

# PC

# MAGAZINE

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MARCH 16, 2004

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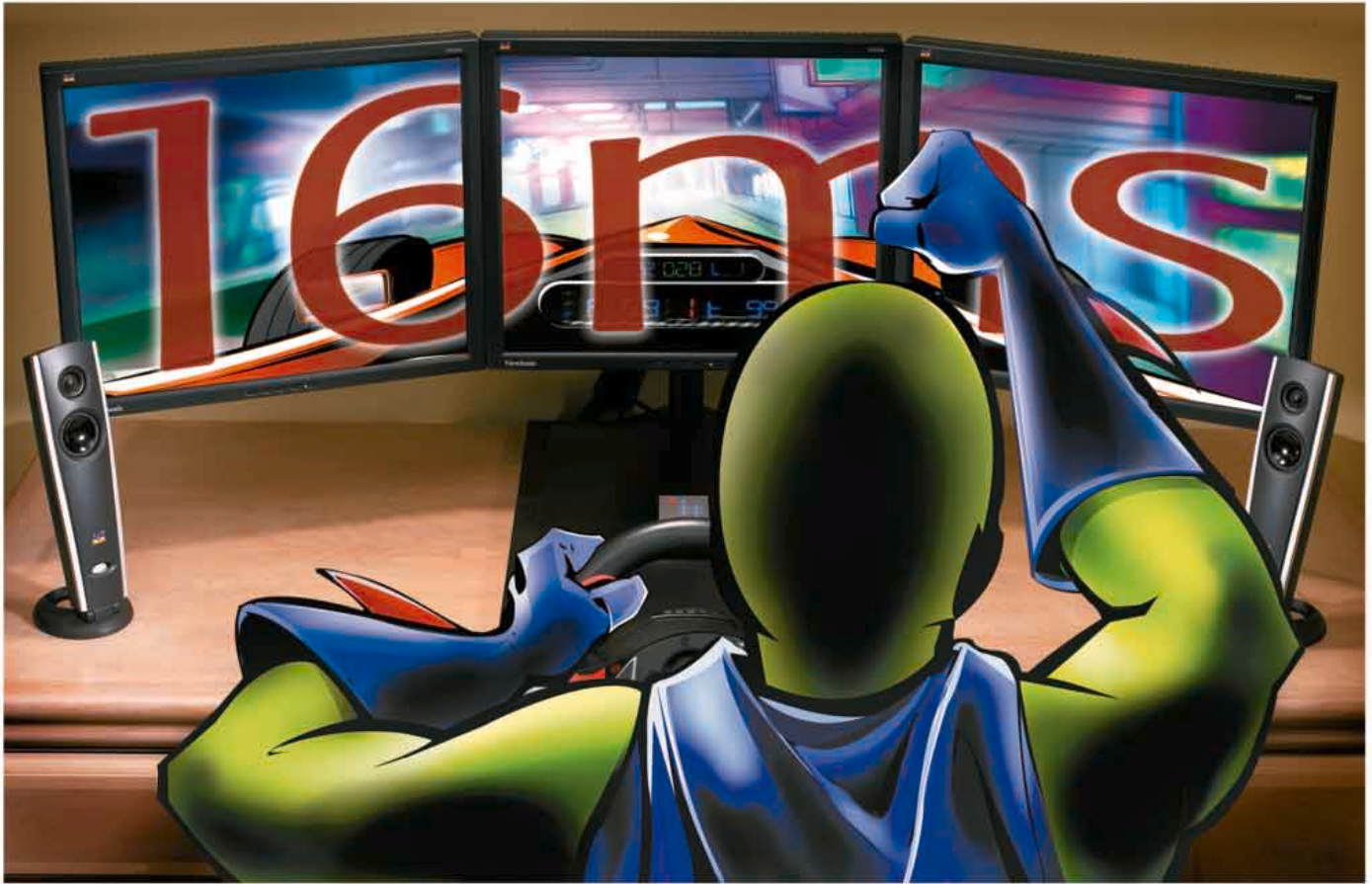
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# Forward Thinking

## THE TROUBLE WITH VIRUSES

AS I WRITE THIS, we're just getting over the latest virus scare—if indeed it's really over. MyDoom, also known as Novarg, Shimg, and Mimapil.R, started propagating itself at a furious rate, initially through Kazaa and as an e-mail attachment. Soon, the fastest-moving infection yet on the Internet was everywhere.

MyDoom wasn't anything special. Most people got infected by clicking on an attachment that turned out to be an executable file—something we've warned our readers about for years. But many still continued to click, and the virus spread.

This is just one more example of the problems that viruses and security holes are



creating. Perhaps I was lucky—and perhaps my antivirus software worked—but MyDoom didn't infect any of my computers. I was still bothered by it, though, with lots of e-mail delays. And the sheer number of delivery failure messages MyDoom caused was problematic.

Just consider these stats: In two days, at the height of the infection, we received more than 500 messages at one of our public e-mail addresses: 10 were MyDoom viruses, 300 were about undelivered e-mail due to MyDoom, 200 were spam, and only 30 were legitimate messages. It's enough to make me very concerned about the future of e-mail.

## PLENTY OF BLAME TO GO AROUND

WHO'S TO BLAME for this latest virus attack?

■ **The virus writers.** They deserve most of the blame. Often they get romanticized, but they're nothing more than vandals. I was appalled to see a large number of Linux and open-source fans applaud the virus because it was designed to attack Windows machines and the Web sites of Microsoft and SCO. But the virus slowed down the Internet and e-mail for everyone. I feel the same way about those Windows users who are happy to find security holes in Linux or Mac systems. Such attacks don't help anyone.

