operating system itself to customize the way it looks and the way you use it. We deliver some of those tips in our Solutions and User to User departments in each issue. For this issue, we collected 120 of our favorites, starting on page 81. They

range from general tips for making the operating system run more reliably to customizing the interface and securing your data. We also give you tips for using Internet Explorer (and Firefox, for those of you who have switched).

Sure, you can use Windows right out of the box, but by learning a few simple tips and tricks, you can make it work the way you want it to.



TWEAK YOUR UI: Edit dialog boxes to your liking.

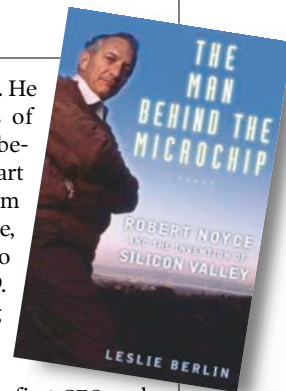
The Man Behind the Microchip

Everyone knows who Bill Gates is, but do you know Robert Noyce? Probably not. More than anyone else, Noyce pioneered the hardware side of the personal computing revolution. He's considered the coinventor of the integrated circuit, the basic technology behind the chips that power all the PCs and consumer electronics we use every day. But Noyce was much more than an inventor; he was an incredibly influential and successful business leader as well, best known as the cofounder of Intel. Few other people have had such success as both an inventor and a manager.

It's unfortunate that the pioneers behind today's technologies aren't nearly as well known as Thomas Edison or the Wright Brothers. Which is why I was especially interested in a new book, *The Man Behind the Microchip* by Leslie Berlin (Oxford University Press), the first full-scale biography of Noyce and the first book to acknowledge his true importance.

Noyce's story is a fascinating one. He was one of the early employees of Shockley Semiconductor, rising to become one of the leaders, and then part of the group that split off to form Fairchild Semiconductor. While there, he came up with the process used to create the integrated circuit, in 1959. At the same time, he was running the company. After a split with Fairchild, he and Gordon Moore founded Intel, where Noyce was the first CEO and architect of the powerhouse the company would become. Before his death in 1990, he was the first CEO of Sematech, the industry's R&D consortium.

Along the way Noyce not only invented enduring technologies and the world's largest semiconductor company, but also invented many of the business



Robert Noyce, Intel's cofounder, was one of the most influential inventors of our time.

Forward Thinking

MICHAEL J. MILLER

practices that would come to shape Silicon Valley, from the venture-capital culture to stock options. He would also serve as a mentor to many budding entrepreneurs, including the young Steve Jobs.

Berlin received cooperation from Noyce's family and his widow, so she covers his personal life as well. But he was an enigma, even to people who knew him.

The book succeeds best as a business biography, putting his impressive accomplishments in perspective. Noyce should be considered one of the most influential inventors of our time, a prime mover of the digital revolution that has changed all our lives. For that he deserves much broader recognition. *The Man Behind the Microchip* is a great start in that direction.

Globalization and Technology: The Big Picture

My recent trip to China got me thinking seriously about the global economy and the role it's playing in technology and business. It's no secret that we live in a global marketplace. When I arrived in Beijing and cleared customs, the first things I saw were a Starbucks and a KFC. And of course McDonald's and other Western brands were all over the city.

Asia has become an important manufacturing center for technology. Virtually all of the flat panels in notebook, liquid crystal, and plasma displays are made in Asia, mostly by Korean companies. And many other components, among them memory, hard drives, and the supporting chips, are manufactured in Asia too. There's no such thing as a computer made completely in any one country these days.

In large part, that's been due to lower labor costs, but the equation is more com-

plex. Executives I talked with in China pointed to educated workforces, local skills, and encouragement by the local government. And everyone stressed the importance of quality. American computer makers used to manufacture at home and sell globally. Now, they manufacture and assemble offshore, in almost every market they operate in around the world.

A decade ago, only Japan and Taiwan had reputations for making high-quality goods. But now we see high-quality products emerging from the entire region. And Asia's role extends beyond manufacturing; a huge percentage of the notebooks from companies such as Apple, Dell, HP, and others are engineered in Taiwan.

Technology has made it easier for companies to go global. During my trip, I was struck by how much business travel has changed over the last decade. Traveling to Asia used to mean being largely out of touch with the office back home. This year, I stayed in touch relatively easily. I had a broadband Internet connection in my hotel room, and Wi-Fi was available throughout the hotel. It wasn't the fastest connection—I couldn't get video IM to function—but e-mail, instant messaging, and VoIP all worked. And getting my cell phone to work in China was easy.

The countryside in China is a different story. It's

still far behind on the technological curve. But the cities are modernizing, and all the big companies have great ways of keeping in touch with manufacturing facilities across the globe.

Whenever I write about globalization, I get lots of mail from people who complain about the loss of U.S. jobs. There's no question that globalization poses a huge challenge for American companies and workers, and indeed for workers all over the globe. Unquestionably, the move toward offshoring hurts some workers in the U.S., whose jobs are now being done in other countries.

The theory is that as a total economy, we all benefit from a broad global market for domestic goods and lower prices for foreign-made products. But the transition will be painful.

An individual company doesn't have much of a choice whether to participate in globalization. Unless it has a unique product, if it can't match the price advantages of using offshore talent, some other company will. And although a country could choose not to join the global marketplace through regulations and high tariffs, the record suggests those barriers hinder rather than help economic progress. The most closed economies are typically the most ailing economies.

One answer is to make all markets equally open and profitable for U.S. companies to sell to. I came across Western products all over Asia, but there's still a lot to be done in the area of intellectual property. I was told that more than 90 percent of the PCs sold in China include a version of DOS instead of Windows, which would add to the cost. People just pirate Windows and use it illegally. The same goes for most CDs and DVDs. Everyone I talked to assumes that large-scale pirating will decrease over time.

There's no easy answer here, but there is one thing I am sure about: Piracy is just one part of the big globalization picture, and globalization will have an enormous impact on our economy and our lives. It's an issue that deserves more attention from our government and our politicians.

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PLUS MORE FOR INTERNET EXPLORER AND FIREFOX

We dug deep into our bag of tricks to present our all-time cleverest, most useful tips for making Windows—and Internet Explorer—work for you. In addition, we've been busy playing with the new popular kid on the browser block: Mozilla Firefox. It has enough options and capabilities to make your head spin, but we'll get you started on the right track.

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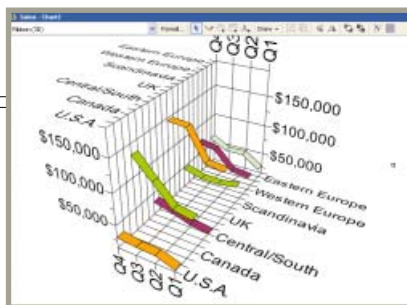
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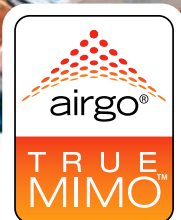


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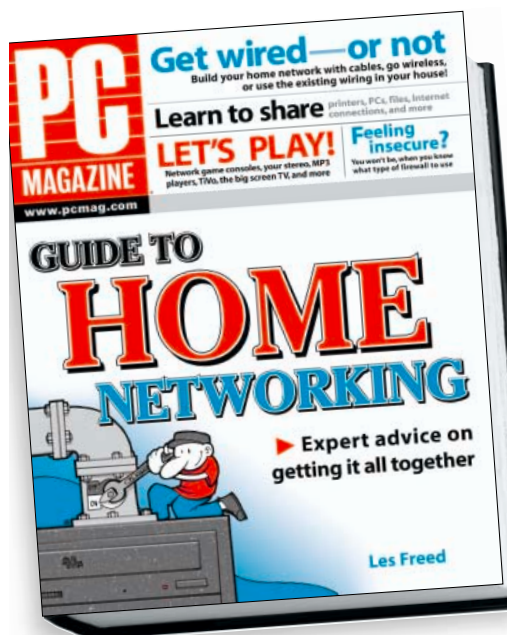
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TECHNOLOGY TRENDS & NEWS ANALYSIS

A New Dimension in Storage

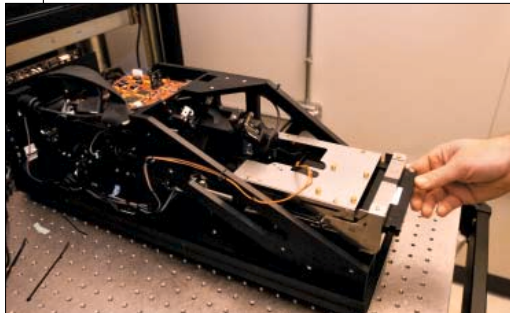
InPhase Technologies' prototype drive packs 300GB of data on one disc.

STORAGE IS LIKE MONEY: There never seems to be enough. From high-resolution photos to high-definition video, the desire for more capacity continues unabated. Now, one company is set to leapfrog current demand by delivering holographic memory technology that could eventually cram more than a terabyte onto a single disc the size of a CD.

At the National Association of Broadcasters conference in mid-April, InPhase Technologies demonstrated a new prototype optical drive (shown) that can store digital information not just on the surface of an optical disc, but also within a disc as three-dimensional images. The prototype stores up to 300GB on a single disc, enough for about 35 hours of high-definition video.

The theoretical potential of holographic storage has long been touted in science fiction, but several companies, including IBM, scaled back their efforts to pursue it after running into difficulties. Creating a storage medium sensitive and stable enough to store a holographic image has been the stumbling block. InPhase succeeded by developing a unique "photopolymer."

"IBM only worked on the material problem for 14 months," says InPhase CTO Kevin Curtis. "We worked on the material for seven years."



At one point, he says, the company had 55 Ph.D.'s on the project.

The initial InPhase holographic drives, expected out early next year, will be write-once designs for professional archiving, with models priced at about \$10,000 and \$15,000. Curtis says InPhase will also deliver an inexpensive ROM product for consumers.

"Our target market for low-cost drives will be games and next-generation video distribution," he says. The company aims to produce rewritable holographic drives by 2007.

Eventually, Curtis adds, users will be able to store as much as 20GB of data on a clear piece of plastic the size of a postage stamp. With that kind of capacity, you may never have to delete a file again. —John R. Quain



Sky Station

No, that's not the Goodyear Blimp. It's the Stratellite—a 245-foot unmanned high-altitude airship designed to sit in the stratosphere and transmit wireless-communications data that currently comes from cell towers and satellites. Communications company Sanswire is working on a fleet of them to hover 13 miles above the Earth, with each serving an area on the ground the size of Texas. "No more modem hassles, and no more slow speeds," say Sanswire researchers.

Because of their very high altitudes, satellites have not been practical for many kinds of commercial two-way high-speed data communication. The Stratellite is designed to offer services going both ways, including cellular, 3G/4G, fixed wireless telephony, and wireless broadband Internet. Production of the airships is slated for next year. —Sebastian Rupley

GAINING SHARE The Mozilla Firefox Web browser now commands almost 9 percent of the global browser market, according to OneStat.com. Internet Explorer still has almost 87 percent of the market, and Apple's Safari is in third place, with just over a 1 percent share.

Digital Rock Reinvention



THOUGH TRENT REZNOR is Nine Inch Nails, the rocker is pioneering new digital music territory by releasing a song for fans to remix—for free, at www.nin.com. Reznor has taken a new single, "The Hand That Feeds," and transferred the song's mix to Apple's GarageBand mixing software.

"I thought it would be exciting for the average fan to work with the track and yield satisfying results without laboring over a manual," says Reznor.

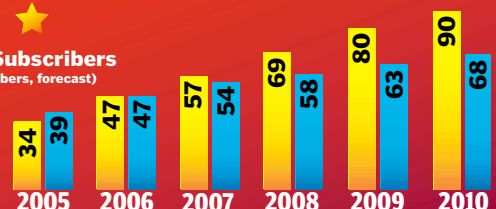
UMixIt, a similar program that's attached to contributing artists' CDs, lets fans freely mix up to eight musical layers. —David Murphy

Bright Broadband Future for China

Though the population percentage subscribing to broadband services in the U.S. remains higher than in China, China's total is expected to grow much faster in the next five years, passing the U.S. total in 2007. That could bode well for many kinds of broadband services.

Broadband Subscribers
(millions of subscribers, forecast)

CHINA
USA



Source: iSuppli Corp., May 2005

Free Movie Tix

Want free access to lots of video and audio, with no legal woes? Open Media Foundation, a start-up company, is now making available television and radio broadcasts, full-length movies, podcasts, and video blogs for free. Unlike BitTorrent, the service will specialize in public programming, fully protecting the producers' copyrights.

The idea is to "give consumers an easy way to get both traditional and grassroots media authorized for Internet distribution and help



usher in a new era in mass publishing," says Mike Homer, founder (Netscape cofounder Marc Andreessen is a member of the board). Users can employ free Open Media Network software (shown) to download content, but the service does not do streaming. On a broadband connection, it typically takes about as long to download content as it does to watch it.

The service uses Kontiki's Grid Delivery Technology, which has built-in digital rights management services so publishers can choose how content is shared, and will eventually charge for premium content. Plenty of public-television programs are available, as are many independent movies, and even unusual offerings such as content from Witness.org, which supplies video cameras to people in parts of the world where human rights are violated. Pull up a chair.—SR

Going to 64 Bits

AT MICROSOFT'S WINDOWS Hardware Engineering Conference (WinHEC) in April, chairman Bill Gates highlighted the performance wins he expects from Windows XP Professional x64 Edition and Windows Server 2003 x64 Edition—both 64-bit operating systems. As the conference began, Microsoft was also touting the effect its upcoming Communicator software may have on collaboration, telephony applications, and hardware.



Communicator integrates enhanced instant messaging and presence awareness, telephony, VoIP, and conferencing. It roughly resembles unified-messaging software applications, allowing users to see and manage phone calls, messages, and other kinds of communications in one desktop interface.

At last year's WinHEC, Microsoft officials showed off Athens, a concept PC designed around many of the features found in Communicator. The company is promoting the notion that the PC can take central control of all office communications, an idea that may affect hardware designs.

As for the new 64-bit operating systems, most analysts agree that they'll bring change. "64-bit computing is the next big step for the desktop," says analyst Rob Enderle. "It promises a substantial improvement for graphically intensive applications and the inherent improvements in reliability and security that we've come to expect with moves like this. It also will do amazing things for games, which will, when written to it, provide a vastly more realistic virtual reality than we have ever seen before." You can read our review of Windows XP Professional x64 Edition at go.pcmag.com/winxppro64results.—SR

WINDOWS OVERHAUL

Microsoft has confirmed that the next major release of Windows, code-named Longhorn, will arrive in a prerelease version this summer. The company has also handed out a developer preview version, designed to speed the arrival of new hardware device drivers. Fast system-wide searching and graphics and interface enhancements are in the works, as is a new document format called Metro, which will—as Adobe's PDF does—let you print, view, or archive files without the program they were created in. Look for our upcoming review of the beta at www.pcmag.com.

Sharper Image at Nanoscale

SOMETIMES BIG BREAKTHROUGHS happen in the tiniest places. Scientists at the University of California, Berkeley, have created a superlens that overcomes a limitation in physics that has constrained the resolution of optical images. Using a thin film of silver as a lens and ultraviolet light, the scientists recorded the images of an array of nanowires and the word NANO onto an organic polymer at a resolution of about 60 nanometers, as seen in the hi-res upper photo. By comparison, today's optical microscopes can make out details only at about 400



nanometers, as seen in the lower photo.

Standard lenses create images by capturing the propagating light waves that objects emit and by bending them, with the angle of the bend determined by the amount of refraction present. Objects, however, also emit waves that carry much more detail but that decay at an

optics threshold known as the diffraction limit. Silver superlens technology defies the diffraction limit, for higher resolution.

The discovery is expected to usher in significant advances in nanoscale engineering. Berkeley

researchers foresee DVDs that contain the entire contents of the Library of Congress, and chips that can search through huge volumes of data.

"This enables imaging well below the diffraction limit," says Xiang Zhang, a principal investigator. One other eventual benefit may be far more detailed views of distant planets.—SR

FAST TRACKED Ultra wideband (UWB) wireless technology is seeing fast, widespread development, and Microsoft recently joined the WiMedia Alliance, one of the largest industry consortiums overseeing UWB. UWB promises wireless speeds above 500 megabits per second.

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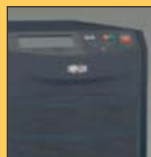
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Messaging Haze

Does the constant barrage of e-mail, instant messages, and cell-phone calls hurt or help productivity? There are many ways to measure that, but a new study from England found strong evidence that constant interruptions reduce mental acuity.

The study, commissioned by Hewlett-Packard, focused on 1,100 Britons and was conducted by TNS Research. As part of the research, Dr. Glenn Wilson, a psychiatrist



at King's College London University, tracked the IQ of workers throughout the day in 80 clinical trials. He found that the IQ of those who tried to juggle messages and work fell by 10 points—more than double the 4-point fall seen after smoking marijuana.

The study revealed that half of workers respond to an e-mail within an hour, and three out of ten people thought colleagues who answered messages during face-to-face meetings were exhibiting diligence and efficiency.

"This is a very real and widespread phenomenon," according to Wilson. "We have found that this obsession with looking at messages, if unchecked, will damage a worker's performance by reducing mental sharpness." The best policy may be to do one thing at a time.—SR

VIDEO VAULT The Google Video service (<http://video.google.com>), which lets you search TV content and get closed-caption text, has now added Animal Planet, CNN, Discovery Channel, Travel Channel, and other cable channels to its growing list of providers.

Star Wars on Your Desktop

EPISODE III: Revenge of the Sith has ushered in a fleet of new *Star Wars* goodies, and Alienware is now shipping both of the Aurora *Star Wars* Edition PCs that it announced in April. The first officially licensed *Star Wars* PCs, the flashy Aurora systems feature two distinctive case designs, based on either the Imperial forces of the Dark Side or the Rebel Alliance of the Light Side (shown). Each PC is decorated with characters representing either faction, including Darth Vader, Yoda, and Obi-Wan.



"We looked at all the *Star*

Wars licenses and saw the need for a PC. Then we approached Lucasfilms, and they liked the idea of working together," says Gerald Zapata, director of business development at Alienware. Zapata adds that along with the distinct Light Side/Dark Side models, the

company created a special Windows skin and wallpaper to go with each.

The Aurora *Star Wars* Edition PCs are based on the AMD Athlon 64 FX-55 processor. You can order them directly through Alienware's Web site (www.alienware.com),

starting at \$1,499. More information is at EBgames.com and CircuitCity.com.

What does George Lucas think of the PCs? Zapata says, "We know that George is going to have one of our products. Hopefully he will put it on his desk."—Karen Jones

Virtual Currency

FOR THE OVER 800,000 subscribers to Sony Online Entertainment's *Everquest II* game, life in a virtual world follows a familiar pattern: Take your character around massive landscapes, kill stuff, loot bodies for useful new items, use said items to improve your virtual character, repeat. Starting in late June, however, Sony will allow players to replace swords and other virtual booty by using their credit cards through the game's new Station Exchange service. The Exchange is an official intermediary for transactions between players: real-life cash for in-game items, characters, and currency—plus a small Sony service charge.



If you don't have time to spend hours playing the game, you can buy other players' items and currency to boost your character, or simply buy a preplayed powerful character to begin with. Sony estimates that the market for such virtual goods—typically sold on eBay-style auction sites or by game-playing corporate entities like IGE—has reached \$200 million in yearly sales.

"The secondary market is something most online gaming companies are turning their backs on," says Chris Kramer, a director of corporate communications at Sony. "Every company is trying to wish hard that it goes away. But it's not going to. It's entrenched. What we're doing is attempting to legitimize the secondary market a little bit, and hopefully by shining a light on it, we'll clean it up to a certain extent." Time will tell.—DM

FACE-OFF If passed, a bill pending in the Florida legislature would require online dating companies to indicate clearly on their sites whether or not they provide background checks on their users (True.com already does), allegedly to identify predators and felons. Internet firms argue that the spread of the practice would impose new liabilities on many services that have nothing to do with dating. "By imposing government regulation on a wide swath of Internet companies, you end up hurting the Internet instead of the criminals," says Net-Coalition General Counsel Markham Erickson.



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\$499 direct. palmOne Inc., www.palmone.com.



A mini Companion

The **MicroNet miniMate** acts as a port replicator/external storage drive for Mac minis, adding four USB 2.0 and three FireWire ports, and (more important) beefing up the storage by up to 400GB. The tiny add-on weighs 2.5 pounds, does a good job of blending with the mini's look, and comes in 80GB, 160GB, 250GB, or 400GB capacities.—*KM*

\$169 direct and up. MicroNet Technology, www.micronet.com.



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The 5.6-pound **Epson PowerLite S3** has something for everyone. Business buyers will like the easy setup and instant-off feature—there's no waiting around for the projector to cool down before you pack up. If you need a projector for home, you'll love having four preset presentation modes to choose from, including Theater mode (for optimized movie watching), Game mode (for viewing darker images), and Photo mode (which adjusts black and white levels to compensate for over- or underexposed images). And all comers will appreciate the low price.—*KM*

\$899 direct. Epson America Inc., www.epson.com.



Marker=Bad; Printer=Good

If you're looking for a quick way to produce CDs or DVDs in quantity *and* you want your discs to be presentable, step away from the Sharpie marker and check out the **Rimage 360i**. It has a bigger footprint than traditional external burners, but it features 16X DVD recording and 48X CD burning, creates discs in stacks of 25, and prints a 4,800-dpi label on each disc with its integrated thermal ink jet printer.—*KM*

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Tiger's Tale

THE MAGAZINE
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FACILITY



BY TROY DREIER

The latest big cat from Apple—continuing what Cheetah, Puma, Jaguar, and Panther started—is Tiger, now officially called **Mac OS X 10.4**. This upgrade will be known for the speed it brings to daily tasks, as well as for the usefulness and creative design of its many improvements (Apple lists over 200 of them). While a few standout additions are grabbing the headlines, it's the systemwide improvements that will thrill the Mac faithful.

A host of new technologies drive the improvements in Tiger, including expanded support of 64-bit computing (the install DVD even includes 64-bit-ready Xcode development tools), Quartz Extreme (which lets more powerful graphics cards perform faster image processing), and the H.264 video codec for delivering better-quality video over smaller feeds (the codec has gained wide support in the video industry and is used in HD television). The new QuickTime 7 uses H.264 and encourages you to upgrade to the Pro version so that you'll gain new features, like single-click video capture and easy movie sharing.

Tiger's biggest spotlight stealer is, appropriately, Spotlight, a lightning-fast search engine that's built into the OS's core. With it, you can search through the names and contents of most documents on your system in only a second or two. It checks not only office documents and PDFs but also



DASHBOARD LETS YOU collect useful widgets—weather and stock info, dictionaries, even news feeds—and pop them up at will.

Mail, iCal, and Address Book entries, and even song-file metadata. Spotlight is always on and lives at the right side of the toolbar, marked by a blue magnifying glass icon. Click it to get a search box; it starts searching as you type and is usually finished about a second after you're done.

You can preview Spotlight's finds directly from a results window (running a QuickTime movie in miniature, for example) or click to open the file. Spotlight is bound to have a big impact on the way Mac users store and browse for files, since running a search is now faster than opening a Finder window.

Microsoft has announced a similar search engine for the next version of Windows (code-named Longhorn), and in the meantime several very good free utilities, such as Yahoo! Desktop Search (based on X1), let you gain such functionality in Windows.

Its speed and breadth would be enough to guarantee Spotlight prominence in the OS, but the brilliance of the technology lies in how it filters down and integrates with other apps. Mail, Apple's e-mail client, uses Spotlight not only for rocket searches but also for new Smart Folders that automatically update with appropriate content. Address Book likewise uses Spotlight to create Smart Groups.

Tiger's second-most prominent addition is Dashboard, a collection of assorted useful tools (called widgets) that skitter across your desk, serve a quick purpose, then disappear as quickly as they came. Dashboard is permanently on and is accessible through the Dock. Click its icon to bring your widgets forward. You can customize the group, which might include a world clock, weather center, dictionary, stock watcher, Yellow Pages lookup, or many others. Arrange the widgets as you like and download new ones online.

One downside of Dashboard is that the widgets aren't ever-present. You can't keep widgets running in an unused portion of the screen to glance at. Still, they are perfect for quick info checks, so that you can dive right back into your work. They're also not a new

USEFUL KEYBOARD SHORTCUTS for navigating digital magazines

PAGE DOWN flip to next page

PAGE UP flip to prior page

ENTER zoom in on left page

SHIFT+ENTER zoom in on right page

ENTER zoom back out to full-page view

C flip to Table of Contents

HOME flip to front cover

END flip to back page



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PAGE DOWN		flip to next page
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ENTER		zoom in on left page
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ENTER		zoom back out to full-page view
C		flip to Table of Contents
HOME		flip to front cover
END		flip to back page



LOOKS

WHAT THE RATINGS MEAN: ●●●●● EXCELLENT | ●●●●○ VERY GOOD | ●●●○○ GOOD | ●●○○○ FAIR | ●○○○○ POOR

46 PrimeFoto
48 AMD Dual-Core Opteron
50 TruPrevent Personal 2.0
50 Microsoft Experience Pack for Tablet PC



51 IE, Firefox add-ins
52 Readiris Pro 10 Corporate Edition
52 Dragon NaturallySpeaking 8 Professional

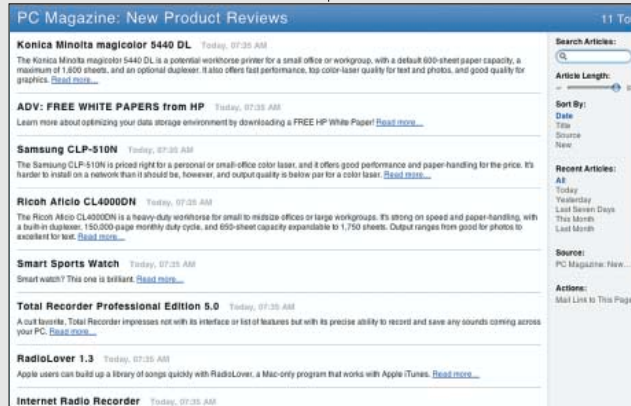
53 pcAnywhere 11.5
53 Edit.com
54 Novell Linux Small Business Suite 9
RED denotes Editors' Choice.

idea: Konfabulator, a third-party app with a strong following, has been offering Mac users the same thing for years. But now that Apple has built Dashboard into the OS, such widgets are certain to be used by a far larger audience.

Apple is letting third-party developers contribute to Dashboard, and we wish it were allowing the same type of input for Safari, its default browser. Safari's big addition in this build is an easy and intuitive handling of RSS feeds that makes them not just for the technorati anymore. You can easily see which sites have RSS feeds, then bookmark them. Counters next to your RSS bookmarks or folders show the number of new posts since your last visit. Best of all, you can create a screensaver from feeds. When the screensaver kicks in, your feeds begin to scroll by in a typically good-looking Mac way.

Safari also has a new setting for private browsing which recognizes that, while online security is important, people are also concerned with security and privacy in their own households. Turn on private browsing and you can surf without leaving a trace. Both changes are useful, but they're not nearly as handy as Firefox extensions that let you remove ads or switch off annoying animations. So while Safari is vastly preferable to the poky Macintosh version of Internet Explorer, Firefox still takes the prize among browsers (be it for Mac OS or Windows).

iChat AV, Apple's desktop video conferencing tool, has become several times more useful with the inclusion of four-way



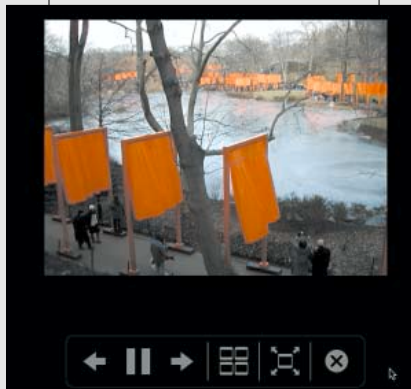
ONE IMPROVEMENT IN SAFARI is the intuitive handling of RSS feeds, including counters that show you updates since your last visit.

video conferencing. Using the H.264 codec, iChat is able to show four video streams at once in a virtual meeting room. If you don't want to worry about arranging your hair, it also lets you host a ten-person audio conference. For all the attention it's gotten, iChat AV's advanced features (like four-way conferences) have some hefty requirements that will keep them from being widely used. Besides an Apple iSight or another FireWire video camera, all of your conference mates will need OS X 10.4, a broadband connection, and a G5, a 1-GHz G4, or a dual 800-MHz G4 Mac. In addition, the person initiating a multiway conference must have a G5 or dual 1-GHz G4.

Apple's Mail client has received the greatest cosmetic makeover under Tiger; the new UI looks more professional and efficient but hasn't undergone any drastic changes. The Spotlight-driven search

and smart mailboxes make looking through thousands of e-mail messages a snap. Besides that, we were wowed by the ability to turn attached photos into a slide show instantly or save them in iPhoto. Users can make slide shows from the Finder simply by highlighting a group of photos and right-clicking. It's a great way to preview images quickly.

Tiger's many improvements ripple through the OS and bring better ways of working to nearly every task. Synchroni-



THE MAC MAIL CLIENT can automatically turn attached photos into a slide show.

zation with .Mac accounts (Apple's \$99-per-year suite of online tools) is now handled through System Preferences, and users can choose automatic syncing so that changes to calendars or contacts are updated immediately. Parents can now turn on parental controls in the Accounts System Preference, so that children's access is restricted to safe areas. The system uses a whitelist, which is more restrictive but also more controlled.

A new tool called Automator offers a simple visual approach to scripting. Dictionary, another new tool, provides users with the contents of the *Oxford American Dictionary* any time they like. Its contents can also be accessed through a Dashboard widget and in Safari (place your cursor over a word and press Command-Ctrl-D to show the definition). A built-in migration assistant helps people with new Macs import files and settings from their old machines, and a new Voiceover tool in the Universal Access System Preference reads content aloud to those with vision problems. While iCal and Address Book get modest improvements, including an iCal birthday calendar, Address Book envelope printing, and Spotlight-driven tools in both, they still feel like the redheaded stepchildren of the OS. We'd love to see them get an overhaul that finally puts them on a par with Microsoft Entourage.

We installed Tiger on three Macs, with no trouble on two. On one it re-

peatedly went into kernel panic early in the install process. After much time researching forums and help docs and trying Apple's phone support, we found that detaching all our USB, FireWire, and SCSI cables did the trick. But note that the OS is available only on DVD. Users who want install CDs have to buy the DVD and send it to Apple's exchange program. That service costs an extra \$9.95.

In our testing, Tiger seemed at least as fast as the previous OS in running individual apps and often a hair faster, although the difference was never dramatic. What kind of performance you'll see seems to depend on the age and speed of your machine. We saw a noticeable lag in ap-



A NEW VOICEOVER tool in the OS can read screen content aloud to users.

plication switching on less powerful machines, including a 933 G4 desktop, when several apps were running. Hence, Mac mini owners might find Tiger occasionally more sluggish than the last Mac OS. And only more powerful graphics cards with strong video mem-

ory will be able to handle Apple's Core Image graphics technology. People with iBooks and older Macs won't see Dashboard's ripple effect when adding widgets, for example, but that's just eye candy.

Windows compatibility has always been crucial to Apple, since the more easily it mixes with Windows the more likely it is to be adopted in enterprise environments. Tiger improves compatibility with Active Directory support, including Kerberos authentication. But there have been reports about incompatibilities on the Mac side, mainly with a few higher-end content-creation apps. For example, Macromedia has posted a note that Macintosh users upgrading to

Tiger using the Archive and Install or Erase and Install options will need to reactivate previously installed Macromedia products. Apple reports that it's working with individual software developers to remedy such problems.

With only a few must-have additions but a wide variety of smaller improvements, is this upgrade worth the \$129 price? We think it is. Once you taste the power of Spotlight, you'll wonder how you ever lived without competent, easy-to-use desktop search. And since having the latest build of the OS is usually a requirement for running any other subsequent product upgrades (the next version of iLife or iWork, for example), you'll want to grab this Tiger by the tail.

Apple OS X 10.4

\$129 direct. Apple Computer Inc., www.apple.com. ●●●●●

Online Research Tool Takes It Up a Notch

BY CADE METZ



The best browser-based research tool, Onfolio, has gotten even better. As before, the tool provides a way of easily organizing all the important data you track down on the Web and even includes a built-in publisher, so you can quickly format your data and share it with others.

Onfolio 2.0 is even more impressive, offering a built-in RSS reader, a plug-in for Mozilla's Firefox browsers, and a host of other improvements.

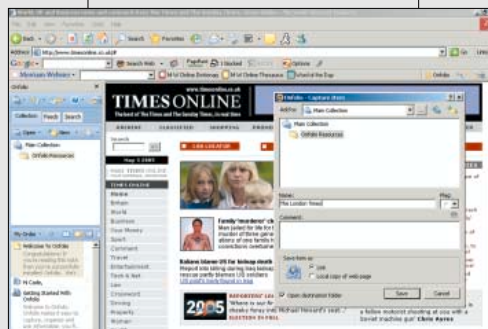
The inclusion of an RSS reader goes a long way toward justifying the price tag. After all, tapping into an RSS news feeds is one of the more convenient ways of culling data from across the Web, and it makes perfect sense to integrate this task with an organizational research tool like Onfolio.

Onfolio has two separate interfaces. The Onfolio Deskbar

runs as a standalone window, but the app also runs inside your browser; it integrates fully with both Internet Explorer and Mozilla Firefox. In both cases, it adds a trio of new buttons to the browser's toolbar.

When you click on the Onfolio button, a pane called Collection Explorer pops up along the left side of your browser. Collection Explorer lets you easily build a library of nested Windows folders where you can conveniently store all sorts of data, including Web links, entire Web pages, portions of pages, e-mails, and even Office documents. (The Onfolio Deskbar is simply a free-floating version of Collection Explorer).

Pulling data into your library is wonderfully easy. To grab items from the Web, you simply



ONFOLIO 2.0 LETS YOU CAPTURE and organize almost any type of Web- or desktop-resident data.

click on the Capture button. This launches a dialog box that lets you instantly save a link to the Web page you're visiting, the page itself, or just a portion of the page. And as you do so, you can easily label these items and even annotate them. To capture other items, you simply drag and drop them into the Collection Explorer or the Onfolio Deskbar.

With the third browser button, you can just as easily sub-

scribe to RSS feeds. Click on this button and it automatically checks the site at hand for available RSS feeds. If it finds one, you simply choose a folder in your library where you'd like to collect the feed and click again to subscribe. From then on, any new items posted to the feed will automatically stream to that folder.

Version 2.0 adds all sorts of small features that further facilitate the capturing, sharing, and organizing of data. You can capture multipage articles and entire lists of Web links. You can spell-check your annotations.

If you spend a good portion of your day doing research on the Web, it's hard to ignore Onfolio.

Onfolio 2.0

\$99.95 direct. Onfolio Inc., www.onfolio.com. ●●●●●

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New Utilities Make Wireless Setup, Security Easy

BY CRAIG ELLISON

Whether you already have a wireless network in place or are considering installing one, security should be one of your primary considerations. Stories about hackers and identity thieves abound, yet the vast majority of deployed networks remain completely unsecured and open.

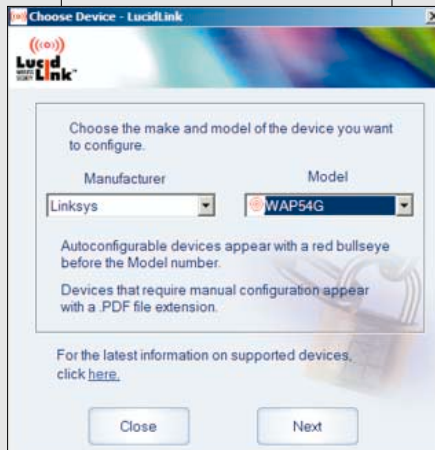
Why? First, wireless networking hardware is generally shipped from the manufacturer with security disabled. This is done to ensure a good “out-of-box” experience for the customer. In most cases, all you have to do is plug it in and it works. Of course, from both the manufacturers’ and retailers’ perspectives, this reduces cost: If it works out of the box, manufacturers are less likely to receive technical or customer support calls, and neither the retailer nor the manufacturer likes product returns.

Second, setting up wireless security takes additional time and effort, and in cases of poorly designed equipment or interfaces it can mean a lot more work. While manufacturers are getting better, configuring wireless security often remains tedious.

Even though manufacturers have rolled out products with a number of advances in wireless security (improvements in the underlying technology and in wizards and setup mechanisms let even new consumers set up a fairly secure wireless network), there’s still room for improvement. Two new offerings, LucidLink and WSC Guard, make it easier to configure and manage your home or small-business wireless network while adding enterprise-level security.

LUCIDLINK

With LucidLink, the folks at Interlink Networks have distilled the complexities of deploying a RADIUS central authentication server (the kind used by big companies) down to a few mouse clicks. While their advertising tagline of “Click, Click, Connect”



LUCIDLINK SUPPORTS a number of recent routers and APs, and has wizards to aid setup.

undercounts the actual number of clicks required, we did find that you can, indeed, secure your wireless network in less than 15 minutes.

LucidLink’s authentication server component is actually a process that can run on virtually any computer (Windows 2000 or later) on your network. Unlike the WSC Guard service, which uses a remote authentication server in the company’s data center, LucidLink’s authentication server resides on your network. That means you can secure your wireless network even if you lack a broadband connection.

The process takes almost no resources and can be run on a nondedicated computer as a background task. There are only two requirements: First, the comput-

er running the LucidLink server has to be on and running the LucidLink server program all the time to authenticate users; and second, the computer running the LucidLink server must be assigned a static IP address.

This address needs to be static because it’s configured into your wireless router or access point. During the authentication process, the router/AP must communicate with the LucidLink server, and if the server’s address has changed, the authentication will fail. A simple installation wizard guides you through the process and prompts you for the installation directory and the administrator’s name and phone number.

Of the three steps, configuring your router/AP is probably the most difficult. LucidLink supports a total of 27 devices from 16 manufacturers. To simplify the configuration process, LucidLink has automated wizards that will auto-configure 11 devices from 3Com (2 devices), D-Link (6 devices), and Linksys (3 devices). For each of the other devices, the wizard directs you to the LucidLink Web site and opens a PDF file that contains step-by-step instructions to help you manually configure your router/AP.

We tested the auto-configuration wizard with two of the supported devices and got mixed results. The wizard worked perfectly with a Linksys WAP54 access point: It asked for the AP address and administrator password. After logging onto the AP, the wizard presented us with two configuration options: maximum security or maximum compatibility. Maximum security means that all devices have to support WPA; maximum compatibility lowers the security level but would support all clients that have 802.1x support for WEP. We selected maximum security, and in a matter of minutes the AP was configured automatically.

We had less success using the wizard to configure the Linksys WRT54GS. Our Linksys router had a newer version of firmware (3.37.6 – 1/6/05) than that supported by the wizard (2.07.1 – 2/26/04). The wizard failed, and reported that it had found an unsupported firmware version on the router. Still, we were able to find the PDF file for the WRT54GS on the LucidLink Web site and then configure the router manually.

The LucidLink client is compatible only with Windows XP SP1 and later. As with the other components, a wizard carries you through installation. Happily, the LucidLink client replaces the Windows XP wireless client and turns off the Windows Zero Config service.

A simple, clean interface greets the user. It displays the names of the wireless networks it has discovered, plus a familiar-looking four-bar icon to indicate signal strength. Connection status, encryption type, and signal strength (in dBm) are displayed on

Report Details				
Date and Time	User Name	AP Name	Status	User MAC Address
04/18/05 07:00:00 PDT	guest	PCMAC_Linksys	Granted Access	00-06-50-04-76
04/18/05 08:07:26 PDT	craig_ellison	PCMAC_Linksys	Granted Access	00-0c-f1-27-7a-76
04/18/05 08:55:12 PDT	craig_ellison	PCMAC_Linksys	Granted Access	00-0c-f1-27-7a-76
04/18/05 09:42:22 PDT	craig_ellison	PCMAC_Linksys	Granted Access	00-0c-f1-27-7a-76

WSC GUARD's report shows you successful access attempts, and any that were denied.

the Properties page. You can also specify preferred networks and set network connection priorities.

In addition to testing on the LucidLink server, we tested the client on both WEP-enabled and open wireless networks. We found we had no problems connecting to those networks.

The first time you attempt to connect to a LucidLink-secured wireless network, you are prompted for a username. When you click Next, a screen displays the username you selected along with an eight-character confirmation code. You are instructed to contact the administrator at the phone number used to configure the LucidLink server.

At the server console, the administrator will see your attempted connection request and can decide whether or not to authorize you. Once authorized, you'll be granted access to the network. This "out-of-band" communication happens only during the first connection attempt. Thereafter, connection to your LucidLink-protected wireless network is automatic, provided that the administrator hasn't deauthorized you.

LucidLink's management console shows your log activity, the last connection time for each client, and the number of licenses authorized. The management console is also the interface from which you configure routers or APs and authorize or deauthorize users. A remote-console application is provided so that you can administer the server from other computers on your network.

If all your wireless clients are running Windows XP and you want enterprise-class security within your LAN, you should give LucidLink a try. But be sure to check the LucidLink compatibility table to make sure that your hardware is supported. Of course, with the low cost of wireless hardware these days, it may pay to switch hard-

ware for the peace of mind LucidLink offers.

LucidLink 2.2

Home Office edition: up to 3 users, free; Small Business edition: up to 10 users, \$449 direct. Interlink Networks Inc., www.lucidlink.com. ●●●●○

WSC GUARD

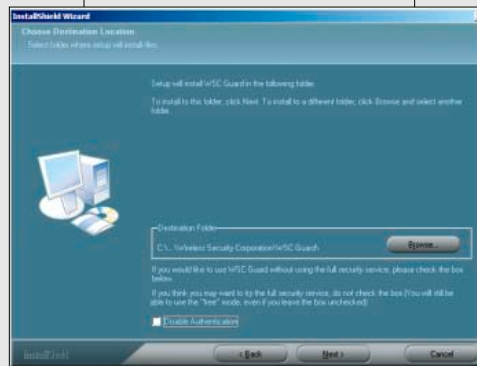
If you're a consumer or a small-business owner who needs the strongest possible wireless network security—WPA Enterprise—you must have a central authentication server. Typically, that means buying and configuring a dedicated RADIUS server—not a simple or inexpensive undertaking, as it requires considerable expertise as well as special software and hardware. Wouldn't it be great if you could just pay to use someone else's RADIUS server? Well, you can.