■ **The antivirus software makers.** They come up with new antivirus signatures very quickly and are an important part of the ecosystem that cleans up the damage that viruses cause. But it's clear that viruses are now spreading faster than signatures alone can protect. Many antivirus companies claim to use heuristics to stop new viruses before the signatures can be written, and a couple claim they were successful against MyDoom without the new signatures. It's been a while since we tested products that work only on heuristics, so I'll withhold judgment until we can test them again.

■ **Microsoft.** Once again, the virus writers targeted Windows. Microsoft simply has to do a better job of making its OS more secure. Despite the warnings, people clicked on e-mail attachments, since it wasn't

clear they were executable files. I happened to talk to Mike Nash, corporate vice president of Microsoft's Security Business & Technology Unit, just as the virus was at its peak. He said the next Windows service pack will warn people when they're about to click on an attachment that contains executable code. This is a step in the right direction, but it's overdue.

■ **Kazaa.** MyDoom seems to have started on Kazaa, the popular peer-to-peer file-sharing service. Kazaa's creator, Sharman Networks, quickly released a statement saying that users of the current version of Kazaa are protected because it includes a version of the antivirus program BullGuard. But people using older versions of Kazaa aren't protected, and BullGuard (like other, better-known antivirus programs) wasn't updated to fight the virus until it was already rampant. Worse, when I tried the current version of Kazaa at PC Magazine Labs, I downloaded several files that were infected with both MyDoom and older viruses. BullGuard's automatic scanning feature didn't seem to be working, though later when I scanned manually—something most people won't do—it did pick up the viruses.

■ **Every PC user.** We all need to do a better job of keeping our systems up to date with antivirus and firewall software and guarding against suspicious e-mail.



**Once again, the virus writers targeted Windows. Microsoft simply has to do a better job of making its OS more secure.**

# Forward Thinking

MICHAEL J. MILLER

## THE NEXT WINDOWS (NO, NOT LONGHORN)

WITH ALL THE TALK ABOUT Longhorn—Microsoft's next major version of Windows, expected within a couple of years—you may have missed some of the company's more immediate plans for dealing with security issues.

Windows XP Service Pack 2, which Microsoft hopes to ship by June, has several new features designed to make the system more secure. We haven't yet seen the user interfaces on all of these features, but here's what we know so far:

■ The new firewall will provide protection earlier in the boot process. Other firewalls will stack on top of it.

■ Internet Explorer will be more secure, with features that prevent spamming of ActiveX controls, unwanted pop-ups, and cascading windows that can't be closed.

■ Outlook Express and instant messaging will have higher-security default settings, better isolation of attachment contents, and more APIs for the antivirus makers.

■ Windows Update will automatically install all major patches by default.

In the past, when Microsoft had to choose between higher security and backward compatibility, it chose compatibility. Now the priority is security.

## MY CONVERSATION WITH BILL GATES

LATE LAST YEAR I had the chance to talk with Bill Gates about a number of subjects, ranging from open-source software to digital-rights management. You can read the entire interview online at [www.pcmag.com/gates](http://www.pcmag.com/gates). Here are some excerpts.

**MM:** *There's a perception that Microsoft is to blame for some of what's going on with all the viruses and worms. How do you deal with that?*

**BG:** It's our responsibility to make sure that PC computing is extremely productive, viruses don't interfere, and people don't have this underlying concern: "Jeez, did I do the right things?" So there are a ton of things that we need to do, to say to people, "Look, we're going to default the firewall on, and we're going to work with broadband providers to do scans and to make sure everybody has got their system set up the right way." For most people, between defaulting the firewall on and having auto-update, they never would have run into one of these problems. And they are not likely to run into problems in the future. Well, I should say a third thing: They should be careful what attachments they click on.

We're not having security problems because Microsoft is lazy or sloppy or anything like that. Empowerment in personal computing is what we're all about. Spam and security really stand in the way of that. Our systems are subject to these attacks because of our popularity. Ironically, people try to attack our newest versions, even though our older versions have a bigger installed base.

The last thing you want is an operating system that people attack only because they want to steal information. To have an operating system that people try to attack for glory, without causing damage and without stealing stuff, is actually where you can get to something that's really locked down. And if you have auto-update, there's no problem.



**MM:** *There's a perception that Windows is somehow more vulnerable than Mac OS or Linux.*

**BG:** It's just not. But there's a weird sense that it may feel like that's true. Our technology at this point is way better in terms of how few defects we have. Just go through and compare, say, with Linux, how many defects we have, how quickly we fix those defects, how our system is at getting the updates out for those defects. Take those objective criteria and we are better.

Because people attack us for glory, there are more attacks. We need to make sure these attacks can't succeed. Making sure we can block people who try and do it for glory actually gives users an additional benefit: We're blocking it for people who are maliciously coming in to steal information. The other operating systems don't go down that learning curve.

But right now all that people can see is some pain. And even the people who haven't been affected are somewhat

**"Our technology at this point is way better in terms of how few defects we have."**

affected because they're worrying: "Jeez, could this happen to me? Do I have these things right?" And it's a real shame that people have to read about what a firewall is and about different kinds of firewalls. It's a nightmare. We and their broadband providers should just say, "Hey, here's how you set this thing up, and you will be fine. And don't let people get you all scared or thinking you have to buy a bunch of expensive stuff."

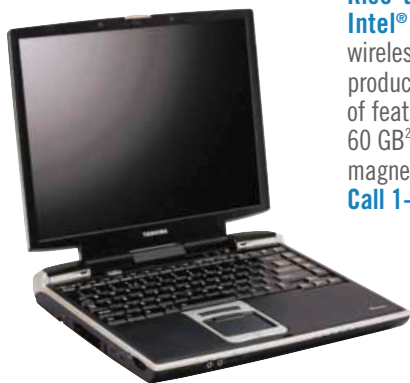
**MM:** *But you also want people to run antivirus software, and they should have routers in their homes, right?*

**BG:** You actually don't have to have a router. You can set the firewall up on the PC itself directly. There's a level of antivirus software that's valuable to run, so that's part of the picture. But we need to make that simpler. In fact, it's just a mess for people today.

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Digital-camera shipments in the U.S., now at 14.2 million, will more than double by 2007, according to Gartner.

## 28 First Looks

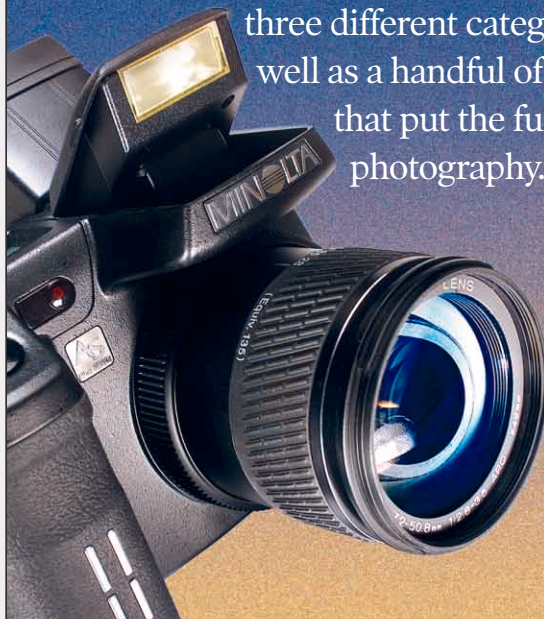
- 28 MYOB Plus 2004
- 29 Peachtree Premium Accounting 2004
- 29 QuickBooks Premier 2004
- 30 Simply Accounting 2004 PRO
- 32 IBM ThinkPad X40
- 32 Fujitsu Stylistic ST5010D
- 33 Sony VAIO GRT260G
- 33 Microsoft Windows XP Service Pack 2 (beta)
- 34 Pinnacle Studio 9
- 37 eMachines M6807 ▼
- 37 MacBook 810
- 38 Apple iLife '04
- 39 RealNetworks RealPlayer 10
- 39 RealPlayer Music Store (beta)
- 40 Epson Stylus Photo R300M
- 40 Mitsubishi HC3
- 42 Macromedia Central
- 43 Nimble V5

## COVER STORY

72

# Digital Photography FOR Everyone

Buying a digital camera should be fun, but with all the specifications, news, and information out there, it can feel more like a chore. We've made it easy, with reviews of 21 cameras in three different categories, as well as a handful of accessories that put the fun back into photography. Shoot away!



## ON THE COVER

The Clever Tricks of Hackers page 58

Find Your Best Digital Camera page 72

New Ways to Print, Share, and Store Your Images page 90



IBM's Amazing, Tiny ThinkPad X40 page 32

Bill Gates on Security and Windows page 6

Sony Laptop Gets TV Right page 33

Filter Out the Bad Web page 102

## ALSO IN THIS ISSUE

- 45 Feedback
- 132 Backspace



## 21 Pipeline

- 21 The MyDoom virus wreaks havoc.
- 21 NASA site visitors flock to Mars data.
- 22 Is that a PC or a stereo component?
- 22 DVD decoding: Out of the shadows.
- 22 Stopping at the software kiosk.
- 22 Can a pair of glasses detect lies?
- 24 **COMING ATTRACTIONS:** Alienware Media Center PCs, WinBook sleek notebooks, Roxio's Easy Media Creator 7.



### DIGITAL PHOTOGRAPHY

## 90 Manage, Share, Print Digital Photographs

Digital images have many advantages over film-based photos, but you'll need the right tools to reap all the benefits. We look at image managers that let you organize and touch up your photos, plus photo-sharing sites and high-quality print services.



### WEB CONTENT FILTERING

## 102 Don't Go There

Employers don't want their workers wasting time surfing inappropriate sites, but Web content filtering and monitoring smack of Big Brother. For those who have no ethical dilemma using filtering and monitoring products, here's a look at seven of the best.



## 58 Solutions

- 58 **The Weakest Link:** Clever hackers use social-engineering tricks to make you reveal sensitive information.
- 60 **Office:** Launching a mail-merge from Outlook is quicker and easier than going through Word.
- 62 **Security Watch:** Data thieves have a new weapon in the espionage wars: mini USB drives.
- 64 **Internet Professional:** Don't pay for more IP addresses; use our script to route surfers to the pages you want.
- 66 **Internet Business:** Upromise lets you save for college when you shop.
- 69 **User to User:** Our experts explain variable CPU speeds and show how antispyware programs can interfere with your Internet browsing.

## Opinions

- 5 Michael J. Miller: Forward Thinking
- 49 Bill Machrone: ExtremeTech
- 51 John C. Dvorak
- 53 John C. Dvorak's Inside Track
- 55 Bill Howard: On Technology

## Personal Technology

### 128 After Hours

**Exceptional Cases:** Home PCs don't have to be boring. Take a look at some of the wilder PC cases—perfect for gamers, do-it-yourselfers, and techies with an eye for design.

### 130 Gear & Games

National Geographic Back Roads Explorer; Microsoft Voice Command for PDAs; a roundup of railroad games.