WSC Guard, from Wireless Security Corp., is a subscription-based service that lets you authenticate your wireless clients using WSC's RADIUS server. In combination with your compatible 802.1x-capable router/AP and WPA-capable client cards, WSC Guard eliminates the cost, hassle, and time it would normally take to set up an authentication server, and provides you with rock-solid, enterprise-class wireless security.

To use the service you need the following: about 10 minutes of setup time (yes, just 10 minutes); a wireless host running Windows 98 SE, Me, 2000, or XP; a compatible WPA-capable client card (most 802.11g cards should work); a compatible 802.1x-capable router or AP (the WSC Web site carries an extensive list of supported products); and an Internet connection, since your authentication takes place across the Internet using WSC's RADIUS server. You'll also need the administrator's password for your

router/AP to use with the WSC setup wizard.

Setting up WSC Guard is really very simple. It consists of three main tasks: logging on to WSC's site over a secure connection and creating an account; installing the client software using a wizard followed by a reboot; and configuring the router/AP. The most difficult



SETTING UP THE WSC GUARD SERVICE takes only minutes, thanks to its intelligent, intuitive wizard.

part of the configuration (and it's really not difficult at all) is configuring your router/AP. The same setup wizard that installs the client software continues to guide you through the four-step router/AP configuration process.

Once configuration is complete, you'll next attempt connecting to your WSC Guard-protected network. A log-on dialogue box will prompt you for your WSC username and password (you can allow the client to store your username and password and automatically log you on in the future).

Once authenticated, you'll have secure wireless access to your network. You can check your current security status by double-clicking on the key icon that runs in your system tray. When you right-click on the icon, you have access to other WSC Guard features, such as adding more APs or logging on to the Web-based WSC administrator's control panel. That control panel lets you manage your wireless network, includ-

ing adding users, managing routers, and checking your network's log files to see who has been granted access to your wireless network (and who has been denied).

The WSC Guard setup wizard works only with compatible routers/APs. But if you have an 802.1x-capable router/AP that's not on WSC's list, you might still be able to configure it manually. This takes a little more work, but all the underlying technology that WSC Guard uses, including PEAP (protected extensible authentication protocol), is standards-based.

If you're considering adding an AP to an existing wireless network and are interested in WSC Guard, one of the simplest solutions may be the Linksys WAP54,

which includes a Linksys-branded version of WSC's service. One advantage of the Linksys WSC Guard is the tight integration between the router and WSC Guard features in the setup wizard: The setup program simply does everything for you.

WSC Guard costs \$49.95 per year and is licensed on a per-client basis. As a network administrator, you can add more routers/APs to your network at no extra charge, and you can also create a free "guest" account that's valid for up to 48 hours. Best of all, the 30-day free trial lets you evaluate the product risk-free. Even if you don't continue the service after the free trial expires, you may find that you like the free wireless client enough to keep using it.

If you want enterprise-class wireless security without the hassle of setting up your own RADIUS server, you should consider this product.

WSC Guard

\$49.95 per year per client. Wireless Security Corp., www.wirelesssecuritycorp.com. ●●●●○

A Razor-Thin, Super-Sleek Ultraportable

BY CISCO CHENG



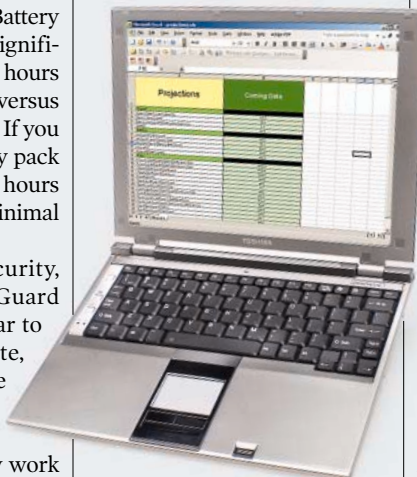
It's as if Toshiba melted all its expensive silverware and draped it around the body of its latest ultraportable, the **Toshiba Portégé R200**. This luxuriously thin, silver-clad beauty barely tips the scales at 2.7 pounds and is just 0.7 inches thick. Even better, it has a comfortable, full-size keyboard. There's little not to love about the R200.

Toshiba has moved to Intel's next-generation Centrino solution for this entry, including a 1.2-GHz Pentium M 753 ULV processor and the Intel Graphics Media Accelerator 900 GM. Sweetening the pot is a 60GB hard drive, enough for typical business purposes. As with other ultraportables, the optical drive is external and an extra-cost option (\$249 direct for a DVD-ROM/CD-RW combo).

The R200's SYSmark score of

100 is good for this class. Battery life has been improved significantly over the R100's, to 3 hours 32 minutes on our tests (versus 2:07 for the older model). If you opt for the second battery pack (\$199), you'll add about 5 hours more and incur only a minimal weight gain.

Toshiba steps up security, implementing its EasyGuard suite on the R200. Similar to IBM's ThinkVantage suite, EasyGuard offers the Trusted Platform Module (TPM) hardware security chip. Though they work similarly, IBM's solution is a little bit easier to configure and manage. Toshiba also integrates a fingerprint reader as an added layer of access security. In addition, a built-in accelerometer guards against sudden motion that could affect your hard drive (similar to IBM's Active Protection scheme). And Toshiba offers a diverse set of



THE R200 packs a lot into its 2.7-pound chassis.

software utilities that let you do everything from configuring your wireless to managing your battery life.

The R200 is built for connectivity, as well. Toshiba includes the Atheros Super G wireless and Bluetooth 2.0 with EDR

(Enhanced Data Rates), though currently, few devices are available to take advantage of the claimed increase in speed (up to 3 Mbps). Other features include two USB ports, a VGA port, and an SD slot.

The Toshiba Portégé R200 not only lightens your load, it gives you what you need to be immensely productive on the road. If you travel often and have to keep up with work back at the office, you'd be remiss not to check out this system. And let's not forget, you'll also be toting one of the sleekest notebooks around.

Toshiba Portégé R200

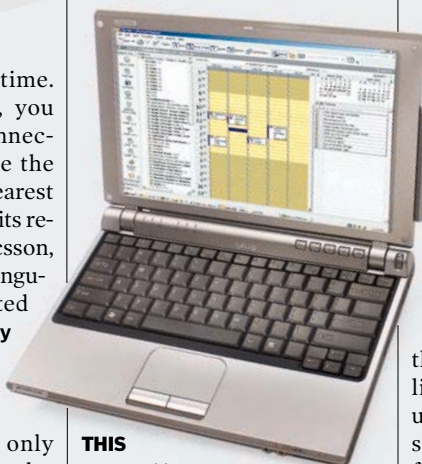
With Intel Pentium M 753 (1.2 GHz), 512MB DDR2 SDRAM, 60GB hard drive (4,200 rpm), Intel Graphics Media Accelerator 900 GM (128MB), 12.1-inch LCD (1,024-by-768), Atheros Super G 802.11g wireless, Microsoft Windows XP Professional, \$2,099 direct. Toshiba America Information Systems Inc., www.toshiba.com. ●●●●○

Stay Connected with This VAIO

BY CISCO CHENG AND SASCHA SEGAN

It happens all the time. You're on the road, you need an Internet connection, and you don't have the time to hunt down the nearest hot spot. Thanks to Sony, its relationship with Sony Ericsson, and a partnership with Cingular, you can stay connected all the time with the **Sony VAIO VGN-T350P**—the first laptop to integrate a 3G EDGE WAN radio.

Until now, EDGE has only been found in some Cingular phones and PC Cards. EDGE is a cellular network with theoretical speeds of up to 236 Kbps and typical speeds in the 100- to 160-Kbps range. Thanks to EDGE, you can wander, say, through Manhattan and remain connected.



THIS VAIO is like having a personal WAN hot spot.

The Cingular Connection Manager is intuitive and very easy to use. It manages not only your EDGE connection but the built-in Bluetooth and Intel Pro 802.11g wireless as well. On our

tests, we got an average download throughput of 140.8 Kbps, with uplinks averaging 58 Kbps. The device did well at capturing signal, probably because of the large external antenna. Activating EDGE will cost \$79 per month (the same as if you bought a PC Card solution through Cingular).

As for the notebook itself, the VGN-T350P looks exactly like previous generations of ultraportable VAIOs: It has the same light 3-pound weight, fabulous 10.7-inch XBrite screen, and not-so-fabulous 90-percent keyboard, which is still a bit too small for our taste. The only visual differentiator on this system is the external antenna that lies flush on the right side of the screen.

On our battery tests, the

VGN-T350P lasted an impressive 6 hours 20 minutes (without any wireless engaged). The VGN-T350P's SYSmark score (95) is typical for an ultraportable, and performance should be fine for day-to-day computing chores.

Overall, the Sony VAIO VGN-T350P is more than just your typical sleek ultraportable: It's a significant step forward in mobile computing. The built-in EDGE works wherever there's a Cingular connection, and though the connection may not be the fastest, it's widespread across the nation.

Sony VAIO VGN-T350P

With Intel Pentium M 753 (1.2 GHz), 512MB DDR SDRAM, 60GB hard drive (4,200 rpm), Intel 82855 GME 64MB graphics, 10.7-inch screen (1,280-by-768 display), dual-layer DVD±RW drive, Intel Pro 2200 802.11g and EDGE wireless, Microsoft Windows XP Professional, \$2,299.99 direct. Sony Electronics Inc., www.sonystyle.com. OVERALL ●●●●○ Music: 71 (out of 100); Photos: 61; Video: 32; Gaming: 29.



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HP LaserJet 4345mfp series

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1. Product shown is the HP LaserJet 4345xs mfp, priced at \$4,450.

All images simulated. 2. \$249 instant rebate valid between 3/1/05 and 7/31/05 and not available on the HP LaserJet 4345mfp base model. For a limited time only, for offer terms and conditions, go to www.hp.com/go/mfppromotions6. Offers available from HP Direct and participating HP resellers only. All prices are HP Direct prices, are subject to change and do not include applicable state and local sales taxes or shipping costs; reseller and retailer prices may vary. © 2005 Hewlett-Packard Development Company, L.P.

Our Top Notebook PCs

Visit go.pcmag.com/notebooks for the full reviews of these and scores of other portable PCs.

BUSINESS	PROS	CONS	BOTTOM LINE	SPECS AND SCORES
HP Compaq nc8200 \$2,699 direct 	Durable design. Light, despite a 15.4-inch widescreen display. Good battery life.	Client software is not as rich as that of IBM's ThinkVantage.	Even with a 15.4-inch screen, the nc8200 is well suited for the road. It's lighter and less bulky than you might expect.	Intel Pentium M 760 (2.0 GHz), 512MB RAM, 60GB hard drive, 15.4-inch widescreen. 6.2 pounds. SYSmark: 140. BatteryMark: 4:53.
IBM ThinkPad T43 \$2,199 direct 	Next-generation Centrino. Terrific typing experience and security options. Top-of-the-line management utilities.	Only two USB ports. No memory card slots.	Next-generation Centrino components and the robust security suite make the T43 the perfect business tool.	Pentium M (1.86 GHz), 512MB RAM, 60GB hard drive, 14.1-inch screen. 5.5 pounds. SYSmark: 134. BatteryMark: 4:49.
ULTRAPORTABLE				
Dell Latitude X1 \$1,650 direct 	Sleek, new design. Superlight. Affordable business solution.	Not a full-size keyboard. External optical drive can add to the weight.	The X1 is a great-looking, feature-rich business notebook that won't break your back or your budget.	Pentium M 735 (1.2 GHz), 512MB RAM, 30GB hard drive, 12-inch widescreen. 2.8 pounds.
IBM ThinkPad X40 \$2,299 direct 	Good performance. Full-size keyboard. Standard hard drive space and system memory for everyday apps.	Optical drive in docking station. Few bundled apps.	The X40 is ideal for the road warrior who needs portability and essential functionality on the go.	Pentium M (1.2 GHz), 512MB RAM, 40GB hard drive, 12.1-inch screen. 2.7 pounds. SYSmark: 94. BatteryMark: 5:56.
NEW Sony VAIO VGN-T350P \$2,299 direct 	Built-in EDGE modem delivers high-speed wireless within Cingular's EDGE coverage area. Great little screen.	Smallish keyboard.	The VGN-T350P is a mobile dream. It's ultralight and can connect wirelessly via the EDGE network, as well as in 802.11 hot spots.	Intel Pentium M 753 (1.2 GHz), 512MB RAM, 60GB hard drive, 10.7-inch screen. 3.0 pounds. SYSmark: 95. BatteryMark: 6:20.
NEW Toshiba Portégé R200 \$2,099 direct 	Supersleek and light design. Improved battery life. New security suite. Fingerprint reader.	External optical drive.	The R200 lightens your load while letting you stay productive on the road.	Intel Pentium M 753 (1.2 GHz), 512MB RAM, 60GB hard drive, 12.1-inch screen. 2.7 pounds. SYSmark: 100. BatteryMark: 3:32.
MULTIMEDIA AND GAMING				
Dell Inspiron 9300 \$2,839 direct 	Great-looking screen. Blistering graphics. Very good battery life given the size.	TV tuner is external and optional.	The Inspiron 9300 is a very good system if you're a multimedia fanatic, a DVR junkie, or a part-time gamer.	Pentium M 760 (2.0 GHz), 1GB RAM, 80GB hard drive, 17-inch widescreen. 8.1 pounds. SYSmark: 141. BatteryMark: 3:15.
Dell Inspiron XPS Gen 2 \$3,318 	Top-of-the-line graphics. Programmable lights.	Pointing stick is gone. Mouse buttons are a bit loud.	The XPS Gen 2's cool look and super set of cutting-edge mobile components make it the ultimate gaming machine.	Intel Pentium M 770 (2.13 GHz), 1GB RAM, 80GB hard drive, 17-inch widescreen. 8.5 pounds. SYSmark: 172. BatteryMark: 2:13.
HP Pavilion dv4000 \$1,429 direct 	Big screen. Four USB ports. QuickPlay. Affordable.	Average performance.	The dv4000 is a multimedia dream machine at a reasonable price.	Pentium M 750 (1.86 GHz), 512MB RAM, 80GB hard drive, 15.4-inch widescreen. 6.4 pounds. SYSmark: 131. BatteryMark: 3:17.
Toshiba Qosmio E15 \$2,899 list 	Gorgeous, bright screen. Multitude of AV connections. TV tuner and Windows Media Center operating system. Instant-on feature.	Needs a bigger battery.	The Qosmio E15 has the most elaborate set of multimedia features. It's a true entertainment center replacement.	Intel Pentium M 735 (1.6 GHz), 512MB RAM, 80GB hard drive, 15-inch screen. 7.8 pounds. SYSmark: 136. BatteryMark: 2:12.
VALUE				
Averatec AV3270-EE1 \$949 direct 	Strong performance. Dual-format DVD burner. Light weight.	Flimsy lid-release mechanism. No FireWire port.	The AV3270-EE1 packs a lot into its lightweight frame and turns out strong performance for the value category.	AMD Mobile Sempron 2800+ (1.6 GHz), 512MB RAM, 60GB hard drive, 12.1-inch screen. 4.3 pounds. SYSmark: 114. BatteryMark: 2:25.
Dell Inspiron 6000 \$999 direct. 	Great battery life. DVD±RW drive. Fast 5,400-rpm hard drive. Latest-generation Centrino technology.	You must use the special e-Value code (1111-i6000PC) to get the price.	The 6000 is a feature-rich desktop replacement model. It delivers top-end components for an aggressive price.	Intel Pentium M 730 (1.6 GHz), 512MB RAM, 60GB hard drive, 15.4-inch widescreen. 7.0 pounds. SYSmark: 130. BatteryMark: 5:52.
TABLET PCS				
HP Compaq tc4200 \$2,099 direct 	Strong build. Intel's next-generation Centrino. Dual pointing devices.	Lacks a built-in optical drive.	The tc4200 convertible tablet offers a terrific blend of components and performance.	Intel Pentium M 750 (1.86 GHz), 512MB RAM, 60GB hard drive, 12.1-inch screen. 4.6 pounds.

Three Keys to Better Presentations

by Dave Anders

Few of us are naturally born great presenters. Which is why new tools that help elevate ordinary presenters and presentations to the extraordinary are so

exciting. One tool in particular, Serious Magic's Visual Communicator, is quickly becoming the industry standard for effective presentations. It's also the biggest driver behind the growing trend of video-based presentations.

This software, a winner of PC Magazine's "Technical Excellence" award, can transform stale PowerPoint® slides into compelling video presentations that get results. Visual Communicator is unique because it goes beyond turning slides into a better presentation; it also helps you be a better presenter. Here's how:

1 Grab Their Attention

Effective presentations must first grab attention. This is often difficult with PowerPoint slides because they all look so

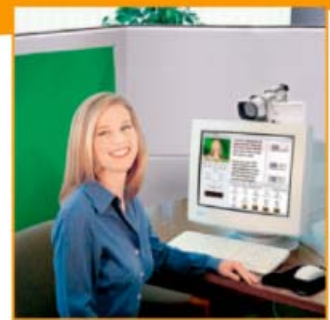
similar. A proven solution is to use video. Yet some presenters still believe video presentations are too time-consuming for

everyday use. Visual Communicator destroys that myth. It's as quick as PowerPoint itself and requires no video experience. Yet the results are remarkable.

With Visual Communicator your presentations come alive with dynamic motion, supporting narration and dazzling TV-style transitions. It's no surprise that using video increases audience retention and helps make presentations more personal – even if you can't be there yourself!

2 Establish a Personal Connection

Making that all-important connection is crucial yet it's difficult to be "personal" when you have to give presentations via conference call or, worse yet, by emailing PowerPoint files to your audience. Fortunately, you don't have to tell your life story to connect with your audience; in fact, it's as simple as adding a face and voice to your slides. However, with distant audiences that's hard to do without getting on a plane. Even when you endure the disruption of traveling, often something comes up and one or more of the people you're meeting with is unavailable at the last minute. Visual Communicator solves both problems because you're no longer just sending slides; you can also send your personal explanation of key points along with every presentation. Remember, slides don't make presentations, people do.



Turning your slides into a compelling video presentation only takes a few minutes and can be done at your desk using a webcam or camcorder. Visual Communicator walks you through each step. And because your presentation is now in video, anyone unable to attend will be able to view it later at their convenience. Video also ensures that viewers listen to each key point as you intended them to hear it. Gone are the days of emailing a PowerPoint presentation wondering if the viewer is focused on the crucial seventh slide when they are actually stuck on the unimportant third slide.

3 Stay On Point and Stop the "Ums" & "Uhs"!

Finally you must convey your message concisely and with confidence. All those "Ums" and "Uhs" not only distract the audience, they reflect poorly on you. Visual Communicator offers an exciting way to help you present better. It gives you an on-screen teleprompter just like TV newscasters use. As you record the presentation, you simply read your notes from the screen, yet you appear to be looking at the camera. Visual Communicator's teleprompter ensures you hit all your key points without memorization.

Most users find Visual Communicator to be nearly miraculous. It not only improves their presentations, it helps them be a better, more confident presenter. Try it once and you'll see why half the Fortune 500, dozens of government agencies and thousands of schools insist on Visual Communicator to create world-class presentations.

VISUAL COMMUNICATOR 2

Price: \$189.95 – \$489.95

Summary:

Powerful but easy to use PC software creates stunning video presentations in minutes, right at your desk. Just drag and drop your PowerPoint files. Dirt simple, lightning fast, no video experience required.

Includes:

Great sounding clip-on microphone, folding green screen for TV-style background replacement, auto-wizard that builds remarkable presentations, and massive library of high-quality templates.

Output:

Website, Email, DVD, CD, Direct-to-Video-Projector and Live Internet Streaming.

Bottom Line:

It won "Product of the Year" from seven national magazines for a reason. Download the free trial version to see why.



Visit SeriousMagic.com to download the free trial and experience how easy it is to create effective, memorable, and dynamic video presentations.



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MAGIC**

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Affordable DV Camcorder

BY TERRY SULLIVAN

Compact and easy to hold, the **Canon Elura 90** MiniDV camcorder is the top of Canon's successful Elura line. At just under \$800, this model is a good buy, despite video resolution that could be a bit higher. Overall video quality is quite good, as are the 1.3-megapixel stills (aided by a built-in flash). The combination of value, ease of use, and image quality makes this a decent choice for a moderately priced camcorder.

One of the strengths of this camcorder is its 20X optical zoom lens. The responsive zoom controls let us get in close to the action and pan back out quickly for a wide view of the scene. In panning, the camera adjusted quickly for abrupt changes in lighting. We were very impressed with its autofocus shifting from very close (nearly macro) range to infinity.

Despite mediocre results on our camcorder tests, the Elura 90 excelled on our subjective video-quality tests. In our talking-head clip, we saw good dynamic range, clarity, and resolution. We also noticed accurate color matching in skin tones and good contrast. In low-light portions of the clip we saw a fair amount of noise and artifacts, but this is very common in single-CCD camcorders. The audio had somewhat low bass levels and prominent hiss, but overall it was adequate.

In our action clip, we noted very good autofocus, with the mechanism shifting in and out only for an instant before locking into proper focus. Our color chart looked very vibrant and accurate. Dynamic range was good all the way from white to black. On our TV monitor, the



THE ELURA 90 delivers good video for the price.

clips looked very good and clear, with no noticeable artifacts and very good sound.

We also ran the Elura 90 through the performance tests that we use for our still cameras. Like other camcorders, it was a mediocre (though not abysmal) performer on stills. The unit booted up in 3.4 seconds, with a recycle time of 3.1 between still shots. We found significant shutter lag when

taking still shots, though, which means you probably won't want to use this device for taking still pictures of moving subjects. On our video resolution test, the Elura 90 captured an unimpressive 375 lines of resolution. But for stills, it produced 600 lines of resolution—very good for a 1.3MP sensor; we don't recommend making prints larger than 4 by 6 inches, though. On our simulated-daylight test still photo, we found some patterned noise throughout the image, which detracted a bit from the image clarity. Color matching and saturation were fairly good, with no noticeable color casts.

Overall, this camcorder is a decent buy. Just don't leave your digital still camera at home.

Canon Elura 90

\$799.99 list. Canon U.S.A. Inc.,
www.canondv.com. ●●●●○

Home Video Goes Wide

BY TERRY SULLIVAN

If you've made the switch to a widescreen display, you've probably already noticed one of the unintended consequences: Your 4:3 home videos don't look so good on the wider screen. But Sony's **DCR-HC90 MiniDV Handycam Camcorder** is a good way to capture all your exploits for widescreen viewing: It gives you the option of shooting in 16:9 aspect ratio.

The unit takes MiniDV cassettes for video and SD cards for capturing 3-megapixel stills, though its still images aren't quite good enough to warrant leaving your camera at home. Both stills and video are captured through a 10X optical zoom, 5.1-mm to 51-mm Carl Zeiss lens. We've never been crazy about Sony's menu structure, which is rather clunky.

The HC90's lab test results were mixed. Its still-image resolution was an average of 900 lines—quite good for a digital camcorder. Video resolution was a good 425 lines. The HC90 booted up in a sluggish 4.5 seconds. On our still-image performance tests, it turned in a rather slow



WIDE-FORMAT abilities make this camcorder appealing.

recycle time of 4.5 seconds and exhibited noticeable shutter lag.

On the talking-head clip in our PC Labs tests, we noticed admirable dynamic range, good resolution, and a fairly clear picture overall, though the exposure was a little dim. We also found pretty good detail in low-lighting areas. There was very good color matching as well—the primary colors on our beach ball really popped, even in low lighting. Despite the good color matching, we found that our subject's skin tones were a little dull, and many of the thin objects and striped patterns

in our clip displayed a good deal of shimmering. Audio quality lacked a bit on the bass end, but was adequate (though

not stunning). While there was no garbling or swirling, there was a disturbing amount of hiss. In our action clip, the autofocus functioned quite well, keeping up with the details and snapping quickly into focus when we switched between subjects. On a TV monitor, the various clips looked clear, with vibrant colors and no noticeable artifacts.

The still-photo tests presented us with daylight photos that displayed patterned noise throughout, but it wasn't overly conspicuous. Saturation was fairly good, with some dullness in the overall color.

Sony has done a fine job in producing this sub-\$1,000 camcorder hybrid, with 16:9 shooting, a handy format option, and a 3MP camera with flash.

Sony DCR-HC90 MiniDV Handycam Camcorder

\$999.99 direct. Sony Corp.,
www.sonystyle.com. ●●●●○

Our Top Digital Cameras

Visit go.pcmag.com/cameras for the full reviews of these and scores of other cameras.

ULTRACOMPACT	PROS	CONS	BOTTOM LINE	SPECS/PERFORMANCE
Canon PowerShot SD300 Digital Elph \$350 street 	Excellent daylight images and very good flash shots. Good menus. Tiny and tough.	Mediocre recycle times. Smallish LCD. Optical viewfinder placement could be better.	The SD300 takes great pictures, despite its tiny size. It's stylish, built like a very small tank, and fun to use.	4MP, 2-inch LCD, 3X optical zoom (35 mm to 105 mm), SD slot. Resolution: 1,225 lines. Boot: 1.8 sec. Recycle: 5.5 sec.
Canon PowerShot SD500 Digital Elph \$460 street 	Quick performer. Excellent image quality. Unique My Color feature. Good ergonomics. Sleek and attractive.	Macro mode did not produce good results. Flash had some problems in backlit situations.	The SD500 is a versatile, accurate, and fun compact that performed very well on our tests and will appeal to a wide range of shooters.	7.1MP, 2-inch LCD, 3X optical zoom (37 mm to 111 mm), SD slot. Resolution: 1,625 lines. Boot: 2.7 sec. Recycle: 2.3 sec.
COMPACT				
Canon PowerShot S70 \$470 street 	Takes excellent photos. Very solidly built. Zoom lens starts at a true wide angle so you can get it all in. Can shoot in RAW format.	Mediocre video capabilities. Zoom isn't always precise.	If you're looking for a camera that takes excellent photos, but don't want the heft or expense of a larger model, the S70 is a worthy choice.	7.1MP, 1.8-inch LCD, 4X optical zoom (28 mm to 100 mm), CF slot. Resolution: 1,550 lines. Boot: 4.6 sec. Recycle: 2.5 sec.
Casio Exilim EX-P600 \$550 street 	Large, bright LCD and 4X zoom. Simple menus and on-screen help for beginners, with higher-end features for more advanced shooters.	Slow recycle times. Some dark exposures.	The EX-P600 is a good choice, whether you're a pro or a beginner who wants a camera to grow with.	6MP, 2-inch LCD, 4X optical zoom (33 mm to 132 mm), SD slot. Resolution: 1,300 lines. Boot: 3.0 sec. Recycle: 4.0 sec.
Fujifilm FinePix E550 \$350 street 	Fast at everything it does, at least when the flash is off. Takes very good pictures. Decent zoom range includes true wide angle.	Underpowered flash can slow camera down. Uses more expensive xD memory.	You won't miss shots with the E550, and you'll be very satisfied with the photos you create.	6.3MP, 2-inch LCD, 4X optical zoom (32.5 mm to 130 mm), xD slot. Resolution: 1,550 lines. Boot: 2.0 sec. Recycle: 4.1 sec.
Kodak EasyShare LS743 \$250 street 	Takes razor-sharp pictures. Good shot-to-shot times. Simple, easy-to-use menus.	Slow start-up time.	The LS743 takes extremely crisp, sharp pictures, and gives you great return on your money.	4MP, 1.8-inch LCD, 2.8X optical zoom (32 mm to 100 mm), SD slot. Resolution: 1,275 lines. Boot: 4.0 sec. Recycle: 1.5 sec.
SUPERZOOM				
Panasonic Lumix DMC-FZ15 \$370 street 	Leica 12X zoom lens with constant f/2.8 aperture and image stabilization. Very comfortable, SLR-like feel.	Large and heavy for a superzoom. Poor video mode.	The DMC-FZ15 takes good pictures, and its long zoom lens and short recycle times make this the best superzoom for shooting action.	4MP, 2-inch LCD, 12X optical zoom lens (35 mm to 420 mm), SD slot. Resolution: 1,275 lines. Boot: 5.0 sec. Recycle: 1.5 sec.
Panasonic Lumix DMC-FZ20 \$550 street 	Leica 12X optical zoom lens with image stabilization. Very comfortable, SLR-like feel.	Large and heavy. Poor video mode.	If we could take only one camera with us on vacation, this would be high on our list: There are few scenes it couldn't handle.	5MP, 2-inch LCD, 12X optical zoom lens (35 mm to 432 mm), SD slot. Resolution: 1,550 lines. Boot: 5.0 sec. Recycle: 3.5 sec.
ENTHUSIAST				
Canon PowerShot G6 \$600 street 	Excellent picture quality. Easy-to-navigate menus for beginners, plus features advanced users will like.	30-second maximum for movie recording at just 10 fps. Doesn't use USB 2.0 for file transfers.	With a sleek, ergonomic shape, a powerful optical zoom, and a multitude of pro-level features, the G6 is a winner.	7.1MP, 2-inch LCD, 4X optical zoom (39 mm to 117 mm), CF slot. Resolution: 1,650 lines. Boot: 4.3 sec. Recycle: 2.7 sec.
Konica Minolta DiMage A2 \$600 street 	Exceptional functions. Excellent handling characteristics.	Performance is a mixed bag.	The DiMage A2 offers a good combination of quality, features, and performance.	8MP, 1.8-inch LCD, 7X optical zoom (28 mm to 200 mm), CF slot. Resolution: 1,600 lines. Boot: 2.1 sec. Recycle: 1.1 sec.
Olympus Camedia C-8080 Wide Zoom \$850 street 	Images have rich colors, are well exposed and sharp. Flash shots show great illumination. Solid body, quick boot and recycle times.	Manual focus requires using the jog buttons. Menu navigation is slow.	The C-8080 is a solid workhorse, and a quick one too. Although it takes some hits on ease of use, it produces great images.	8MP, 1.8-inch LCD, 5X optical zoom (28 mm to 140 mm), xD slot. Resolution: 1,775 lines. Boot: 1.5 sec. Recycle: 1.9 sec.
DIGITAL SLR				
Canon EOS Digital Rebel XT \$999.99 list 	Fantastic range of features, including two auto modes. Superb burst mode. Great value.	Small LCD. Screen is hard to see in bright daylight. No TIFF support.	This versatile, user-friendly camera is a pleasure to use, and doesn't break the bank.	8MP, 1.8-inch LCD, 2.5X optical zoom (18 mm to 55 mm), CF slot. Resolution: 1,750 lines. Boot: 1.2 sec. Recycle: 0.9 sec.
Canon EOS 20D \$1,500 street 	Incredibly clear, detailed images. Excellent color, exposure, and tonality. Intuitive controls, extensive features.	Deserves a kit lens option more befitting the camera's quality and capabilities. Slightly clipped high-lights on auto settings.	Excellent design, fast performance, and great image quality make the EOS 20D the current top gun among digital SLRs under \$3,000.	8.2MP, 1.8-inch LCD, 2.5X optical zoom (kit lens: 18 mm to 55 mm, native), CF slot. Resolution: 1,800 lines. Boot: 0.2 sec. Recycle: N/A.

Battle of the Network Cards

BY SASCHA SEGAN

At \$79.99 per month, Verizon's high-speed EV-DO data network offering isn't cheap. But it's a boon to anyone who lives, works, or travels in any of the 32 metropolitan areas where coverage is available. Simply pop a compatible EV-DO card in your laptop's PC Card slot and you can be accessing the Internet wirelessly at real-world speeds averaging 600 to 800 Kbps anywhere there's a signal. It's like having your own personal hot spot wherever you go.

We've tested cards from Verizon and Sierra in the past, and the two newest entries—the **Kyocera KPC650** and the **Novatel Wireless V620**—beat the previous cards in both average throughput and sensitivity. The KPC650 outpaced the V620 overall on our tests (and wins our Editors' Choice), but either is a solid contender.

Both entries employ a newer Qualcomm chipset to squeeze the most out of Verizon's excellent EV-DO network. Setup for both was easy—flawless, even. Simply run the installation routine from the included CD, then open up the VZAccess Manager utility and hit Connect when you're ready to surf.

In our admittedly informal trials, we've had the VZAccess Manager utility coexist on laptops with Cingular Connection Manager, IBM Access Connections, and all sorts of other networking software without having any conflicts. If you prefer, you can dodge VZAccess Manager altogether by setting up an ordinary Windows dial-up networking connection.

On our more objective side-

by-side throughput tests, the KPC650 proved the card to beat. During a week of testing in Manhattan, it averaged throughput of around 740 Kbps (with a high/low range of 107 Kbps to 1.23 Mbps, depending on conditions).

That average throughput was typically 56 Kbps higher than what we saw with the Novatel card and 108 Kbps higher than with the Verizon Wireless PC 5220 card. Since EV-DO uplink speeds are capped at 153 Kbps, we saw much less difference between the two cards on those

THE KPC650's antenna proved to be a help in low-signal areas.

trials: around 110 Kbps (but the Kyocera did squeak ahead of the other two by an average of 4 to 5 Kbps).

More impressively, the Kyocera card worked in areas where other cards did not (thanks to its swiveling antenna, which boosts the card's ability to capture

THE V620 is also a fine performer, and it's more affordable.

signals). In a stone building where our readings showed a very low -100 dBm to -108 dBm of EV-DO signal, we got a consistent, albeit slow, connection with the KPC650, whereas we saw frequent signal dropouts with the other two cards. For its part, the V620 was faster than the Verizon 5220 most of the

time, with an average download speed of 699 Kbps across all our tests (53 Kbps better on average than the Verizon entry).

The KPC650 lists for a rather steep \$319.99, but it's available from Verizon for \$99.99 (\$50 more than the V620), as long as you commit to a two-year contract at \$79.99 per month. It's also available from regional carrier Alltel, which is selling the card in Tampa, Cleveland, and Akron under the name Passport (\$159.99 with a two-year contract, plus \$69.99 per month for service). We haven't tested the Alltel network, though, so we can't tell you what kinds of speeds you can expect. The V620 lists for \$329.99 and can be had for as little as \$49.99 with a two-year contract.

Mobile pros searching for this type of service will also want to look closely at Cingular's EDGE network high-speed data plan (typically \$79 per month) and hardware choices. On our recent tests, EDGE delivered average downlink throughput of 140.8 Kbps and uplink speeds of 58.0 Kbps. That's not as fast as Verizon's EV-DO, but the EDGE network is more widely available (see go.pcmag.com/edge for a coverage map).

If you just bought a Novatel V620 card, don't throw it away. It's still a fine solution. But the Kyocera KPC650 is even better, especially in low-signal areas.

Kyocera KPC650

\$319.99 list; as low as \$99.99 with contract. Kyocera Wireless, Verizon Wireless, www.verizonwireless.com.

★★★★★

Novatel Wireless V620

\$329.99; as low as \$49.99 with contract. Novatel Wireless, Verizon Wireless, www.verizonwireless.com.



Sony VAIO VGN-FS570

Pros: Stylishly thin. Exceptional widescreen display. Dual-layer DVD±RW.

Cons: Integrated graphics not well suited to hard-core gaming.

Bottom line: The FS570 will wow you with its design and features. It's a gorgeous multimedia notebook that will thrill all but high-end gamers.

With Intel Pentium M 740 (1.73 GHz), 1GB DDR SDRAM, 100GB hard drive (4,200 rpm), Intel Graphics Media Accelerator 900GM (128MB), 15.4-inch widescreen display (1,280 by 800), dual-layer DVD±RW drive, Intel Pro 2200 802.11g wireless, Microsoft Windows XP Home Edition, \$1,999.99 direct. Sony Electronics Inc., www.sonymstyle.com.

OVERALL ★★★★★

Music: 59 (out of 100); Photos: 78; Video: 55; Gaming: 35.



Toshiba Satellite A75-S231

Pros: Good-looking widescreen, plus spacious (for a portable) 100GB hard drive. **Cons:** Integrated graphics not great for high-end gaming. Tinny speakers. Poor battery life.

Bottom line: The A75-S231's desktop-like build (and 7.6-pound weight) is not travel friendly, but if you're into watching movies or are an avid video editor, you'll like its features.

With Intel Pentium 4 548 (3.33 GHz), 512MB DDR SDRAM, 100GB hard drive (4,200 rpm), ATI Mobility Radeon IGP 9000 (64MB), 15.4-inch widescreen display (1,280 by 800), DVD±RW drive, Atheros 802.11g wireless, Microsoft Windows XP Home Edition, \$1,549 direct. Toshiba America Inc., www.toshiba.com.

OVERALL ★★★★★

Music: 65 (out of 100); Photos: 67; Video: 42; Gaming: 39.

For an in-depth look at these products, go to go.pcmag.com/laptops.

Our Top PDAs and Phones

Visit go.pcmag.com/handheld for the full reviews of these and scores of other PDAs and phones.

PDAS	PROS	CONS	BOTTOM LINE	SPECS
Dell Axim X50v \$499 list 	Media Player 10 performance is amazing. New accelerated graphics architecture promises high-res gaming and video. Excellent value.	Few programs support new graphics architecture. Our tests show slower performance than other 624-MHz Pocket PCs. So-so battery life.	The X50v is an attractively priced VGA Pocket PC that has excellent multimedia features and promises a great gaming experience.	Pocket PC OS, 624-MHz CPU, 64MB RAM, 3.7-inch 640-by-480 display, 802.11b, Bluetooth, SD and CF slots, 6.2 oz. Battery life: 3:10.
HP iPaq hx4700 \$649 direct  	Gorgeous screen. Fast. Welcome touchpad. New start page.	Heavy. Annoying nonremovable screen cover.	The gorgeous, superpowerful hx4700 is a good way to future-proof your PDA investment.	Pocket PC OS, 624-MHz CPU, 64MB RAM, 4.0-inch 640-by-480 display, 802.11b, Bluetooth, SD and CF slots, 6.6 oz. Battery life: 5:45.
palmOne Tungsten E2 \$249 direct 	Sleek look. Nonvolatile memory. Excellent document-reader software.	Still not quite powerful enough for video.	The E2 is a good choice for a basic business PDA. It looks good and displays PIM data and office documents in an attractive manner.	Palm OS 5.4, 200-MHz CPU, 32MB RAM, 3.2-inch 320-by-320 display, Bluetooth 1.2, SD/MMC slot, 4.7 ounces. Battery life: 7:58.
palmOne Zire 72 \$300 street  	First PDA with 1.2-megapixel camera. Video recording. Nice display.	No 802.11b wireless. A little slow in accessing and exiting the camera menu.	The Zire 72 delivers great PDA functionality and audio-playback capability. It's a strong choice for people who want more.	Palm OS 5.2, 312-MHz CPU, 32MB RAM, 3.0-inch 320-by-320 display, 1.2MP camera, Bluetooth, 4.8 oz.
PHONE/E-MAIL DEVICES				
Audiovox XV-6600 \$549.99 list 	EV-DO speed is excellent. Lots of memory. Good keyboard and convenient command buttons.	Large and heavy. Expensive.	Surf anywhere in 16 cities at near-broadband speeds with this big, powerful PDA/phone.	Pocket PC Phone Edition OS, 400-MHz CPU, 128MB RAM, 3.5-inch display, Bluetooth, SD slot, CDMA, EV-DO, 7.3 oz. Talk time: 3:18.
palmOne Treo 650 from Cingular \$549.99 direct  	Good battery life. International voice and data roaming. Fast EDGE modem.	Service plan costs more than Sprint's Treo 650. No dial-up networking—yet.	The Treo 650 performs better on Cingular's network than on Sprint's, but you'll pay more for the speed.	Palm OS 5.4, 312-MHz CPU, 32MB RAM, 2.6-inch display, 0.3MP camera, Bluetooth, SD slot, GSM, GPRS/EDGE, 6.3 oz. Talk time: 7:33.
RIM BlackBerry 7100t \$199.99 direct  	Looks and feels like a cell phone. First BlackBerry to include IM and full Web browser standard. Excellent push e-mail.	Small keys. Small type on screen. Few games or downloadable applications.	A new approach for RIM, the 7100t is the first BlackBerry device to work equally well for e-mail, IM, Web browsing, and as a phone.	RIM BlackBerry OS, 32MB RAM, 2.1-inch 240-by-260 display, Bluetooth, GSM, 4.2 oz. Est. talk time: 4:00.
PHONES				
Audiovox SMT 5600 \$199.99 with one-year contract  	Smallest Windows smartphone. Excellent music and video support. Excellent battery life. Great design.	Can't play music or video over Bluetooth headset. Poor camera.	The SMT 5600 phone is your best option for taking Outlook PIM data and many kinds of music and video on the go.	GSM, GPRS, Windows Smartphone OS, 200-MHz CPU, 2.2-inch display, 0.3MP camera, Bluetooth, Mini-SD slot, 4.2 oz. Talk time: 8:23.
LG VX8000 \$269.99 list 	Excellent camera, screen, and keypad. Good battery life. Lots of memory for photos and games.	V Cast video service isn't compelling. No e-mail, Web browser, or Bluetooth.	Verizon's best camera phone is its first EV-DO phone. Buy the phone but skip the V Cast EV-DO service for now.	CDMA, EV-DO, 2.1-inch 176-by-220 display, 1.2MB camera, 128MB RAM, 3.9 oz. Talk time: 4:25.
Motorola Moto Razr V3 \$299.99 with contract 	Absolutely gorgeous. Thin as its name.	Screen attracts grease. Not a great camera.	The Razr V3 is the ultimate see-and-be-seen phone for style mavens.	GSM, GPRS, 2.2-inch 176-by-220 display, 0.3MP camera, 5MB RAM, Bluetooth, 3.3 ounces. Est. talk time: 7:06.
Motorola V551 \$209.99 direct  	Bright, sharp screen. Good camera. Built-in IM client.	No external photo caller ID or speaker-independent voice dialing.	For making calls, sending pictures, and occasional laptop Internet access on the Cingular network, the V551 is your best choice.	GSM, GPRS, 2-inch 176-by-220 display, 0.3MP camera, 6MB RAM, Bluetooth, 4.3 oz. Talk time: 8:27.
Sprint MM-5600 by Sanyo \$429.99  	Spectacular screen. Loud speaker and speakerphone. Excellent PC connectivity. Good voice recognition.	Big. No e-mail. PC syncing requires third-party software. Photos show compression artifacts.	A big phone with big sound and a big feature set, this is Sprint's most powerful phone apart from its smartphone line.	CDMA, AMPS, push-to-talk, 2.1-inch 320-by-240 display, 1.3MP camera, 3MB RAM, Mini-SD slot, 4.5 oz. Talk time: 4:09.
WIRELESS HARDWARE AND SERVICE				
Kyocera KPC650 from Verizon \$99.99 with contract  	Fastest EV-DO card on the market. Swiveling antenna.	At \$79.99 per month, the service is expensive. Works only in metro areas that have Verizon's EV-DO coverage.	Especially where signals are weak, this card delivers reasonable performance.	CDMA 1xRTT EV-DO, 850/1900 MHz.

HDTV, and Then Some

BY ROBERT HERON

The **Epson Livingstation LS57P2** is a native 720p rear-projection TV (RPTV) that pulls double-duty as a tool to view, edit, print, and store digital images. The Livingstation's many extras will appeal to some, but the mixed image quality of this HDTV has us thinking twice.

With a screen measuring 57 inches diagonally, the Livingstation is ideal for big rooms with viewing distances of at least 8 feet. But come any closer and the "screen-door" effect of the LCD-based display becomes readily apparent. We also saw a slight shimmering when the Livingstation displayed solid, bright images such as a blue sky.

Fresh out of the box and warmed up, the LS57P2 exhibited a strong green bias that discolored skin tones. This was especially noticeable when we

were viewing sporting events with lots of green in the image (such as any sport played on grass). Even after spending considerable time adjusting and tuning the display, we were never quite satisfied with the resulting images.

Surprisingly, the Livingstation rendered the rest of our test material very well. Standard and high-definition television, as well as DVD video, appeared very detailed, with well-saturated colors. Sports fans and other multitasking TV viewers will appreciate the LS57P2's split-screen or picture-outside-picture (POP) mode, although this feature works only with component, DVI, and PC (VGA) inputs.

Epson includes a standalone ATSC tuner for receiving over-the-air (OTA) digital broadcasts—a welcome feature. Unfortunately, the tuner consumes one of the two available



THE LIVINGSTATION is an HDTV and a digital-photo hub (with printer) in one.

component inputs.

The Livingstation offers a PC-free way of viewing, managing, and printing your digital photos. Media card slots accessible from the front of the display accept CompactFlash, SmartMedia, Memory Stick, and SD/MMC. An included external (USB) 52x CD recorder attaches to a port on the rear of the Livingstation and provides a means of backing up images

from media cards. The integrated thermal dye printer produces decent-looking 4-by-6 prints.

A nifty freeze-frame function let us capture on-screen content and print it. Unfortunately, this feature did not work with DVI or VGA sources, and we could not save the captured images as

files. We like the design and layout of the remote, but it needs backlit buttons for use in a darkened room.

The Livingstation LS57P2 is a unique HDTV that offers simplified digital photo tools. But it will not satisfy those looking for the best image quality right out of the box.

Epson Livingstation LS57P2

\$3,399 list. Epson America Inc., www.epson.com. ●●●○○○

Photo Slide Shows: Archiving Without a PC

BY BILL HOWARD

There are millions who, though bitten by the digital-photo bug, find PCs too hard to use. Enter Pacific Image Electronics' **PrimeFoto**, a standalone CD burner for archiving digital photos and creating slide shows for playback in DVD players. It's a first-class idea bogged down by an optimistic \$220 street price and ease-of-use issues.

The PrimeFoto combines a half-dozen memory card sockets and a CD recorder in a 5-pound box that has the size (but not the battery-powered portability) of a notebook computer. Stick a digital camera flash card in one of the sockets and a blank CD in the drive, press one button, and PrimeFoto writes the files from that



THE PRIMEFOTO creates slide shows from memory cards.

photo card (and the next one, and next) to the CD. You can even use the 2.5- by 11- by 9-inch (HWD) unit without a display or connected to a TV. That's the theory, anyway.

The reality is that even with just three buttons on the unit and another 30 on the remote (if you use it with a TV display),

archiving can be complex. While a tech-savvy *PC Magazine* reader could figure out how to make it work, you've already got a PC for archiving. And it's less certain that your parents could get the PrimeFoto to archive reliably and repeatedly.

The shiny button closest to the CD, which you'd suspect opens the drive tray, is the power button; the eject button is closer to the flash sockets. The unmarked shiny button on the far right copies if you tap the button and makes a video CD (VCD) if you hold the same button for 3 seconds. All that would be a lot clearer if there were an LCD display or even an instruction sticker on the unit somewhere.

Connect the video-out plug to a TV and you get to use the remote, which lets you omit or rotate photos, add a musical background (one tune, 6 minutes tops), and a title. Discs you create hold both the full-size images (archived) and 704-by-480 images for TV output. You can burn multiple copies for friends, and discs can be played in most any DVD player.

Alas, the unit's TV display was flickery, and several TVs cut off the sides of images when we played back the VCDs. The PrimeFoto accepts JPEG and TIFF images but not the RAW images of some pro cameras. Big images (10MB) tended to overwhelm the PrimeFoto's copying process.

PrimeFoto

\$220 street. Pacific Image Electronics Inc., www.scanace.com. ●●●○○○

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AMD Debuts Its Dual Core CPU

BY JOEL SANTO DOMINGO

Barely a step behind in the dual-core CPU race begun by Intel (go.pcmag.com/inteldualcore), AMD has begun to release its dual-core Opteron offerings. The rationale for this type of CPU architecture is simple: By putting two processor cores on the same die, each core can run at a lower clock speed, using less power per core yet still delivering performance gains, especially when it comes to boosting performance in multithreading and multitasking applications.

Dual core, whether from AMD or Intel, is more than just a power-saving performance enhancement for processors. There are some definite usage scenarios where it will be the processor of choice—for example, when you're editing a lot of multimedia files, when you have two or more applications open and are running an anti-virus program in the background, or when you see a slowdown in a game you're playing because of Windows doing some unknown maintenance in the background.

While both AMD and Intel simply add a second existing core to their packages to get a dual-core CPU, the manufacturing similarities end there. Because the Opteron incorporates a system request interface (SRI), AMD is able to connect each core separately to the controller. The SRI enables direct core-to-core communication on the die. Then AMD connects the processor package to the external memory through its integrated memory controller. In instances

of heavy memory access, such as when you are doing digital composite editing for creating a movie, this can reduce latency and increase performance.

AMD launched dual core with its Opteron processors, which are used in servers and workstations—ideal beneficiaries of the technology because of the multithreading/multitasking nature of the apps run on such boxes. The added core should help speed up digital content creation and certain CAD programs typically used on workstations.

To test the new chip's performance, we built a workstation based on the Tyan Thunder K8WE motherboard, with an nVidia nForce Professional chipset. The motherboard was populated with two dual-core AMD Opteron 875 processors and 4GB of Kingston 400-MHz DDR SDRAM. An nVidia Quadro FX 3400 PCIe graphics card and a Seagate 7,200-rpm SATA hard drive with 8MB cache rounded out our labs configuration.

We ran the same tests on our dual-Opteron 875 white box that we ran on Intel's dual-core Pentium EE 840 processor. (Thanks to its Hyper-Threading technology, the dual-core Pentium runs as four virtual processors, matching the dual-core, dual-CPU setup of the Opteron entry.) As expected, no performance gain is seen in the SYSmark numbers for Office Productivity with the dual-core Opteron test workstation. Almost any faster-clocked,

single-core system would outperform the dual-core Opteron on this test, since none of the applications are designed to take advantage of a multithreaded architecture.

The Internet Content Creation (ICC) numbers are a different story. This test uses several content-creation appli-

ample of how multiple cores can help your day-to-day computing experience. We loaded each system with thousands of different files, including Word documents, PDF files, and media files, such as JPEGs and AVIs. We then installed Norton AntiVirus 2005 (NAV) and Windows Media Encoder 9 (WME). We started an

NAV scan of the hard drive, then brought WME into the foreground and encoded a video file to WMV format. We then timed the foreground encode process. We did this with three video files of different lengths encoded with three different codecs.

The dual-core nature of the Opteron helped cut video transcoding time drastically. This translates into quicker output over the course of the day, which is important if you're trying to meet a deadline. Again, the WME process went off without a hitch, with the NAV scan happening in the background. We tried it again with both the transcoding and the NAV scan in the background and surfed stutter free in the foreground.

Dual core isn't the best performance solution for everyone, but it's a good solution in certain current situations for multithreading and multitasking, and it's a viable solution for processors in the future. So for the most part, dual core is not going to affect your computing experience—just yet.

AMD Dual-Core Opteron

Advanced Micro Devices Inc., www.amd.com



LIKE TWO CHIPS IN ONE, AMD's dual-core Opteron entries deliver CPU horsepower.

cations that are multithreaded or have multithreaded filters. It also runs tasks simultaneously to take advantage of multitasking. The Opteron's ICC score of 320 is way beyond anything we've seen before. The combination of the dual CPUs, the dual cores in each CPU, and the elimination of the FSB (front-side bus) bottleneck—thanks to the Opteron's HyperTransport links and integrated memory controllers—all contribute to the Opteron's high score. To put this in perspective, these scores translate into graphics creation and editing performance that is more than three times as fast as BAPCo's SYSmark 2004 reference machine (which has a 2.0-GHz Pentium 4, 512MB of RAM, and ATI Radeon 9700 Pro graphics).

We also tried a real-life ex-

PERFORMANCE TESTS

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

		SYSMARK 2004			WINDOWS MEDIA ENCODER 9* (min:sec)	
Graphics		Office Productivity ▲	Internet Content Creation ▲	OVERALL ▲	24.5MB file, DivX 5 ▼	8.2MB file, Video Media 7 ▼
AMD Opteron 875 (2.2 GHz)	nVidia Quadro 3400	163	320	228	4:45	7:06
Intel Pentium Extreme Edition 840 (3.2 GHz)	ATI Radeon X850 XT	190	286	233	5:55	10:12

* This is a multitasking test, with the video encoding taking place in the foreground while a virus scan runs in the background.

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Real-Time Usage Stats	✓	✓	✓	✓	✓
Real-Time Back Up's	✓	✓	✓	✓	✓
Bulletin Board System	✓	✓	✓	✓	✓
PHP PERL Python	✓	✓	✓	✓	✓
24/7 Support	✓	✓	✓	✓	✓
Web Mail Interface	✓	✓	✓	✓	✓
Website Visitor Statistics	✓	✓	✓	✓	✓
Full Control Panels	✓	✓	✓	✓	✓
Free Additional Domain Hosting		✓	✓	✓	✓
WebPassword EZ Control Panel			✓	✓	✓
PHP-MyAdmin			✓	✓	✓
SQL Database			✓	✓	✓
SSL / HTTPS			✓	✓	✓
QuickTime Stream Server			✓	✓	✓
Real Stream Server			✓	✓	✓
eMail Spam Filtering				✓	✓
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GNU Compiler					✓
ServerGuard - Password Hack Protection					✓
Java Server					✓

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Malware Blocker “Thinks” for Itself

BY NEIL J. RUBENKING

Last year, Panda Software released TruPrevent, a technology that blocks viruses and other malicious programs based strictly on their behavior rather than on a threat’s signature. Its purpose is to catch viruses and Trojans which are so new that your signature-based antivirus software doesn’t yet know how to recognize them. The latest build adds even more functionality. TruPrevent technology is included in all of Panda’s security products, but if you want an additional line of defense with other security utilities, you can use the standalone **TruPrevent Personal 2.0** to augment your existing antivirus product.

TruPrevent Personal watches every running program and, according to the ICSA tests, can nearly always identify malicious behavior with-

out being tripped up by valid program activity. Just before the actual damage occurs, TruPrevent intervenes, terminates the process, and sends a report to Panda.

When the program detects a suspicious pattern of attempts to connect via the system’s ports, it temporarily blocks the program’s communication until it can ascertain whether or not the connection is legitimate. This feature is somewhat similar to a personal firewall’s program control, but TruPrevent makes all the decisions—you never have to respond to a pop-up query.

The product performed very impressively in lab tests by the ICSA, a well-known security testing and certification group. It should be noted that



TRUPREVENT can stop Trojans, and other threats, before they cause harm.

although the methodology appears sound, the ICSA testing was contracted by Panda Software. So we’ve decided not to give the product a rating at this time, pending independent verification of the test results by other labs.

To get a feel for the product in our own labs without handling live viruses, we loaded

TruPrevent Personal on a machine and then visited three sites known to install spyware. We accepted the ActiveX controls they offered, some of which in turn tried to load additional spyware modules. TruPrevent Personal blocked and removed all of the unwanted applications. Notably, TruPrevent Personal blocked Istbar and Look2Me, which daunted both Webroot Spy Sweeper 3.5 and Norton Internet Security 2005 Antispyware Edition in a test last week.

So from what we’ve seen, TruPrevent Personal 2.0 can provide a layer of protection against “zero day” attacks that your signature-based antivirus utility may miss. Given the speed with which new viruses spread these days, that protection might be a lifesaver.

TruPrevent Personal 2.0

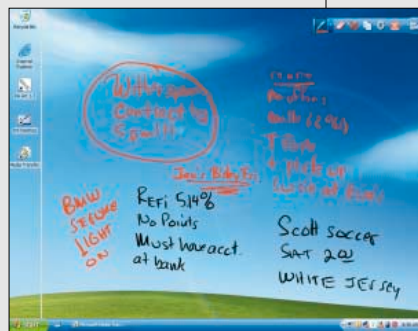
\$29.95 direct. Panda Software, www.pandasoftware.com. Not rated.

Make Your Tablet PC More Useful

BY BILL HOWARD

Out since 2002, Microsoft Windows XP Tablet PC Edition has certainly lived up to Microsoft’s caution that it might take a couple of years for Tablet PCs to catch on. Tablet PCs have capacitive digitizer overlays on color displays. Some are pure tablets, others are convertible notebooks with keyboards and LCD panels that swivel and fold flat. To help the adoption rate, Microsoft has made available a useful set of pen-enabled productivity and entertainment tools called the **Microsoft Experience Pack for Tablet PC**. And it’s free to any Tablet PC user.

In the Experience Pack collection, the *Ink Desktop* tool may be the handiest for the most users. It lets you write, freeform, on your Windows



THE INK DESKTOP tool lets you jot free-form notes on your Windows desktop.

desktop (the main screen with all the program icons). It’s as fast and easy as writing notes on a sheet of paper. Your scribbles can cover the entire desktop, the desktop except for the icons area, or a template area that can be ruled, gridded, or a calendar. But there’s no handwriting recognition, and if you use a

calendar grid, there’s no mechanism for moving notes into your Microsoft Outlook calendar.

Ink art is a drawing tool with textured canvases and multiple brushes, chinks, and crayons to choose from; there is even a tracing-paper mode you can use over other pictures. It’s good

for budding artists (and for long, boring meetings). *Ink crossword* is just that: a pack of crosswords of varying difficulties, a chance to buy more, and one free puzzle download a day.

Music buffs will appreciate the *Media Transfer* tool. With Windows Media Connect installed on another PC, it can

stream music, photos, even video from another PC, or it can pull (transfer) your favorite files so you can take them on the road.

The *Snipping Tool* is a screen grabber: You capture all or part of whatever’s on your screen, annotate it with handwritten (pen) comments, then e-mail it to a colleague. And the *Energy Blue Theme Pack* is a slightly different look you can apply to your Tablet PC desktop.

If you’ve got a Tablet PC, by all means download the Experience Pack. If you don’t have one, the value proposition remains the same: For about \$200 more and a fraction of a pound extra, you can get a notebook PC that lets you write on the LCD panel. These utilities help the Tablet PC side of the equation a bit.

Microsoft Experience Pack for Tablet PC

Free download. Microsoft Corp., www.microsoft.com. ●●●●●

Make Your Browser Better

BY EDWARD MENDELSON

Are the core features of your browser of choice not cutting it? Before you ditch the whole thing, consider the myriad add-ons available from third-party developers. They could add just the functionality you're looking for. Here, we run down our favorite extensions for the market-leading browsers, Firefox and Internet Explorer.

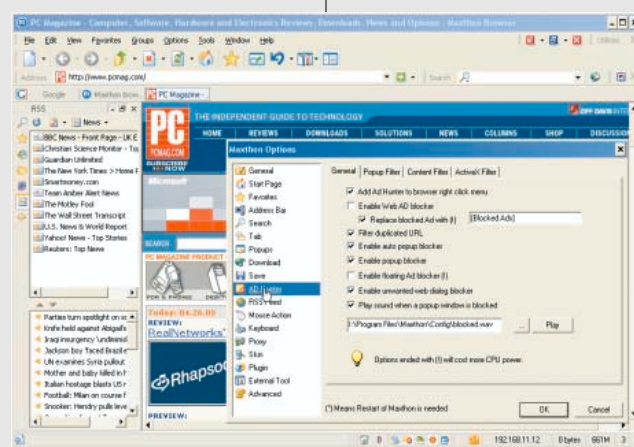
INTERNET EXPLORER ADD-INS

IE add-ins have a long history, and many have become mature, complex products. We've chosen a small selection of the most useful and interesting.

Google Toolbar 3 beta (free) updates this classic add-in by adding links to Google Maps, Web form spell-checking, and single-word translations into the language of your choice. Add automatic form-filling with your name, address, and password-protected credit card numbers, plus a multitude of search options. (toolbar.google.com)

IeToolbox 3.3.0.1 (\$14.95) is an unobtrusive no-frills information manager that works entirely in tabs in the left-pane Explorer Bar. After filling in a form on a Web page, you can save the form data to an item that is added to a list in the Webform tab; when you want to fill the form again later, you right-click on the saved item and choose Form Fill from the pop-up menu. A separate list of passwords works in similar ways. It's not fancy, but it's less in-your-face than other products. (WinCentric Media Network, www.ietoolbox.com)

A favorite with Microsoft programmers and other high techies, **Maxthon 1.2.4** pumps up Internet Explorer with tabbed browsing, a drag-and-drop "collector" for any text you want to save, and a supercharged left-pane Explorer Bar that contains RSS feeds, a re-



MAXTHON 1.2.4 delivers tabbed browsing, drag-and-drop collection of text, and a host of other features to Internet Explorer.

source list with currency conversions, weather reports, and more. You'll need a week to set all the options and experiment with free and commercial Maxthon plug-ins. Maxthon may be too much of a good thing, but nothing else adds so much power to IE. (Mysoft Technology, www.maxthon.com).

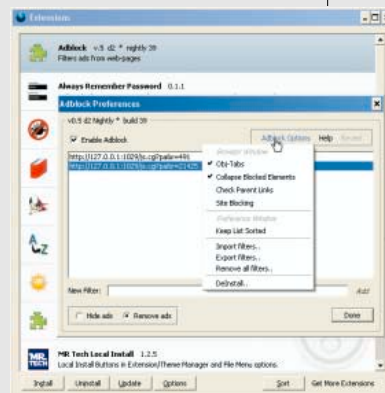
RoboForm Pro (\$29.95) remembers everything you want to fill in on a form and fills it in automatically, with optional password protection for sensitive items. Its toolbar recognizes the sites you visit, remembers your entries on any form, and fills them in with a mouse click. It looks complicated but works effortlessly. (Siber Systems Inc., www.roboform.com)

FIREFOX EXTENSIONS

Firefox, like other software based on the open-source Mozilla browser, was built from the start to use extensions that integrate with its menus and toolbars. You can find hundreds of extensions at the default location that opens when you use *Tools | Extensions* and click on *Get More Extensions*. But to get some of the best, you'll need to visit <http://extensionroom.mozdev.org>. (We've noted home pages for sites not available from the default site.) All

these extensions are free.

Everyone except ad sales people will probably pick **Ad-block 0.5.2** as their favorite Firefox extension. Surprisingly effective out of the box at blocking banners and animated



ADBLOCK 0.5.2 effectively blocks pesky ads as you browse via Firefox.

ads, it provides an extensive Options dialog for fine-tuning its controls and adding addresses that you want to block.

Unless you like to spend time filling in registration forms on newspaper and other Web sites, install **BugMeNot 0.6.2**, right-click in the password field on the site's log-on page, choose BugMeNot from the pop-up menu, and a username and password will magically appear. Press Enter and you're logged

in. (www.roachfiend.com)

Can't keep track of all the extensions you've installed? Install one more, **Ext2Abc 0.2.1**, and you'll get a Sort button in the Extensions dialog that rearranges the list in alphabetical order. (www.roachfiend.com)

DictionarySearch 0.9.2 adds a Search Dictionary item to the right-click menu that Firefox pops up when you select a word on a Web page. The search takes you, by default, to TheFreeDictionary.com. You can, however, replace this with other dictionary and translation sites listed on the add-in's home page, or easily build a menu item of your own that searches any reference site you choose.

ForecastFox 0.7.1 displays an icon for one or more day's weather on any Firefox toolbar or status bar that you choose in its extension options setup.

Icons for current and future weather conditions display different information. You can move your mouse over an icon to see a tooltip with further details or turn off the tooltip altogether.

There's no guarantee that an extension will still be available if you need to install it again. Save your favorite extensions to disk from their home pages and use **MR Tech Local Install 1.2.5** to install them

to disk. This disk adds an Install button to Firefox's Extensions dialog. (www.mrtech.com/extensions)

OpenBook 1.2.0 lets you add multiple options to the dialog that appears when you bookmark a page with Ctrl-D or the *Bookmarks | Bookmark This Page* menu item. The expanded dialog can show the full tree structure of the bookmark menu, open a field for editing the URL, and much more.

Readiris Pro 10 Delivers Greater Accuracy

BY M. DAVID STONE

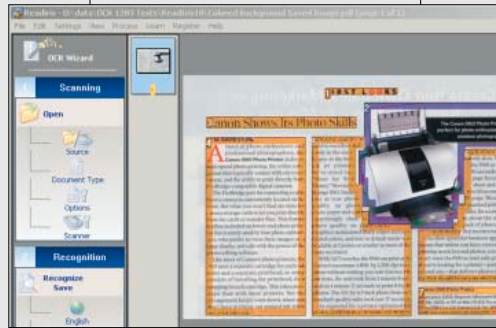
Those who have used a Hewlett-Packard scanner are probably familiar with Readiris from I.R.I.S. as the bundled OCR program. Readiris Pro 10 Corporate Edition (\$399.99 direct), the latest version, is a big step up from Version 9. It raises the number of languages supported to 117, saves recognized files in 14 text formats and 6 image formats, and adds recognition for bar codes and even hand-printed (though not cursive) text.

Readiris Pro 10 will also break a scan of multiple documents into multiple files if you add a blank page between documents, and it can monitor a folder to recognize automatically any files you scan to that folder. Most important, it claims an increase in recognition accuracy

over Version 9.

When you open the program, a wizard guides you through the OCR process (you can set the wizard not to run if you prefer). The main window is divided into three panes. On the left is a set of commands that effectively take you through the key steps without the wizard. To the right of that is a narrow pane showing thumbnails of scanned pages. And to the right of that is a pane showing the current page, marked up to indicate blocks of text or other kinds of data to recognize.

There is no editing pane like the ones you'll find in ScanSoft OmniPage or Abbyy FineReader, because there's no built-in



EVEN COMPLEX DOCUMENTS were handled with aplomb on our tests of Readiris Pro.

editor. After you recognize a set of pages, the program saves the file and, by default, opens it in the appropriate program. If the program allows editing, as with Microsoft Word, you can then look for and fix recognition errors.

Version 10's automatic parsing performed flawlessly on our

test documents. That's a vast improvement over Version 9. It also did an excellent job on the recognition itself, which puts it in the same class as OmniPage and FineReader for accuracy. Two of our one-page test documents had only one error each. None had many more.

All told, our preferred OCR program

remains OmniPage Pro 14 Office, because of its more intuitive interface and somewhat richer feature set for the office, but Readiris is a less expensive alternative that can still get the job done.

Readiris Pro 10 Corporate Edition

\$399.99 direct. I.R.I.S. Inc.,
www.irisusa.com. ●●●●●

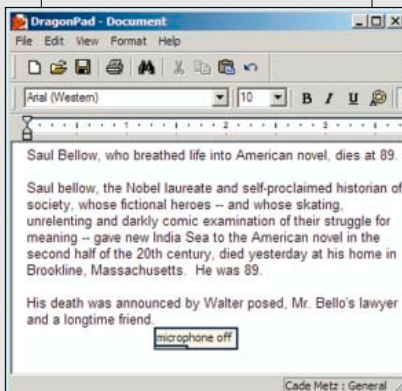
Speech Recognition Gets Better

BY CADE METZ

Speech recognition has never been this good. **Dragon NaturallySpeaking 8 Professional**, the latest incarnation of the popular speech-recognition engine from ScanSoft, is better at turning speech into text than any other commercial product we've seen. And though it still makes its fair share of mistakes, correcting those mistakes is remarkably easy. If you've been disappointed with speech-recognition tools in the past, Dragon 8 could turn you into a believer.

We tested the rather pricey Professional edition (\$795 direct), but the same engine underpins more consumer-friendly Standard (\$99) and Preferred (\$199) versions (see www.scansoft.com/naturallyspeaking for a rundown of the differences). During

informal testing at PC Magazine Labs, after roughly 20 minutes of training Dragon was about 95 percent accurate, and this improved after more training and more practice. By comparison, IBM ViaVoice 10, the one-time Dragon archrival (now also sold and marketed by ScanSoft), was only about 70 percent accurate. Granted,



WHY TYPE? SIMPLY SPEAK and Dragon NaturallySpeaking gets it right (mostly).

Dragon can still be frustrating—especially in the beginning, when you're still getting used to it—but thanks to a slick tutorial wizard and a clever interface, it's far less painful than you might expect.

Training the app is easy—even fun. After about 5 minutes of reading aloud, the app will have a pretty good idea of your speech patterns. If you like, you can ask it to analyze your e-mail messages and Word documents, so it can get a good idea of your writing style as well. The tool is smart enough to include punctuation and format special text such as e-mail addresses, Web pages, times, dates, currencies, and phone numbers automatically.

As accurate as Dragon is, its ability to correct mistakes is even more im-

pressive. If the app gets a word wrong, for instance, you can highlight it with a simple voice command, and a menu will automatically pop up, giving you a list of alternatives. If none of the alternatives are what you're looking for, you can quickly input the right word by spelling it out loud.

You can use voice commands to input predefined text and graphics into a document. You can fine-tune the app's dictionary with an easy-to-use Vocabulary Editor. And you can set up commands to have different effects depending on the placement of your cursor in a document. Also, the new version now supports Palm devices. Dragon has long been able to transcribe dictation recorded on digital recorders and other handheld PCs, but this is the first time it's been able to handle the Palm.

Dragon NaturallySpeaking 8 Professional

\$795 direct. ScanSoft Inc.,
www.scansoft.com. ●●●●●

Improved Remote-Control App

BY CADE METZ

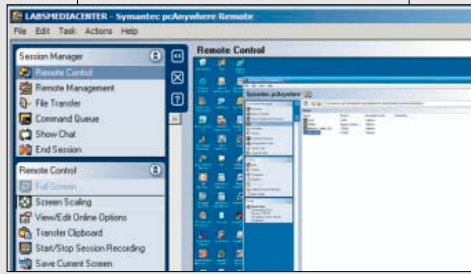
Nowadays, you can easily access distant PCs via a browser-based remote control service. But the venerable pcAnywhere—a traditional client application that dates back to the 1980s—is still the world's most popular means of remote control. The latest version, **pcAnywhere 11.5**, isn't quite as easy to use as browser-based tools like GoToMyPC. But thanks to a new Connection Wizard, it's certainly easier to use than it was in the past. And as always, it's a bit more powerful than the browser-based apps. With 11.5, you can connect to remote Linux machines. You can connect from PocketPC devices. And it offers a host of new security features and performance enhancements.

pcAnywhere isn't meant for the average consumer. It's meant for help desks, small

businesses, and road warriors who need a bit more flexibility in their remote-control app. pcAnywhere lets you connect to remote machines via modem, serial or parallel cable (but not USB), Bluetooth, and via the Internet.

GoToMyPC was such a breakthrough because almost any computer user could set it up and instantly put it to use. With pcAnywhere, things are a bit more complicated. You typically have to install a much larger client not only on the PCs you want to access but also on each machine from which you're doing the accessing. Plus, in order to access a system, you typically have to key in its IP addresses—something many users aren't comfortable doing.

With Version 11.5, this is still the case. But its new Connec-



THE NEW WIZARDS in pcAnywhere 11.5 make setting up and working with connected PCs easier.

tion Wizard carefully walks you through the setup process. When using the wizard to access a remote machine, you do need to know its IP address. But if you don't know the address—or if it uses a dynamic IP address—there are other ways of connecting. A built-in Quick Connect tool can poll your local network or a particular subnet for available pcAnywhere machines. If your system is behind a router or firewall, you have to open individual ports on that

router or firewall manually. The pcAnywhere CD does include a Web Remote client that lets you access machines via Web browser, but this is a bit different from what you get with GoToMyPC. You still have to know the machine's IP address—or at least its subnet—in order to locate it, and

pcAnywhere can't deal with firewalls and routers.

If you're looking for quick and easy remote control, stick with GoToMyPC or a similar browser-based app such as LogMeIn or I'm InTouch. But if you need some specialized tools—and you're comfortable with the ins and outs of Windows networks—turn to pcAnywhere.

pcAnywhere 11.5

\$199.95 list. Symantec Corp., www.symantec.com. ●●●●○

Easy Site Editing for Small Businesses

BY JOHN CLYMAN

Every business needs to update its Web site content periodically; stagnant pages don't make a compelling case for your company. But most small businesses don't have the in-house expertise to edit Web sites, and calls to an outside contractor can be costly.

Edit.com's Web-based service promises companies a way to make routine site alterations painless. By contrast with desktop Web-editing software like Microsoft FrontPage and browser-based products like Interland's Trellix, Edit.com doesn't provide tools to build a Web site from scratch. Instead, it focuses solely on ongoing content

maintenance. (Edit.com complements its online service with available custom-design and development work in an effort to provide a one-stop solution for small Web sites.)

If you're comfortable with HTML, converting a site for use with Edit.com is easy: Just add a few tags and attributes within the existing HTML and you're

ready to go. Most of Edit.com's customers opt instead for a full-service setup, priced at \$75 for a site of around 15 pages. The setup includes all the necessary conversions and a training phone call. Either way, your site remains hosted with your existing provider.

Once the tags are in place, you can sign in to Edit.com from

any PC with Internet Explorer installed to update the content on your site. Clicking the Edit Mode check box brings up the editable areas of the page you're on. Begin making changes in any of those areas. Edit.com lets you format text, create hyperlinks, add images, and apply named styles that were defined during the setup process. It also lets

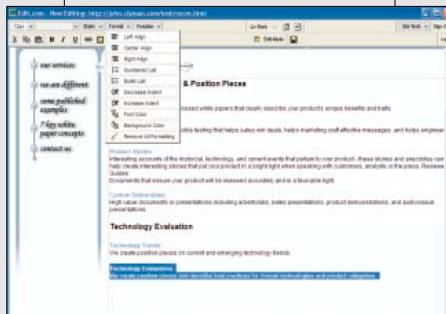
you work within tables. To create a completely new page, you just pull down a menu and select a new page template that reflects your existing site design, then fill in the content areas.

We found that using Edit.com to maintain a simple site was indeed easy, but the service has some limitations. It does not include a spell-checker, nor can you undo changes once you've saved them. The service's image-editing capabilities are limited to resizing, so you'll have to use a third-party image-editing program before uploading graphics or photos.

If your business needs a drop-dead simple way to edit content on its site rather than using traditional Web-editing software or outsourcing updates to a contract Web designer, Edit.com is worth trying.

Edit.com

\$25 per month. Edit.com, www.edit.com. ●●●●○



WITH EDIT.COM, business users can update their site's content from any IE-equipped PC.

Novell Makes Linux Transition Easier

BY ROBERT P. LIPSCHUTZ

There was a time when Asteroids, Duran Duran, and Novell NetWare were all the rage. That time, sadly for some, has passed. When we last reviewed a Novell server offering, it was the aging NetWare platform, and we complained loudly about its shortcomings. But Novell's recent moves to embrace Linux are impressing us.

With the **Novell Linux Small Business Suite 9**, Novell delivers an integrated suite of server and client software for file sharing, application serving, e-mail and collaboration, productivity tools, and most everything else you need for a small business network. And it all runs on Linux—which, unlike NetWare, supports a wide variety of applications, offers a robust platform for future development, and continues to capture the hearts and minds of corporate America in addition to those of the open-source community.

Small businesses that have relied on peer-to-peer networking in the past but now see how a server-based approach simplifies tasks such as file and printer sharing, e-mail management, and the backup of critical data will want to give Novell LSBs a serious look. The suite has a lot to offer small businesses, especially those who are not already invested in a particular server platform (such as Microsoft Windows Small Business Server 2003). Novell's Linux suite does not yet have the track record or third-party consultant support of Microsoft's solution, but it's less expensive (\$475 for five users, compared with \$599 for SBS Server 2003), and we found it just as easy to set up and use. You'll need to make sure your server applications of choice run on Linux, but this list is growing every day.

While Novell has resolved that it won't abandon NetWare,

the company has been directing significant new efforts toward Linux, particularly since closing its acquisition of SuSE Linux in January 2004. SuSE Linux Enterprise Server 9 serves as the foundation for the Novell suite, which includes

Novell representatives assured us that this and other platforms not on the list would be fully supported, with Novell's tech support instructed to help customers find any drivers necessary for their systems. If you want absolute assurance, pick a

the features and functions virtually identical to those in Novell Small Business Suite (the NetWare-based product). The one major difference was the lack of iFolder and iPrint in this Linux suite. We've lauded these Web-based alternatives to file and print sharing in the past, and Novell plans to include them in the next release.

For GroupWise, Novell provides an effective Windows client; Linux and Macintosh clients are also available. A secure instant messaging service can help small businesses communicate internally.

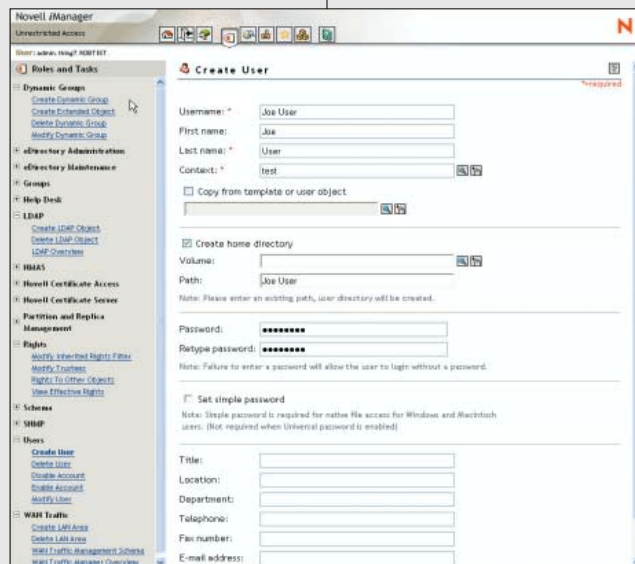
Novell's pricing model is also enticing. The \$475 total covers up to five users and up to three servers (not just one), and includes five support incidents and a year of updates (handled by the suite's built-in utility), so companies don't have to worry about any hidden costs. Additional client licenses cost \$475 for five users (about the same as SBS Server 2003).

Beyond the first year, Novell will supply any necessary security updates free of charge. While you could argue that the total cost of ownership for a Linux server might be higher because experts can be harder to find, you can probably find expertise in your city at about the same rate as a Microsoft certified professional.

Although Linux's strong security, low price, and growing selection of applications are making this OS commonplace inside medium and large enterprises, small businesses are still early in the adoption curve. But early adopters who are willing to take the leap will find that Novell's integrated offering makes this one-stop Linux solution surprisingly easy—and cost effective.

Novell Linux Small Business Suite 9

Price: \$475 for 5 users. Novell Inc., www.novell.com. ●●●●●



ADMINISTRATORS USING iManager for Web-based administration won't see any difference between Novell's NetWare and Linux suites.

GroupWise 6.5.3 (the same as the NetWare version), Novell eDirectory 8.7.3, Novell iManager for Web-based eDirectory administration, and other tools for security, print servers, and updates.

Novell also leverages the open-source market with popular software such as Apache Web Server, Samba, MySQL, and Tomcat. Although most small businesses will still opt for Windows and Microsoft Office on the desktop, Novell does include the Novell Linux Desktop (powered by SuSE Linux), a Linux GroupWise client, and OpenOffice productivity software.

We didn't have any trouble at all installing Novell LSBs on a Dell PowerEdge 600SC server with 1GB of RAM, even though Novell does not have this platform on its Yes certification list.

platform certified by Novell.

The installation wizards move things right along when you are installing and configuring eDirectory, iManager, and GroupWise. The wizards provide helpful context information in the left pane that in more than one case helped us make the right decision. Administrative tasks proved to be straightforward: You don't need to be a Linux wizard for day-to-day management. We readily set up a CUPS print server and shared two laser printers. Samba technology runs behind the scenes to let Windows users transparently share folders and files on the Linux server.

Like its NetWare cousin, the suite addresses many needs of the end user, the administrator, and those wishing to deploy standards-based Web services and Java applications. We found



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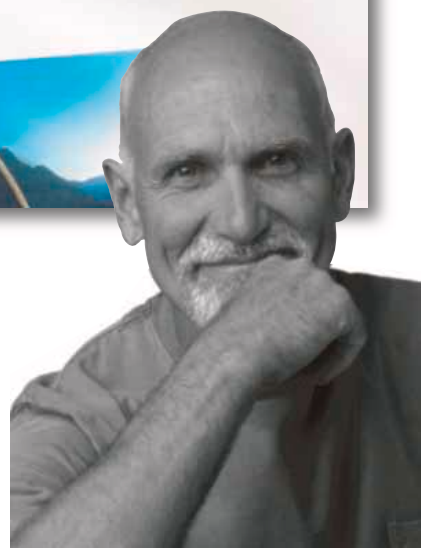
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FEEDBACK

“Soon we will have come full circle, where the new game meets the reason it was created.”

DON'T SKIMP ON IMAGE SIZE

“Prints and the Resolution” (May 10, page 72) was informative, but it left out advice for the huge majority of picture takers, average people taking family snapshots. Taking pictures at the “resolution you need” applies only to people doing brochures, insurance pictures, etc., a tiny fraction of all the pictures taken.

The average snapshooter will usually print at 4-by-6, but taking a 1- to 2-megapixel image for that, as indicated in your chart, would be a mistake. People will come back to images, sometimes years later, and may want to print an 8-by-10 for that special person. In addition, many will want to take a smaller part of an image and still blow it up to 4-by-6 or 8-by-10.

Since the final print size is not known, more pixels, within reason, are better. The limit has more to do with what you can afford to store. With today's big drives, even with a higher-quality level of JPEG compression, 5 to 7 megapixels per image is not too much to store and should provide for an average user's future needs.

DAN KUCHTA

SOFTWARE THAT MEANS BUSINESS

John Dvorak's comment “... if PC software weren't so poorly designed” (Inside Track, May 10, page 69) prompted me to respond. I believe PC software is designed to a business plan as opposed to a good software design plan. As such, it is well designed. It must be installed, and—more recently—registered, before it can be used. It weaves its tentacles throughout the PC's operating system, making it hard to get rid of and often slowing down the hardware to the point that a new, more powerful PC is required, which requires purchase of a new copy of the operating system. Furthermore, this requires one copy of all software that may ever be run on any given machine as opposed to one copy for each individual who uses a particular program. This sounds like a fabulous design for software based on a successful business plan.

What countermeasures will software vendors take if the U3 initiative makes it possible to run Word, Photoshop, etc., from USB devices, be they thumb drives, hard drives or CD/DVD drives? I bet none of us will like the mess that will make of our computers.

Still, there are Linux and OpenOffice, which will run from a CD.

MAURY CLAPP



THE REAL WORLD WIDE WEB

I couldn't have agreed more with John C. Dvorak's assertion that the video game industry will soon cease due to a dearth of new ideas (May 10, page 67). Current trends are on John's side, as competing forms of entertainment are in their death throes as well. Take professional sports. How much has baseball really changed in the last 100 years? Pitch, hit, catch, run. Yawn. Or football: run, pass, catch. Double yawn. These and other stagnant sports no longer maintain the interest of the public, and I predict all sporting arenas will be closed soon. Television, too. Everything is a retread of the same themes: cop shows, reality shows, dysfunctional family/friends shows, talk shows. I predict the television industry will go under in a few years as the public tires of it.

As John mentioned, Spider Solitaire is the only game worth playing. I see Spider Solitaire, and the flurry of new Spider Solitaire ideas the world is inundated with, becoming the sole entertainment medium as soon as tired old baseball goes away.

JOHN WALKER

WANTED: A LITTLE IMAGINATION

I recently asked a friend to order a working Nintendo system for me on eBay. He asked, “Why do you want something so old? What's wrong with the new games and systems?” I told him that video games aren't made the same as the old school. Challenge and nostalgia keep me rooted to Nintendo's Bubble Bobble, Mario Brothers, Contra, Rush 'n' Attack, etc. I have every major system and plenty of games to go with them. Among recent games, only sports games and Prince of Persia for PlayStation 2 (plus all the rereleased Atari and arcade games) attract my attention.

I'm not surprised to read an article about the end game in entertainment. Soon we will have come full circle where the new game meets the reason it was created. I wonder what would happen if video game manufacturers were to take advice from people who play the games. To create anything, you need an idea, and who better to ask than the consumers? It would be a shame if the gaming industry went belly up because there are no imaginative people to lead it in a new direction.

ROBERT C. GLEMSER

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Corrections and Amplifications

■ In our Utility Guide (May 24, page 98) we misprinted Raxco Software Inc.'s URL. It should be www.raxco.com.

■ The proper URL for Advantage for Analysts, mentioned in Michael J. Miller's May 10 Forward Thinking column (page 8), is www.advantageforanalysts.com. The program is reviewed in this issue on page 102.

■ The blog quote reprinted in Backspace (May 24, page 124) that ends with “Specialization is for insects” is misattributed; it is by Robert Heinlein, from his 1973 novel, *Time Enough for Love*.

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John C. Dvorak



Longhorn's Missing Snap Factor

I was dismayed to read reports that Microsoft is working with Samsung to create a hybrid disk drive that will incorporate NAND flash memory, purportedly to extend battery life in a notebook. Is battery life still a hot topic? I immediately thought that something was fishy. Exactly why is Microsoft working on a hardware project such as this? I fear the worst.