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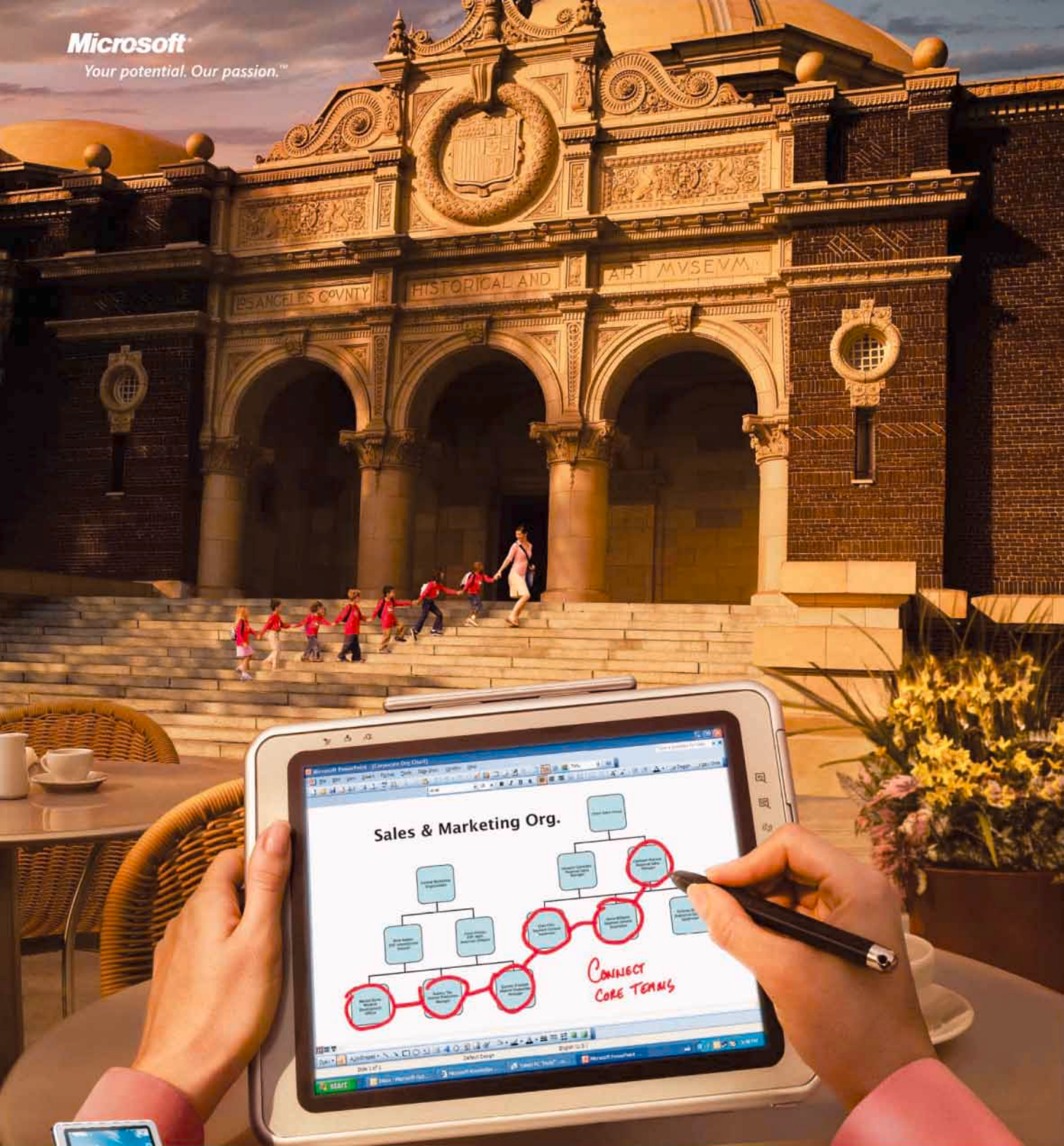
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# PIPELINE

## Havoc From MyDoom

A fast-spreading virus teaches lessons.

This past November, our regular Security Watch column alerted readers to the dangers of using Kazaa, Grokster, and other peer-to-peer file-sharing services, because they often spread viruses. In late January, as the MyDoom worm wreaked havoc on personal and corporate e-mail systems, those words took on a new level of urgency.

Apparently, MyDoom was originally let loose via Kazaa. And though the worm propa-



gated predominantly via e-mail messages, it continued to worm its way through the most popular peer-to-peer services. One version of the worm was designed to execute a denial-of-service attack against the SCO Web site, which prompted some Internet discussion groups to applaud, because SCO has ruffled feathers in the open-source community through legal actions surrounding Linux.

Sharman Networks, Kazaa's owner, issued a statement saying that users were protected from MyDoom thanks to a bundled antivirus tool from Lon-

don-based firm BullGuard, "which is updated with the most recent virus definitions," says Phil Morle, Sharman's director of technology.

Yet BullGuard is included only with versions of Kazaa downloaded since November 2002, according to BullGuard CTO Theis Søndergaard, and the antivirus tool is automatically enabled only with versions downloaded since last June. And BullGuard does not scan e-mail for viruses.

"Despite what [Sharman Networks] says, there's still tons of malicious code moving around on the network," says Bruce Hughes, a director at TruSecure's ICSA Labs. According to a recent ICSA study, 45 percent of all files it downloaded using Kazaa over the past year contained malicious code.

According to Symantec, MyDoom spread even faster than the two most prominent outbreaks of the past years, SoBig.F and BugBear. Based on the rapid collection of harvested e-mail addresses, it took only a couple of days before MyDoom was infecting 1 in 12 e-mail messages on the Internet. That qualified it as the fastest-spreading virus ever, according to security firm Message Labs. Of course, the messages did not spread through peer-to-peer software use alone. There were e-mail users who opened suspect e-mail attachments.