Here is what I think is really going on. I suspect that reviewers receiving preview editions of the Longhorn OS are getting optimized code that has had features removed, just so the code will boot fast and appear somewhat snappier than Windows XP. Microsoft knows that a long boot time combined with slow response time will get reviewers up in arms, and probably even get them to continue to promote Windows 2000, which is beginning to look like the last great OS from Microsoft.

This sort of sneaky approach works only until the real code is revealed. What can the company do about that?

Along comes this idea of using flash memory to store code. This essentially makes the hard drive appear faster and should also improve the system's boot performance and perhaps alleviate its sluggishness on other tasks.

I think much of this stems from the embarrassing fact that both Mac and Linux systems are snappier than any Windows computer.

When the first iMac appeared, it was obvious that it was going for the Snap Factor. When you clicked on an icon, it opened immediately. If you clicked on a folder, it opened to reveal other folders instantaneously. It was astonishingly snappy. With a Windows machine, you can click on a folder and wait 5, 10, or 15 seconds before anything happens. Often a little flashlight will appear on the screen to tell you that the computer is looking for something. What is it looking for? There's a folder—just open it! You'd think that the contents of the folder would be known immediately.

Many drop-down menus suffer from this same sluggishness. You are asked to save a file, you want to go to a specific place to save it, and you wait for the menu to drop down. What's it waiting for? Once the dialog box is open, does it have to recatalog the whole drive?

None of this is quite so bad when the OS is recently installed and fresh, or if the user never installs

much of anything other than Microsoft Word. The accumulation of old DLLs and Registry flotsam contributes to the mess, as does spyware. But we all know this and just try to upgrade when we can, knowing that things will be snappy for a while.

All we hear about Longhorn, though, seems to be about the removal of one promised feature after another. I had lunch recently with a former Microsoft product manager who was bemoaning the fact that the "three pillars of Longhorn," which he said were the basis for its development, had all been removed. These were the fancy file structure, the new presentation manager, and a communications system—things that were going to make the OS a platform for what were described as Service-Oriented Applications (SOA).

For most users, the most important of these pillars seems to have been the fancy WinFS super file system that would presumably turn the entire file system into a database that is easy to access and use. Apparently it was easy to cast off too, since that is what Microsoft did. While this sort of file system is nothing new (the Pick OS goes back about 30 years), it must have been too new for Microsoft. One has to assume that with SQL folks and other database mavens in the company, along with the opportunity to buy ex-Pick OS folks and bring them in too if need be, that the problem wasn't the company's inability to make such a system work. It had to be about the performance hit. Thus WinFS was put on the back burner, as were numerous other promised features.

You have to wonder whether Longhorn will become Microsoft's Itanium, essentially rejected by the market in favor of alternatives. It won't if Microsoft can help it, and the company's not about to let Steve Jobs go up on stage when Longhorn is released and have him humiliate the company by showing what a performance dog the much-touted OS actually is. So the company sees Longhorn as a great blimp losing altitude, and it's throwing out any dead weight it can to get the vessel to go back in the right direction: up!

Unfortunately, with the tossing out of one feature after another, it looks as if all we are going to get is Windows XP Service Pack Three. People may start to look elsewhere anyway.

Microsoft sees Longhorn as a great blimp losing altitude, and it's throwing out any dead weight it can to get the vessel to go back in the right direction: up!

MORE ON THE WEB: Read John C. Dvorak's column every Monday at go.pcmag.com/dvorak. You can reach him directly at pcmag@dvorak.org.

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Inside Track

What's Next for Digital Cameras? I have noticed that over the past year or two not much has happened to digital cameras, except that a couple of **obvious roadblocks** have been plowed into. The top of the list is Sony's diminutive 8-megapixel sensor, which has been getting a lukewarm reception for producing **flat-looking pictures**. Most of the camera makers did something weird by simultaneously introducing the next generation of cameras with 7.1MP, thus going down in pixel count for **the first time ever**.

Meanwhile, **the pro cameras** were down at 6MP and producing much better results than the 8MP cameras. Since then, the semipro cameras have jumped to 8MP, and Kodak has the 13MP pro cams. I could go on describing segments and subsegments of the market, and all it will do is **confuse** you and everyone else. This is because it's confusing. And this is during a **period of apparent stagnation**. So what's next?

The public is finally beginning to get a clue about these CCD and CMOS photo sensors, and many people are discovering that **size matters**. And by size I do not mean the pixel count. It's actually the physical pixel size that matters. **Bigger pixels have a bigger dynamic range**, generate less blooming, and produce better images. But except for Kodak, which actually uses a full-frame 36- by 24-mm CCD, **nobody is talking** about this. The camera companies have actually done their best to confuse the public with the way they describe sensors. There is the 1/2.7-inch sensor, for example, and the 1/1.8-inch sensor. What does that mean? In fact, the first is about 5.3 by 4 mm and the second is around 7.2 by 5.3 mm.

Compare that to a Nikon D70, with its 23.7- by 15.5-mm 6MP sensor. It takes a fantastic picture with just 6MP, because the pixels are big and hold more accurate data. The Olympus 8080, arguably the best of the 8MP high-end consumer cameras, has a sensor of only **8.8 by 6.6 mm!** That is a very small area to capture a lot of data, and thus it requires very fine optics.

This sort of comparison is true across the board, and users need to become aware of sensor size as well as pixel count. Sensor size would then become a selling point; it would force camera makers to build more powerful cameras. While a bigger chip is more expensive, a digital camera's optics should be **at least as inexpensive as dead 35-mm technology**, especially as we get to full-frame cameras such as the Kodaks.

Because we all got caught up in a pixel war end-



Because we all got caught up in a pixel war, we lost sight of the goal: great digital photos on a par with the best 35-mm photos.

ing in that diminutive 8MP sensor that essentially requires **ludicrous optics** to work well, we lost sight of the goal: great digital photos **on a par with the best 35-mm photos**. Once consumers get a clue about sensor size, let's hope that the industry will adjust and make a point of telling us the size in big letters on the box.

The Do-It-Yourself Craze Goes Commercial Dept.: By now most people are aware of a growing number of small-form-factor machines, typified by the Shuttle, that are combined with various small motherboards. Now Acer has entered the scene with its line of AOpen boxes that are sold as **bare-bones machines** with their own AOpen motherboards and unique box designs.

I recently got hold of one of these cool-looking black boxes from AOpen and dropped in a 3.2-GHz Intel chip, a large hard drive, and a DVD burner, and installed Linux. The machine is designed to run quietly, and it's one of the nicest computers that I've ever put together.

But what **impressed me the most** were the instructions. One of the problems with do-it-yourself boxes sold online and at small shops is that the companies expect you to be familiar with these systems and to have put together dozens of them. The AOpen group assumes that you've probably never done it, and tells you how to **do it right**. Documentation that works—what a concept! So if you have never put together a bare-bones machine, **I would recommend** doing an AOpen box first. It is an excellent product.

There is one **minor irony** to today's crop of bare-bones machines: They are not necessarily any cheaper than prefab computers that are built on assembly lines. But I think you'll find that they are better.

The End of TV Advertising as We Know It Dept.: If computer technology has done anything for us it has—or is about to—**kill off** the traditional TV commercial. Once you use a TiVo, you'll never go back to regular TV. Part of the reason is the time savings. Most 1-hour shows are 40 minutes of content and 20 minutes of commercials. Time is money, so **blow past the commercials**.

Of course, this will result in TV shows having 60 minutes of content with commercials embedded in the show as part of the content. Ironically, this was the way that television was done prior to 1960, when the advertising models were starting to change. Luckily, it will **take years to reverse** the model, and we will be entering a golden age of TV viewing with commercials skipped by the millions. Enjoy it while you can.

So, how do you ensure your product is the 'must-have' for this holiday shopping season? Join DigitalLife and be part of the most dynamic event of the year – where **2,000 press and retailers** and **35,000 consumers** will kick the tires, compare notes, and pick the hottest products of the year.

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Jim Louderback

Good Digital Prints, Cheap



Online digital photo sharing may be hot, but there's nothing like passing around snapshots. When it comes to prints, the 4-by-6 format is easily the most popular.

Printing 4-by-6 digital photos used to be expensive. You had to slice them out of letter-size photo paper or try to fit odd-size paper into the printer. And photo-finishing shops, from drugstores to camera stores, were ill equipped to handle digital images.

Today, low-cost printing options abound. Numerous Web sites offer prints for as low as 19 cents apiece. Drugstore chains, department stores, and even Costco compete to print your digital images in an hour or overnight. And a new fleet of home printers—designed just to spit out 4-by-6 photos—are cheap to operate and easy to use.

But which option offers the best-looking images at the best price? The Cheap Geek cobbled together a sample of nine images—two from our printer test, the rest a mix of buildings, people, and flowers.

I narrowed the online services down to Kodak EasyShare Gallery (www.kodakgallery.com)—formerly Ofoto—and Snapfish (www.snapfish.com), which HP snapped up. I also sent the pictures to Shutterfly, using the Online Print Ordering wizard found in Windows XP.

To keep gas costs down, I went with Target, Rite Aid, and Longs Drugs, all within 5 miles of my house.

I used an Epson PictureMate 4-by-6 photo printer (go.pcmag.com/epsonpicturemate) for home printing. HP, Lexmark, and others make similar models, but at 29 cents, the Epson has the lowest cost per print of the group (and is a *PC Magazine* Editors' Choice).

I rated the services in three different areas: convenience, total cost, and print quality. For print quality, I convened a panel of regular folks and *PC Magazine* Labs experts in a blind test of each set of prints.

Two contenders were quickly scratched. Shutterfly had me singing, like Snow White, “some day my prints will come.” They were still AWOL after 11 days (EasyShare Gallery and Snapfish took just 3). Longs Drugs suffered both hardware and employee failure. The kiosk screen was black, the previous customer wasted 30 minutes on just four pictures, and the only in-store expert went on break as I arrived.

Target's printing hardware was also on the fritz, but luckily another store was nearby—and its machine worked fine. Both Target and Rite Aid used the

same setup, a Kodak Picture Maker Print Station and Gretag Master Lab. Both were equally easy to use: Pop the flash card into the print station, select the shots, and in an hour or so, the prints are ready.

Shutterfly and EasyShare Gallery both had usability issues that lowered their convenience score. EasyShare Gallery rejected my e-mail address, Info@Louderback.com, and the ActiveX upload control failed under Windows XP SP2. Parts of Shutterfly's site lacked support for cut-and-paste.

Best overall: Snapfish delivered the best image quality—on a par with EasyShare Gallery—plus the lowest price. At 19 cents per picture, it was 6 cents less than EasyShare Gallery, a dime below Rite Aid and Epson, and a penny cheaper than Target. Even after factoring in the \$2 shipping fee—roughly equivalent to 10 miles of gas—Snapfish still ended up the cheapest. Another nice feature: The site has a special 4-by-5.3 print size, optimized for digital photos.

Most convenient: Nothing beats having a dedicated 4-by-6 printer with you. The small PictureMate doesn't need a computer and even comes with a handle. But its picture quality was only so-so, and at 29 cents a print, it tied with Rite Aid as the most expensive of the lot. You'll also spend \$200 up front. On the plus side, if you load up on paper-and-ink combo packs, you can cut transportation costs to near zero.

I can't recommend storefront photo printers for anything but a desperation print. Only half of the machines I tried actually worked, and image quality was terrible. One judge called Target's prints “fuzzy and washed out,” while Rite Aid got failing marks for “creepy lines,” banding, and grainy results. If you can wait for three days, Snapfish beats the competition hands down. If not, consider buying a PictureMate.

Cheap Geek tip: bulk print orders. Nineteen cents a print sounds like a bargain, but prices rise quickly when you add in shipping fees. The \$2 average USPS shipping charge boosted the per-print cost by 22 cents. Even when compared with \$3-a-gallon gas, that's no bargain. But EasyShare Gallery and Snapfish offer bulk rates—and even here Snapfish wins. Print more than 25 photos, and the shipping cost falls to less than 6 cents an image. By prepaying Snapfish for 600 prints, you can drop the per-print cost to 15 cents.

Snapfish delivered the best image quality—on a par with Kodak EasyShare Gallery—plus the lowest price.

MORE ON THE WEB: You can contact Jim Louderback at Jim_Louderback@ziffdavis.com. For more of his columns, go to go.pcmag.com/louderback.



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Bill Machrone



The Microprocessor Is Dead

Long live the microprocessor. I apologize for that Dvorak-like title, but the microprocessor as we know it is a walking dodo bird. The single-CPU processor will eventually be relegated to lightweight applications, as multi-CPU processors fill the same sockets.

It's been years since I wrote about microprocessors; the last items I recall that piqued my interest were the original Pentium chip; AMD's HyperTransport technology; and AMD's efforts to move the front-side bus speed up from 33 MHz, where it had been mired since the days of the 386. Since then, it's been all about speed, with some expanded instruction sets thrown in for good measure. I'm not opposed to speed—I love the performance we get from today's microprocessors, and there's always room for more because there's always more for the microprocessor to do.

SINGLE-CPU KILLERS

Within days of one another back in April, both AMD and Intel announced dual-CPU processors. The Intel Pentium 4 Extreme Edition 840 is intended for the desktop. AMD's Opteron 800 series is intended for servers, but it has a desktop version, the Athlon 64 X2, due out in June. In a couple of years we'll look back on these chips, shake our heads, and smile at how crude they were. But here and now, they beat the stuffing out of any single-CPU chip on any multithreaded benchmark test or application. Tests conducted by PC Magazine Labs and ExtremeTech confirm this.

Most of us do only minimal multitasking on our office machines or even on our gaming rigs; still, you've doubtless encountered the frustration of trying to type into your word processing or e-mail program—and hearing a flurry of disk activity as your words fail to show up on the screen. Eventually the activity stops, the characters in your keyboard buffer appear, and all is normal again. Those little stalls are the price you pay for the ever-increasing burden of background tasks: checking the server for new e-mail, monitoring incoming messages for viruses, quarantining spam, checking to make sure your drivers and software are up to date; background file saves, security updates, self-refreshing Web pages, software firewalls, disk indexes, and who knows what else.

Even with processors that can execute a billion or more instructions per second, contention is a fact of life. With a dual CPU in your system, those background tasks will be relegated to the second processor.

Although these chips are absurdly expensive today, they will, before long, become the high-end processors of choice. And ultimately, they'll be the only choice.

PRICE AND PERFORMANCE

Regarding pricing, what's absurd for the desktop may be a wise investment for the data center. In tightly packed blade servers, heat is the enemy. If you can get roughly twice the processing power from the same rack footprint and the same heat load and power consumption, using these chips is a no-brainer.

AMD and Intel have taken different paths in their x86-based dual-CPU processors. Although both have an internal crossbar switch to connect each internal CPU to the outside world, the AMD chips also include the memory controller on the same die. The CPUs can get to memory faster, without traversing a bus to a separate chip. In addition to speed gains, the scheme uses less power and takes up less motherboard real estate. But it's still too early to see if there's a tangible performance payoff.

The proliferation of dual-CPU chips will encourage software designers to build more multithreaded applications, so that applications will be able to give you more of their undivided attention in the foreground, while doing even more for you in the background. Traditionally single-threaded, PC games so far show little or no benefit from multiple CPUs. But that will change as the PlayStation 3 and Xbox 2 debut with multicore processors and as game designers learn to harness multiple threads. Games have become heavily dependent on graphics processors, and high-end graphics chips have eclipsed the CPU in some of the metrics of complexity, as well as in power consumption. Multithreaded games may redistribute some of the workload back to the CPU when dual CPUs become more prevalent.

If you're involved in content creation or you pilot a workstation-class machine, you may already have a machine with two CPUs. If the sockets are compatible, you may be able to upgrade to dual-CPU chips, which means four processors to do your bidding.

All in all, the death of the single-CPU chip is one of the brightest bits of news from the chip foundries in some time.

Here and now, dual-CPU chips beat the stuffing out of any single-CPU chip on any multithreaded benchmark test or application.

MORE ON THE WEB: You can contact Bill Machrone at Bill_Machrone@ziffdavis.com. For more of his columns, go to go.pcmag.com/machrone.

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Digital Photography Travel Tips

Taking a trip with a digital camera requires proper planning.

BY DAVID CARDINAL

There are many great reasons to have a digital camera with you when you travel. First and foremost, you can instantly see how your pictures turned out, and know whether you need to adjust your settings or technique or take the shot again. If you're photographing children, being able to show them their picture on the LCD is a big winner and can get you a tireless group of models eager to ham it up for the camera. If you have access to e-mail, you can send your images to friends while you're still on your trip. Many digital cameras let you take short movies or add voice annotations—great ways to remember a dance, song, or other special event.

Not having to carry film through X-ray machines is an often-touted benefit. A downside, less frequently mentioned, is the rat's nest of cards, readers, cables, and batteries needed to replace those film canisters. But by choosing your equipment carefully and thinking about your travel needs, you can simplify what you bring to what's essential for your enjoyment. Speaking of luggage, I make sure to carry my camera on the plane with me, along with at least one or two lenses and some film cards. That way, even if my luggage is lost, I have my critical gear.

A good way to start planning is by defining your photo capture, storage, and viewing requirements. For capture, in addition to your camera, batteries, and a charger, you'll need to bring enough cards to get the images you want without worrying about card space. If you have a portable storage device or a notebook, you can offload your cards each evening, or even as you shoot. If not, your cards will



TO CAPTURE THIS SUNSET scene in Mandalay, Myanmar, I hired a boatman to row me out into the lake, then waited until a monk was crossing as the sun set. The effort was worthwhile, as this image is one of my travel favorites.

need to store all the images from your trip, as additional cards may be hard to find and are expensive in most locations. A quick review of your images on your camera's LCD can weed out the worst shots, but it's not good enough to help you to decide which ones are definitely keepers.

Another advantage of bringing a

portable storage device or a laptop is that it can be hooked up to your host's TV set to show off your images. Whether I'm on a family vacation trip or leading a photo safari, one of the most popular events is the final evening's "slide show" of images from the trip. Every photographer on vacation should remember that people really like to see themselves having fun. Whether your true love is nature photography or street scenes, make sure to capture some compelling images of your traveling companions; it'll liven up the trip for everyone.

If you do decide to bring a notebook PC with you, make sure its hard drive is large enough to store all the images you need and that you have the right power adapter for your card reader (though many are powered through the USB port). If you're choosing a new notebook for your trip, see if you can find one with a built-in card slot for the type of digital film card used by your camera. A notebook is ideal not only for storing and reviewing images, but also for showing them to friends and family.

If you decide you need one, consider getting a lighter and smaller model, with an extra battery if you go on extended flights. Those power-guzzling 17-inch multimedia giants are bulky, often don't open at all in economy-class airplane seats, and frequently get only an hour or two per battery charge, while many

of the current 14- to 15.4-inch widescreens have extensive multimedia capacity and good battery life.

Widescreens are more suitable for airplanes than diagonal screens, as they tend to have more width than height, so you are less likely to be cramped by the seat in front of you. Getting an Air/Auto power

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Tips and tricks.



FILL FLASH is a powerful tool to get your portraits to “pop.” For this image where my subjects were in the shade, I used an old photojournalists’ technique of underexposing the image a little, but then overexposing the flash to brighten the subjects.

adapter is helpful, but only a few airline seats (mostly in business and first class on international flights) have power ports. A notebook with a CD or DVD burner and some blank discs will let you make a backup copy of your images as you travel. That can be a lifesaver if your computer is stolen or the hard drive crashes.

Bringing a notebook entails quite a bit of space, weight, and more chargers. An alternative for those who can resist hard-core editing on the road is a portable storage device such as our Editors’ Choice, the Epson P-2000 (go.pcmag.com/epsonp2000). With a VGA screen and a 40GB built-in hard drive, its image-viewing and storage capabilities are unmatched among such devices.

The P-2000 has enough disk space for all but the most prolific shooters, and it lets you view and review your pictures on a surprisingly bright, high-resolution LCD screen. It has a multifunction card reader built in, so it can transfer images directly from your camera, and it can look like a hard drive to your PC for offloading the images when you return. If you are visiting friends or family, you can preload it with your favorite images and use it for slide shows—either on its screen or



ONE OF THE GREAT features of digital photography is how versatile the resulting images are. I was able to take a fairly ordinary shot of Mount Rushmore and easily convert it to black and white, to help it convey the stark lines and austere feeling of the monument.

when plugged into a TV set. The P-2000 even supports viewing RAW files from many cameras. And while it’s no iPod, it will also let you listen to music and watch videos.

The only drawback I have found with the P-2000 is a limited ability to transfer slide shows to it from your PC. If showing images to family or friends is a top priority, consider a Windows Portable Media



IF YOU TRAVEL with a digital camera, try to keep it with you. Even “ordinary” street scenes can be colorful slices of life, like this one of a girl looking in the window of a tattoo parlor near Times Square.



SHOWING A YOUNG girl on the famous statue in front of FAO Schwarz in Manhattan is a great way to evoke the wonders of New York for a visiting child.

Center-based device, such as the Samsung YH-999. These small units have a 20GB hard drive and can easily display images or video that you have on your PC. They can double as entertainment units by playing recorded TV shows. Unfortunately, they don’t have card readers, so they can’t directly replace a portable storage device.

Once you have an idea of what devices you’ll need, ensuring you’ll have power is the next order of business. If you plan to travel internationally, make sure that any equipment you buy comes with dual-voltage chargers, or you’ll be stuck needing separate voltage transformers or buying an additional charger. If you have a variety of devices, you’ll be in better shape if you can standardize either your batteries or your charger. Rechargeable double-A batteries are the most common size, so you may be able to travel with several devices that rely on them and can share a double-A battery charger. Some of your devices will probably require custom or rechargeable lithium ion batteries.

Make sure to bring spares or your charger, as lithium ion batteries are not very common in remote locations—



YOU CAN OFTEN add some topical interest to a standard tourist shot by coupling it with a current event. This shot of the Statue of Liberty taken just after 9/11 shows a Coast Guard vessel in the foreground protecting the statue, reminding the viewer of how the environment has changed since that tragedy.

although I was able to buy a replacement CR5 for my daughter's Nikon Coolpix in Bangkok, Thailand. "Universal" charging systems such as the one that Targus makes, with adapters available for many models of laptops, PDAs, and cell phones, typically don't support cameras that use batteries other than double-A or triple-A sizes. Most digital SLRs have add-on grips that let you power the camera off double-A's instead of (or in addition to) their proprietary batteries. It adds a little bulk, but could be a lifesaver.

One of the worst problems for the digital traveler is carrying a mess of chargers and cables. It's easy to forget which charger goes with which device. I use a "paint" pen to write the name of the device on its charger, so I don't get them confused. I then tie off the cords with Velcro, group the chargers and cords together in plastic bags, and label the bags. Unlike your camera,



ONE OF OUR editors took a new camera on a trip without testing it first, and this (and many similar shots) was the result. Take the time to familiarize yourself with a camera and put it through its paces before bringing it on the road.

THE TRAVELING SHUTTERBUG

Traveling with digital camera gear can be as simple or complex as you make it. The first photo shows an assortment of the gear I bring with me on a "pro" photo shoot in the field: two digital SLRs with lenses, a laptop, a backup hard drive, flashes, cables, power supplies, a solar panel, and chargers. Not pictured are the radios, GPS units, and portable projector I also bring. If you're taking a lot of gear, you can simplify things by standardizing as many batteries as possible on rechargeable double-A cells. In a pinch, you can often find alkaline versions of those while you're traveling.

By contrast, the second photo shows all you need to have a great time taking, viewing, and showing off your photos. A simple point-and-shoot camera like this Nikon Coolpix 5200 and a portable storage unit like the pictured Epson P-2000 is a killer combination that can't be beat for size and weight. The Nikon and Epson chargers can even share the same power cord. For a more streamlined setup, purchase a point-and-shoot model such as the Fujifilm FinePix E550 (our Editors' Choice; see <http://go.pcmag.com/fujie550>), the Nikon Coolpix 5600 or 7600, or the Canon PowerShot A510 or A520, all of which run on replaceable double-A cells.



THE TOP PICTURE shows the gear I take on a pro shoot—well, most of it. Below is all that most travelers should need to bring back great digital photos.

chargers are fairly sturdy and can usually be tossed into your checked luggage, as long as you take some care in packing them.

Once you're organized, practice with your gear on a short trip to make sure you have everything you need and know where it is. If the camera is new, it is important to test it thoroughly, and that includes off-loading, displaying, and printing images to be sure that they are satisfactory. I am amazed by the number of tourists who leave on their "trip of a lifetime" with a camera they have never used—or perhaps never even opened. Before you leave is the best time to practice, to make sure you can take full advantage of the photo opportunities while you travel.

Even with practice, few of us memorize all the commands and buttons for our cameras or other digital devices, and there is nothing more frustrating than not being able to get some small but important

feature, such as the self-timer, working when you need it most. Carrying all of your equipment manuals with you can literally be a drag, but many manufacturers now put their manuals online as PDF files. If you don't bring a notebook, you can at least take them on CD to use on a computer where you are going, or note their location on the Web for quick retrieval from a cybercafé. Still, it is better to bring the manual than to be unable to use your camera.

Finally, remember that unless you're traveling primarily for photography, you're just shooting for fun, so if you miss a shot or something breaks, don't sweat it. No matter how much you plan, things will sometimes go wrong. But over time, traveling with a digital camera will provide you, your family, and friends with plenty of enjoyable moments and memories.

David Cardinal is a professional photographer and software author. He publishes the Web site www.nikondigital.org (an information resource for digital photographers), teaches digital photography, and sells DigitalPro software through www.proshooters.com.

OFFICE

Listening to Office

You may know you can speak text and commands to Office.

But did you know Office can talk back? **BY M. DAVID STONE**

Proofreading text or numbers you've entered from an original, whether by typing or by way of an OCR program, usually works best with two people—one to read the original out loud while the other checks it against the copy. With Office 2003, however, you can dispense with the second person and let Office read the copy instead. You can even have Office read your e-mail to you, if you know how.

Assuming you've installed the Office speech options, the text-to-speech feature is easiest to find in Excel. Choose **Tools | Speech | Show Text To Speech Toolbar**, and Excel will open a toolbar with five buttons. If you choose the **Speak On Enter** button at the far right, Excel will read back everything you've typed in a given cell each time you hit Enter. This is particularly useful when you're entering a long list of numbers and don't want to keep moving your attention between the original and the screen. But be sure to click the button again when you're done to turn the feature off.

Alternatively, you can choose the **By Rows** or **By Columns** button to tell Excel whether to read the data across or down. Then select the cells you want read, and choose the **Speak Cells** button on the far left of the toolbar. You can also choose **Speak Cells** without selecting cells first, but it's generally a better idea to select them, since Excel's guess about which cells to read may not match what you actually want read. To interrupt Excel reading the cells, choose the **Stop Speaking** button.

In Word, the feature works a little differently. To open the appropriate toolbar, choose **Tools | Speech**. You may see a message welcoming you to Office speech recognition and telling you that you have to adjust your microphone and train Office. For now, choose **Cancel** to bypass the training and open the Language toolbar.

If you see a message box in the toolbar tagged "Dictation," "Voice Command," or "Listening," or if Word starts entering text

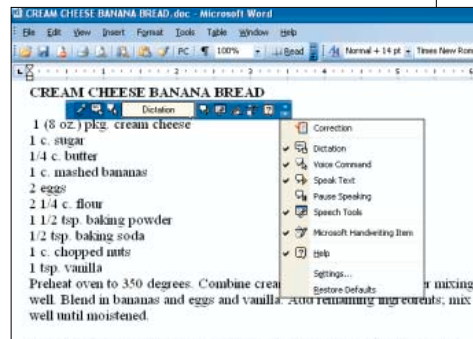
The screenshot shows an Excel spreadsheet with columns for months (Jan, Feb, Mar, Apr) and rows for expenses (Rent, Salaries, Insurance, Phone, Utilities, Office, Travel). A text-to-speech toolbar is visible at the bottom of the spreadsheet, with buttons for Dictation, Text To Speech, and Speak On Enter.

	Jan	Feb	Mar	Apr
Expenses				
Rent	8000	10000	10000	28000
Salaries	15000	15000	15000	45000
Insurance	500	500	500	1500
Phone	400	400	400	1200
Utilities	1500	1500	1500	4500
Office	300	300	300	900
Travel	6000	600	400	7000
Expense totals				88100

IF YOU CHOOSE the **Speak On Enter** button, Excel will read back the contents of a given cell each time you hit Enter.

in the document in response to ambient noise, it means you've activated the speech-recognition feature at some point. Click the **Microphone** button to toggle the feature off. You can turn it back on when you want it by choosing the button again.

By default, the Language toolbar will not show a choice for speaking text. But if



WORD CAN READ to you if you add the **Speak Text** option to the Language toolbar.

you click on the down arrow at the extreme right of the toolbar, you'll see options for **Speak Text** and **Pause Speaking**. Choose each of these in turn to add them to the toolbar. You can then use them much the same way as the equivalent buttons in Excel.

Choose **Speak Text** to tell Word to start reading the text. The button will change to

a **Stop Speaking** button. Click it if you want to stop completely or stop and then start again from the beginning. Or you can click the **Pause Speaking** button instead, which will change to a **Resume Speaking** button. Click it again, and Word will pick up at the same spot where you paused. As with Excel, you can select the text you want read before giving the **Speak Text** command. Otherwise, Word will start at the current cursor position.

You can use the text-to-speech feature in Outlook also, but only if you use Word as your e-mail editor. To see if Outlook is set to use Word, select **Tools | Options**, then the **Mail Format** tab. Look for, or add, a check in the box labeled **Use Microsoft Office Word 2003 To Edit E-mail Messages**.

When you create a message in Outlook with this option checked, you're actually using Word. If you want to hear the message read back to you while you're editing, use the same commands as if you had loaded Word directly. You can also tell Outlook (or Word) to read a message that's already been sent or received, but there's a trick to that.

If you call up the Language toolbar when reading a message that's been sent or received, you'll find the **Speak Text** button grayed out. Give the command to forward the message, however, and Outlook will open it for editing in Word, complete with an active **Speak Text** button. When you're done listening to the message, simply close the window with the forwarded version without saving it.

Finally, you may want to change the voice or the reading speed. To do so, go to the Language toolbar, choose **Tools | Options**, the **Advanced Speech** button, and then the **Text To Speech** tab. In the **Voice Selection** section, the drop-down list will let you change the voice. Pick one of the choices offered, and use the **Preview Voice** button to listen to it; after hearing a few, you can decide which you like best. Similarly, in the **Voice Speed** section, you can adjust the speed along the scale from slow to fast, and use the **Preview Voice** button to hear the effect. Choose **Apply** to accept the new settings, then click **OK** to close the dialog box.

M. David Stone is a contributing editor of PC Magazine.

EarthLink Wireless and the Treo 650™:

The smartphone just got smarter

PalmOne's Treo 650 smartphone has generated a lot of buzz and a loyal following from its mobile users. It's a world-class device created for the discerning technology user who needs it all, both in their professional and personal lives. The Treo 650 smartphone is a full-featured phone, mobile email, messaging device, Web browser, and a Palm powered handheld organizer with full scheduling and to do lists. Powered by the Palm OS platform, the Treo smartphone has thousands of add-on applications and its built-in camera and MP3 player make it equally strong for business or entertainment.

All of this functionality comes in one sleek, handsomely designed package. The Treo 650 smartphone is becoming an essential tool for an increasing number of business professionals, because it's tailor-made for those who want the power of information in their hands, without compromising style or design.



So how do you take a smartphone and make it even smarter? You combine it with the best-of-breed voice and email service from a world-class provider. The service you choose to power your smartphone is every bit as important as the device itself.

That's where EarthLink fits in. In 2004, EarthLink was ranked "Highest in Customer Satisfaction Among High-Speed and Dial-up Internet Service Providers" by J.D. Power and Associates. This marks the third year in a row that EarthLink High Speed has been honored (tied in 2002).

With EarthLink Wireless powering the Treo smartphone you have the added benefits of EarthLink's exclusive protection technology, the convenience of a personalized interface, nationwide coverage, and the know-how of an award-winning service provider.

Top 5 Reasons EarthLink Wireless Makes the Treo 650 smartphone Better than Ever

1 EARTHLINK TOTALACCESS® PROVIDES THE FIRST PERSONALIZED SMARTPHONE EXPERIENCE

TotalAccess is the EarthLink Wireless exclusive suite of applications that puts the information and features you'll need most frequently into a simple, integrated interface. That means instant access to your email and contacts, news and more — all from one centralized location. You can customize your EarthLink Personal Start PageSM with the information that is most important to you, whether it's stock quotes, sports scores, or weather forecasts.



TotalAccess gives you the information and tools you'll need most in one simple interface.

2 EXTRAS GET YOU WHERE YOU WANT TO BE FASTER:

Often-used services like Yellow Pages, maps and directions are not always easily accessible from most smartphones. TotalAccess makes it easy to find what you're looking for — fast. Search the Web, find a business, or get driving directions, using one simple interface.

Get fast access to often-used websites like MapQuest and the Yellow Pages directly from the TotalAccess menu.

3 TOOLS THAT HELP TO PREVENT PROBLEMS

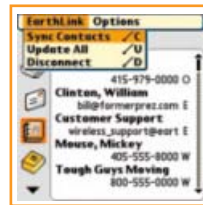
Wireless access may be the next frontier for business professionals, but it's also the next frontier for hackers and intruders. As smartphones take on the role of traditional computers, they may become prone to the same malaise that affects the traditional computer: spam, fraud and/or viruses. EarthLink's exclusive suite of tools: spamBlockerSM and Virus BlockerSM, will save you untold aggravations and provide a safety net against wireless threats. spamBlocker eliminates unwanted email and inbox clutter. Virus Blocker screens all email for potential threats before it ever reaches your inbox.



spamBlocker works by keeping unwanted messages from reaching your inbox. Messages from unknown senders (those not in your Address Book) are redirected to your Suspect Email folder. For added confidence, you can also set up a Blocked Sender list.

4 WIRELESS SYNCHRONIZATION

The palmOne Treo smartphone is already one of the best connected devices on the market with Bluetooth[®] technology, infrared, and wireline synchronization all possible. EarthLink's TotalAccess adds the ability to wirelessly synchronize your Treo smartphone address book with your Web-based, EarthLink address book. You can add contacts to your Treo smartphone immediately after a meeting, and synchronize your address book so that these new contacts are automatically added to your Allowed Sender List. You can be confident that your valuable contact information will always be up-to-date.



Keep email and contact information up-to-date with regularly scheduled wireless synchronization.

5 AN INTERNET COMPANY'S KNOW-HOW MAKES A SMARTPHONE EVEN SMARTER

Providing Internet access on a smartphone requires an Internet savvy service provider, if the service is to be truly useful. EarthLink's Internet expertise translates into better service and support, better performance and increased reliability.

To date, many smartphone experiences have fallen short on providing both a rich voice and Internet experience. The Treo 650 and EarthLink Wireless bring the same trusted, satisfying experience users enjoy on their PCs to the world of wireless smartphones.

Smartphones are smart. But the PalmOne Treo 650 smartphone from EarthLink Wireless is the smartest of them all. EarthLink Wireless email and voice service coupled with the Treo 650 smartphone offers a superior combination of voice and data services on one of today's most desirable devices.

To find out more visit www.earthlink.net/wireless



Call for the new Treo™ 650 smartphone and get \$150 off.
We'll even throw in 2,000 EarthLink brains.

1-866-252-1768

Mention promo code 1023694



The Treo™ 650 smartphone now really does have it all. It now comes with EarthLink and its 2,000 hardworking employees. You could be taking pictures, shooting video, listening to music, safely surfing the web with the EarthLink suite of blocker tools, sending emails and making calls all from one device. All it takes is a phone call.

**\$150
OFF**

*Get a Treo 650 smartphone for \$449 (retail price \$599 less \$150 instant savings) with a 12-month EarthLink Wireless Service Plan commitment. Bluetooth wireless technology support for hands-free voice communications only. See <http://www.earthlink.net> for complete pricing and terms of service. © 2005 SK-EarthLink LLC. EarthLink Wireless and the EarthLink wireless logo are registered trademarks of EarthLink, Inc. and are used by permission. Treo is a trademark of palmOne, Inc. All other trademarks are property of their respective owners.

DIY: SOFTWARE

Access Your Bookmarks from Anywhere

SiteBar makes it easy for those running a Web server to access their bookmarks from any PC. **BY OLIVER KAVEN**

If you use different computers at home and at work, or if you use friends' or public computers, you know the challenge of keeping your bookmarks in sync or even accessible. Fortunately, if you run a Linux server with a functional Web server and MySQL database server, you can solve your bookmark problems with SiteBar. If you have PHP configured on your IIS Web server and a functional MySQL installation, you can also run this application on a Microsoft system.

SiteBar (<http://sitebar.org>) is a centralized bookmark-management utility that lets you keep a database of your bookmarks on your server that you can access from any location—if you can access your server over the Internet. Among SiteBar's features are link validation to flag stale links, import and export functions to integrate your existing bookmarks, and public and private bookmarks. The program retrieves Web site icons and the Web site title if it is captured in the site's HTML code.

SiteBar requires that your server run PHP and MySQL. Check the site for specific requirements. If you're running SiteBar on Linux, we recommend that you get one of the packaged Linux distributions, such as Red Hat, SuSE, or Xandros, and install the Apache Web server and MySQL database server during the installation routine. Otherwise, try to install an RPM (Red Hat Package Manager) version of these applications to avoid having to compile the code yourself.

To get started with SiteBar, download the latest application package from the Web site. We tested SiteBar 3.2.5 on SuSE Linux, but because open-source software versions change quickly, we'll refer to SiteBar as SiteBar-3.3.x for our examples. The most significant improvement in SiteBar 3.3 seems to be the ability to import/export by RSS and similar formats.

To decompress the application files, we needed to have the tar and bzip2 utilities, which most distributions include in their standard installations. Executing the command `bunzip2 SiteBar-3.3.x.tar.bz2` at the command line uncompressed the bzipipped portion of the package, leaving us with a still-compressed file called SiteBar-3.3.tar. The command `tar xvf SiteBar-3.3.x.tar` then extracted all files into the direc-



SITEBAR'S SETUP MENU (left), and how Sitebar will look when it is integrated into your browser (right).



tory SiteBar-3.3.x, located in our active path.

Move the contents of the SiteBar-3.3.x folder into a directory that is accessible through your Web browser ("http://yourdomain.com/sitebar"). Be sure that you have access to the Web root directory; if you are on a hosted system, someone else may have to grant you access to an appropriate directory or perform the installation.

You can now access the Web-based configuration tool. The URL will be in the form "http://yourserver.com/your-site-bar-directory/sitebar.php." On the DB Configuration screen, enter the hostname of your database server (if it's the server you are using, *localhost* is sufficient), your

database username, and password. You must also name the database that you want to populate with the bookmark data. (We'll call ours *sitebarDB*.)

On clicking the *Check Settings* button, if you get a message that the *sitebarDB* database does not exist, click the *Create Database* button and run the check again. When you get the message *Connection parameters are OK*, you are ready to proceed. These operations will fail if you have incorrect MySQL information or insufficient access to create a database and tables. You could also create the database yourself with this command: `mysqladmin -uYour databaseusername -pYour databasepassword create sitebarDB`. (There are no spaces between the *-u* and your database username and the *-p* and your password).

When you click the *Write to file* button, the application will transfer your connection properties into the file *Config.inc.php*, located in the */inc* folder of your SiteBar installation. You will also be alerted that your *sitebarDB* database does not contain any tables. Click the *Install* button. Your screen will display the SiteBar main window; from the *Set Up* button you can create an administrative user. You need to enter a valid e-mail address and create a password. You can preset (and later change) various system parameters, such as user permissions or connection properties.

All that's left is to integrate SiteBar into your browser. In Microsoft Internet Explorer 5.0 and higher, you can add SiteBar to the Explorer Bar and context menu. This lets you right-click on a Web page and add it to your database by clicking on *Add*

to SiteBar. Go to "http://yourdomain.com/your-site-bar-directory" and click on the *Open Integrator* link. You will be sent to SiteBar's site, where you can select your browser. SiteBar now supports Firefox, IE, Maxthon, Mozilla, and Opera.

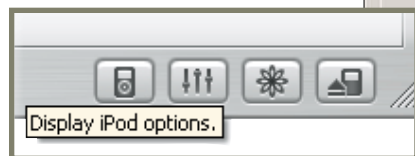
If you're using a machine that does not have your SiteBar integrated, you can use the above URL to launch SiteBar in a browser window. Enter your e-mail address and password and you can access your bookmarks as if you were on your own PC. You can also use SiteBar to share bookmarks with friends or coworkers in public or private bookmark folders with flexible access rules.

DIY: HARDWARE

iPod shuffle Unleashed

Toss off those iTunes shackles! Here's how you can use the shuffle like any other flash MP3 player. **BY MARTIN J. FIEDLER**

Ordinary flash-based MP3 players work by putting music files onto flash memory with Microsoft Windows Explorer, Apple's Finder, or any other file manager. But the Apple iPod shuffle isn't an ordinary player. You can drag and drop files to it, but the shuffle will never see or play the music. You can, however, make it recognize the files by using a program I created: iPod shuffle Database Builder. After modifying the shuffle's contents, run the little (8KB) program to update the shuffle's playlist data. You can download Database Builder for free at <http://shuffle-db.sourceforge.net/>.



Before using Database Builder, you'll need to initialize the shuffle with iTunes, if you haven't done so already. (The shuffle doesn't really use the iTunes database, but it does check for its presence.) To initialize it, insert the CD that came with your shuffle and launch the iPod/iTunes installer. Installation is pretty straightforward; you will be asked for things like the shuffle's serial number and name (which you create).

After you have installed iTunes, start it. If your shuffle is plugged in, it should show up on the list on the left side of the iTunes window. Click on it, and you'll see four icons in the lower right of the window. Click on the leftmost icon to get to the iPod options dialog (Figure 1).

You may want to uncheck *Open iTunes when this iPod is attached*, but you don't need to. You do need to check the *Enable disk use* option. The slider below is significant only for the *Autofill* option in iTunes; the iPod will not offer less storage space if you move it toward the *More Songs* end, so you can set it to any value you wish.

That's all you need to do—you can exit iTunes now. (In fact, always make sure that iTunes is not running while you are using Database Builder.) You should see a new drive icon on the Mac OS X desktop or in Windows Explorer below My Computer. This is the iPod data volume; you can move files to and from it, just as with any other

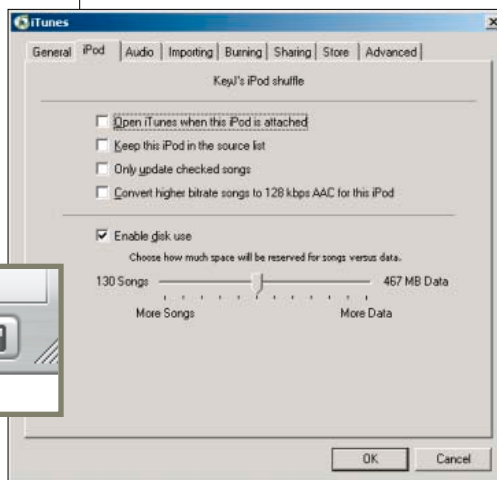


FIGURE 1: Click on the leftmost icon to open the iPod options dialog box, then check the *Enable disk use* option.

USB flash memory stick. You should see a hidden folder called *iPod_Control* in the iPod volume's root directory. This is where iTunes stores its music and, more important, the configuration data necessary for playback on your iPod. (If you don't see the folder, make sure that *Display hidden files and folders* is enabled in Explorer's folder options.) You should never delete this folder; if you do, your iPod will refuse to work and you'll be forced to reinitialize it with iTunes.

To install Database Builder, simply copy the files from the downloaded archive into the iPod's root directory. The program comes in three flavors: *rebuild_db.exe* is a Windows console application; *rebuild_db.py* is a platform-independent Python script; and *rebuild.app* is an AppleScript that launches *rebuild_db.py* in a conve-

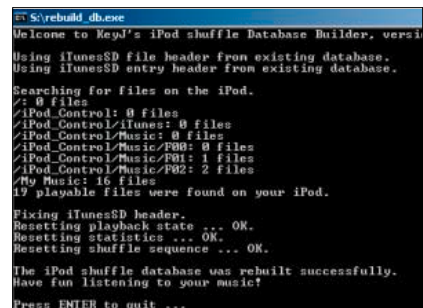


FIGURE 2: When you start Database Builder in Windows, the program begins searching your shuffle for music files and rebuilding the iPod's internal database.

nient way. With these files, you can run the Database Builder application on virtually any computer.

The last prerequisite for using Database Builder is, of course, music. Simply copy some MP3 or AAC files to the shuffle's data area. You can create folders and subfolders with almost any name you want, so choose your favorite way to organize your music directory. You can, for example, create a folder called *My Music* with subfolders for each album, or simply copy all the MP3 files to the shuffle's root directory. It's up to you.

Finally, start Database Builder. In Windows, double-click on *rebuild_db.exe*. A console window will appear, and the program will begin searching your shuffle for playable music files and rebuilding the shuffle's internal music database (Figure 2). If you've already put songs on the shuffle with iTunes, these will be integrated into the newly built playlist as well.

Users of Unix-style operating systems like Linux need to open a shell window first and *cd* to the iPod's mount point. You can then start the program with the command `python rebuild_db.py`. Mac OS X users can also use this command.

iTunes is still usable after Database Builder has been run, but it will show only the songs it copied itself. If you intend to manage one part of your shuffle's playlist with iTunes and another part using the drag-and-drop method, you can do so by running the Database Builder script after exiting iTunes.

Martin J. Fiedler is a student of computer science at Chemnitz University of Technology in Germany. He is the author of the Database Builder application.

SECURITY WATCH

Are Your PDFs Spying on You?

A new metrics-gathering system may be smart business, but it opens the door to privacy concerns for PDFs. **BY DON FLUCKINGER**

Like many people, I'm sick of giving up my phone number, my e-mail address, and DNA samples, and/or dragging around a "rewards card" just to see a lousy extra paragraph of an article on the Web, to get 10 percent off my car's oil change, or—and this one positively kills me—to get the uninflated, normal price for a grocery item at the supermarket. It seems as if every company wants a piece of us, a marker, in order to justify its marketing in-

with some tracking technology that is generating metrics information back at the server. At least, they didn't in the past. Toronto software company Remote Approach now offers Map-Bot, a tool to track PDF traffic, much as Web sites collect IP addresses and other data from visitors.

Like Adobe Policy Server, Map-Bot can force users to be connected to the Web in order to read the documents. It can track who's e-mailing PDFs to whom and what they're reading—in real time. Though other companies such as Adobe offer more expensive and elaborate tracking software, Remote Approach's tool alone has the power to spread among the masses, with its simple, low-cost (starting at \$9.95 a month) subscription-based service, administered over the Web.

Is it spyware? No. Map-Bot accesses no information from the user's computer and leaves no software behind. In fact, at its heart, this is a great idea. Remote Approach is just doing business by filling a market niche where it hopes one might exist.

Denizens of the PDF world, however, take note. We enjoy—and sell—the differences between PDFs, e-mail, and HTML, and a lot of the notable differences are in the realm of security and privacy. Map-Bot, however, is the beginning of a movement that could chip away at PDFs' sterling rep, one document at a time. Sure, PDF files will always look better printed on paper than HTML documents or e-mail, and granted, the chances of running into a Remote Approach PDF right now are pretty remote. But the potential for the technology to tarnish PDFs' image is staggering. Since Map-Bot can chase a PDF through e-mail forwarding, it enables more powerful data mining than that associated with Web pages, where the vital



THE REMOTE APPROACH service lets clients track and manage PDF documents.

vestment. For many companies, though, it stops there: It's enough to be able to sell something to us just that once, or to get us to look at one Web page with ads.

Other companies prefer to impose on our privacy, by watching us and then, at some future point, sending us paper junk mail or spam. Still others choose more benign—yet creepy—ways of keeping tabs on us. Ever try, say, to delete or close an Apple iTunes Music Store account? You can't. It's not possible. Don't believe it? Try.

Thank goodness the PDFs we download and pass around don't come impregnated

THE LOOKOUT

YAHOO! ZAPS MUSICMATCH JUKEBOX FLAWS

Yahoo! has shipped new versions of its Musicmatch Jukebox media player to fix security holes that could put users at risk of buffer-overflow attacks. In an online advisory, Yahoo! Inc. strongly recommended that users upgrade to avoid code-execution and cross-site scripting attacks.

The updated Musicmatch Jukebox can be downloaded at www.musicmatch.com/download/free/security.htm. Affected versions include those for Microsoft Windows XP versions 10.00.2047 and earlier. An update is also available for non-Windows XP and localized Jukebox users running version 9.00.0159 or earlier.

Musicmatch, which was acquired by Yahoo! in September 2004, forms the hub of the company's music-download business. It is roughly the equivalent of Apple Computer Inc.'s iTunes, Microsoft Corp.'s Windows Media Player, or RealNetworks Inc.'s RealPlayer.

The security fix from Yahoo! comes less than a week after RealNetworks released patches for a high-risk vulnerability that could cause remote code-execution attacks. In recent months, Microsoft has also patched holes in its flagship WMP software. —*Ryan Naraine*

information gets thrown out when the user's cache is emptied.

If Remote Approach's idea takes off, competitors with less innocent designs—such as collecting e-mail addresses—could jump in beside them. All of a sudden, some PDFs we download could come with nasty little bots attached that can generate spam. Not all of them, just enough to give us pause—sort of the way we now look at e-mail attachments with a jaundiced eye, even when they come from well-meaning friends.

Too much of this stuff, and PDFs will become a lead-generation device for commercial interests, and not a viable publishing platform. In other words, they will be vulnerable to the same problems as Web pages and e-mail, and suddenly not such a great value proposition. Let's not go there.

Don Fluckinger is a freelance writer based in Nashua, New Hampshire. He has covered Acrobat and PDF technologies for PDFzone since 2000.



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security

Wake to a secure new future. Aladdin's eToken protects against phishing, identity theft, insider attacks, hacking and other threats that can cripple business initiatives, defeat compliance efforts, and devastate network resources. Get security that helps your business grow healthy, and strong.



Discover eToken at Aladdin.com/security

Identity Protection | Two-Factor Authentication | Secure Password Management

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BUSINESS

Data Analysis at Warp Speed

Software for analyzing streaming data in real time takes on Wall Street and beyond. **BY CADE METZ**

In late April, the New York Stock Exchange announced that it would soon acquire Archipelago, the nation's first open stock market in which all trades are handled electronically. If there was any remaining doubt that lighting electronic trading has overtaken the financial markets, it was summarily put to rest.

Eight years ago, the leading financial markets handled about 900 electronic messages a second. Last year, that number climbed to 31,000. And by February of this year, it was expected to hit 62,000—continuing the trend of doubling every twelve months. Naturally, the rise of automated systems makes for faster, cheaper trading. But it also creates a problem. If you're a financial services company, how do you keep up with such enormous amounts of electronic information? It's difficult to be successful unless you can analyze trading data nearly as quickly as it arrives—opportunities can vanish in a matter of seconds—and today's databases just aren't fast enough to do so.

"The amount of information that's available, the amount that companies feel a need to process, has exploded," says Jin-Chul (Gene) Kim, a senior analyst at Financial Insights, an IDC research firm. "It's extremely important that they find a way to track all this data and make it usable and digestible."

The solution may lie with a relatively new technology known as *event-stream processing*, or ESP. Several software developers, including iSpheres Corporation, StreamBase Systems, and the U.K.-based Apama, are offering application platforms that process large amounts of streaming data *in real time*.

Such tools needn't store information in a database before analyzing it. They simply analyze it on the fly, keeping up with the breakneck speed of modern business. "It's a lot like looking for patterns in the water coming out of your tap," says Robin Bloor,

a partner with the business technology research and consulting firm Hurwitz & Associates. Depending on the application and the hardware it runs on, these tools can generally process anywhere from 25,000 to 150,000 items a second.

This is a perfect fit for the financial services industry. None other than Archipelago will soon use the new StreamBase Processing Engine to analyze customer bids, offers, and orders. If a customer exceeds an order threshold, for instance, the exchange will instantly run the rule over the behavior, ensuring that everything's on the up and up. Meanwhile, Visa is using iSpheres to process credit card payments. If it can't verify a transaction with a customer's bank, it can instantly evaluate the situation, deciding on its own whether the transaction should be approved.

But it's not just financial companies that process large amounts of streaming data. ESP can be just as useful to telecoms, mil-

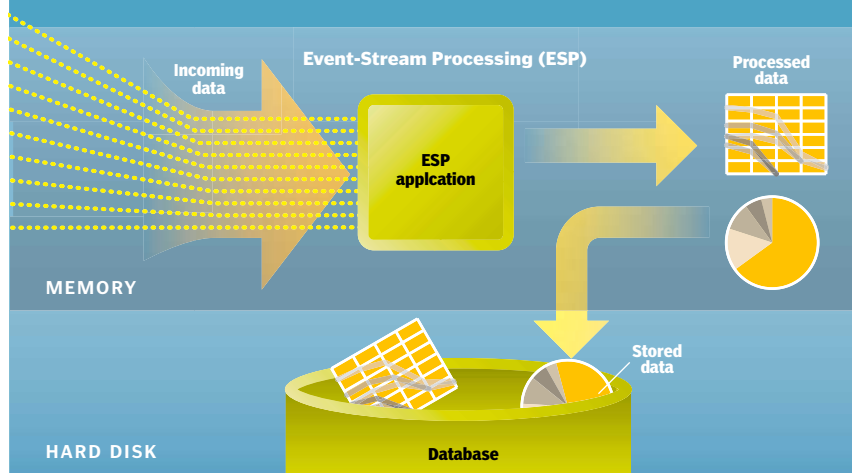
itary operations, even retail Web sites. And it's sure to suit businesses that adopt RFID (radio frequency identification) technology, wirelessly collecting data from retail products and other objects via tiny embedded antennas.

There's nothing particularly new about analyzing data streams in real time. But in the past, businesses couldn't do so without spending several months coding applications from scratch. The difference is that platforms from StreamBase and iSpheres let you build ESP applications in a matter of days, and you don't have to be steeped in Java and C++ to use them. "They let the business guys create the applications, not just the programmers," says Bloor. StreamBase, for instance, offers a graphical development environment that lets you build applications by dragging and dropping objects and then connecting them.

Now that ESP has a foothold in the financial industry, many analysts expect that its influence will only expand. "There's definitely a market here," says Bloor. Progress Software, a company known for shrewd acquisitions, recently purchased Apama. StreamBase is backed by Mike Stonebraker, a database guru with a long history of successes in the world of business technology. And most important, streaming data is growing more and more prevalent every day. Witness recent news from the New York Stock Exchange.

Instant Analysis

Event-stream processing applications can analyze massive amounts of data—such as credit-card transactions or stock trades—in real time, rather than first storing data to disk. When you're talking thousands of transactions a second, the time savings really add up.





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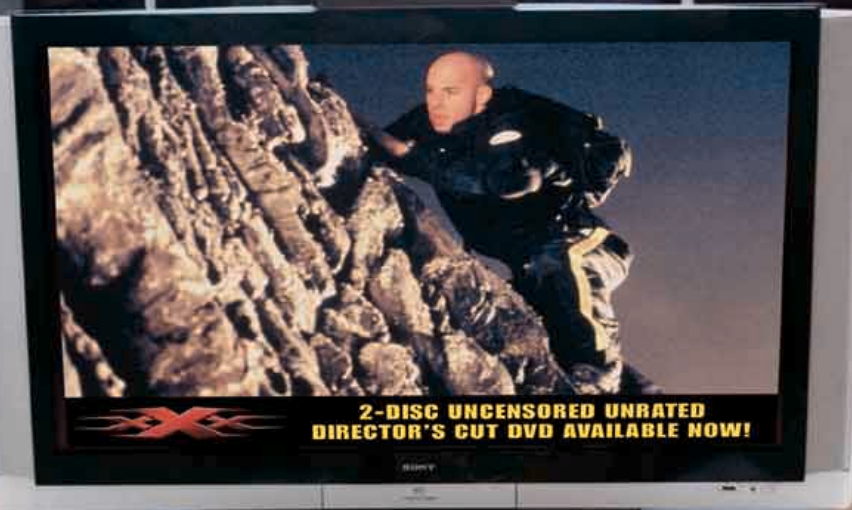


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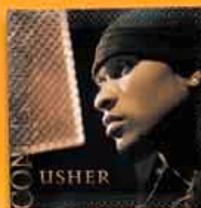
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*By mail with the purchase of any Sony® DVD Handycam camcorder between 5/1/05 and 6/25/05 (postage required).



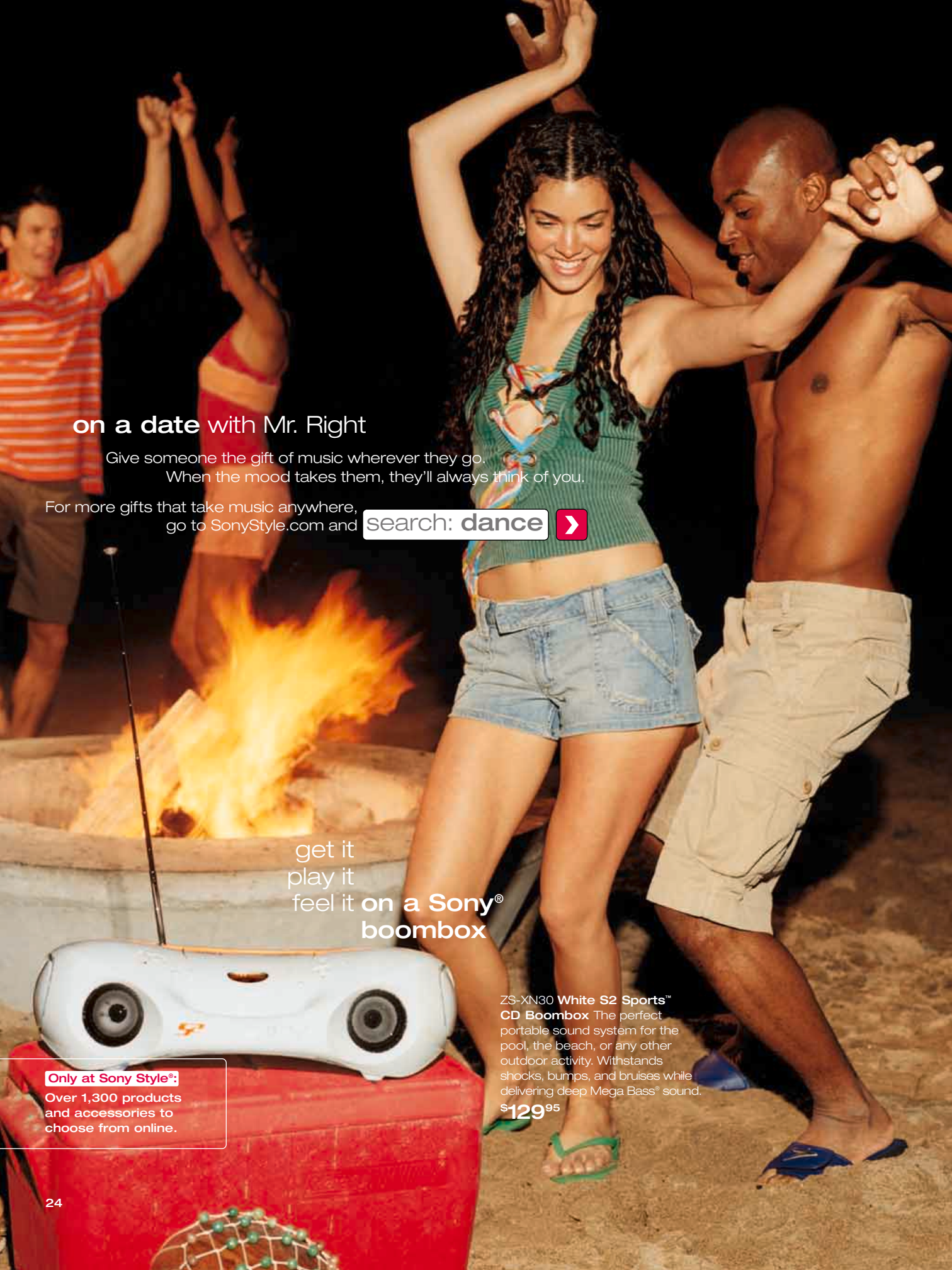
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pool, the beach, or any other
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delivering deep Mega Bass® sound.

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1 NW-S23 S2 Sports™ Network Walkman™ Player The perfect workout player, the NW-S23 is water resistant and provides up to 70 hours¹⁰ of playback on one AAA battery.

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2 MZ-RH910 Hi-MD™ Walkman Digital Music Player Download, listen, and store all different kinds of media to the low-cost 1 GB³ Hi-MD™ MiniDisc format.

\$199⁹⁵

3 NW-HD3 Network Walkman Digital Music Player Up to 13,000 songs in a player no bigger than a pack of cards. Even available in a color to match your personality.

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4 D-NS707F S2 Sports ATRAC3®/MP3 CD Walkman⁴ Is your workout demanding? Choose a sports Walkman that can keep up.

\$89⁹⁵

Sony Connect™ Install Sony's free Sonic Stage[®] software on your PC, and you'll have access to the Sony Connect music store whenever you're online. Browse, listen to samples, and download songs for 99¢ or entire albums for \$9⁹⁹ and up.



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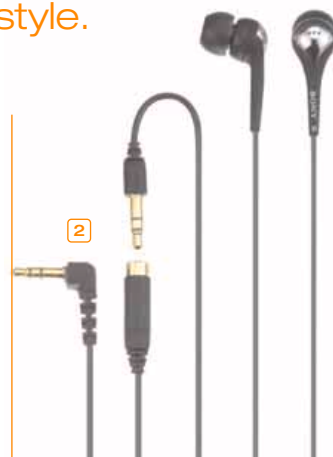
1 SRS-D211PSBLK Multimedia Speakers Featuring a powerful 80-watt subwoofer and 12-watt satellite speakers, it easily connects to both PCs and audio devices.
\$69⁹⁹

2 MDR-EX71SL Fontopia® Headphones Lighter is definitely better. These super-lightweight headphones with soft, silicon earbuds fit as though you were born wearing them. Available in black or white.
\$49⁹⁹

3 NP-QM91D InfoLithium® M Series Rechargeable Battery Pack with SQ Technology Providing up to 380 minutes of continuous recording time, this battery is perfect for long video shoots or demanding photo sessions.
\$149⁹⁹

4 LCS-VA5 Premium Carrying Case Manufactured from 680 denier ballistic nylon, this durable yet sophisticated premium carrying case is built to last.
\$59⁹⁹

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5 DCC-FMT1 Car FM Stereo Transmitter Hook your Walkman® up to your car stereo, and take your tunes on the road with digital frequency that ensures smooth sound and plugs right into your cigarette-lighter socket.
\$49⁹⁹

6 DPP-FP30 Digital Photo Printer Create lab-quality digital photos anywhere you go. PictBridge™ technology lets you print directly from your camera.
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7 MDR-NC6 Noise Cancelling Headphones These swivel-folding headphones reduce up to 70% of outside noise. Includes plug adapter for home audio equipment and airplanes.
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8 RM-VL710 Universal Remote Commander Reclaim your coffee table. This innovative all-in-one device is user-friendly and controls up to five A/V components—all from the palm of your hand.
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9 MDR-RF960RK 900 MHz RF Wireless Headphones Go wireless with these comfortable, easily rechargeable headphones that ensure your music comes through loud and clear.
\$99⁹⁹

10 MDR-EX81LP/W Fontopia Headphones Sony's premier lateral in-the-ear headphones. Designed to deliver deep bass and clear treble. Available in black or white.
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11 VRD-VC10 DVD Recorder Turn your home movies into DVDs in minutes. This easy-to-use system connects to your camcorder, VCR, or PC and records up to 12 hours of home video on a single DVD.
\$279⁹⁹



Camcorder not included.

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All new VAIO® PCs with Intel® Centrino™ Mobile Technology come loaded with **VAIO Zone™ software**. It gives you a single source for all your pictures, movies, and music.

VAIO





The beauty of VAIO Zone is its simplicity. With the elegant, clean, easy-to-use interface, you can switch between all the media stored on your VAIO PC, CD, or DVD.

Move quickly and easily from viewing your photos to viewing a TV program. Click from editing a movie to editing a music playlist. It's so simple to use that the hard part is tearing yourself away.



on a level they've never reached before

You might not be able to give them a cheat for level 54,
but you can give gamers the loudest and most real
gaming experience possible.

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features, and accessories.

1 SRS-D5100 5.1 Multimedia and Gaming Speaker System

This six-speaker surround sound system features an 80-watt subwoofer and four 12-watt satellite speakers.

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2 SDM-HS75/B 17" Flat-Panel LCD Images are crisp and fast-moving, whether you're working, playing games, or browsing the Web.

\$349⁹⁹

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mail-in rebate
\$50

3 VGC-RB38G Sony® VAIO® RB Series Desktop with Intel® Pentium® 4 Processor 550 with HT Technology Huge hard drive and enormous memory in a state-of-the-art gaming machine with looks to match its colossal speed and power.

\$1,399⁹⁹ as low as \$35/month*

4 MDR-RF960RK 900 MHz RF Wireless Headphone System

These comfortable, easily rechargeable headphones give you the freedom to move around as you listen to music or play games.

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learn it
master it **on a Sony®
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Import, manage, and edit your photos. Organize them in albums, and use your photos to create calendars, labels, and stickers.

SonicStage® Software

Play CDs, download music, create playlists, import audio from tapes and records, and create custom CDs.

Click to DVD® Software

The easy-to-use interface lets you turn your favorite digital camcorder-recorded videos into DVDs with the click of a button. Preinstalled on every VAIO® PC equipped with a DVD burner.

VAIO Media™ Software

Share your music, photos, and movies with your VAIO PC and any other Windows® XP-based PC.

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1 Sony VAIO A Series Notebook available with Intel® Centrino™

Mobile Technology A true desktop replacement notebook that can also perform like an entertainment center. The AV dock turns this notebook into a TV tuner, digital video recorder, and digital amplifier.

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\$1,529⁹⁹ as low as \$39/month*

2 PCGA-WMS5/S Wireless

Mouse A combination of ergonomic design, wireless convenience, and precise control makes for the perfect mouse. A must-have accessory for your VAIO PC.

\$59⁹⁹

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SDM-HS95P/S 19" Digital Display

High speed meets high style in Sony's HS Series. From gaming, to video, to multimedia, this state-of-the-art display is a real overachiever.

\$599⁹⁹ only \$15/month*
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\$100
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1 SDM-HS75/B 17" Flat-Panel LCD Images are crisp and fast-moving, whether you're working, playing games, or browsing the Web.
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2 MFM-HT75W PC/TV 17" Display Now you can simultaneously watch TV or videos while you work on your PC.
\$599⁹⁹ only \$15/month*

Step up to a 19" PC/TV display for \$200 more.

3 SDM-S204/B StylePro™ Series 20.1" Flat-Panel LCD The sleek, stylish design belies its ability to produce ultravivid color and clarity.

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1 VPL-HS51 Cineza® LCD Front Projector with Remote A high-definition front projector packed with features for crisp focus, vibrant color, and high contrast. Lightweight, robust, and versatile.

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2 Sony® VAIO® T Series Ultramobile Notebook with Intel® Centrino™ Mobile Technology Integrated wireless LAN; widescreen XBRITE™ technology, and integrated DVD±RW drive deliver a viewing experience beyond compare.

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\$2,299⁹⁹
as low as \$58/month*

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Available in silver and burgundy only at Sony Style.

3 DR-140UP Headset for Mobile and PC Ultralightweight and comfortable for extended use. Includes noise cancelling microphone for superior sound quality and a three-meter-long cord.

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A young man with dark hair and headphones is focused on his work. He is wearing a blue t-shirt and is seated at a wooden counter. On the counter is a laptop displaying a music management software interface. His hands are on the laptop keyboard. In front of him is a large wooden crate filled with vinyl records, and he is reaching into it with his left hand. The background shows a music store environment with shelves of records and another person standing in the distance.

on a mission to be the next music mogul

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give them something to help them succeed.

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organize it
write it **on a Sony®
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Sony® VAIO® S Series Notebook available with Intel® Centrino™ Mobile Technology Everything you need for mobile survival. Store and access more with a large hard drive configurable up to 100 GB.³ View more on the 13.3" WXGA XBRITE™ display. Do more with long battery life and light 4.2 lb. weight. The perfect balance of size and performance.

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Wireless networking The integrated wireless networking capability of every VAIO notebook lets you connect to wireless ethernet networks in your home, office, or at one of thousands of hot spots throughout the world.² (Wireless feature optional in configurable models.)

Sony recommends
Microsoft® Windows®
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Shown with large-capacity battery. (Sold separately.)

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1 SRS-DZ10 Desktop Multimedia Speakers Enjoy big sound in a small space. Thanks to its clever design, this sleek speaker system fits anywhere you need it and connects to both PCs and audio devices.
\$249⁹⁹

2 FIU-810/PERS Fingerprint Security Keeping track of passwords is a thing of the past. Now you can sign in to your favorite websites and software applications instantly by using your fingerprint.
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3 VGP-MR100U RoomLink™ Network Media Receiver Enjoy videos, photos, and music streamed from your VAIO® PC to your home entertainment system.
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4 PCGA-HDM06 Portable 60 GB³ Hard Drive Back up all your media on this tiny 7.8 oz drive. With a huge 60 GB³ capacity, you can store up to an amazing 32 hours of video.
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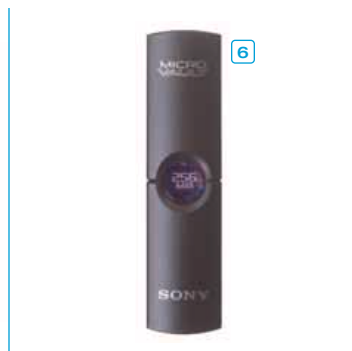
Only genuine **Sony® VAIO® Accessories** match the performance and style of your Sony VAIO PC. They're designed to work seamlessly with your computer to extend your capabilities and let you do more.



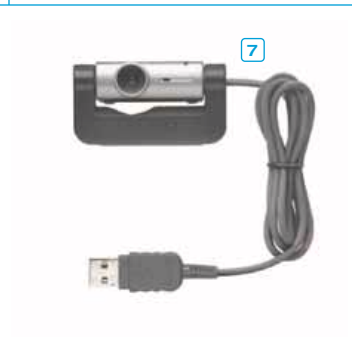
5 PCGA-WMS5/S Wireless Optical Mouse A combination of ergonomic design, wireless convenience, and precise control makes for the perfect mouse.
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6 USM-256EV Micro Vault® USB Storage Media—256 MB® Transfer files quickly and easily. Just plug into your USB port, and you instantly have the equivalent of an extra hard drive.
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7 PCGA-UVC11A Sony® VAIO® USB Visual Communication Camera Compact design with high picture quality. Features an integrated notebook mount to create high-quality images and video, wherever your travels may take you.
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8 VGP-PRA1 VAIO Port Replicator for A Series Connect your notebook to all your peripherals with ease—Internet, network, keyboard, mouse, display, speakers, printer, and more.
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9 SRS-RF90RK Wireless Speaker System Fills any room with rich sound. Fully portable with a long, three-hour battery life.
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Experience more home entertainment from a Sony® VAIO® preinstalled with Microsoft® Windows® XP Media Center Edition 2005.

Get more of the total home entertainment experience with photos, music, movies, television, and games all rolled into an advanced PC with a Sony VAIO Desktop preinstalled with Microsoft® Windows® XP Media Center Edition 2005.



Microsoft
Windows^{xp}
Media Center Edition

Important Product Details

1. MB means one million bytes; GB means one billion bytes when referring to capacity. Accessible capacity may vary.
2. Actual battery life may vary based on usage patterns.
3. GB means one billion bytes when referring to hard drive capacity. User-available portion of the 40 GB hard drive is 39,986,145,526 bytes.
4. Up to 20 hours continuous playback with built-in lithium-ion rechargeable battery (fully charged) when playing in ATRAC3plus™ file format at 48 kbps. Actual battery life may vary based on usage patterns.
5. Requires compatible wireless access point(s). Some features may rely on Internet services, which may require a fee.
6. Bluetooth® wireless technology: use of this Bluetooth® enabled product with other devices may vary, as not all Bluetooth® devices are compatible. If used with a Bluetooth® enabled mobile phone, ISP service fees apply.
7. Portable DVD Player Battery Life: Battery life is based on minimum contrast and use of optional headphones. Actual battery life may vary based upon usage patterns.
8. Micro Vault® Media contains a system management area. Actual usable capacity is less than the amount shown on the device.
9. The CableCARD™ device is provided by your cable TV service provider. Check with your cable TV service provider about CableCARD service details, limitations, pricing, and availability.
10. Actual life span may vary depending on product settings, usage patterns, and environmental conditions.
11. Wireless Performance: As with all wireless products, actual performance will vary depending on environment.

Internet Access: Some websites require software or multimedia plug-ins or have other features that may not be supported by LocationFree® TV. In some instances, all or portions of these websites may not be viewable. LocationFree TV currently supports HTML 4.0, XHTML Basic 1.0, JavaScript, SSL, Java Applet (PJA 1.2), and Macromedia Flash Version 6.0. E-mail supports POP3 and SMTP only. ISPs that require proprietary software may not be accessible using LocationFree TV. Please check with your provider. Wireless requires 802.11b or 802.11g compatible access point. Some functionality may require Internet services which may require a fee. For remote use, you must have a static IP address or use Dynamic DNS link-up service for the base station. Picture quality depends on uplink speed of your home ISP and downlink speed of remote access location.

12. GHz: Denotes microprocessor internal clock speed; other factors may affect application performance.
13. E-mail: Supports POP3 and SMTP only. ISPs that require proprietary software may not be accessible using LocationFree® TV. Please check with your provider.

VAIO® Computers

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USER TO USER

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Annoying Office Clipboard

When I copy cells in Microsoft Excel, after the second copy action in a worksheet the clipboard panel pops up on the right and shrinks the visible portion of my worksheet. How can I disable this feature?

HAROLD SUMMER

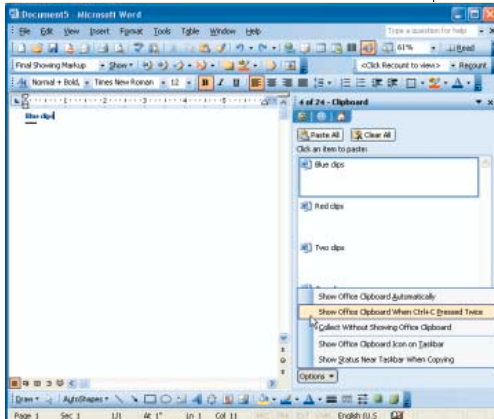


FIGURE 1: The Office Clipboard is probably most useful and least annoying when you choose the *Collect Without Showing...* option.

The basic Windows clipboard holds just one item. As soon as you copy something else, the previous contents vanish. The Office Clipboard, introduced with Office 2000, has the ability to accumulate up to two dozen items and paste back whichever one you choose, or gather multiple clips and paste them all at once. Many of us, however, are accustomed to the standard clipboard behavior and don't really need the Office Clipboard, especially when it intrudes unexpectedly.

When you press Ctrl-C twice, the Office Clipboard takes that as a signal to display what it's holding. It occupies the task pane on the right-hand side of the window in most Office applications, diminishing the space available for editing. If you don't want to see the Clipboard at all, simply click its *Options* button, uncheck all the options, and click the X icon at the task pane's top right corner. If you want the Clipboard to accumulate clips without getting in your face, leave the *Collect Without Showing...* option checked. You can always bring the display back by selecting *Office Clipboard* from the *Edit* menu. Any

settings you select for the Office Clipboard will determine its behavior in all the programs that support it.—Neil J. Rubenking

White Printing Redux

In "No Printing in White" (go.pcmag.com/whiteprinting), Dave Diels asked for a way to print white letters on a decal. One solution is to print on white decal film, which is available from the Bare-Metal Foil Co. (www.bare-metal.com). Then you can simply define the letters as transparent outlines.

STEVE SZILVAGYI

When we answered the original question, we were thinking of the kind of transparent decal that goes on windows, with the idea that you could see through it. The answer should be understood in that context. Several readers wrote to offer solutions for a different kind of decal: the kind that hobbyists use on model airplanes, rockets, and the like.

Most of the responses mentioned a discontinued series of Alps printers that use MicroDry technology. MicroDry printers are similar to thermal dye printers (often known by the misnomer "dye sublimation printers"), in that they use heat to transfer a colorant from a ribbon to paper. Ribbons for the Alps printers included an opaque white. Unfortunately, Alps no longer sells these printers in the United States, and the company has no intention of reintroducing them. Several readers pointed out that you can find Alps printers on eBay, but that's a hit-or-miss proposition.

Mr. Szilvagy's suggestion to use white decal film is by far the most practical solution for this kind of decal. And Bare-Metal Foil is not the only place to get it; a search on Google for "decal film" turned up a number of sources.—M. David Stone

Eliminate Formatting in Outlook Or Outlook Express

I often use copy and paste to take content from one e-mail and add it to another.

Because of the cost of ink and the limited knowledge of some of my friends, I usually like to make fonts smaller and change them from color to black. But I often have a hard time changing both the font and the color, and sometimes I can't do either. I'm wondering whether this has something to do with the originator's programs. In any case, I'd appreciate any help that you can offer in this area.

JAN BENDUS

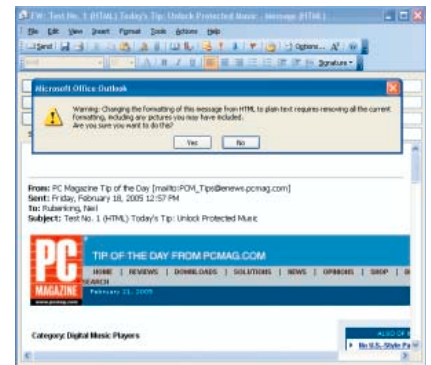


FIGURE 2: If you want to reformat an HTML message, convert the message first to plain text and then, if you wish, back to HTML.

Whether you reply or copy/paste, cleaning up formatting in HTML-based e-mail messages can be tough. Just because the sender liked pale green text against a background of clouds doesn't mean your reply needs to be equally illegible. The easiest solution is to convert the message to plain text and then, if desired, back to HTML. To do that in Outlook, you would select *Format | Plain Text* from the message's menu, click *Yes* to confirm you want to discard the formatting, and then select *Format | HTML*. Using just the keyboard, you can accomplish this by typing Alt-O, T, Y, Alt-O, H. In Outlook Express, you'd select *Format | Plain Text*, click *OK* to confirm, then select *Format | Rich Text (HTML)*. Again, this would be Alt+O, X, Spacebar, Alt+O, and R on the keyboard. Once you've removed the unwanted formatting, you can format the remaining text any way you please.—NJR

Many of us don't really need the Office Clipboard, especially when it intrudes unexpectedly.

Each new instance of the Command Prompt has its own set of environment variables.

Changing the Master Environment in Windows XP

I've used your tips over the years to create various useful environment variables. But the variable seems to disappear when I close the Command Prompt window. Is there a way around this?

GARY W. MUNROE, SR.

A long time ago in DOS, I liked to change the prompt code to "\$P \$" using a line in the Autoexec.bat file. But Windows XP doesn't use Autoexec. How can I configure my Command Prompt to use this prompt code?

DALE SCHUNKE

As both readers have noticed, each new instance of cmd.exe, the Command Prompt, has its own set of environment variables. Any changes you make are discarded when that instance shuts down. To make environment variable settings permanent, you need to change the Master Environment. To do this manually, right-click My Computer, select *Properties*, click the *Advanced* tab,

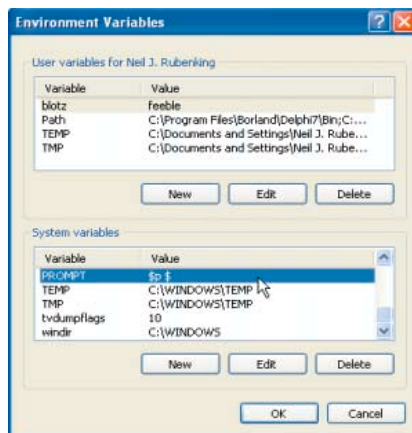


FIGURE 3: You can create permanent, user-specific, or systemwide variables using the *Environment Variables* dialog.

and click the *Environment Variables* button. Here, you can add or change variables that are user-specific or systemwide.

If you're familiar with Registry editing, you might prefer another approach: adding or

changing values in two specific Registry keys. Values in HKEY_CURRENT_USER\Environment correspond to the *User* variables in the *Environment Variables* dialog, while values in HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Environment correspond to the *System* variables. These changes, however, won't take effect until you restart Windows or change at least one variable using the *Environment Variables* dialog. If you need to manipulate the Master Environment from within a batch file, you can get a small utility called SETX from the Microsoft Download Center (www.microsoft.com/downloads).

The default system prompt is the code \$P\$G, where \$P represents the current directory path and \$G represents a greater-than symbol. It doesn't matter whether you use uppercase or lowercase letters for the codes. Changing the prompt to \$P \$ or \$P\$S replaces the greater-than symbol with a

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space. There are quite a few codes: Some represent system information elements, and others represent characters that can't be used as part of a command:

Special characters

\$A & (ampersand)
\$B | (pipe)
\$C ((left parenthesis)
\$E Escape code (ASCII code 27)
\$F) (right parenthesis)
\$G > (greater-than sign)
\$H Backspace
\$L < (less-than sign)
\$Q = (equal sign)
\$S (space)
\$_ Carriage return and linefeed
\$ \$ (dollar sign)

System information

\$D Current date
\$N Current drive
\$P Current drive and path
\$T Current time
\$V Windows XP version number

Other characters in a prompt string will display unchanged. Suppose the prompt environment variable's value were set to **Today is \$D\$ _The time is \$T\$ _You are running \$V\$ _\$P\$G**. The system prompt would become a four-line display looking something like this:

```
Today is Wed 02/23/2005
The time is 10:12:01.45
You are running Microsoft Windows XP
[Version 5.1.2600]
C:\Documents and Settings\Neil J.
Rubenking>
```

To experiment with these prompt codes, just type the command **PROMPT** followed by the desired codes in a Command Prompt window. For example, **PROMPT \$P\$G** would restore the default prompt. When you have identified the prompt codes you want to retain, use the *Environment Variables* dialog to set the **PROMPT** variable.—*NJR*

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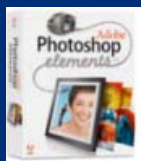
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TOP TIPS & TRICKS FOR WINDOWS

PLUS GREAT IDEAS FOR INTERNET EXPLORER AND FIREFOX

EDITED BY SARAH PIKE

Reports on the next Microsoft Windows, still known only by its code name, Longhorn, are rampant, but it looks as if we'll have Windows XP to kick around for a while longer. Since we met XP back in 2001, we've been generally pleased with its power and stability, but often disappointed by the number of workarounds and nearly hidden settings required to make our computers come a little closer to working for us, rather than the other way around.

In this story we present our favorite Windows XP tips, including some of the best User to User questions and tips that our Solutions section (page 66) has received since XP's inception. These will help you solve nagging Windows problems (er, *quirks*), make Windows suit

your style better, make you more safe and secure, help you cooperate with multiple users, and improve performance when you're on the go with a laptop.

Although the jury's still out on whether an Internet browser can be considered an integral part of an operating system, there's no doubt that it's an integral part of our lives. You'll find tips and workarounds for Microsoft's ubiquitous and controversial browser, Internet Explorer, on page 90, followed by tips for using Mozilla's popular upstart, Firefox. For those accustomed to using IE, Firefox's many settings and options may seem blinding at first, but the browser's impressive market share shows that it's caught the eyes of quite a few users.

But whichever browser you use to surf the Internet, whether you use a desktop or

a laptop, whether it's just you or a whole family using your system, don't forget: These machines were made to work for you. Consider the following 120 tips our little reminders to you of that.

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tipsters

PC Magazine Labs lead analyst Neil J. Rubenking is our tipster extraordinaire. Additional tips were contributed by editorial intern and resident Firefox expert David Murphy, and PC Magazine Labs' Richard Fisco and M. David Stone.

GENERAL TIPS

Windows XP is a take-charge kind of operating system, and it's easy to sit back and leave it to its own devices, so to speak. But from start-up to shutdown, in the face of baffling errors to programs you don't use but can't get rid of, you can be more in control than you may have thought.