So what are the lessons learned? Make sure you're protected by antivirus software, especially if you're intent on using a file-sharing service like Kazaa. And don't open questionable e-mail attachments. —Cade Metz

## MSN Eyes Google

IN A MOVE THAT MAY LEND credence to rumors that Microsoft is increasingly interested in competing with Google, the company has made available a free, prerelease version of the



MSN Toolbar. The new offering serves up search and navigation features and is similar to toolbars that both Google and Yahoo! offer. The prerelease version is available at <http://toolbar.msn.com>. The toolbar provides one-click access to several MSN services, including Hotmail, MSN Messenger, MSN Search, My MSN, and a customizable pop-up blocker.

MSN Toolbar will go through several updates in the coming months, says Karen Redetzki, MSN Product Manager. Even though it offers new search features, it is not the dedicated search engine that Microsoft is planning to deliver later this year.

To build out that search engine, Microsoft currently has its own bot, MSNBot, indexing the Web. A prerelease version of the search engine is available at <http://beta.search.msn.com>. A future version of MSN Toolbar will almost certainly be closely tied to the search engine.—Sebastian Rupley

### HIDING YOU AND YOUR PHONE

By December 31, 2005, your cell-phone company will always know exactly where you are. That's when the FCC will complete Phase II of its Enhanced 911 (E911) program, requiring all U.S. wireless carriers to provide the location—within about 165 to 330 feet in most cases—of anyone dialing 911 from a cell phone. Although the system is meant for emergency services, the carriers weaving location-tracking technologies into their cell-phone networks might make your location known to businesses.

To protect the privacy of cell-phone and PDA users, Lucent Technologies' Bell Labs has developed a set of software tools known as the Privacy-Conscious Personalization (PCP) framework, which would hide your location from everyone except your wireless provider and 911 public-safety centers. The hope is that the platform—or something like it—will be available by the end of 2005.

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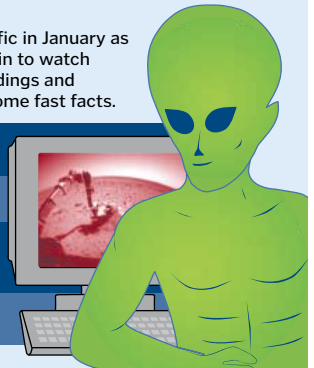
A new wireless technology capable of handling larger amounts of data than Wi-Fi could be available by next year, says the Multiband OFDM Alliance, a consortium of over 50 technology companies. An ultrawideband set-top box will wirelessly transmit TV signals throughout a home. The technology will even transfer data from a digital video camera to a PC.

## Tuning In Mars

NASA's Web site was flooded with traffic in January as Internet users around the globe tuned in to watch streaming video of the Mars Rover landings and download pictures of Mars. Here are some fast facts.

- Mars requests in January exceeded Web records set by the 2002 Olympics.
- 25 percent of site visitors came from outside the U.S.
- 115 trillion bytes were downloaded, which NASA estimates would take 1,015 years using a single dial-up connection.
- In two weeks, NASA site traffic exceeded that of the entire previous year.

Source: NASA, January 2004.



## Design Harmony

Think about it: A ReplayTV or TiVo is basically a computer. They have hard drives, graphics cards, processors, and operating systems (Linux-based in both cases, of course). So it's no surprise that companies have started designing PCs to fit into your living-room entertainment system, just like personal video recorders (PVRs) do.

Stereo component-style cases have little, round sound-dampening feet and pizza-box shapes, and their stylish black or brushed-aluminum facades are designed to fit right into your stereo or home theater system. The sleek Antec Over-



ture case ([www.antec-inc.com](http://www.antec-inc.com)), shown in the photo, has a special ultraquiet power system that won't overwhelm your sound system when you're watching a movie. The brushed-aluminum case on the Ahanix D.vine 6 ([www.ahanix.com](http://www.ahanix.com)) has a slick front display that you can program to identify currently playing MP3 files.

Some cases, like the Lian Li PC-9300 ([www.lian-li.com](http://www.lian-li.com)), add USB or FireWire ports to the front, so you can conveniently hook up a camcorder or download pictures from a memory card. Add software for recording and pausing TV (like SnapStream's BeyondTV) and you've got a full-featured PVR.

For those who don't want to deal with messy device configuration, Gateway has entered the home theater PC market with the Gateway FMC-901 Family Room Media Center, a PC that comes loaded with Microsoft Windows XP Media Center Edition 2004.—*Jeremy A. Kaplan*



## No More Secrets

IN A MOVE THAT HAS BIG IMPLICATIONS for both the distribution of movies and freedom of speech, a group of entertainment and technology companies called DVD CCA filed in January for dismissal of a key lawsuit pertaining to descrambling movie content on DVDs. The group filed the lawsuit in 1999 against Andrew Bunner, who found the code for a DVD decryption program called DeCSS on the Web and republished it online. In addition, 21 named defendants and 500 unnamed defendants were sued in California.

All of the defendants in the case allegedly misappropriated trade secrets by either publishing or linking to the code for DeCSS online. "DVD CCA was casting a very wide net," says Gwen Hinze, staff attorney at the Electronic Frontier Foundation, which has helped defend Mr. Bunner.

Since the people named in the

lawsuit did nothing more than republish DeCSS code that was already available online, the case could become a precedent for future cases involving the propriety of various kinds of online postings. In one example of just how wide a legal net DVD CCA cast, the group legally pursued a t-shirt producer who defiantly emblazoned the code for DeCSS on a shirt.