>> CONTROL WHICH PROGRAMS LAUNCH AT START-UP

Many of the programs you install on your system automatically configure themselves to launch at start-up, often invisibly. The truly essential ones, such as firewall and antivirus products, generally run as Windows services, working efficiently in the background. Other less important products like media players really don't need to be running constantly, if at all. These extra applications slow the boot process and then suck up system resources and CPU cycles.

There are many ways a program can launch at start-up. The System Configuration Utility rounds up all of the start-up programs in a single display. Launch it by choosing *Run* from the *Start* menu and entering *msconfig*. The *Startup* tab displays a complete list of the programs that launch at start-up. To disable any one of them reversibly, just uncheck the box at left. It should be safe to disable any of them, as only nonessential programs appear on the *Startup* tab. But leave the adjacent *Services* tab alone—disable some of those entries and you may disable Windows completely.

For an even simpler approach, you might want to try a start-up manager like Absolute Startup (for our review, see go.pcmag.com/utilityguide).

>> CONTROL START-UP LAUNCH ORDER

Windows checks various locations in the file system and Registry to determine which programs should launch at start-up, but gives you no real control over the launch order. Here's how to enforce a specific order, perhaps to connect to a VPN before launching a program that needs that connection.

If shortcuts to the start-up programs reside in the *Start* menu's *Startup* folder, move them to a new folder; otherwise, create a shortcut to each in a new folder. Open a command prompt, navigate to that new folder, and issue the command `DIR /B > ORDERED.BAT`. Enter `NOTEPAD ORDERED.BAT` to open the resulting batch file in Notepad. Use copy-and-paste to put the lines in the desired order. Surround each line with

quotes and precede it with the *START* command, a pair of empty quotes, and a space—for example, `START "" "C:\Ordered Launch\First Program.lnk"`.

Double-click the batch file to test it. The programs will start in the specified order, but if one takes longer to initialize, it may show up out of order. In that case, insert a delay line after the slow-starting program. This line will insert a 5-second delay: `ping -n 5 127.0.0.1 > nul`. Edit the number after `-n` to set a different delay. After testing, use the right mouse button to drag the batch file to the *Start* menu's *Startup* folder, selecting *Create Shortcut(s) Here*.

>> REMOVE COMPONENTS NOT IN ADD/REMOVE

You can uninstall many Windows components, from Solitaire to Networking Services, using the Add or Remove Programs applet from the Control Panel. Launch it and click the *Add/Remove Windows Com-*

ponents button at left. MSN Messenger, however, is deliberately hidden, as are several other components. Here's how you tell Windows not to hide those components.

In Windows Explorer, navigate to `C:\Windows\Inf` and make a copy of the file *Sysoc.inf*. When you double-click on *Sysoc.inf*, it will launch in Notepad. Press `Ctrl-H` and replace the string `,hide`, with `,,` and save the file. Now you'll find that all the hidden components appear in *Add/Remove Windows Components*.

>> RECOVER A CORRUPTED SYSTEM FILE

If an essential Windows file goes missing, gets whacked by a virus, or is otherwise corrupted, you can restore it from your Windows XP CD. Select *Search* from the *Start* menu and search the CD for the filename, replacing the last character with an underscore—for example, *Notepad.ex_*. If it's found, open a command prompt and enter the command *expand* followed by the full pathname of the file and of the desired destination, for example, `expand D:\Setup\Notepad.ex_ C:\Windows\Notepad.exe`. If either pathname contains any spaces, surround it—the full path—with double quotes.

EDIT THE REGISTRY SAFELY

Some of the tips in our collection require editing the Registry. Before making any such changes, you should back up the current Registry data. This doesn't mean using the Windows XP Backup applet or even saving a system restore point. Rather, use the Registry Editor itself to back up the Registry keys that will be changed.

To begin, select *Run* from the *Start* menu and enter *regedit* to launch the Registry Editor. Navigate to the key you're going to edit and select *Export* from the *File* menu. Don't set the *Export Range* to *All*—that would back up the entire Registry, and restoring such a backup would wipe out *all* later changes. Instead, choose the *Selected Branch* option, which will back up just the selected key, with its subkeys and values. Save it to a REG file with a name that will remind you of the purpose of the change. Open the REG file in Notepad and insert a few comment lines that describe the tip (to create a comment line, put a semicolon at the start of the line). Now go ahead and make all changes to the Registry keys and values specified by the tip you're applying. Any time you *add* a new key or value, make a note of it with another comment line in the REG file. When you're done, save the REG file and close Notepad.

If it's necessary to undo the Registry tweak, start by double-clicking the REG file and confirming that you want to merge it into the Registry. This will restore any deleted keys or values, and will restore the original data for any changed values. Note, however, that it will not remove any keys or values that you added. To take care of those, refer to the comments you inserted in the REG file. Right-click the REG file and choose *Edit*, which will open the file in Notepad. Check for comments about added keys or values and, if found, use the Registry Editor to delete them. You can delete the REG file itself once you've completed the restore process.—NJR

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If the file isn't found, search again using the unmodified filename. It will probably be inside a CAB file, which XP treats as a folder. Then simply open the folder, drag the file to the desired location while holding down the right mouse button, and choose *Copy Here*.

>> MAKE A RECOVERY DISC

Your PC may have come with a recovery CD that will restore it to the precise state—as far as OS, drivers, and software are concerned—it was in when you bought it. But really, the older your system is, the less useful that CD is. It will lack all the latest security patches (including Windows XP Service Pack 2) and in all likelihood, many drivers will be outdated. So it's an excellent idea to build a new recovery CD, and fortunately you can. The process is more involved than will fit here, so for our full instructions, point your browser to go.pcmag.com/xpsp2recover.

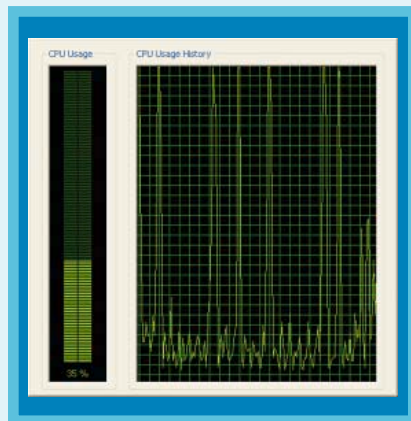
>> REBOOT TO SAFE MODE IN WIN XP

Sometimes in the course of troubleshooting you need to reboot and start Windows in Safe Mode, which is a minimal start-up that loads only those Windows components that are absolutely essential. In theory, you can enter Safe Mode by restarting and then either holding down the Ctrl key or pressing the F8 key at the right moment. In practice, it can be difficult or, with a USB keyboard, impossible (the USB drivers aren't available in the DOS start-up environment). To configure Windows XP so its next restart will enter Safe Mode, launch the System Configuration Utility (*mscon-*

fig) from the *Start* menu's *Run* dialog. Click the *BOOT.INI* tab and check the box titled */SAFEBOOT*. Don't touch the other settings. When you reboot, XP will start in Safe Mode and will keep doing so until you uncheck that box.

>> TASK MANAGER MISSING PARTS

Normally, the Windows XP Task Manager contains several tabs with information and options for *Applications*, *Processes*, *Performance*, and *Networking*. But sometimes the Task Manager goes wonky, displaying just one tab and no menu. This is the Task Manager's "tiny footprint" mode, invoked by double-clicking on the



THE TASK MANAGER'S tiny footprint mode

border around the tabs. It's easy to do this accidentally. Fortunately, it's just as easy to restore Task Manager to normal: Simply double-click in the border of the window again.

BEST OF USER TO USER

READER: You can force Windows XP to display the blue screen of death—the only reason to do this is, with any luck, you'll never see it otherwise! In the Registry key `HKLM\System\CurrentControlSet\Services\i8042prt\Parameters`, find or create a `DWORD` value named `CrashOnCtrlScroll`. Double-click it and set its data to `1`. Restart the computer. Now you can cause a crash by holding the right-side Ctrl key and pressing the Scroll Lock key twice.

PC MAG: Actually, a valid reason to crash your computer is to test your recovery options. First, make sure the recovery configuration is correct: Right-click My Computer and choose *Properties*, then click the *Advanced* tab. Click the *Settings* button in the *Startup and Recovery* pane. In the *System Failure* pane check all three options. If you choose the 64KB *Small Memory Dump*, each occurrence will be written separately to the folder specified. The *Kernel Memory Dump* is larger, and a *Complete Memory Dump* requires that you have a paging file large enough to hold all physical RAM plus one megabyte—this is the largest option. By default, the two larger options are written to the file `memory.dmp` in the Windows folder, with each occurrence overwriting the previous one.

Once you've got the settings the way you want, close any open programs and use the key combo to crash the system. You can verify that the desired memory dump is written, and check just how long it takes to restart after a crash.

Use the Keyboard

Highlight a file or folder and press **Shift-Del** to delete permanently, bypassing the Recycle Bin.

Alt-Enter opens the highlighted file or folder's *Properties* dialog.

In Windows Explorer, highlight a folder and press **Shift-NumPadAsterisk** to open the folder and all subfolders.

Click in Windows Explorer's details pane, then press **Ctrl-NumPadPlus** to size each column exactly as wide as its largest item.

The Windows key brings up the *Start* menu, of course; but it does quite a bit more when used in combination with other keys:

Win-D toggles between showing the desktop and restoring all windows.

Win-E invokes the Windows Explorer window.

Win-L locks your system until you enter your password—or lets you switch active users, if you're using Fast User Switching.

Win-M minimizes all windows.

Win-R brings up the *Run* dialog.

Win-S, in Microsoft Word 2002 or later, invokes Windows' text-to-speech engine, which will read either highlighted text or everything from the cursor on.

Win-Pause/Break brings up the *System Properties* dialog.

Win-U invokes the Utility Manager, which controls accessibility program options.

Missing the Windows key? **Ctrl-Esc** will bring up your *Start* menu, though it won't allow you to use Windows-key combo commands like those above.

You can create your own keyboard shortcuts to frequently used programs by right-clicking on their shortcut icons (in the *Start* menu or on the desktop), then clicking in the *Shortcut key* field and striking a key. Hey, presto, **Ctrl-Alt-that** key will now start the app. Don't want the Ctrl-Alt combo? You can press **Ctrl-Shift-x**, **Shift-Alt-x**, or **Ctrl-Shift-Alt-x** instead. A few x keys are verboten here: Esc, Enter, Tab, Space, Print Scrn, Del, and Backspace aren't allowed.

GENERAL TIPS (contd.)

>> RESTORE THE SHOW DESKTOP ICON

If we had a nickel for every time we've been asked how to restore this handy Quick Launch icon . . . well, we'd have a few bucks by now. The *Show Desktop* icon isn't a normal shortcut. If you accidentally delete it, restore it like so: Launch Notepad and type these lines:

```
[Shell]
Command=2
IconFile=explorer.exe,3
[Taskbar]
Command=ToggleDesktop
```

Save the file with the name "Show Desktop.scf", including the quotes, to the folder C:\Documents and Settings\username\Application Data\Microsoft\Internet Explorer\Quick Launch, where *username* is replaced by your actual user account name.

>> SHORTCUT TO SHUTDOWN

We've all noted the irony of having to click on *Start* to shut down. But you can create a shortcut that will automatically shut down your PC, log you off, or reboot.

Right-click on the desktop and choose *New | Shortcut*. Browse to the file C:\Windows\System32\Shutdown.exe, click *Next*, name the shortcut, and click *Finish*. Now right-click on the new shortcut and choose *Properties*. In the *Target* box, append the command line switch -l (to log off), -s (to shut down), or -r (to reboot).

If you also add the switch -t xx (where xx is a number of seconds), Shutdown.exe will display a warning and countdown before activating. You can specify a comment to be displayed with the warning by adding the switch -c "Your text". The countdown behavior is particularly useful if the shutdown is launched through the Scheduled Tasks applet. Once it's activated, the only way to stop the program is to launch it again with the -a (for abort) switch on its command line—you might create a separate *Cancel Shutdown* shortcut for that.

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SECURITY TIPS

The more prominent and irreplaceable computers become in our lives, the more the bad guys seek to compromise PCs and networks for their own nefarious purposes. Don't be a chump; learn how to protect yourself from hackers who want to control your system, steal your data or identity, or simply take you down for the fun of it.

>> CARRY A BIG STICK

Lest anyone come away from this story with the idea that you can be safe without a panoply of security products, we'll take this opportunity to remind you: Every PC needs effective and up-to-date antivirus, personal firewall, antispymware, and anti-spam. You'll find our latest reviews of these security utilities, alone and bundled into suites, plus loads more tips for keeping your computing on the safe side, at go.pcmag.com/security.

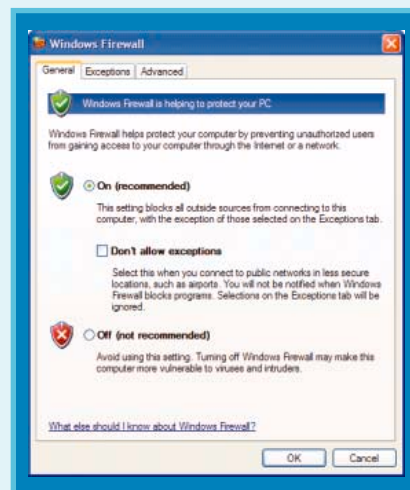
>> GIVE WINDOWS FIREWALL ITS MOMENT IN THE SUN

One of the first things you'll want to do with a new system is download updates to the operating system and applications, activate any security software that came with your system, and install any security software that didn't.

Hold on. To do most of this, you'll have to get online—sans adequate security. Windows XP does come with a personal firewall, although it does only half the job. Still, before you even plug in the cable that will connect your PC to the Internet, go to the Control Panel, double-click on Windows Firewall, and switch it on. Later, when you've got a full personal firewall installed and updated—along with the rest of the security canon—you'll want to disable the Windows one and simply use the Security Center to confirm that your security apps are functional and up to date.

>> UPDATE AUTOMATICALLY

Reading about a new virus outbreak or Windows security hole every few weeks—or every few days, at times—is worrying. Keeping the operating system patched with the latest security fixes is critical. During setup of Windows XP Service Pack 2, either with a new machine or an update, you're asked whether to turn on automatic updating. If you spazzed and clicked *No*, find the option in Windows Security Center and make the change.



WINDOWS FIREWALL

>> TOUGHEN PASSWORDS

We've said it before, and we're gonna just keep on saying it: Any word in the dictionary is not a strong password, no matter how many syllables it has. A password should consist of at least eight characters, including letters, numbers, and symbols. We urge you to check out our story on password crackers (go.pcmag.com/passwords)—these clever little programs aren't getting any slower. You may also want to consider long, easy-to-remember passphrases instead—see go.pcmag.com/passphrase for more on this.

>> LOCK YOUR WINDOWS

Get in the habit of locking your system before you walk away. It couldn't be easier: Just press the Windows key plus the L key and the system will immediately lock, requiring your log-on password (or an administrator's) to function again.

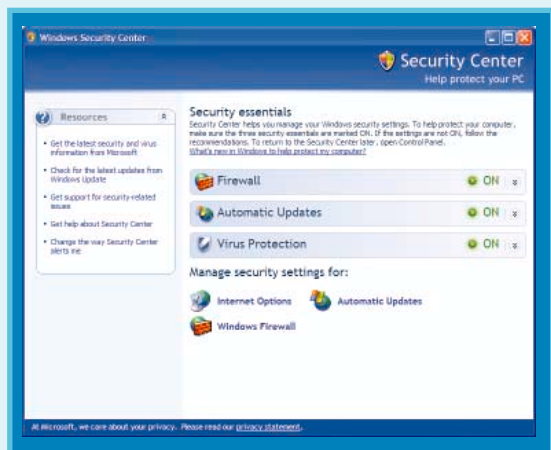
If your keyboard is missing the Windows key (IBM PCs, for example, lack them), pressing Ctrl-Alt-Del, then Enter, will accomplish the same (although some will hit a snag here; for more details, see the User to User tip at the top of the following page).

>> USE WPA FOR WIRELESS NETWORK SECURITY—OR MAKE THE BEST OF WEP

We recommend using WPA-ready wireless equipment, but many of us are stuck with WEP-only wireless cards or access points. Neither security protocol is particularly intuitive to set up, but if you leave your wireless connection unsecured, the very least you can expect is a hitchhiker or two on your connection.

We've put together a comprehensive guide to setting up a WPA-encrypted connection; you'll find it at go.pcmag.com/wpa.

For those using WEP—which isn't weak, exactly, although it can be broken—make the best of it. As sure as any lock can be picked, someone who's determined enough will get through WEP encryption.



WINDOWS SECURITY CENTER

But most people *aren't* determined. You want to bolster your WEP connection with as many of the following steps as your hardware will allow:

- Make sure the firmware is up to date with the latest security patches, which should be downloadable from the manufacturer's Web site.
- Set the WEP to the highest level of encryption that both the access point and the wireless card(s) will allow.
- Define the MAC addresses allowed: Go to each machine you want to allow on your wireless network, open a command prompt, and type `ipconfig /all`. Copy down the physical addresses, then use the access point's configuration options to limit connection to only these addresses.
- Never use the default SSID, administrator password, or WEP key, and set all of these using criteria for tough passwords ("Password Dos and Don'ts," go.pcmag.com/passwords).
- Disable SSID broadcasting.

BEST OF USER TO USER

PC MAG: When we noticed that the familiar Ctrl-Alt-Del followed by Enter no longer worked to lock our computers, we offered a workaround—and then quite a few readers wrote in, puzzled because they found the key combination still worked for them just as it did under Windows 2000. Why would it work on some systems and not others? The difference turned out to involve the use of the Welcome screen. If you configure Windows XP to use the Welcome screen, Ctrl-Alt-Del brings up the Task Manager. If you configure it to log on using the Windows 2000 style, Ctrl-Alt-Del brings up Windows Security, and pressing Enter at that point locks the computer.

To enable or disable the Welcome screen, launch the User Accounts applet from the Control Panel and click the link *Change the way users log on or off*. The box titled *Use the welcome screen for fast and easy logon* controls whether the Welcome screen is displayed.

>> BE SPYWARE-AWARE

Spyware is like the common cold. You didn't do anything risky—it seems as if you must've gotten it by touching a doorknob or something similarly innocuous. Your system starts to drag a little, and then a lot... and then things start getting weird, with loads of pop-ups, maybe a changed browser home page. Of course, your immune system will wipe out your cold eventually, whereas spyware tends to get worse and worse, often inviting its spyware buddies to little parasite parties on *your* system.

So, how do you pick up spyware? About as easily as a cold—all you have to do is browse the Web for a while.

Not all freeware is really free—in some cases, you pay by getting spyware along with it. If you use a peer-to-peer file-sharing program, you almost certainly have spyware, either directly bundled with the sharing program or from an in-

fectured fellow file sharer.

There are steps you can take to minimize your risks, but we recommend purchasing a good antispayware utility and keeping it up to date (for reviews of antispayware utilities, visit go.pcmag.com/security) and following safe computing practices:

- Don't take candy from strangers: If you didn't specifically request a download, don't click on the OK button to tell your browser that you want the download.
- If it's spam, don't click: It won't enhance your love life or your hairline, but it may load malicious code on your system.
- Don't invite anyone in: Set Internet Explorer to prompt you when sites attempt to push ActiveX controls onto your machine—and to reject unsigned ActiveX controls automatically (*Tools | Internet Options | Security | Custom Settings*).
- Don't give it all up: If you must use a file-sharing app, at least set it not to share your entire hard drive. In fact, consider keeping any files you might want to share in one specific folder, and then setting the app to share only that folder. At the very least, exclude all system folders (anything within C:\Windows) from sharing.

BEST OF USER TO USER

READER: I keep my system pretty well locked down, with a strong Windows log-on password and personal firewall, but occasionally I work with sensitive information and want to add an extra layer of security. How can I encrypt individual files or folders?

PC MAG: In Windows XP Pro, right-click the file and choose *Properties*. Click the *Advanced* button in the *Attributes* area of the *General* tab. Check the box titled *Encrypt contents to secure data* and click OK, then OK again. You won't notice a difference, but any other logged-on user will be unable to view the file. Note, though, that unless you go through a complex process to export your account's digital certificate and private key information, you too will be unable to access the files if you lose access to your account by, for example, reinstalling Windows.

Another option, available in Windows XP Home as well as Pro, is to encrypt a compressed folder. Right-click the file and choose *Send To | Compressed (zipped) Folder*. Open the resulting folder and choose *Add a Password* from the *File* menu.

CUSTOMIZATION

A great many of Windows' settings can be tweaked to reflect your computing preferences in more relevant ways than, for example, changing the picture on the desktop.

>> EDIT THE SEND TO MENU

When you right-click on a file and choose *Send To*, a submenu appears with options to copy that file to the A: drive, the My Documents folder, or various other places. You can enhance this menu to copy files into the folder of your choice. Navigate to the folder `C:\Documents and Settings\username\SendTo` (replacing *username* with your username). If the *SendTo* folder isn't visible, select *Folder Options* from the *Tools* menu, click on the *View* tab, and check the box labeled *Show hidden files and folders*. Launch another instance of Windows Explorer and locate the desired destination folder. Right-drag it into the *SendTo* folder and choose *Create Shortcut(s) Here*. Rename the new shortcut with the name you want to see in the *Send To* menu.

>> EDIT THE PLACES BAR

The *Open* and *Save* dialogs have a *Places* Bar at left with five buttons for folders like My Documents. You can actually replace one or more of these with your own choice of folder. The easiest way is to use the TweakUI PowerToy, a free download available at www.microsoft.com/windowsxp/pro/downloads/powertoys.asp. Launch it and click *Common Dialogs* in the list at left, then the *Places Bar*. Check the option titled *Custom places bar*. Now you can choose any of 11 system folders for each of the buttons, or type in a folder of your choice.

It's also possible to change the folders by tweaking values in the Registry key `HKCU\Software\Microsoft\Windows\Current`

`Version\Policies\cmdlg32\placesbar`. Each of the values named *Place0* through *Place4* holds either a numeric value representing one of the system folders or a string value representing a user-defined folder. To change from system to user-defined, you'll have to delete the numeric value and create a string value with the same name. Clearly, using TweakUI is a much easier solution.

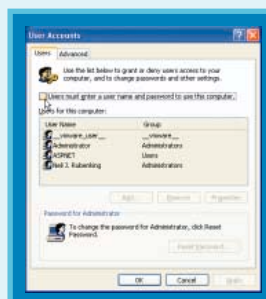
>> UNWANTED NETWORK NEIGHBORS

If you ever have to navigate to My Network Places, you've likely been hung up by the long list of network nodes. These nodes are folder shortcuts, created automatically by the system. They may even be shortcuts to network shares that no longer exist. You should be able to delete them without harm.

Before deleting one, however, right-click it, choose *Properties*, and verify that the *Type* field says *Folder Shortcut*. If so, go ahead and delete it. You can still access any node on the network through the *Entire Network* node or the *Computers Near Me* node. When you do, Windows will recreate the folder shortcut.

>> DON'T WAIT FOR A WELCOME

Tired of the extra step the Windows XP Welcome screen represents? We don't recommend it, but you can make Windows XP boot directly into your main user account, bypassing the Welcome screen.



DON'T WAIT FOR A WELCOME

It requires these precise conditions: exactly one user account, not password-protected, and no Guest account. But even if these criteria seem true, you may find that suddenly one day the

Welcome screen starts appearing at start-up. This generally happens because of a Windows Update that adds a virtual user account called ASP.NET. This account is useful only to programmers—if you don't need the account, you can delete it from the Control

Panel's User Accounts

applet. Of course, the next Windows Update may well restore that account. And it's a really bad idea to configure your user account with no password.

>> DON'T WAIT FOR A WELCOME: MULTIUSER EDITION

You may want to boot directly to the default account, bypassing the Welcome screen, on a computer that has multiple user accounts defined. Select *Run* from the *Start* menu and enter *control userpasswords2* to launch the User Accounts applet. Uncheck the box at the top whose title begins *Users must enter a user name*. (Note that if your computer is connected to a domain this box won't appear, and this solution does not apply.) Click *OK* and enter your username and password in the *Automatically Log On* dialog that appears. Click *OK* once more. Windows should now boot to the default account without requiring a password.

Whichever technique you used to bypass the Welcome screen, you won't lose access to the other user accounts. If you hold down the Shift key while Windows is starting, the Welcome screen will appear. You can also choose *Log Off* from the *Start* menu and then log on as another user.

No matter how you accomplish it, configuring Windows XP to boot without going through the Welcome screen leaves your system wide open to anybody with physical access to it. Unless the system in question is locked in a safe when not in use, you may be better off suffering through the drudgery of entering a password at start-up.

BEST OF USER TO USER

READER: How can I make the Shift key turn off Caps Lock in Windows XP, the way it does on a typewriter?

PC MAG: Launch the Regional and Language Options applet from the Control Panel, click the *Languages* tab, then click the *Details* button. If the button called *Key Settings* is grayed out, click the *Add* button and add another keyboard definition, for example *United States-International*. Select the keyboard you normally use and click the *Key Settings* button. In the panel titled *To turn off Caps Lock*, select *Press the SHIFT key*. Click *OK*, *OK*, *OK*. Now you will turn off Caps Lock only by pressing one of the Shift keys—a second press of Caps Lock no longer turns it off.

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Summer Edition

Hot Gear for Hot Times

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MULTIUSER & NETWORKS

When several people regularly use one computer, they'll probably want to set up multiple profiles to keep everyone's preferences straight, including bookmarks, screen settings, and My Documents folders. And when several people in the same house use their own computers, they'll probably end up networking the machines. Whether you're sharing one PC or connecting several, these tips will help you coexist peaceably.

>> SWITCH USERS—FAST

It takes at least a few tedious seconds to log one user off and another one on. Windows XP has an option to speed that up: Fast User Switching (FUS) lets you switch without logging off. To enable it, open User Accounts in the Control Panel, click on *Change the way users log on or off*, and check the *Use Fast User Switching* box. Now, when you select *Log Off*, a *Switch User* option appears that lets you quickly change to another account without making any users close their programs. When FUS is enabled, holding down the Windows key and typing the letter *L* zips you to the Welcome screen.

Beware of the trade-offs of Fast User Switching, though. You should avoid running system-level utilities, such as defraggers or indexing utilities, when another user is logged on, and if you're looking for the best performance, you don't want to let idle accounts in the background tie up system resources. The feature is best for those times when you simply need to get in and out quickly. Also note that Fast User



FAST USER SWITCHING

Switching does not work if your computer is a member of a network domain.

>> LIMIT ACCESS TO THE TASK MANAGER

To prevent users from killing important processes like antivirus scanning or usage monitoring, you can use the Group Policy Editor to disable the Task Manager. Log on as an administrator and launch *Gpedit.msc* using the *Start* menu's *Run* dialog. Navigate to *User Configuration\Administrative Templates\System\Ctrl-Alt-Del Options*. In the right-hand pane, double-click on *Remove Task Manager* and change its status to *Enabled*. You can still launch the Task Manager by right-clicking on *C:\Windows*

System32\TaskMgr.exe, choosing *Run As...*, and using the Administrator password.

This works in Windows XP Pro; to accomplish something similar in Windows XP Home, which lacks the Group Policy Editor, log on to each user account and edit the Registry. In *HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\System*, create a DWORD value named *DisableTaskMgr*, and set its data to 1. Do the same in the key *HKEY_USERS\Default\Software\Microsoft\Windows\CurrentVersion\Policies\System*.

>> NETWORK MULTIPLE PCS

If instead of multiple users using one machine you've got several PCs in one dwelling, you'll probably end up networking them, even if only to share an Internet connection. And guess what? Windows has networking set-up and troubleshooting tools. They're in the Control Panel's Network Connections applet. Select *Set up a home or small office network* and Windows will walk you through network configuration, helping you choose sensible settings.

If you're trying to fix an existing network, try the Network Troubleshooter in Windows Help and Support. It's surprisingly effective.

>> TROUBLESHOOT YOUR NETWORK

When you encounter a network problem, some of these command line tools can help you narrow down the source. From the command prompt:

- `ping ipaddress` (for example, `ping 192.168.0.1`) shows whether your PC can contact another computer or network device at a specific IP address. First ping your router to see if your LAN is working, then ping something on the Internet to see if the problem is outside.

- `tracert ip address` (for example, `tracert 192.168.0.101`) reveals every router hop from your PC to another computer or network device. If you start seeing dropped responses, you may be able to tell whether the problem is local.

- `ipconfig /all` shows all your computer's IP-related settings. If your PC is having trouble getting online, try `ipconfig /renew` to refresh your IP address or get a new one.

- `netstat` gives you a list of all the active TCP/IP ports on your system—very useful in detecting whether a Trojan horse has commandeered your system.

BEST OF USER TO USER

READER: On my machine running Windows XP Pro, when I did a Fast User Switch, my dial-up Internet connection would disconnect. I found a fix for the problem. It turns out that the Internet Connection Sharing option works even for multiple users on the same computer. Here's how to set it up: From the Control Panel, launch Network Connections. Select the connection you want to share and click *Change settings of this connection* in the bar at left. On the *Advanced* tab, check the boxes *Allow other network users to connect through this computer's Internet connection* and *Establish a dial-up connection whenever a computer on my network attempts to access the Internet*. Now the connection will stay open through a Fast User Switch.

PC MAG: Microsoft's documentation verifies this. Always-on connections are unaffected by Fast User Switching. Dial-up connections will indeed be terminated unless Internet Connection Sharing is used. Other user-initiated connections, such as VPN connections, remain active while the Welcome screen is displayed. These will generally disconnect when a different user logs on, but may not do so in every case. If security is an issue, log out of any sensitive connections before allowing a Fast User Switch.

ON-THE-GO TIPS

When it comes to computers, it's all about power, and notebook computers are no exception—it's just that power has a few more meanings on these PCs.

>>> SET POWER OPTIONS

On a desktop, power options are about convenience—how long should the system idle before starting the screen saver?—but they have a much more profound effect on laptops, namely on battery longevity.

You'll find Power Options in the Control Panel, and within it, several mobile-use-specific battery options, including *Portable/Laptop*, *Super Power Saver*, and *Max. Battery*. You can tweak these settings beyond the presets to determine how long the system waits to turn off monitors and hard drives, and when to stand by or hibernate (depending on whether it's plugged in or on battery power).

>>> USE EXTERNAL MONITORS

Laptop screens, especially on small, thin-and-light notebooks, can cause eyestrain with all-day, every-day use. You may want to connect a second monitor to your laptop to use instead of, or in conjunction with, the LCD screen that's already on the machine. As long as the graphics card can handle it—most laptops' can—Windows will make it very easy for you.

To start, plug the second monitor into the laptop's output port or docking station. Then find the hot key to send what's on screen to the external monitor. Depending on the notebook, pressing the hot key (typically, Fn plus an F-key) will either page through configurations much as Alt-Tab pages through your open windows, or simply activate the configurations, blanking the notebook display and activating the external monitor, then activating both.

You can also use the external display in concert with the internal display to extend your viewable display area. Right-click on the desktop and select *Properties*, then choose the *Settings* tab. You'll see both monitors represented in the dialog box. If the second monitor is grayed out, right click on it and select *Attached*. Set the screen resolution and color quality for this second



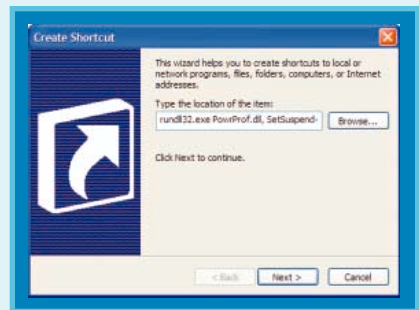
USE EXTERNAL MONITORS

display. Windows generally assumes that the external display is to the right, but if it's on the other side, just drag the on-screen representation to match your layout.

With that monitor still selected, make sure there's a check in the box labeled *Extend my Windows desktop onto this monitor*. Choose *Apply* and your desktop will take advantage of the additional screen space. It's that simple. You can now drag applications back and forth between the two displays.

>>> SPLIT THE DIFFERENCE BETWEEN STANDBY AND POWERING DOWN

When you go through a normal shutdown (clicking on *Start* then *Shut Down*), you're given a set of options, including *Shut down*, *Restart*, *Stand by*, and, if you've enabled it on your Win XP system, *Hibernate*. Hibernation saves the current state of your system to disk, so the system can com-



GO STRAIGHT TO HIBERNATE

pletely power down but be restored to the same state when restarted. The battery doesn't drain in this state, but restarting won't be as quick as from Standby mode.

If the Hibernate option doesn't appear in your shutdown options, launch Power Options from the Control Panel, click on the *Hibernate* tab, and check the box labeled *Enable hibernation*.

>>> GO STRAIGHT TO HIBERNATE

We told you in the General Tips section how to create a shortcut to shut down your Windows system automatically. But you can create a simple command-based shortcut to do the job. Right-click on the desktop and select *New | Shortcut*. Type this case-sensitive command into the dialog box: `rundll32.exe PowrProf.dll, SetSuspendState`.

BEST OF USER TO USER

READER: I just bought a laptop that's supposed to run at 2.4 GHz, but when I checked the System Properties, the dialog indicated that it was a 2.4-GHz CPU and then said 957 MHz. I checked on several other computers. The same thing happened, though the speeds varied. One, for example, showed that it was a 2.4-GHz machine but running at 1.6 GHz. What's going on?

PC MAG: It's all about conserving battery life. Both mobile Pentium and mobile Athlon processors have power-saving capabilities that reduce the CPU's voltage and clock speed when running on battery power. And notebook vendors may customize these low-power settings to clock down the CPU to even lower voltages and CPU speeds.

For CPUs that support dynamically lowering speed and voltage on battery power, the power-management settings (Control Panel\Power Options) you choose will affect the processor speed. You can play around with these settings while on battery power to see whether they affect your CPU speed. Even on AC power, a CPU won't always run at its highest speed unless power management is set to *Home/Office*, *Desktop*, or *Always On*.

If your machine offers custom settings, your user guide should have specifics on what they do and how to set them. You can create a custom profile to fit your needs, but start with the Windows XP defaults and then vary them, so you know what effect each will have on the clock speed.

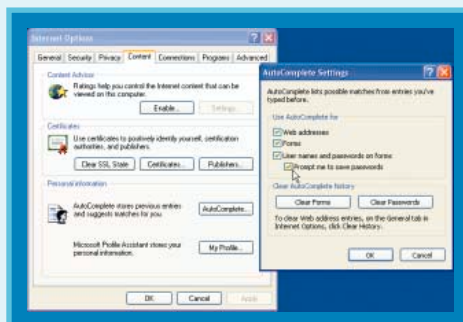
INTERNET EXPLORER

The world's most prevalent browser can generally be operated without much thought. It likes to remember your passwords and type ahead for you, assuming you'll retype the same terms and URLs over and over. And it particularly likes staying installed, even going so far as to be unremovable.

>> MANAGE SAVED PASSWORDS

When you enter a Web site username and password in Internet Explorer, it may ask if you want it to remember the password. If you click Yes, it will store the password and automatically add it the next time you enter the username. But if you check *Don't offer to remember any more passwords*, then it won't offer to help in the future, whether you click Yes or No.

To recover this feature, launch *Internet Options* from IE's *Tools* menu, click the *Content* tab, click the *AutoComplete* button, and check the *Prompt me to save passwords* box. But pause before you do so—if the machine is not physically secure, you may want to uncheck the *User names and passwords in*



MANAGE SAVED PASSWORDS

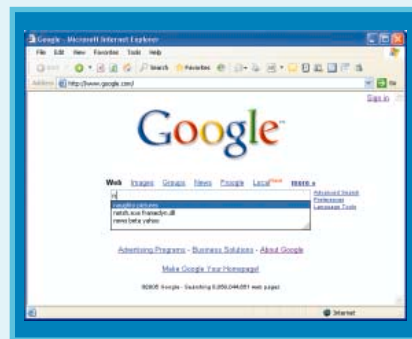
forms box and click the *Clear Passwords* button to remove the stored passwords instead. For more sophisticated password and form management, see our reviews of form fillers and password managers, at go.pcmag.com/utilityguide.

>> DELETE ITEMS FROM AUTOCOMPLETE LISTS

When you start typing in a Web form, you may see a list of things you typed before—some of which may be private, inappropriate for work or family, or simply typed incorrectly. You can lose this baggage easily. While you're in the text box, use the down arrow (not the mouse) to scroll down and select that item. Then press the Del key to get rid of it. You can see all AutoComplete entries for a form field by clicking in the blank field and pressing the down arrow.

>> PUMP UP THE ADDRESS BAR TEXT

High-res screens are great—they fit much more information into the same amount of space—but when your display is set to a high resolution, reading the text in IE's Address Bar may be difficult. Here's the trick: The Address Bar uses the same font as the icon titles on the desktop. You can change these through *Display Properties*.



DELETE ITEMS from AutoComplete lists

Right-click on the desktop, choose *Properties*, then click to the *Appearance* tab. Click on the *Advanced* button. In the pull-down *Item* list that appears, select *Icon*. Choose a more readable font and click on *Apply*. If the icon titles are now truncated, you can change *Icon Spacing (Horizontal)* and *Icon Spacing (Vertical)* to larger values.

>> SHARE IE FAVORITES

On multiuser machines, you may want to make all user accounts share the same bookmarks, so that any added bookmarks propagate to all users. To accomplish this, you'll have to tweak the Registry. First,

BEST OF USER TO USER

READER: In Windows XP, Internet Explorer 6, I need to restrict the browser to one specific domain, so the user can browse only to pages in this domain.

PC MAG: This can be done without third-party software. Browsers and other programs check the *Hosts* file to resolve domain names into IP addresses before they attempt to get the same information from a DNS server. If you disable DNS lookup, the *Hosts* file becomes a whitelist—only domains listed there will be accessible.

Open *C:\Windows\System32\drivers\etc\Hosts* in Notepad. Open a command prompt window and enter *ping* followed by the domain name you want to check, for example, *ping www.ucdavis.edu*. Append a line to the *Hosts* file consisting of the IP address revealed by the ping, a space, and the domain name, for instance, *169.237.104.199 www.ucdavis.edu*. Add any more domains you want to allow (the POP3 or SMTP addresses used to access e-mail, for example). Save the *Hosts* file and close Notepad.

Launch *Network and Dial-up Connections* from the Control Panel, right-click the connection through which you access the Internet, and select *Properties*. Select *TCP/IP* in the components list and click the *Properties* button. On the *General* tab, note any existing DNS numbers and store them somewhere safe. Those numbers will be essential if you want to undo this modification. Check the box *Use the following DNS connections* and enter invalid DNS lookup addresses for *Preferred DNS Server* and *Alternate DNS server*—you can use *1.0.0.0* and *1.0.0.1*. Restart the system. Any program that attempts to access a domain not listed in the *Hosts* file will fail. Truly determined users can log on to a “blocked” domain by entering its IP address instead of the domain name (though they won't be able to follow links). Still, this is a free solution and can be quite effective.

select *File | Import and Export* and export your Favorites to a file. Then log on as each user and navigate to the Registry key `HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\User Shell Folders`.

Locate the value named *Favorites* and change its data from the default of `%USERPROFILE%\Favorites` to `%ALLUSERSPROFILE%\Favorites`. Then import the saved Favorites into any user account.

>> CURE IE'S WINDOW-SIZE AMNESIA

It's a small problem but an annoying one: You may find Internet Explorer suddenly opening links in small windows. You can reset this easily.

Simply close all Internet Explorer windows. Open just one and Shift-click a link within it to open a secondary window. Adjust the secondary window to the size you want for all secondary windows. Then close it by holding Shift while clicking the X icon at top right. Size the primary window and close it in the same way. You may need to repeat this process if IE forgets after a while. Note that you can do the same for Windows Explorer, omitting the secondary window.

>> BLOCK INTERNET OPTIONS

Unscrupulous Web sites or malicious programs can hijack your Internet Explorer home page, causing IE to start at a (usually) sleazy page. Anybody with access to your computer can do the same, or change other important settings. This dual Registry

BEST OF USER TO USER

READER: Is there any way to remove the saved username and password from a single Web site and keep all of my other saved password data? IE offers only to clear all the passwords from all sites.

PC MAG: To remove a stored username/password for a particular site, first navigate to the site. When Windows prompts you for the username and password, click in the username box and press the down arrow. This will show all the usernames stored for this particular site (usually just one). Press the down arrow until the name to be removed is highlighted and then press the Del key. Internet Explorer will ask whether you want to delete the username and password information. Click Yes and it's gone.

Use the Keyboard: Browsers



INTERNET EXPLORER



FIREFOX

SYSTEM KEYS

Open file	Ctrl-O	Ctrl-O
Save copy of page	—	Ctrl-S
Print page	Ctrl-P	Ctrl-P
Open help window	F1	F1
Find text	Ctrl-F	Ctrl-F or /
Find next instance of text	—	F3 or Ctrl-G
Find previous instance of text	—	Shift-F3

ACCESS & NAVIGATION

Go to your home page	Alt-Home	Alt-Home
Save page address as new bookmark	Ctrl-D	Ctrl-D
Open the Bookmarks sidebar	Ctrl-I	Ctrl-I or Ctrl-B
Go to next page in history	Alt-Right Arrow or Shift-Backspace	Alt-Right Arrow or Shift-Backspace
Go to previous page in history	Alt-Left Arrow or Backspace	Alt-Left Arrow or Backspace
Display History sidebar	Ctrl-H	Ctrl-H
Insert "www." and ".com" around entry	Ctrl-Enter	Ctrl-Enter
Insert "www." and ".net" around entry	—	Shift-Enter
Insert "www." and ".org" around entry	—	Ctrl-Shift-Enter
Reload (get latest version of) page	Ctrl-R or F5	Ctrl-R or F5

WINDOWS, TABS, & DISPLAY OPTIONS

Use entire screen for viewing page	F11	F11
Increase text size	Ctrl-Scroll Wheel back	Ctrl-Plus
Decrease text size	Ctrl-Scroll Wheel forward	Ctrl-Minus
Restore text size to 100%	—	Ctrl-0
View page source	—	Ctrl-U
Browse in new window	Ctrl-N	Ctrl-N
Browse in new tab	—	Ctrl-T
Cycle to next tab	—	Ctrl-Tab or Ctrl-PgDn
Cycle to previous tab	—	Ctrl-Shift-Tab or Ctrl-PgUp
Set focus to address field	Alt-D	Alt-D or Ctrl-L

tweak offers some defense against unauthorized changes to your IE settings. Navigate to `HKCU\Software\Policies\Microsoft\Internet Explorer\Restrictions` and find or create a DWORD value named `NoBrowserOptions`. Double-click it and set its data to 1.