Although January's dismissal motion is not an endorsement of duplicating copyrighted movies, it does appear to be a concession that DeCSS is not a trade secret. "DeCSS has not been a secret for some time," says Hinze. "We said all along that there was not a trade secret here to protect, and one issue here was whether trade secret law can be used to restrict someone's free-speech rights."

Ongoing coverage of the case is available at the Electronic Frontier Foundation's Web site ([www.eff.org](http://www.eff.org)).—*SR*

## Spigot Software

Can't find the software title you want at the store? That's probably because there's only so much shelf space to be had. Microsoft and 200 other software publishers have teamed up with New York-based ProtoCall Technologies to experiment with a possible solution: software-delivery kiosks at CompUSA stores.

The experiment addresses a long-standing shelf-space problem with retail software distribution, according to David Berett, group business development manager at Microsoft. This has resulted in "retail outlets servicing only about 80 percent of the demand for software titles in stores."

ProtoCall's SoftwareToGo kiosks house large libraries of software titles, which can be burned onto CDs and boxed with printed documentation at CompUSA stores. It's the gas pump model for delivering software, but the jury's out on whether it will work.—*SR*



## The Lying Game

What would the world be like if no one could lie without getting caught? Salespeople would have to divulge actual car prices. Kids would

have to tell parents where they are really going.

Implausible as all that sounds, that's the world a company called V is trying to encourage by developing a variety of lie-detecting consumer electronics. Based on software dubbed LVA, or layered voice analysis, V believes its products will be able to detect lying.

"We think we're 95 percent accurate," claims V's CEO Richard Parton. "That's better than voice stress analysis or polygraph."

Originally developed for the military, the program analyzes 8,000 algorithms to over 120 voice

parameters, looking for telltale signs of deception, stress, aggression, uncertainty, and concentration. So far, V has demonstrated a pair of \$700 glasses attached to a microphone and a PDA that can analyze voice patterns and flash warnings inside the glasses (see the photo).

The idea of being secretly interrogated might not appeal to everyone. (Suppose you prevaricate to protect someone's feelings?) But the software has some serious applications, such as for security personnel at airport checkpoints. Truth-telling glasses may seem like the gag X-ray specs advertised in the back of comic books, but V isn't afraid of the possible entertainment value.

"We want to show that the technology can be fun," claims Parton, "and that there is nothing for people to be afraid of." Of course, if it works, there might be a few people in Washington who won't think it's funny at all.—*John R. Quinn*



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## COMING ATTRACTIONS

## Simple, Beautiful Desktop Speakers

Five-speaker home theater-style sound systems may be all the rage, but office and cubicle dwellers would be happy with a stylish, unobtrusive 2.1-speaker set with a volume knob. Bose has answered the call with the elegant **Bose Companion 3** bundle. Each of the twin satellite speakers can be mounted on your PC's monitor, and the sleek control pod puts all speaker functions within easy reach.—*Jamie M. Bsales*

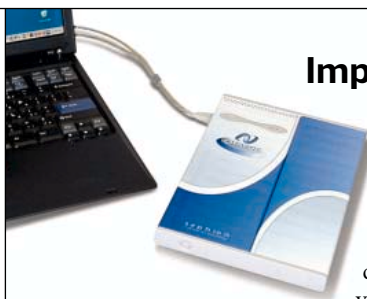
\$199 direct. Bose Corp., [www.bose.com](http://www.bose.com).



## Raise Your Laptop

Tired of hunching over your laptop to see that high-res display? The aircraft-grade aluminum **Dexia Rack** elevates your machine to a more comfortable height, while making room for a standard keyboard below. And it collapses to just three-quarters of an inch in thickness for travel.—*JMB*

\$44.95 direct. Dexia Design, [www.dexiadesogn.com](http://www.dexiadesogn.com).



## Improved N-Charge

Valence will roll out its second-generation **Valence N-Charge** long-life battery system for laptops and other mobile devices. The new model is split in two, so you can take just half the unit with you if you don't need the 12-

hour maximum runtime that the full unit delivers.—*JMB*  
Price: Not yet set. Valence Technology Inc., [www.valence.com](http://www.valence.com).

## PowerBook Look In a WinBook

If you like the sleek look of the ultra-thin Apple PowerBook G4 line but need a Windows laptop, the **WinBook W160** might be the answer. With a 15.2-inch wide-screen (WXGA+) LCD and a sub-6-pound weight, the W160 has a silver magnesium-alloy chassis with a white keyboard; and it is just over 1 inch thick. Inside, the W160 is powered by either a 1.4-GHz or 1.6-GHz Intel Pentium M processor with an nVidia GeForce FX Go5200 graphics engine.—*JMB*

\$1,599 direct and up. WinBook Computer Corp., [www.winbook.com](http://www.winbook.com).



## Roxio Pulls It Together

Roxio's popular CD-and-more creation powerhouse just got even better. Its new **Easy Media Creator 7** polishes the company's already strong offerings and delivers CD burning, DVD authoring, image editing, video editing, and more in one budget suite.—*JMB*



\$99 list.  
Roxio Inc.,  
[www.roxio.com](http://www.roxio.com).

## Alienware Enters Media Center Orbit

Alienware will be launching its first models based on Microsoft Windows XP Media Center Edition. The **Alienware DHS-301** and **DHS-311** will look right at home in an AV rack and will feature built-in TV tuners with PVR capabilities, CD and DVD burners, and ATI graphics engines for PC gaming on the big screen.—*JMB*



Prices: Not yet set.  
Alienware Corp.,  
[www.alienware.com](http://www.alienware.com).