Now switch to the neighboring key `HKCU\Software\Policies\Microsoft\Internet Explorer\Control Panel`. Find or create a DWORD value named `HomePage`, and again set its data to 1. If you want to use Internet Options or change the home page yourself, you will need to change those two values temporarily to 0. Users of Spybot Search & Destroy, take note:

"Immunize" options in this program set these values automatically.

>> CLEAN UP THE RIGHT-CLICK MENU

Internet Explorer's right-click context menu may contain items you don't need or ones that point to nonexistent programs. You can use the Registry Editor (*regedit* from *Start | Run*) to remove unwanted items from this menu.

In the Registry Editor, navigate to `HKCU\Software\Microsoft\Internet Explorer\MenuExt`. You'll see a number of subkeys, each of which represents one of IE's context menu items. Simply select and delete any you don't want to see anymore.

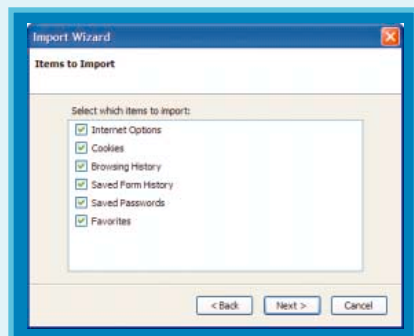
MOZILLA FIREFOX

Since the Mozilla Organization aimed its powerful weapon, the Firefox Web browser, at Microsoft, it has been gaining an ever-growing stake in the online market. Firefox's biggest gun is its customizability. Whether you are switching over for the first time, or are a seasoned user, here are some tips to enhance your browsing experience.

>>IMPORT AWAY!

If you're changing browsers, or if you simply like having more than one on your system, there's an easy way to pull your other browsers' settings into Firefox. When you use the program's handy import tool, Firefox will grab the options, bookmarks, history, passwords, and other data from browsers like Internet Explorer, Netscape, and Opera. It's a real time-saver.

The *Import* function pops up during the initial installation of Firefox. Pick the browser you want to import your settings from, select what settings you want to import, and that's it. You're done. If you skipped this step when you first installed Firefox, just choose the *Import* function from the *File* menu.

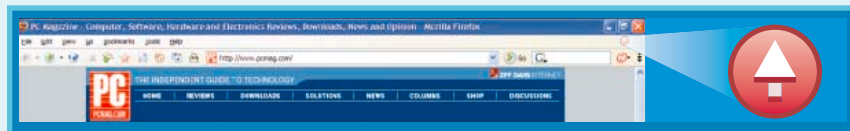


IMPORT IE SETTINGS

But if you truly want to capture the fresh-from-scratch experience of switching browsers, you may want to uncheck the *Cookies*, *Browsing History*, *Saved Form History*, and *Saved Passwords*. *Internet Options* and *Favorites* are helpful to have when starting out, but this might be a good opportunity to do some spring cleaning of your stale old saved information.

>>SQUINT TO UPDATE

Unlike IE, Firefox won't update itself automatically when security patches are available. But updating the browser is a snap—once you realize an update is ready and waiting. Unfortunately, the diminutive upgrade notification icon is located in



FIREFOX'S DIMINUTIVE UPDATE ICON

conspicuously in the upper right corner of the Firefox window. If any critical updates are available, the button looks like a white arrow on top of a red circle (the notification for updates to your extensions is blue). Click it and Firefox will begin the upgrade process. If there aren't any upgrades for anything you're running, said button will be barely noticeably absent.

Clicking on the easy-to-miss gray circle next to the upgrade button will take you to the Firefox home page, or Firefox Central. From there, you can take the initiative and personally update your browser with all the latest plug-ins, extensions, and themes; you can also check via the *Tools* menu—it's under *Options | Advanced | Software Update*.

You can also update your extensions and themes from their respective management windows. Click the *Tools* menu, then *Extensions* or *Themes*. From there, you can see a list of all the extensions and themes you have installed and individually check each one for updates.

>>OPEN MULTIPLE HOME PAGES

You can take advantage of Firefox's tabbed interface right from the get-go, setting it to open multiple, tabbed pages on start-up—a handy tool for anyone who likes to sign on to a few favorite Web sites every day. Click on *Tools | Options* and the first thing you see should be the line for home page location.

Click in the text field, and type in the page you want Firefox to load first on the leftmost tab. After the address, insert a vertical bar (|) and type the next address. It's as easy as that. And there appears to be no limit to the number of pages you can designate to open; we got to 47 before our annoyance at the massive number of open

tabs caused us to stop.

There's an even easier way to set up multiple home pages. When you're in Firefox, open all the tabbed pages you want to see on the browser's start-up. Go to *Tools | Options* again. Underneath the home page location bar is a button marked

Use Current Pages. Click that and Firefox will automatically make all the currently open tabs your home pages.

>>BETTER BOOKMARKS

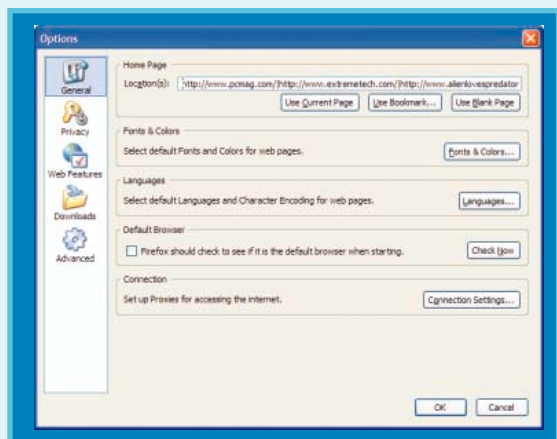
Whether you have three bookmarks or hundreds of them, Firefox has a few features that will ease your bookmarking experience. The newest version of the browser has simplified the processes for grouping bookmarks and opening multiple bookmarked pages. Now to open an entire folder's contents in tabs at once, just click on the *Bookmarks* menu, right-click on the desired folder, and select *Open in Tabs*.

Conversely, to save all of your open tabs at once, just click on the *Bookmark* menu and select *Bookmark This Page*. Though the window that pops up will prompt you for a name for the single bookmark, just pretend it's asking you for a folder name. Type that in, select the *Bookmarks* folder for a location, and make sure you click *Bookmark all tabs in a folder*. A new folder will appear in your *Bookmarks* menu containing all the tabs currently open in your browser. You can later go back and edit the properties of each bookmark, adding a short description to enhance your memory of just what each site was.

>>USE KEYWORDS TO NICKNAME BOOKMARKS

Another neat bookmark-related feature of Firefox is its ability to assign keywords to bookmarks. For example, you might assign the keyword *ultrasweet* to your *www.pcmag.com* bookmark.

It's a simple process. Click on the *Bookmarks* menu, right-click on a bookmark, and select *Properties*. In the *Keyword* field,



SET MULTIPLE HOME PAGES

enter the word of your choice. You can now use that word in place of the site's full URL in the address bar, and you'll be taken right to the page you saved.

>> KEYWORDS II: BUT WAIT, THERE'S MORE

For certain search-based Web sites—Google, for example—you can actually use keywords to search straight from your address bar. For example, when you

>> BE THE BOSS OF YOUR TABS

The uninitiated should know: Tabbed browsing quickly becomes a browsing requirement. It's just too convenient to give up. One common peeve of newbies, though, is that clicking on an external link, for example in an e-mail message, opens the link in the active tab, replacing the page you were on. Tabbed browsing was supposed to take care of that, right? It

does. You just have to find the *Tabbed Browsing* options:

Tools | Options | Advanced. You can elect to have external links open in a new window, in a new tab, or in the active tab. To open links from Web pages or bookmarks in new tabs, simply right-click on the links and select *Open Link in New Tab*.

>> LEARN ABOUT ABOUT:CONFIG

To peer into the brains of the Firefox browser, type *about:config* into the address bar and hit Enter. What follows is a large listing of the browser's internal configuration options, nearly all of which will make little sense to the average user. Luckily, Mozilla's all about online help, tutorials, and forums. We find <http://kb.mozillazine.org/About:config> particularly helpful—check the *References* links for more details than you can shake a stick at.

>> SPEED IT UP A NOTCH

One easy, cool preference you might want to tweak deals with speed. By default, Firefox runs fast enough—it's like driving at the speed limit. But

if you want to push your browsing experience, modify a few settings in *about:config*. Note that these edits are for broadband connections only; if you're still dialing up, you're stuck with whatever speed you've got.

On the *about:config* screen, scroll down to the *network.http.pipelining* options. The name says it all: Firefox normally processes all HTTP requests sequentially. Once it sends one out, it waits for a response before sending the next request to a server. If you set *network.http.pipelining* and *network.http.proxy.pipelining* to *true* then you've basically just upgraded an antiquated browsing system with modern plumbing. Set the *network.http.pipelining.maxrequests* option to 30 and Firefox will now send up to 30 HTTP requests at once—theoretically, although not always, making your browsing that little bit faster.

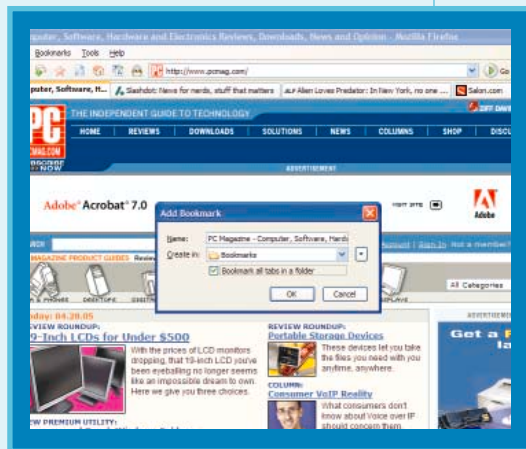
Before you close the window, right-click anywhere on the *about:config* page and select *New | Integer*. Then type in *nglayout.initialpaint.delay* and enter 0 as its value. Firefox will now render pages immediately instead of waiting its default 250 ms, a slight but noticeable difference when you're surfing the Web.

>> FEED ME

RSS readers are quickly becoming the best tools for staying up to date with the latest postings on your favorite Web sites and blogs. (You can subscribe to *PC Magazine's* RSS feeds at go.pcmag.com/rss.) Mozilla built a full RSS reader into its Thunderbird mail client, but Firefox can make use of RSS as well.

You may have noticed a button called *Latest Headlines* on Firefox's Bookmarks toolbar. When you click on the button, you're presented with a dynamically generated list of links to current news stories. This is what Firefox calls a Live Bookmark, and it's generated by an RSS feed. You can click through to any link on the list, or open every item all at once.

When you visit a site that has a feed, you'll see a little *Live Bookmark* icon in the lower right of the browser window. Click the icon and you'll see a list of all published feeds. Choose the feed you want and Firefox asks where it should store the Live Bookmark. Choose *Bookmarks Toolbar Folder* from the *Create in* drop-down menu and, voilà, a button for the feed appears on the toolbar. Now you can check for the latest news whenever you want. ■



BOOKMARK A SET OF TABS

query Google normally, you're accessing the URL <http://google.com/search?q=>, where anything after the *q=* is the exact text you're searching for. Try adding that URL to your bookmarks folder, but modify it to read <http://google.com/search?q=%s> and assign it the keyword *google*. You can now type *google x* into your browser, where *x* is any search term you want to look up, like *computers*. You'll go directly to the results page, having saved a few steps in the process. This trick works for a lot of searchable Web sites; play around with it.

>> MORE ON THE WEB

Check out *PC Magazine's* coverage of Firefox at go.pcmag.com/firefox.

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[PHOTO PRINTERS top of the line

We review seven photo printers that range in price from about \$200 to \$550, print on up to legal- or supertabloid-size paper, and offer anywhere from four to nine ink colors. All can also print regular business documents. But since these are designed specifically to optimize photo printing—for quality, speed, or both—we zoom in on their photo-printing ability, and on how fast you can get the best prints.



IN THIS STORY

- 96 Canon i9900 Photo Printer** ●●●●●
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Edited by Sarah A. Anderson
Reviews by M. David Stone

Photography by Thom O'Connor

**MORE ON
THE WEB**

For more reviews on printers as well as a buying guide to help you get started, visit go.pcmag.com/printers.

Canon i9900 Photo Printer

\$499.99 direct. Canon U.S.A. Inc., www.usa.canon.com.

PROS: Fast performance for photos. Separate cartridge for each ink color. True photo quality output. Direct printing from PictBridge cameras.

CONS: No memory card slots, even for transferring files to your PC. Relatively slow for standard printing.



For high-quality photos up to 13 by 19 inches, the Canon i9900 is our printer of choice. It can serve as an all-purpose printer, but that would be like using a Porsche 911T as your everyday car. When it comes to printing photos, the i9900 is the fastest we've seen to date. Also, it uses eight colors, with a separate cartridge for each, providing consistently excellent photo quality.

The i9900 adds red and green to the usual mix of inks, which pays off. Text also rates as excellent: More than half the fonts we test with were easily readable at 4 points with default settings. Graphics in default mode showed only minor flaws. On our tests,

OVERALL ●●●●●
Text ●●●●● Graphics ●●●●●
Photos ●●●●●

performance for photos was even more impressive, thanks to a print-head with 6,144 nozzles.

We tested the i9900 using QualityLogic's testing software and equipment (www.qualitylogic.com). The i9900 was blazingly fast on our photo suite, at 30 seconds for each 4-by-6 photo and 1:05 for each 8-by-10, solidly ahead even of our other Editors' Choice here, the Canon Pixma iP8500.

We've learned to expect slower performance on business applications from Canon printers with a high nozzle count, and that's exactly what we saw. The

i9900 comes in dead last at 25:19, making this not the best choice if you need to print high volumes of Microsoft Word and Excel documents.

You can get faster text and graphics for a lot less money, but if you need a printer that produces superb photos fast

and can do it all if it must, the i9900's combination of speed and output quality is tough to beat at any price.



Canon Pixma iP5000

\$199.99 direct. Canon U.S.A. Inc., www.usa.canon.com.

PROS: Fast performance for business apps. Output quality rates as very good. Direct printing from cameras. Duplexer. Two paper trays.

CONS: No memory card slots or LCD screen. Relatively slow photo speed and unimpressive photo quality for a photo printer.

Though billed as a photo printer, the Canon Pixma iP5000 is a good all-purpose printer. It delivered the best text quality in this roundup and held its own on graphics. Unfortunately, it didn't offer the stellar photo quality we've come to expect from Canon.

The iP5000 comes with two 150-sheet paper trays and the ability to duplex. It lacks a parallel port but has USB 1.1 and PictBridge connectivity. The five-ink system has both

OVERALL ●●●●●
Text ●●●●● Graphics ●●●●●
Photos ●●●●●

pigment-based black for text and graphics and dye-based black for photos.

The 1-picoliter drop size and the 9,600- by 2,400-dpi maximum resolution make the iP5000 stand out. Text output rates at the high end of very good, with most fonts easily readable at 4 points and none requiring more than 10. Graphics were very good, with only a few minor flaws. Photos earned a rating of very good but just barely, with slight posterization on two test images and a slight tint in monochrome photos.

Performance was mixed. With a total time of 16 minutes 9 seconds on our business applications suite, the iP5000 was the fastest in this roundup. On our photo suite, performance was reasonable, with a 2:06 average for 4-by-6s and 3:38 for 8-by-10s, but not in the same class as the speed demon i9900 or the iP8500.

The Canon Pixma iP5000 isn't a bad choice, but you can do better with the Canon iP8500 or i9900.



SUMMARY OF FEATURES

Photo Printers

Download this table at www.pcmag.com

	Canon i9900 Photo Printer	Canon Pixma iP5000	Canon Pixma iP8500 Photo Printer	Epson Stylus Photo R1800	HP Photosmart 8150 Photo Printer	HP Photosmart 8450 Photo Printer	HP Photosmart 8750 Professional Photo Printer
Price	\$499.99 direct	\$199.99 direct	\$349.99 direct	\$550 street	\$200 street	\$300 street	\$500 street
Maximum paper size	Supertabloid	Legal	Legal	Supertabloid	Legal	Legal	Supertabloid
Number of cartridges	8	5	8	8	2	3	3
Number of ink colors	8	4	8	6	4 or 6	7 or 8	6, 7, 8, or 9
Direct printing from cameras	■	■	■	□	■	■	■
Direct printing from media slots	□	□	□	□	■	■	■
LCD preview screen	□	□	□	□	■	■	□

RED denotes Editors' Choice.

Canon Pixma iP8500 Photo Printer

\$349.99 direct. Canon U.S.A. Inc., www.usa.canon.com.

PROS: Impressively fast. High-quality photos. Separate cartridge for each ink color. PictBridge support.

CONS: No memory card slots. Quality and speed for text and graphics are good but not nearly as impressive as photo quality and speed.



The biggest difference between our two Editors' Choices is the size of output each can produce. Each has a printhead with 6,144 nozzles, making them blazingly fast for photos. But where the iP8500 maxes out on legal-size paper, the i9900 prints at up to 13 by 19 inches. You'll find a PictBridge connector on the front but no memory card slots—not a huge loss for serious photographers, who'll store and edit photos on a PC anyway. The iP8500 has a separate cartridge for each color and adds red and green to the typical six-ink mix.

On our photo suite, 8-by-10 prints averaged 1 minute 35 seconds—a little slower than the i9900. The 4-by-6 prints averaged 47 seconds, compared with the i9900's 0:30. The trade-off came on business applications, where the iP8500 beat the i9900 for a total time of 22:57, compared with 25:19.

Text and graphics quality were both acceptable.

For text, most fonts were easily readable at 4 points, but some stylized fonts required 12. Most of the photos qualified as true photo quality despite the flaws.

The iP8500's speed lets you print a large volume of high-quality photos quickly and at the right price. If that's what you need, this is your printer.

OVERALL ●●●●●
Text ●●●●● Graphics ●●●●●
Photos ●●●●●



Canon i9900 Canon Pixma iP8500



Buying a photo printer sounds easy enough, but how you plan to use it can make your decision more difficult. The standout products in this roundup are the Canon i9900 and the Canon Pixma iP8500 Photo Printers, which we chose mostly for their combination of photo quality and photo print speed—the fastest in this group by far. If you're serious about photography these are the best choices.

Both the Epson Stylus Photo R1800 and the HP Photosmart 8150 Photo Printer earn honorable mention for their five-star photo quality and special features. The R1800 can print at up to 13 by 44 inches and on CDs and DVDs. The 8150 adds kiosk-style features that let you edit and print photos without a computer. If you print lots of photos and don't have all day, the Canon i9900 or iP8500 is the way to go. But if you can make use of the Epson and HP models' special features, you won't be disappointed with either of them.

Epson Stylus Photo R1800

\$550 street. Epson America Inc., www.epson.com.

PROS: Photos are true photo quality. Can print photos at up to 13 by 44 inches; also prints on CDs and DVDs. Photos are said to be lightfast for more than 100 years.

CONS: No memory card slots.

Though billed as a photo printer, the Epson Stylus Photo R1800 is impressive for business applications as well. Its photo speed is slower than that of our Editors' Choices, but its photo quality is excellent. And it can print directly on optical discs and on paper up to 13 by 44 inches—a trade-off we felt was strong, but not strong enough to warrant an Editors' Choice over the Canon i9900 for tabloid- and supertabloid-size printers.

The R1800 has an eight-cartridge ink system with seven ink colors, including two versions of black, and a clear gloss for a consistent level of sheen on areas with less ink. Epson claims that photos can last from 100 to 200 years when displayed under glass, depending on the type of paper used. (Traditional prints from film last about 25 years.) Besides excellent photo quality, the R1800 offers very good graphics—a high rating for an ink jet. Text is at the high end of good, with most fonts easily readable at 4 points, but one highly stylized font needed 12.

Performance on our business applications suite was a fast 16 minutes 13 seconds, effectively a tie for first place with the Canon Pixma iP5000. The R1800's speed for photos is good but nowhere near as impressive as the i9900's or iP8500's, with an average 1:18 for 4-by-6s and 2:42 for each 8-by-10, compared with 0:30 and 1:05 for the i9900.

The Canon i9900's photo speed gives it the edge among photo printers that can print on tabloid-size paper or larger. But if you print text and graphics on a regular basis or want to print on optical discs, the Epson R1800 may be a better match.

OVERALL ●●●●●
Text ●●●●● Graphics ●●●●●
Photos ●●●●●



OUR CONTRIBUTORS: M. David Stone is a contributing editor and lead analyst at *PC Magazine*. David Murphy is an intern. Sarah E. Anderson is an associate editor.

HP Photosmart 8150 Photo Printer

\$200 street. Hewlett-Packard Development Co., www.hp.com.

PROS: Output quality at the high end for ink jets. LCD for previewing photos. Kiosk-style direct-print features with cropping, sharpening, and more. Direct printing from cameras and media cards.

CONS: Graphics show banding in default mode.

The HP Photosmart 8150 Photo Printer can easily serve as an all-purpose printer. But the color LCD and kiosk-style menu features that let you fix flaws in your photos when you print without a computer make it especially good for photos.

OVERALL ●●●●●
Text ●●●●○ Graphics ●●●●○
Photos ●●●●●

The 8150's unique features and excellent photo quality earned it bonus points in our rating, but they weren't enough to garner it an Editors' Choice. At

\$200, however, it's one of the most affordable units in the group. A slew of buttons, plus slots for six memory cards, complement the 2.5-inch LCD. There's a USB port for a PictBridge camera, a USB key, or a Bluetooth adapter (\$50).

The 8150 comes with one tricolor cartridge and one color photo cartridge. Output quality is in the top tier for ink jets, ranking excellent for photos and just short of very good for text and graphics. With this level of output quality and performance, the HP Photosmart 8150 is an impressive package.



HP Photosmart 8450 Photo Printer

\$300 street. Hewlett-Packard Development Co., www.hp.com.

PROS: Excellent photo output. LCD for previewing photos. Kiosk-style direct-print features include cropping, sharpening, and more. Ethernet connection. Direct printing from cameras and media cards.

CONS: Graphics show banding in default mode. Plain-paper pages with nearly full coverage tend to curl.

An all-purpose printer and a close cousin to the Photosmart 8150, the HP Photosmart 8450 has a kiosk-style menu that lets you fix flaws in your photos and print without a computer. Unlike the six-color 8150, the 8450 prints with as many as eight colors—a tricolor and a color photo cartridge, plus your choice of standard black for printing text or graphics and photo-gray for photos. Both printers have a USB port, but the 8450 adds an Ethernet connection.

On our tests, output quality ranged from just short of very good for text and graphics to excellent for photos. The graphics rating didn't surpass very good. Performance over the network connection was similar to that of the 8150 for our business applications suite. But the 8450 was significantly slower on our photo suite.

If you need your photo printer on a network, the Photosmart 8450 is a good choice. If not, it's hard to recommend this one over its smaller, faster, less expensive cousin.

OVERALL ●●●●○
Text ●●●●○ Graphics ●●●●○
Photos ●●●●●



PERFORMANCE TESTS



With photo printers, it's natural to focus on the photo-printing speed. But an important predictor for photo performance is how a printer handles the two 12-page text files in our business applications suite. Both files consist of single-spaced text in one font for the entire document. They are identical except that one has strictly monochrome text and the other has both monochrome and color text.

Monochrome text performance measures the fastest that a printer can print. The speed difference between monochrome and color text files tells you how much the printer slows down when printing in color.

Only two printers in this roundup—the Canon Pixma iP8500 and the Epson Stylus Photo R1800—offer essentially the same speed for monochrome and color text. They are also the second and third fastest for photos. Their good speed when printing photos results, in part, from the fact that printing in color doesn't slow them down. And the iP8500 has the added advantage of printing with an extraordinarily large number of nozzles—6,144—which lets it put more drops on the page in any given length of time than do most other printers.—MDS

	BUSINESS APPLICATIONS (default settings)	
	Microsoft Excel 2003 1-page table (A)	
	With grid	Without grid
Canon i9900 Photo Printer	0:24	0:23
Canon Pixma iP5000	0:13	0:13
Canon Pixma iP8500 Photo Printer	0:21	0:20
Epson Stylus Photo R1800	0:22	0:21
HP Photosmart 8150 Photo Printer	0:21	0:17
HP Photosmart 8450 Photo Printer	0:20	0:16
HP Photosmart 8750 Professional Photo Printer	0:15	0:12

All scores are in minutes:seconds.
Low scores are best.
Bold type denotes first place.

RED denotes Editors' Choice.

HP Photosmart 8750 Professional Photo Printer

\$500 street. Hewlett-Packard Development Co., www.hp.com.

PROS: High-quality photos. Maximum 13- by 19-inch paper size. Prints directly from memory cards and PictBridge cameras.

CONS: Relatively slow. Text and graphics quality on plain paper varies significantly, depending on which ink cartridge is loaded.

The HP Photosmart 8750 is one of the rare ink jet printers designed primarily for printing photos at up to 13 by 19 inches. Although you can use it as an all-purpose printer, it's best as a second printer reserved strictly for photos.

The 8750 accepts three cartridges with six to nine ink colors. It ships with a tri-color cartridge with cyan, yellow, and magenta; a photo-gray cartridge with three shades of gray; and a "blue" photo cartridge with light cyan, light magenta, and blue

for nine colors total—a wider gamut than that of most photo printers.

You can swap the blue photo cartridge for one with light cyan, light magenta, and black, and swap the photo gray for a black cartridge. We ran our text and graphics tests with a blue photo, a tri-color, and a black cartridge (seven colors) for the fastest times. For photos, we used the nine-ink configuration for best quality.

Photos were at the high end of very good, just missing out on excellent. Most images qualified as true photo quality, but we saw some minor flaws, including a tint in one photo that gave clouds a pink tinge. Graphics were at the high end of very good, text at the high end of good. Performance was less impressive, averaging 2 minutes 29 seconds for a 4-by-6 and 5:24

for an 8-by-10. The similarly priced

Canon i9900, another machine that prints up to 13- by 19-inch output, took just 30 seconds for a 4-by-6 and 1:05 for an 8-by-10.

More relevant is that HP claims a 100-year lifetime for the 8750's output if displayed under glass or 200 years in a photo album. If you care about long-lasting prints, it's worth waiting a little extra time for the output. ≡



Picking the Perfect Paper

Now that you've got a fancy new photo printer, you can turn your attention to the paper. The sheer number of options makes picking printer paper a chore. You might want to learn the basics.

The **weight** of a sheet of paper is given in pounds. Heavier paper (50 pounds or more) looks more impressive, while lighter paper can seem cheap or flimsy. Print your snapshots for the fridge on light paper and save the heavier, more expensive paper for framed prints and your keepsake albums.

If you want the look and feel of a traditional photo, you'll need to use matte or glossy paper. Paper with a **matte** finish is more subdued, with less glare than glossy paper. It has less color vibrancy and sharpness but holds up better against fingerprints. The pros prefer matte.

Glossy finishes make pictures look crisp and sharp, but a drop of water or a few thumbprints can easily blemish them. Their reflective nature adds glare, making them difficult to view at an angle.

Finding the best printer paper is more trial-and-error than science. Buy a few samples and give them a whirl. You might be pleasantly surprised.—David Murphy

											PHOTOS (high-quality settings)			
1-page table (B)			3 pages, charts and graphs	Microsoft PowerPoint 2003 4 full-page slides	Microsoft Word 2003 2 pages			12 pages			Adobe Photoshop 7 4 x 6			
With back- ground tints	1-page graph				Text	Text and clip art	Text and photos	Monochrome text	Color text	Total output time*	Average output time	Total output time	Average output time	Total output time
0:31	1:46	1:42		5:14	0:55	0:56	0:55	4:02	4:11	25:19	0:30	1:31	1:05	3:14
0:29	0:29	1:21		2:20	0:29	0:33	0:34	1:47	3:33	16:09	2:06	6:19	3:38	10:53
0:26	1:36	1:60		5:20	0:39	0:41	0:39	3:28	3:30	22:57	0:47	2:22	1:35	4:46
0:26	0:25	1:04		1:32	0:39	0:41	0:39	3:30	3:38	16:13	1:18	3:55	2:42	8:05
0:37	0:37	1:24		2:16	0:30	0:42	0:40	2:21	3:40	17:42	1:52	5:37	4:23	13:09
0:41	0:40	1:31		2:21	0:29	0:45	0:40	2:03	3:37	17:56	2:36	7:49	5:25	16:14
0:38	0:39	1:36		2:17	0:26	0:41	0:39	2:08	3:49	18:05	2:29	7:26	5:24	15:59

* Total derived from all the tests in this suite, including some not shown here.

You've never seen a spreadsheet do this before.

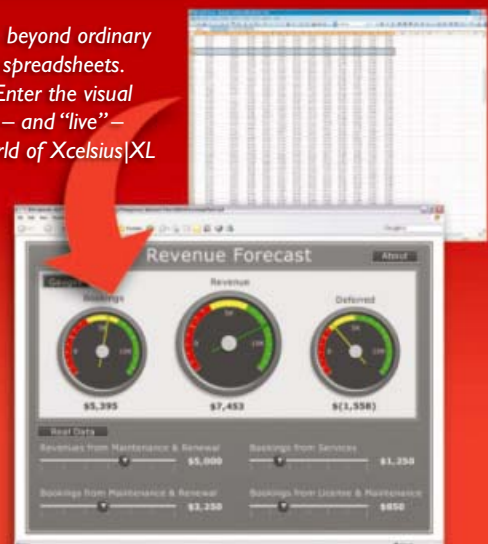


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Beyond Excel

Want to take your spreadsheet data to the next level? To analyze options and forecast future performance? Here's a look at four programs that help you map, chart, model, and display complex calculations in ways Microsoft Excel can only dream of.

REVIEWS BY JOHN CLYMAN

E-MAIL, WEB BROWSING, mobile devices, wireless, digital photography—these are the hot technologies today. Yet our stories about Microsoft Excel generate as much interest among our readers as any topic that we tackle. That's likely because the popular spreadsheet program is both very easy to use and a powerful open slate with which people can do nearly anything—from simple calculations to complex programming, from charting and managing lists to detailed data analysis, all anchored by the program's sophisticated PivotTable Reports.

After Microsoft dispensed with its most serious competition, from Lotus (1-2-3) and Corel (Quattro Pro), it seemed as if all the innovation had gone out of the spreadsheet market. But Excel clearly has its limits, and sometimes we need more than it can offer. So we've been on the lookout for products that pick up where Excel ends, and we've found four that are very innovative. None is a spreadsheet application per se, and no two are attempting to solve the same problems. But from multidimensional modeling and charting to plain-English formulas and the development of beautiful Flash applications, these four programs show us a world beyond Excel.—Ben Z. Gottesman

IN THIS STORY

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Professional Edition
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Advantage for Analysts 4.0

3-month free trial; price varies. Advantage for Analysts LLC, www.advantageforanalysts.com.



Finance professionals frustrated by the limitations of spreadsheet-based methods for modeling deals and cash flows may find Advantage for Analysts (AFA) helpful. AFA offers an extensive set of tools for modeling financial transactions, particularly those where time is a central factor—like mortgages, leases, and asset purchases. Its built-in support for handling alternative outcomes, tracking taxable events, optimizing results, and creating sophisticated templates makes it a powerful product that can meet the complex modeling needs of high-end projects.

Despite the complexity of the things it tries to model, we found Advantage for Analysts surprisingly accessible. With a little introduction to its

Once we learned the basics, though, we found that AFA offers an appealingly different way to perform financial analyses. Instead of the row-column structure of traditional spreadsheets, AFA represents attributes of a financial model as a hierarchical set of named parameters. You can choose memorable names like InterestRate, RemainingBalance, and so on, and then construct formulas using those names rather than potentially cryptic cell references. More significantly, a parameter need not be a single value or formula but can vary over time. We liked how the program let us, for example, specify a payment parameter using a formula like “starting 1 June 2005 monthly for LoanTerm” (LoanTerm being another parameter we defined).

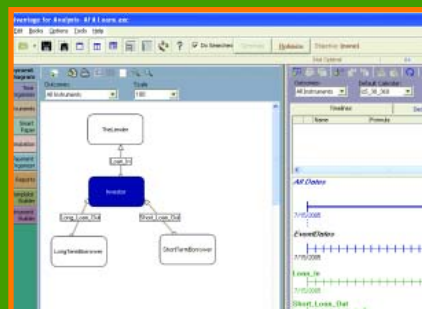
In addition to the usual

one participant to another lets you create a financial instrument, such as an asset purchase or a loan, linking those participants.

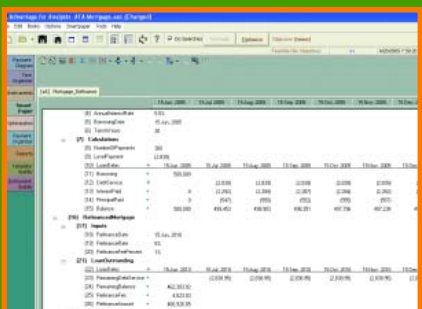
AFA comes with templates for a variety of common instruments. Advanced users can create custom instruments, using a built-in template editor.

Open an instrument and you have access to all its parameters. As you change the parameters, AFA recomputes the cash flow between the linked participants. The results appear in the Payment Organizer, which shows a collapsible hierarchy on the vertical axis and transaction dates on the horizontal axis. (The structurally similar SmartPaper chapter lets you construct components in a free-form fashion.)

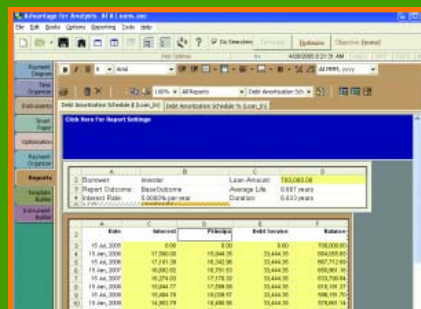
Staring at the mass of spreadsheet cells in a typical Excel-based model can make it difficult to retain a high-level perspective on financial transactions. AFA's models make this perspective much easier to keep in mind. AFA consolidates



ADVANTAGE FOR ANALYSTS shows you a high-level view of transactions. In the left pane, we drew a diagram that illustrates parties (borrowers, lenders, and investors) and the kind of transactions that link them.



WHEN YOU WANT to drill into details, the Smart Paper tab lets you enter time-varying values for named parameters in your model and provides sophisticated aggregation capabilities.



FROM THE UNDERLYING relationships and formulas that you specify, Advantage for Analysts generates read-only, Excel-style reports that you can format and export for charting.

features, you needn't be an MBA to appreciate its benefits.

AFA isn't a typical, shrink-wrapped software package yet. The software began as an internal project within the Babcock & Brown investment bank and was spun off as a commercial product only last year. It's sold on a variable-price basis right now, but you can try it free for three months.

With its focus on high-end professional users, AFA's interface lacks some of the niceties expected in mainstream software. It has limited undo capability, for example, and its Help system, while comprehensive, provides little directed guidance. New users are likely to require some training.

spreadsheet-like functions, AFA includes a large set of aggregation functions that let you look up information by name and summarize it over time. These eliminate the need to establish complex lookup formulas and copy formulas from cell to cell. We also liked how features such as formula editors, tool tips, color coding, and IntelliSense-like guidance simplified formula entry.

AFA is organized around “chapters,” like tabs in a notebook. You're likely to start building a model with the Payment Diagram chapter, where you can identify the participants in a financial model schematically. Participants (buyers, sellers, lenders, and so on) appear as boxes. Dragging from

results into reports that mimic Excel spreadsheets. From there, you can export the data to Excel—useful for charting results, since AFA doesn't include charting capabilities. The program also has a built-in linear optimization engine, so you can create a model, establish constraints, and then instruct the optimizer to vary assumptions in order to maximize a factor such as cash flow.

We can't say yet that Advantage for Analysts is the right product for everyone who wants to move beyond Excel. But if you're a financial professional looking for a better way to model and optimize financial transactions, Advantage for Analysts offers an appealing way to do it.

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**GET IT
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Quantrix Modeler 1.2 Professional Edition

Direct price: \$990. Quantrix, www.quantrix.com.



Imagine a spreadsheet program that breaks the dominant row/column, A1-style paradigm that VisiCalc established way back in 1979. One that lets you specify calculations with just a few centralized formulas, using standard business terminology like *Profits = Sales - Costs*, rather than duplicating sometimes cryptic formulas in individual cells. One that nimbly handles multiple dimensions—quarters and years, sales regions, product lines—and lets you manipulate them, Excel PivotTable-style.

If it were 1991, you might think we were trying to evoke Lotus Improv, may it rest in peace. Today, there's a newer product that provides a similar set of analytical tools: Quantrix Modeler. Quantrix let us build and manipulate multidimensional data sets and enforce and verify their underlying logic with ease.

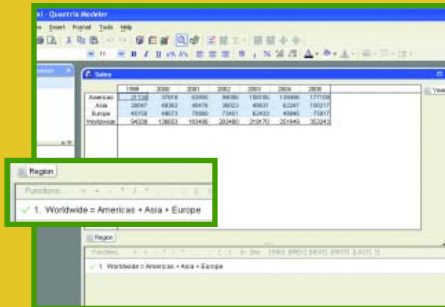
chically under a named parent item.

The value of using meaningful names becomes apparent when you start writing formulas for your spreadsheet. In Quantrix, you use a centralized formula editor to compose calculations. You can enter a simple, easy-to-comprehend formula such as *Worldwide = Americas + Asia + Europe*, which automatically computes worldwide revenues for every period and every product in your data set. There's no need to copy formulas across cells in a spreadsheet, or to worry about updating formula ranges when you alter the spreadsheet's structure. (In fact, for common tasks such as summing or averaging all the values in a dimension, you needn't even enter a formula; you can simply select a

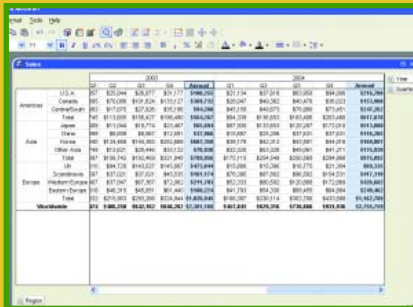
tection settings, so that anyone who creates a model can control what kind of modifications other users can make.

Once you've entered your data—via copy and paste or by importing from an Improv file—into a Quantrix model, you can use its pivot capabilities to view the data from different perspectives, either in tabular format or as graphical charts. Much as with the familiar Excel PivotTables, you can drag “tiles,” representing categories, to the horizontal or vertical axis to reorganize the view, or to a filter area so you can focus on a particular subset of your data. We were impressed that Quantrix even let us export models to a dynamic HTML Web page, so that anyone with a Web browser could pivot and filter the data. Similarly, you can export a Quantrix model into an Excel spreadsheet, working formulas and all (though you lose the pivot capabilities).

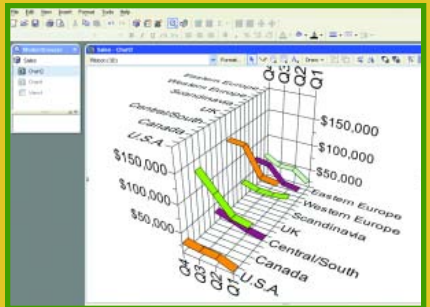
Quantrix's current lack of database connectivity, however, is a downside for orga-



WHEN YOU MODEL with Quantrix, you start by inputting data as categories, then construct discrete, easy-to-read formulas using the names of the rows and columns you've defined (inset).



THE PICTURE GETS more interesting as you add categories and subitems to your model. You can pivot the matrix by dragging category tiles to the horizontal or vertical axes.



HERE WE INSERTED a 3D chart, drilling into data from 2003 by dragging the Year category tile to the upper left corner of the table and selecting from the drop-down list.

men- sional data sets and enforce and verify their underlying logic with ease.

Unlike a traditional spreadsheet and PivotTable arrangement, where you organize source data into rows and columns and then generate the table, Quantrix lets you organize data multidimensionally from the start. You simply give each dimension (what Quantrix calls a category) a meaningful name—region, year, quarter, product line, and so on—and create each of the items within it, again using meaningful names. You can also group items hierar-

menu option and let Quantrix generate the formula for you.)

Quantrix claims that this approach to separating formulas from data can help reduce errors and make glitches more apparent during auditing. Although we're very comfortable building complex models in Excel, Quantrix made the tasks especially quick and easy. Our formulas were quite transparent and basically self-documenting. Additionally, Quantrix Modeler provides an explicit audit trail that lets you track every change to a model. It also has granular pro-

nizations that want to connect to their data sources in real time. You need to update data manually if any of your figures change. Quantrix says that a new version of the product, which was entering beta as we completed our testing, will provide real-time access to data in relational databases through ODBC and JDBC drivers and wizards. If the absence of database connectivity isn't a deal-breaker, we think users looking for a way to simplify their analysis of multidimensional data will find a lot to like in Quantrix.

OUR CONTRIBUTORS: John Clyman is president of the technology consulting firm Narrative Logic, LLC, and a contributing editor of *PC Magazine*. Ben Z. Gottesman is an executive editor of *PC Magazine*. Features editor Michael J. Steinhart was in charge of this story.

Tableau

Direct price: Standard Edition, \$999; Professional Edition (MySQL), \$1,299; Professional Edition, \$1,799. Tableau Software, Inc., www.tableausoftware.com. ●●●●●

Now in its first version, Tableau provides novel and useful ways to visualize masses of multidimensional data, helping you identify trends and locate deviations that merit further investigation. We were impressed with how easily Tableau let us examine data from different angles and by the professional-looking and refined quality of its graphical presentations. About the only feature we longed for was a way to annotate the views we generated.

Getting started with Tableau requires first linking to one or more data sources. In the Standard Edition, those sources can be an Excel spreadsheet, Microsoft Access database, or a delimited text file. In the Professional Edition, Tableau adds support for a variety of addi-

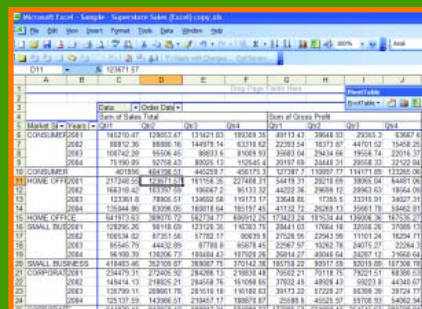
enumerated items or dates) and *measures* (numeric values). In a typical business scenario, dimensions could include fields such as product line, region, and customer type, and measures might encompass gross revenues, cost of sales, profit margins, and so on. But Tableau's usefulness certainly isn't limited to financial data, and we warmed rapidly to using its visualization capabilities to explore other complex data sets, such as performance results from testing in PC Magazine Labs and responses from our annual *PC Magazine* Reader Survey.