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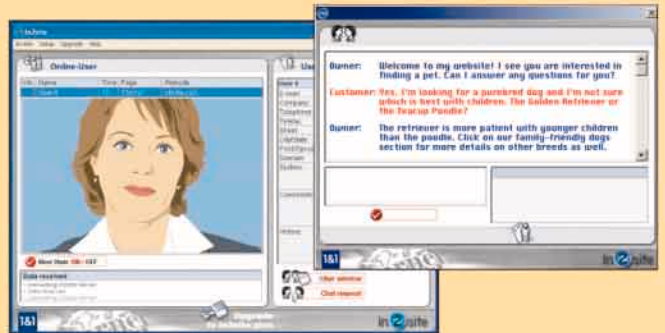
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Catherine	Leonard	64 Stanhope Drive, Pittsburgh, PA 15237	family@myname.com
Carl	Brown	653 Liberty Avenue, Wilmington, NC 28403	brownc2521@lycos.com
Tom	Stowe	26 N. Hills Road, Chandler, AZ 85226	webunited@gmx.net
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- Logfiles
- CGI library (counter, guestbook, etc...)
- FrontPage 2002 extensions
- Password protection

#### CRM/E-COMMERCE

- 1&1 WebStatistics
- 1 chat channel
- Customizable forums

#### EXPRESS SUPPORT

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- 5 FTP accounts, unlimited access
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- Protected by up-to-date firewall
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- 1&1 WebsiteCreator for 18 pages
- Full version software worth \$550
- 1&1 Control Panel

#### EMAIL

- 150 POP3 email accounts
- Aliases, auto-responders, forwarding
- 1&1 WebMail
- Virus scanner for 3 POP3 accounts

#### WEBSITE FEATURES

- Logfiles
- CGI library (counter, guestbook, etc...)
- Own CGI programming
- FrontPage 2002 extensions
- Advanced password protection
- Perl, PHP3 and PHP4
- 1x MySQL database (100MB)
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- Cron Jobs

#### CRM/E-COMMERCE

- 1&1 WebStatistics
- 5 chat channels
- Customizable forums
- In2Site one-on-one dialogue
- Newsletter Tool
- 1&1 WebDatabase
- 1&1 WebElements - Sophisticated Form Editor

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- 25 FTP accounts, unlimited access
- 30,000 MB/Month bandwidth
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- No limits on simultaneous hits/bandwidth
- Server priority
- Daily backups

#### APPLICATIONS

- 1&1 WebsiteCreator for 25 pages
- Full version software worth \$550
- 1&1 Control Panel

#### EMAIL

- 300 POP3 email accounts
- Aliases, auto-responders, forwarding
- 1&1 WebMail
- Virus scanner for 6 POP3 accounts

#### WEBSITE FEATURES

- Logfiles
- CGI library (counter, guestbook, etc...)
- Own CGI programming
- FrontPage 2002 extensions
- Advanced password protection
- Perl, PHP3 and PHP4
- 3x MySQL databases (100 MB each)
- SSL secure server
- Cron jobs
- SSH shell access
- Advanced developer tools
- SSI (Server side includes)
- Dedicated SSL Certificate

#### CRM/E-COMMERCE

- 1&1 WebStatistics
- 10 chat channels
- Customizable forums
- In2Site one-on-one dialogue
- Newsletter Tool
- 1&1 WebDatabase
- 1&1 WebElements - Sophisticated Form Editor

#### EXPRESS SUPPORT

- 24/7 support by phone and email

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# F I R S T

## HANDS-ON TESTING OF NEW PRODUCTS

- 32 IBM ThinkPad X40
- 32 Fujitsu Stylistic ST5010D
- 33 Sony VAIO GRT260G



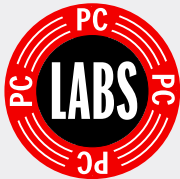
- 33 Microsoft Windows XP Service Pack 2 (beta)
- 34 Pinnacle Studio 9
- 37 eMachines M6807



# Better Bookkeeping for Your Business

BY KATHY YAKAL

THE MAGAZINE  
WORLD'S LARGEST  
COMPUTER-TESTING  
FACILITY



Accounting software for small businesses has grown up nicely in the past five years. In fact, among the major products, the choices range from good to excellent. Here, we look at four of the best: MYOB Plus 2004, Peachtree Premium Accounting 2004, QuickBooks Premier 2004, and Simply Accounting 2004 PRO. • These programs have more commonalities than differences. All provide records and forms to accommodate the core functions of financial bookkeeping: General Ledger, Accounts Receivable and Payable, Inventory, and Payroll. They also provide capabilities

in time billing, project tracking, and fixed-asset management.

Each also offers setup tools that walk you through creating the framework for your books, either from scratch or from imported records. If you have multiple users, you can set up access permissions for each. They all provide record formats—often customizable—for storing details on people and items, and forms for processing transactions. And they generate the critical reports you need.

Some go beyond the basics, offering financial features such as online banking and Web storefronts. These new versions haven't made quantum leaps compared with previous iterations of the packages, but each offers new tools and guidance that's worth investigating.

### MYOB Plus 2004

MYOB may not be the household name in the U.S. that it is in other parts of the world, but that

doesn't make it any less worthy a competitor. It "got" Windows' graphical interface faster than any other small-business accounting program, perhaps because of its Macintosh roots. Today, its looks and usability are among the best, and its power as an electronic bookkeeping system fares well, too.

MYOB's biggest deficit is its dearth of connections to online storefronts or promotional Web sites, though some electronic financial services are offered. MYOB Plus 2004 is short on brand-new features but long on improving the solid core that's already there: The company has tweaked areas like forms design, reports, and jobs organization.