You begin your ad-hoc analysis by dragging dimensions or measures onto a variety of "shelves." Two fundamental shelves are "rows" and "columns"; place a measure on one and a dimension or measure on the other, and you'll see a

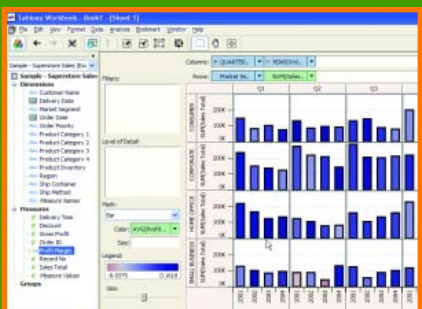
you've charted into additional levels of detail, aggregate and filter results, and even cram many more dimensions of data into your charts by assigning shapes, colors, and sizes to data points, based on whatever factors you choose. Mouse over a data point to see details, and right-click on it to bring up a context menu that lets you view, copy, or export the underlying data as a Microsoft Access MDB file.

We found that Tableau's sophisticated heuristics for choosing appropriate chart formats enable users to assess relationships among a surprising array of variables, and we appreciated the way it supported our ad-hoc analyses smoothly. Tableau also let us perform operations like selecting an arbitrary subset of data points and clustering them into a custom-defined group, and defining new computed measures by applying formulas to combinations of existing measures.

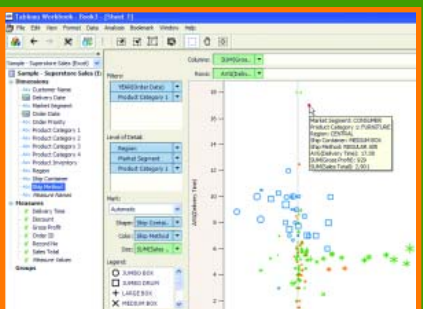
When you find a viewpoint that pro-



EXCEL'S PIVOT TABLES are very good at summarizing data, but you may end up in an overwhelming sea of numbers. This table shows quarterly sales and gross profit by year by region.



BY REPLACING GROUPS of numbers with compact charts, Tableau makes analysis easier. The height of each bar represents sales, and the color and saturation represent gross profitability as a percentage of sales.



IN THIS CHART, we created a scatter diagram where the shape of each marker defines the shipping container used for the order, the color defines shipping method, and the size is in relationship to the amount of the sale.

tional relational databases and OLAP cubes. If you choose an Excel worksheet, Tableau must be able to lock it, meaning you can't edit it while Tableau is running. With databases, though, Tableau can query the underlying data in real time.

After you specify a data source, Tableau segments the fields it contains into *dimensions* (those whose cells contain discretely

chart showing how the two relate. Both the row and column shelves let you nest factors—you could view months within quarters within years, for example, or product manufacturers within product categories. As you update the shelves, Tableau chooses appropriate ways to chart the different factors you've chosen to analyze. If you don't like those choices, you can control many aspects of chart formatting yourself, and you can also view underlying data values as text rather than in graphical format.

Those basic capabilities might sound something like Excel's PivotTables and PivotCharts—but for Tableau, they're just the start. Tableau lets you break the data

vides particular insight into your data, Tableau lets you bookmark it for later reference. You can also create a bitmap snapshot of the current view to share; unfortunately, there's no built-in way to add annotations to help describe what that image shows. We'd like to see Tableau provide a way to annotate and insert notes.

Tableau's focus is crystal clear: It doesn't try to provide tools to let you build models, just offers capabilities for visualizing and manipulating your existing data. When you're ready to leap beyond the data-visualization capabilities that Excel provides, Tableau is just the tool to help you tease out important trends and data points.

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Xcelsius Enterprise Suite

Direct price: Standard Edition, \$195; Professional Edition, \$495; Enterprise Suite Edition, \$1,995. Infommersion Inc., www.infommersion.com. ●●●●●

If you've ever looked at a business model and yearned to spin the dials and watch what happens—not just metaphorically, but literally—then Infommersion's Xcelsius is bound to delight you. Xcelsius, now being upgraded to the X4 version, lets you take an Excel spreadsheet and its formulas and build an interactive and visually appealing animated application that anyone with Macromedia's ubiquitous Flash player can use.

You can embed Xcelsius Flash applications in Web pages and portals, PowerPoint presentations, e-mails, PDFs, and all kinds of other documents, so, in essence, you can add interactive features to virtually any medium. Instead of simply telling clients or coworkers how different assumptions might affect out-

each of these components to cells in an underlying spreadsheet. Output components like gauges display the contents of a cell or range, and input controls let the user manipulate data that feeds into your spreadsheet's calculations. (This sounds more complex than it actually is in practice; if you need help, Xcelsius includes additional Flash animations to provide detail.)

To test your creation, you click the Preview button, which generates an interactive and self-contained Flash application. When you run the Flash application and twiddle controls, Xcelsius injects the changing values into the formulas it extracted from your spreadsheet and shows the results of the calculations on the output components.

In all editions, Xcelsius gives you substantial flexibility over control properties, including the ability to add color-coded "alert" bands. You can link elements together to provide additional effects, such as controls that become visible only when a user makes certain selections—again, without writing a line of code, because the real logic resides in your spreadsheet formulas. Your Xcelsius-generated Flash app is completely self-contained; there's no need for the underlying Excel file in order to run it. In our testing of a late beta of Xcelsius X4, we built applications like a mortgage-payment calculator in just minutes.

We did encounter a few limitations and annoyances, though. The most significant is that you can't change your underlying Excel model easily once you've started building an Xcelsius application that uses it. If you realize you've forgotten a critical variable, for example, you have to load Excel, edit the spreadsheet, and reimport it



RATHER THAN REQUIRING programming skills to build Flash applications, Xcelsius uses the logic of the formulas in an Excel spreadsheet (lower right), drag-and-drop components, and easy-to-understand forms.



THE RESULTING FLASH application can be embedded in Web pages, PowerPoint presentations, Word documents, or PDF files with just one click. We calculated a different mortgage payment just by spinning the dials.



THE ENTERPRISE VERSION of Xcelsius can tie into live data using SOAP and WSDL. This demo application uses Amazon.com's Web Services API to create a Flash-based GUI.

comes, for example, you can build a sophisticated-looking application for them to experiment with on their own.

Infommersion provides a Flash movie that shows how to work with Xcelsius. We found using the program to be a bit like using a highly simplified version of the drag-and-drop GUI-development tools offered by Microsoft Visual Studio. But in Xcelsius, there's no coding required, so anyone comfortable with Excel can use it.

If you choose not to start with one of the basic templates included, the program provides a blank canvas that you populate with a variety of components like dials, sliders, form controls, maps, and charts. You link

Xcelsius includes dozens of different control types, giving you a variety of eye-catching ways to display and manipulate data. The controls' effects and animations are highly polished; they include audio feedback and subtle real-world details like indicator needles that bounce slightly before they settle into their new positions.

The Professional edition of the product includes additional components such as an interactive calendar, plus support for plug-in components to be sold separately in the future. The Enterprise edition lets you interact with data not just from an Excel spreadsheet but also from XML data sources and SOAP-based Web services.

into Xcelsius—which, if you've made any changes to the structure of the spreadsheet, can scramble Xcelsius's bindings between the controls and the spreadsheet cells. We also wish the program had let us select Excel data based on our existing named cells and ranges. And we found that Xcelsius's charting components work best with no more than a few dozen data points displayed simultaneously; we'd like to be able to apply the app more easily against larger data sets.

Still, when you want to make your data come alive, Xcelsius provides an impressive toolkit for creating slick-looking, interactive animations. ■

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DIGITAL CAMERAS

NIKON Coolpix 8800 **NEW!**
• 8.0 MegaPixels
• 10x Opt/4x Dig Zoom
\$639⁹⁹
CP 4500 \$259.99 CP 4600 \$164.99
CP 4800 \$279.99 CP 5200 \$219.99
CP 5700 \$479.99 CP 8700 \$519.99
CP S1...\$319.99

NIKON D70-S **NEW!**
• 6.1 MegaPixels
• 2.0" LCD Screen
\$729⁹⁹
D100...\$679.99 D70...\$669.99
D70 Kit...\$829.99 D70-S Kit...\$849.99

OLYMPUS Eviolt E-300 **NEW!**
• 5.0 Million Pixels
• 1x Opt/1x Dig Zoom
\$599⁹⁹
E-1...\$299.99
NEW! Stylus 500...\$269.99
NEW! Sty Veve Dig (P/SW)...\$204.99
NEW! Sty Veve Dig S...\$279.99

SONY DSC-F828 **NEW!**
• 1.8" LCD Screen
• 4x Dig/7x Opt. Zoom
\$649⁹⁹
DSC-S40...\$179.99
DSC-S60...\$209.99
DSC-S90...\$259.99
DSC-F88...\$249.99

SONY DSC-T7 **NEW!**
• 5.1 MegaPixels
• 2.5" LCD Screen
\$389⁹⁹
DSC-L1...\$204.99 DSC-M1...\$369.99
DSC-T11...\$289.99 DSC-T33...\$299.99
DSC-T3...\$299.99 DSC-T1...\$299.99

CANON PowerShot G6 **NEW!**
• 7.1 MegaPixels
• 4x Optical Zoom
\$469⁹⁹
A95...\$249.99 A400...\$129.99
S1-IS...\$279.99 S2-IS...CALL
A510...\$164.99 A520...\$229.99

CASIO EX-Z55 **NEW!**
• 5.0 MegaPixels
• 2.7" LCD Screen
\$289⁹⁹
EX-P505...\$364.99 EX-P700...\$389.99
EX-S100...\$199.99 EX-Z50...\$229.99
EX-Z55...\$269.99 EX-Z750...\$329.99
QVR-E2...\$209.99

MINOLTA Diimage A200 **NEW!**
• 8.0 MegaPixels
• 7x Optical Zoom
\$519⁹⁹
E50...\$239.99 X31...\$149.99
X50...\$219.99 G600...\$204.99

NIKON Coolpix 8400 **NEW!**
• 8.0 MegaPixels
• 10 Opt/4x Dig Zoom
\$539⁹⁹
NEW! Coolpix 5600...\$214.99
NEW! Coolpix 5900...\$239.99
NEW! Coolpix 7600...\$279.99
NEW! Coolpix 7900...\$309.99

OLYMPUS C770 **NEW!**
• 4.0 MegaPixels
• 10x Optical Zoom
\$299⁹⁹
C-765...\$269.99
D-425...\$124.99 D-545Z...\$169.99
D-595Z...\$199.99 D-630Z...\$249.99
Irobe 300...\$279.99 Irobe 500...\$279.99

PENTAX *IST-DS **NEW!**
• 6.1 MegaPixels CCD
• 2.0" LCD Screen
\$599⁹⁹
*IST-D...\$849.99
OPT X...\$269.99

SONY Mavica CD-500 **NEW!**
• 4.0 MegaPixels
• 2.5" LCD Screen
\$469⁹⁹
CD-350...\$329.99

CANON DIGITAL REBEL XT KIT **NEW!**
• 6.8.03 Megapixel CCD
• 1.8" LCD Screen
\$789⁹⁹
Rebel Digital XT...\$709.99
Rebel Digital...\$329.99
Rebel Digital Kit...\$609.99
SD20...\$699.99

CANON PowerShot S500 **NEW!**
• 5.0 MegaPixels
• 3x Optical Zoom
\$279⁹⁹
SD200...\$219.99 SD300...\$284.99
SD400...\$319.99 SD500...\$394.99
S410...\$239.99 S60...\$319.99
S70...\$389.99 Pro I...\$449.99

FUJIFINEPIX S3 **NEW!**
• 12.3 MegaPixels
• 2.0" LCD
\$1549⁹⁹
FP E500...\$164.99 FP E510...\$189.99
FP E550...\$259.99 FP S20 Pro...\$469.99
FP S2...\$1149.99 FP Z1...\$299.99

MINOLTA Diimage Z5 **NEW!**
• 5.0 MegaPixels
• 12x Optical Zoom
\$339⁹⁹
Z2...\$249.99 Z3...\$289.99
Z10...\$174.99 Z20...\$229.99
NEW! Maxxum 7 Digital...\$1049.99

NIKON D2HS **NEW!**
• 4.1 MegaPixels
• 2.5" LCD Screen
\$2799⁹⁹
D2X...\$3649.99 D50...CALL
D50 Kit 1...CALL D50 Kit 2...CALL

OLYMPUS C-8080 **NEW!**
• 8.0 MegaPixels
• 5x Opt/3x Dig Zoom
\$599⁹⁹
C-5500...\$259.99
C-60...\$244.99 C-702...\$389.99
C-7000...\$439.99 C-7070...\$459.99

PENTAX Optio WP **NEW!**
• 5.0 MegaPixel
• 2.0" LCD Screen
\$244⁹⁹
Optio X...\$289.99 SSN...\$259.99
S50...\$219.99 SS1...\$239.99
SV...\$319.99 7502...\$429.99
1st Dig...\$349.99 1st DS...\$569.99

SONY DSC-P200 **NEW!**
• 7.2 MegaPixels
• 3x Optical Zoom
\$324⁹⁹
DSC-P150...\$304.99 DSC-H1...CALL
DSC-W1...\$259.99 DSC-W5...\$264.99
DSC-W7...\$344.99 DSC-V3...\$449.99

CANON EOS 20D **NEW!**
• 1.8" LCD Screen
\$1099⁹⁹
EOS 20D Kit...\$1179.99
EOS 10 II...\$304.99
EOS 1DS II...\$699.99
EOS 1DS...\$509.99

KODAK DX7590 **NEW!**
• 5.4 MegaPixels
• 10x Opt/3x Dig. Zoom
\$329⁹⁹
DX-7630...\$249.99 EZShare 1...\$469.99
EZS C340...\$209.99 EZS Z700...\$249.99
EZS Z730...\$269.99
EZS Z750...\$309.99
DCS-ProSLR C/N...\$304.99

FUJIFINEPIX S5100 **NEW!**
• 10x Optical Zoom
\$259⁹⁹
FP 810...\$339.99 FP 3100...\$199.99
FP A345...\$159.99 FP A350...\$199.99
FP F10...\$289.99

MINOLTA Diimage DMC-FZ20 (K/S) **NEW!**
• 5.0 MegaPixels
• 12x Optical Zoom
\$429⁹⁹
DMC-FX7...\$304.99 DMC-FZ4...\$329.99
DMC-FZ5...\$369.99 DMC-FZ15...\$344.99
DMC-L20...\$189.99 DMC-L51...\$199.99
DMC-LZ1...\$219.99 DMC-LZ2...\$249.99

DIGITAL VIDEO

CANON GL-2 **NEW!**
• 20x Optical Zoom
• 100x Digital Zoom
• 2.5" LCD Screen
\$1599⁹⁹

NEW! XL-2 **NEW!**
• 2.12 MegaPixels
• 200x Digital Zoom
• 1.8" Color LCD
\$819⁹⁹
NEW! ZR-100...\$3009.99
NEW! ZR-200...\$2299.99
NEW! ZR-300...\$349.99
NEW! ZR-400...\$389.99

JVC GZ-MC200 **NEW!**
• 2.12 MegaPixels
• 10x Optical Zoom
• 200x Digital Zoom
• 1.8" Color LCD
\$819⁹⁹
NEW! GZ-MC100...\$669.99
NEW! GZ-MC500...CALL
GR-DX77...\$354.99
GR-DX97...\$379.99
NEW! GR-HD100...CALL
JY-HD100...\$2149.99
GY-DV300...\$1649.99
GY-DV500...\$3699.99

SONY DCR-VX2100 **NEW!**
• 48x Digital Zoom
• 12x Optical Zoom
• 2.5" LCD Screen
\$1999⁹⁹

SONY DCR-PC1000 **NEW!**
• 2.8 MegaPixels
• 2.7" LCD Screen
\$879⁹⁹

SONY DCR-PC55 **NEW!**
• 2.8 MegaPixels
• 2.7" LCD Screen
\$579.99
DCR-PC109...\$509.99

CANON ELURA 90 **NEW!**
• 1.33 MegaPixels
• 20x Optical Zoom
• 2.5" LCD Screen
\$489⁹⁹

NEW! Elura 80 **NEW!**
• 1.33 MegaPixels
• 2.5" LCD
\$379.99
NEW! Elura 85...\$409.99

JVC GR-DF550 **NEW!**
• 1.33 MegaPixels
• 2.5" Color LCD
\$359⁹⁹
NEW! GR-D250...\$249.99
NEW! GR-D270...\$259.99
NEW! GR-D290...\$269.99
NEW! GR-D295...\$269.99
NEW! GR-DF430...\$309.99
NEW! GR-DF450...\$349.99
NEW! GR-X5...CALL

SONY HDR-FX1 **NEW!**
• 12x Optical Zoom
• 3.5" LCD Screen
\$2649⁹⁹

SONY DCR-DVD403 **NEW!**
• 3.3 MegaPixels
• 10x Optical Zoom
• 2.7" LCD
\$689⁹⁹

SONY DCR-DVD7 **NEW!**
• 3.3 MegaPixels
• 10x Optical Zoom
• 2.7" LCD
\$529.99
NEW! DCR-DVD92...\$469.99
NEW! DCR-DVD103...\$509.99
NEW! DCR-DVD203...\$529.99
Special! DCR-DVD301 \$629.99

PANASONIC PV-GS250 **NEW!**
• 3.1 MegaPixels
• 2.5" LCD Screen
\$649⁹⁹
AG-DV2500...\$1409.99
AG-DVC200...\$3199.99
NEW! PV-GS16...\$339.99
NEW! PV-GS19...\$259.99
NEW! PV-GS31...\$319.99
NEW! PV-GS35...\$369.99
Special! PV-GS55...\$349.99
NEW! PV-GS65...\$449.99
NEW! PV-GS150...\$509.99
NEW! PV-GS400...\$949.99

PANASONIC AG-DVX100A **NEW!**
• 3-CCD Imaging
• Super VHS
• 12x Optical Zoom
\$2299⁹⁹
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NEW! VDR-M95...\$669.99

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• 3.1 MegaPixels
• 2.5" LCD Screen
\$649⁹⁹
AG-DV2500...\$1409.99
AG-DVC200...\$3199.99
NEW! PV-GS16...\$339.99
NEW! PV-GS19...\$259.99
NEW! PV-GS31...\$319.99
NEW! PV-GS35...\$369.99
Special! PV-GS55...\$349.99
NEW! PV-GS65...\$449.99
NEW! PV-GS150...\$509.99
NEW! PV-GS400...\$949.99

SONY DCR-PC1000 **NEW!**
• 2.8 MegaPixels
• 2.7" LCD Screen
\$879⁹⁹

SONY DCR-PC55 **NEW!**
• 2.8 MegaPixels
• 2.7" LCD Screen
\$579.99
DCR-PC109...\$509.99

PANASONIC PV-GS250 **NEW!**
• 3.1 MegaPixels
• 2.5" LCD Screen
\$649⁹⁹
AG-DV2500...\$1409.99
AG-DVC200...\$3199.99
NEW! PV-GS16...\$339.99
NEW! PV-GS19...\$259.99
NEW! PV-GS31...\$319.99
NEW! PV-GS35...\$369.99
Special! PV-GS55...\$349.99
NEW! PV-GS65...\$449.99
NEW! PV-GS150...\$509.99
NEW! PV-GS400...\$949.99

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• 42" HDTV
• W-XGA LCD
\$2099⁹⁹
TH-42PX25...\$3599.99
TC-26LX20...\$1699.99
TH-50P25U...\$4699.99

SHARP LC-37HV4U **NEW!**
• 37" Aquos Liquid
• TFT Active Matrix
\$1949⁹⁹
LC-30HV4U...\$1849.99
LC-20E1U...\$649.99
LC-20B4U...\$699.99

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IN FOCUS X2 **NEW!**
• DLP
• 1600 Max Ansi Lumens
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• 3x 5" LCD
• Digital Zoom
\$849⁹⁹
PowerLite 730-C...\$1979.99
PowerLite 61-P...\$1159.99
PowerLite 81-P...\$1529.99

BENQ PB7210 **NEW!**
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• DLP
\$1509⁹⁹
PB 6100...\$849.99
PB 7230...\$1159.99
PB 8220...\$1549.99

SCANNERS

CANON FS4000 **NEW!**
• 5888 x 4000 pixels
• 4000 DPI Optical
Resolution
• USB
\$469⁹⁹

NIKON LS50 **NEW!**
• High Quality
CCD Sensor
• 4000 DPI Optical
Resolution
\$489⁹⁹
LS-40...\$409.99

NIKON Super Coolscan LS-5000 **NEW!**
• 4,000 dpi Optical Res.
• 2x-linear CCD
• Multiple film format
\$869⁹⁹
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• W-XGA LCD
\$2499⁹⁹
PD-42WX84...\$3349.99
LT-26WX84...\$1599.99
HD-52Z575...\$2399.99

PANASONIC TH-42PA20 **NEW!**
• 42" HDTV
• W-XGA LCD
\$2099⁹⁹
TH-42PX25...\$3599.99
TC-26LX20...\$1699.99
TH-50P25U...\$4699.99

SHARP LC-37HV4U **NEW!**
• 37" Aquos Liquid
• TFT Active Matrix
\$1949⁹⁹
LC-30HV4U...\$1849.99
LC-20E1U...\$649.99
LC-20B4U...\$699.99

PRINTERS

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• USB/Serial Port
• PC or Mac
• 6 Color Small
Archival Links
\$539⁹⁹

EPSON Stylus 1280 **NEW!**
• Smudge Free Inks
• PC or Mac
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Stylus 3000...\$1179.99

OLYMPUS P440 **NEW!**
• Dye-Sublimation
• 1.8" LCD
• USB
\$379⁹⁹

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- AMD 8000 Series Chipset w/64-bit Support
- Up to 16GB DDR-400 Reg. ECC Memory
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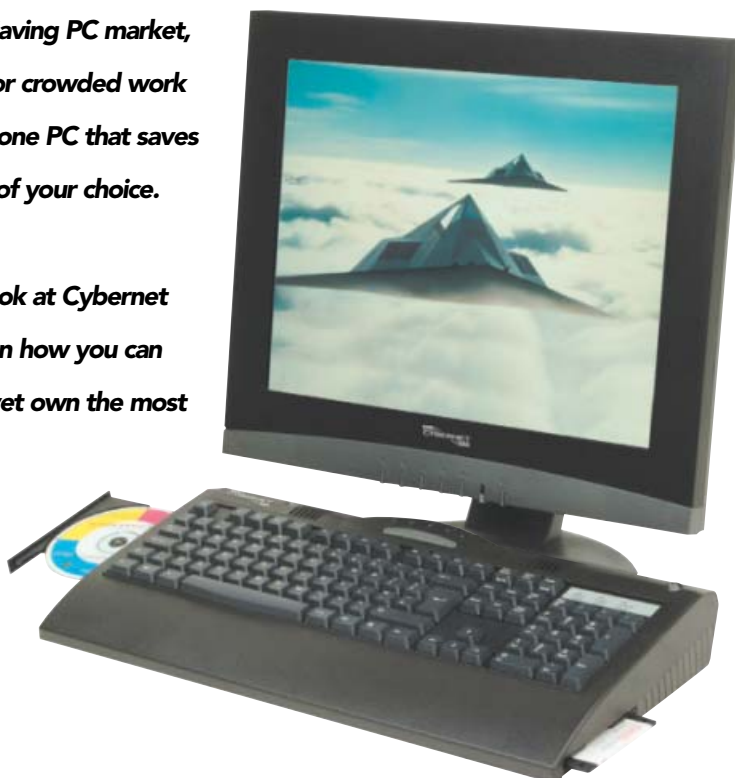
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AFTER HOURS

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Hardball Software

BY MATTHEW D. SARREL

If you can't get enough of the Great American Pastime at your local stadium or on TV, these baseball video games will make you happier than a hot dog and a beer. These games become more realistic each year, offering unprecedented player control and management options. This year, we include both PC and console games in our roundup, and one online game has joined the team too.

Most of these games fall into one of two categories: those in which you play actual games, and simulations in which you coach and manage a team. Some games also include role-playing elements: You can create, train, and manage (or play) a single player through his career. Each game we tested has something to offer, so all you need is to find the style of game that's a hit with you.

PC GAMES



	Average Attend.	Revenue (YTD)	Profit (YTD)	Cash	Payroll Budget	Team Payroll
ARIZONA	35,388	\$4.8M	\$2.0M	\$11.7M	\$64.3M	\$47.4M
Atlanta	33,766			\$9.3M	\$68.9M	\$62.1M
Chicago	36,894			\$3.3M	\$91.8M	\$74.7M
Cincinnati	25,204			5.3M	\$38.2M	\$80.6M
Colorado	36,474			7.9M	\$53.9M	\$33.7M
Florida	26,135			4.1M	\$32.0M	\$71.1M
Houston	42,000			10.0M	\$64.0M	\$80.1M
Los Angeles	n/a			11.8M	\$96.6M	\$93.5M
Milwaukee	n/a			3.2M	\$28.7M	\$43.2M
New York				\$2.9M	\$84.8M	\$77.3M
Philadelphia	43,012	\$3.6M	\$780K	\$11.5M	\$72.4M	\$77.4M
Pittsburgh	20,750	\$1.4M	-\$30,000	\$4.3M	\$35.4M	\$41.7M
San Diego	26,608	\$2.3M	\$197K	\$6.4M	\$46.4M	\$58.9M
San Francisco	28,330	\$4.8M	\$1.4M	\$10.8M	\$67.0M	\$94.0M
St. Louis	33,888	\$2.3M	-\$534K	\$8.7M	\$67.0M	\$107.0M
Washington	n/a	\$1.2M	-\$601K	\$8.3M	\$68.9M	\$48.9M

Baseball Mogul 2006

Steinbrenner wannabes, this one's for you. Baseball Mogul focuses on the financial aspects of owning a major-league team. You start off setting prices for tickets, concessions, and broadcast rights, and even negotiating player salaries. Then you can play a few games and see how the prices

you set affect revenue and attendance. The results of the game are shown either as text files of commentary or as box scores.

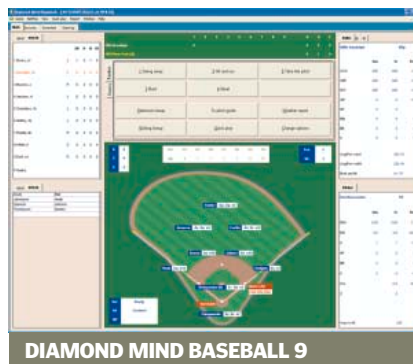
Baseball Mogul offers excellent in-depth help and scouting reports. But it involves minimal strategy, and no decisions can be made during the games. We were disappointed by its confusing bullpen management: With only one closer and one setup man, there were too few players

active to reflect real-life major-league baseball. And for some unknown reason, our lineups changed immediately before the game started. Still, Baseball Mogul provides a fun insight into managing the finances of a major-league baseball team.

Download, \$19.95; CD, \$24.95 direct. Sports Mogul Inc., www.sportsmogul.com. ●●●●○

Diamond Mind Baseball 9

In this Editors' Choice-winning baseball sim game, you can make coaching decisions before and during each play. Statistics presentation is excellent, thanks to an informative game screen, box score, score sheet, and game log. A Web page full of stats is generated from each game, so you can sift through them to your heart's content. If you also buy the All-Time Greatest Teams expansion pack (\$24.95 direct), you

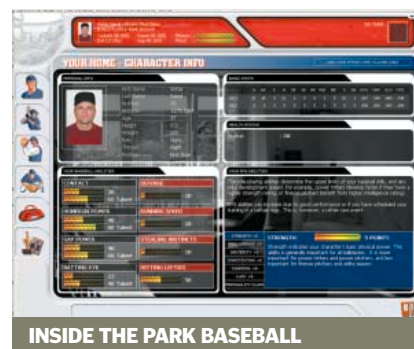


DIAMOND MIND BASEBALL 9

can see how teams from different eras match up—perhaps pitting the 1955 Brooklyn Dodgers against the 1978 New York Yankees. The ability to play a networked game against another manager is a standout.

The game's only real drawback is a plethora of complicated features and controls; we strongly suggest completing the basic tutorial before you play. And sometimes the computer-generated lineups aren't optimal; for example, the game decided to keep A-Rod on the bench in a Yankees-versus-Red Sox matchup. (Well, maybe the digital sub wouldn't try to slap the ball out of Bronson Arroyo's glove—Ed.) But this is a minor flaw. As far as baseball simulations are concerned, Diamond Mind Baseball is the MVP.

\$49.95 direct (with 2004 Season Disk or 2005 Projection Disk, \$69.95). Diamond Mind Inc., www.diamond-mind.com. ●●●●●



Inside the Park Baseball

Basically, Inside the Park Baseball is a role-playing game: You create a character, choose attributes and skills, then try to turn him into the best player in the league. Attributes can't be changed later on, so be careful how you allocate points. You can train your character to improve his skills and buy items that contribute positively to his career (such as a bat that gives his hitting more power). Maintain his fitness and mood levels at the gym and local bar, respectively.

This is a terrific idea that falls a little short on implementation. The truncated descriptions of plays as they occur make games pretty boring; all you can really do with your character is train and buy better equipment. And if he gets injured or

WHAT THE RATINGS MEAN

- EXCELLENT
- VERY GOOD
- GOOD
- FAIR
- POOR



benched, you might have to watch a whole season pass by. Still, we enjoyed developing different types of players to see which skills were rewarded with high-paying contracts.

\$19.95 direct. Out of the Park Developments, www.ootpdevelopments.com. ●●●●○

PureSim Baseball 2005

Running a fantasy league is easy—if not very exciting—with PureSim Baseball. Leagues are totally customizable: You can choose teams, regions, and schedules, and reshuffle all the major-league players with a full fantasy draft. (A separate download of the Lahman database—a standard database of baseball player statistics—is required.)

In Quick Sim mode, games can be played with no play-by-play and are over in a matter of seconds. In Watch PSPNcast mode, you view a graphical representation



ULTIMATE BASEBALL ONLINE

of each game. And you can take total control of game strategy and the lineup in Manage Game mode. Actual games are a bit of a yawn, but the software offers first-rate sortable statistical views. You can simulate multiple games at once, to move through the season quickly. And a novel touch is the autogenerated PSPN newsletter, which highlights the best performers in the league.

\$29.99 direct. Shaun Sullivan (developer), www.puresim.com. ●●●●○

Ultimate Baseball Online

Even baseball is fair game for the expanding realm of massively multiplayer online games. After a 128MB download, you create your own players and give them skills that increase when they play. In game play, you control your character rather than the whole team, which means that you may get bored sitting on the bench. You'll spend a fair amount of time waiting to get in the game and chatting with other players.

The game's graphics and sound quality are fine, but this unique baseball computer game is not without its faults (to be fair, it was still in open beta when we tested it). Currently, the only practice is batting practice, but fielding and pitching practices will be added shortly. The game was unstable when we ran other applications concurrently on our Microsoft Windows XP Home test system; Netamin recommends disabling instant messaging and e-mail notifications.

\$30 (\$10 monthly subscription). Netamin Communication Corp., www.netamin.com. ●●●●○

CONSOLE GAMES

Major League Baseball 2K5

MLB 2K5 for Microsoft Xbox is the best-looking game in this roundup, thanks to excellent player models and fluid player animation. The ESPN presentation style enhances game play with appropriate commentary and replays. Base-running controls let you control a single runner or all runners, and in the new Baseburner mode, you execute precise control when leading off, stealing, or dashing back to the base. Also new this year is K Zone Pitching: You target pitches with pinpoint accuracy, using a crosshair interface. Other modes are the In Your Face speed mode, Home Run Derby, Franchise, and GM Career, which gives you greater control over a team's finances. And the soundtrack can be customized with songs from your Xbox hard drive. (For Sony PlayStation 2 and Xbox.)

\$20 street. 2K Sports, www.2ksports.com. ●●●●○



MAJOR LEAGUE BASEBALL 2K5

MORE ON THE WEB

go.pcmag.com/afterhours

See Personal Technology online for more Quick Clips and Gear + Games reviews.

MLB 2006

Easy to learn and fun to play, MLB 2006 just might be the best PS2 baseball game this year. The new Release Point Pitching with Pitcher Confidence Meter lets you control the speed and location of your pitches. You'll need a careful eye for fielding, where player attributes are combined with the gamer's skill at making catches and throws. Multiple modes include Home Run Derby, Exhibition, Season, Career, and Franchise. Graphics are fair, with a 2D crowd and barely acceptable player models, but stadiums look realistic down to the smallest detail, and you can control base runners individually. (For PS2 and Xbox)

\$40 street. 989 Sports, www.989sports.com.

●●●●○



MVP BASEBALL 2005

MVP Baseball 2005

MVP Baseball 2005 brings unprecedented player control to baseball games. You can move around in the batter's box, so your opponent has a harder time targeting batting zones, and use the right thumbstick to control which side of the bag a player slides to. While pitching, you can quickly manage your bull pen by using the menu that appears when you press R2. Hitting is directional, using the left thumbstick, and Hitter's Eye replays can be used to analyze and correct your swing. There are eight different modes of play, including exhibition, Dynasty, a new owner mode, and new (and fun) minigames for pitching, batting, and fielding. The Xbox and Nintendo GameCube versions look dramatically better than the PS2 version, so you might want to choose one of the other console titles in this roundup if you're looking for PS2 baseball. (For GameCube, PC, PS2, and Xbox.)

\$30 street. Electronic Arts Inc., www.easports.com.

●●●●○

GEAR + GAMES



Safety Mouse

Do you have too many passwords to remember? If so, American Power Conversion, best known for uninterruptible power supplies, has a secure, easy-to-use solution for you. The **APC Biometric Mouse Password Manager** is an Authentec 3500 fingerprint reader built into an ergonomic optical mouse. Coupled with Softex's OmniPass password-management software, the APC Mouse Password Manager stores all of your passwords. You can then log on to password-protected sites with a touch of your registered finger. Directories and files can also be encrypted and accessed via fingerprint or the master password.—*Craig Ellison*

\$60 street. American Power Conversion Corp., www.apc.com.



On the Record

The size of a tiny remote control, the **Olympus Digital Voice Recorder DS-2** has an easy-to-read screen with an automatic backlight, well-placed controls, and a micro-phone jack. Menu navigation is not very intuitive, so keep the manual handy. The unit has 64MB of storage and five recording modes: The highest-quality mode yields 1 hour 15 minutes, while the lowest-quality one provides 22:20. Enable the Variable Control Voice Actuator, and the DS-2 will record only when prompted by sound. Powered by two triple-A batteries, the recorder has a large storage capacity and a wide range of features that make it a great deal.—*Molly K. McLaughlin*

\$149.99 list. Olympus America Inc., www.olympusamerica.com.



Very Presentable

The **Logitech Cordless 2.4 GHz Presenter** doesn't have the same mousing functions as the IOGear Phaser Mouse, but it's much smaller and easier to carry. To use it, pull out the Presenter's USB receiver (stored in the Presenter) and plug it into a PC's USB port; there's no software to install. The buttons let you start a presentation, navigate slides, adjust the volume, call up a black screen, and use the laser pointer. The Presenter also has a countdown timer, but you can set it only in increments of 5 minutes.—*Troy Dreier*

\$79.95 direct. Logitech, www.logitech.com.



Small Box, Big Sound

The **Altec Lansing inMotion iM4** extends the company's popular inMotion line of iPod-compatible speakers to other types of portable music devices, including notebook computers. At 5.5 by 10 by 1 inches, the iM4 is a lot bigger than an iPod, but it can pump out 92 dB at 12 inches—about as loud as a blender—and produce spacious, surprisingly realistic sound from 150 Hz through 12 kHz. That's nearly an octave more than last year's pricier inMotion iM3. The iM4 also boasts twin input jacks, dual AC/battery operation, a nifty spring-loaded retractable audio cable, and Waves Audio's MaxxBass low-end enhancement technology. At \$50 less than the iM3, it delivers a lot of bang for the buck.—*Don Labriola*

\$99.95 direct. Altec Lansing Technologies Inc., www.alteclansing.com.



Apple Mac mini Accessories

BY TROY DREIER

As the Apple iPod has shown, success breeds add-ons—and Apple appears to have a winner with the slim, compact, and convenient Mac mini. It was barely announced before accessories sprang up to help you enhance this diminutive new PC.

IOGear MiniView Micro USB Plus KVM Switch

The Mac mini is inexpensive, but if you have to add a keyboard, monitor, mouse, and speakers, the cost rises. With the IOGear switch, your mini can share peripherals already connected to another Windows or Mac PC. Simply plug the peripherals into the switch, then connect the switch to your two PCs. Alternate by tapping the keyboard's Scroll Lock key twice. The switch worked well for us, except that the audio output from the Windows PC had a lot of static. IOGear reported the same problem in its own testing.

\$69.95 direct. IOGear, www.igear.com. ●●●●○



SkinIt.com Mac Mini Skin

To customize your mini, head to SkinIt.com, which offers hundreds of designs; the site is bound to have something to suit your tastes, whether they're wild or sedate. Or you can upload your own image for an extra \$4.95. Mac mini skins come in four pieces, for the top and three sides, and include openings for the Apple logo, disc slot, and power light. Best of all, they use a nonpermanent adhesive, so you can peel them off whenever you want.

\$19.95 direct. SkinIt.com Inc., www.skinit.com. ●●●●○

Tom Bihn eM2

One reason people buy a mini is that its extreme portability makes it easy to carry to a friend's house or to work. If you'd like something snappy to carry it in, check out the Tom Bihn eM2, a protective bag designed just for the mini. It's made of a tough yet attractive nylon fabric and comes in five colors (we're showing Wasabi here). The bag offers a quarter-inch of padding all around, but doesn't come with a shoulder strap. A stretchy pocket on the back just barely holds the mini's bulky power supply, so don't plan on carrying a spare mouse and keyboard.

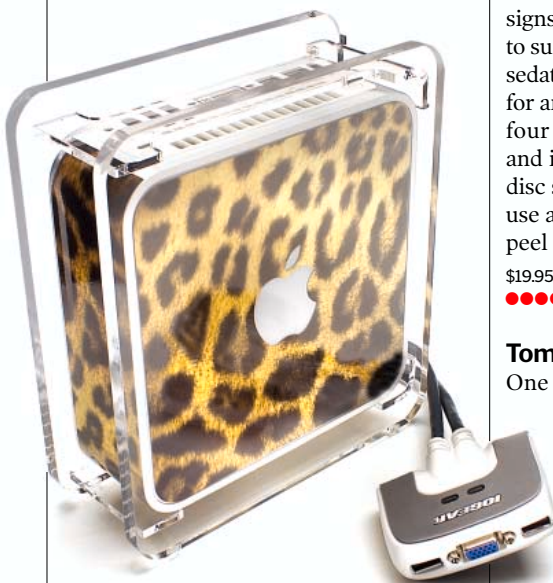
\$40 direct. Tom Bihn, www.tombihn.com. ●●●●○



Plasticsmith Mini Tower

If the Mac mini is a work of art, the Mini Tower is the frame. The mini can stand on its side without the Tower's help, but this clear acrylic encasement adds a certain luster. Open slots along its sides provide air to the bottom vents and also ensure that you can access the slot-loading disc drive. Use the Tower if you're concerned about your mini getting scratched or if you want to stand it sideways and be certain it won't fall over. Set up the Tower horizontally, and you have a sturdy place to rest your monitor.

\$49.95 direct. The Plasticsmith, www.plasticsmith.com. ●●●●○



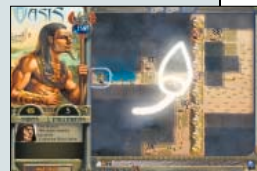
QUICK CLIPS

Oasis

Imagine exploring the unknown lands of ancient Egypt, linking an empire, and fending off relentless barbarian attacks—all during your next coffee break! This downloadable game may have a simple interface, but your heart rate will soar as Oasis races you through 35 distinct levels. You'll spend your time uncovering territory and placing roads before barbarians arrive to have some fun of their own. More random than strategic, the game is really about clicking as fast as you can. So if you're taking a break to give your mouse hand a rest, this isn't the one for you.

—Peter Suci

\$19.95 direct. PlayFirst Inc., www.playfirst.com. ●●●●○



New York Nights: Success in the City

The city never sleeps in this Sims-style mobile game, and that means nightlife, socializing, and spending a lot of money in general. The game forces you to balance partying with practicality—you have to find gainful employment. And as in real life, you can befriend people you meet and open new doors for better opportunities. The game's interface makes playing on the go quite easy, but the continuous load times are worse than waiting for the subway at 3 A.M.—PS

\$5 to \$7 based on carrier. Gameloft, www.gameloft.com. ●●●●○



Gran Turismo 4

Gran Turismo 4 is the standard for accessible simulation games on consoles and PCs; it always hits the right balance of simulation, graphics, and fun. The TV coverage—like B-Spec mode and innovative Photo mode add to the fun, but we really wish we could play it online. Nevertheless, using the recommended Logitech Driving Force Pro wheel, Gran Turismo 4 is a driving-game fan's Holy Grail. It provides hours of gear-centric fun, yet it's easy enough for your next-door neighbor to start enjoying within 5 minutes of play.

—Joel Santo Domingo

\$49.99 list. Sony Computer Entertainment America Inc., www.us.playstation.com. ●●●●○



BACKSPACE

WE SHOULD HAVE DONE SOME MOUSE GAGS TO GO WITH THE CAT

Edited by Don Willmott



« He was probably unhappy about being dressed up in a stupid costume.
(azcentral.com)

» Wacky music makers give their bean counters agita.
(MixMeister site)

You can use and distribute this software completely free of charge for non-commercial use, partly because we want the world to benefit from better BPM counts, and partly because it drives our accountant absolutely bonkers when we do this.

» One of these things is not like the others. (Mansfield, Texas soccer site)

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Basketball

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817.533.4270

MGSA-Mansfield Girls Software Association
MGSA
817.473.6877

Personalize Your Device

Make your device unique - just like you. Change the home screen with a theme, add a ringtone that matches your best friend's personality, or show off a picture of your dog.

« Must be a Tabby Terrier.
(Windows Media.com)

MCAfee

ANTI-SPYWARE 1.0

« Hmm...maybe that cat would like to buy a copy.
(Outpost.com)

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