MYOB's setup tool is understandable and thorough, offering dozens of Charts of Accounts, company preferences, and help in building your company's records. The program's working screens are as clean as they come. The main interface con-

sists of the Command Center, which displays buttons for each of MYOB's primary accounting tasks (Sales, Time Billing, Inventory, and so on). Click on one (Purchases, for example) and a

like customers, vendors, and employees provide more than enough fields for descriptive information. And the record formats are as flexible as they are thorough. You can define six different price levels for products or services, three customer lists, and three custom fields for other record types. Standard forms (such as invoices and purchase orders), too, contain the fields you need for processing, and you can customize forms using the improved layout/content designer.

A rare feature found in MYOB lets you create transactions using multiple currencies. And buttons on the transaction forms let you perform tasks like converting quotes to invoices, e-mailing forms, and popping open the related register.

Report generation has been ramped up in this version. New reports have been added, in-



MYOB's Command Center provides a navigational roadmap for your accounting chores.

navigational flowchart appears, showing the workflow for each process. Selecting one of those takes you to the corresponding screen. Links also available on this screen take you to your to-do lists, reports and analysis, and a global find feature.

Record templates for entities

cluding Statement of Cash Flows, Customer Ledger Report, and Jobs Slip Summary and Detail Reports. In addition, reports are easier to customize, with the added ability to select fields for placement. There are more report filters now, in addition to other enhancements, like the

PHOTOGRAPH BY THOMAS CONNOR

# LOOKS

www.pcmag.com/firstlooks

- 37 MacBook 810
- 38 Apple iLife '04
- 39 RealNetworks RealPlayer 10
- 39 RealPlayer Music Store (beta)



- 40 Epson Stylus Photo R300M
- 40 Mitsubishi HC3
- 42 Macromedia Central
- 43 Nimble V5

#### WHAT THE RATINGS MEAN

- EXCELLENT
- VERY GOOD
- GOOD
- FAIR
- POOR

ability to designate favorite reports. Reports can be exported to Excel, PDF, HTML, and more.

MYOB does not offer tools for linking to electronic storefronts, but it does have tools for processing some transactions electronically. You can set up merchant accounts, direct deposits, and direct payments to vendors.

The key take-away is that MYOB's usability is exceptional—arguably the best in this bunch. This latest release isn't quite a match for QuickBooks, but it holds its own against everyone else here.

#### MYOB Plus 2004

Direct price: \$249 (\$100 rebate for QuickBooks users). MYOB US Inc., www.myob.com/us. ●●●●

### Peachtree Premium Accounting 2004

Peachtree-branded small-business accounting products have been successfully evolving nearly since the inception of the PC. Peachtree Premium Accounting 2004 is built on the compendium of tools found in Peachtree's lower-end programs. This package takes its bookkeeping a step further than the company's lower-end offerings (such as Peachtree Complete) and closer to midrange products.

Most notably, the new version lets accountants easily generate consolidated financials for multiple companies. This opens it up as a real possibility for businesses that encompass more than one entity and need to combine individual sets of financial data.

The package's Peachtree Today screen is a one-page overview of your business, with links to related financial data and program tools. You can quickly

see the day's transactions, as well as graphs and reports for key sales and purchase data. This is where you'll also find things like a setup guide and program preferences. The setup guide walks you step by step through the process of readying Peachtree for use and is a must for new users unfamiliar with electronic bookkeeping.

Once you're inside the program, navigation is capably handled by a combination of icons and menus, though we miss the old flow chart-type navigational tool that illustrated the bookkeeping steps involved in various processes. Operations are easy to complete, though not as simple as in QuickBooks.

Two menus contain the tools you'll be using most often: Maintain and Tasks. The Maintain menu helps you set up records and processes that you didn't do during the initial setup, such as building records for customers and vendors, maintaining your Chart of Accounts, and tracking fixed assets. Record formats—particularly those for inventory items—are highly detailed, clean, and, like every other part of the program, supported by an extraordinarily thorough help system.

The Tasks menu directs you to screens that hold forms for transactions, including quotes and sales orders, purchase orders, and payroll entry. These, too, are skillfully designed to facilitate fast execution, using a combination of drop-down lists and icons. Dozens of report templates and special analysis tools provide key data and overviews to managers; reports can be exported to Excel.

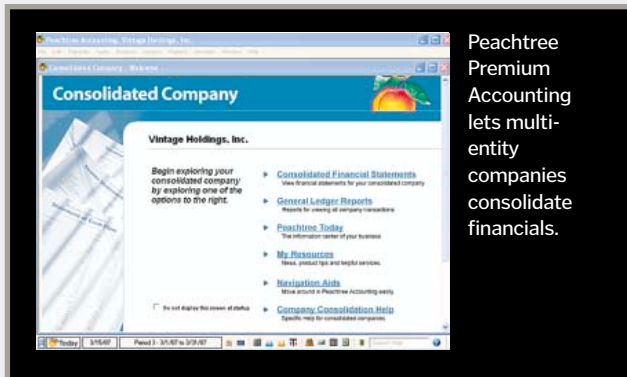
Best Software has extended Peachtree Premium's reach with

a range of add-on modules. Peachtree Web Accounting (\$149.88 per year) lets you access Peachtree data remotely, synchronizing changes you've made from outside. Peachtree Website Creator Pro (\$197.88 per year) guides you through Web site creation and uploads up to 2,000 of your products and services, and Peachtree Website Trader

### QuickBooks Premier 2004



As the old saying goes, nobody ever got fired for buying IBM. The same holds true for QuickBooks: It isn't the cheapest program here, but you can't go wrong buying it for your small business. Intuit has



(\$197.88 per year) helps you build a storefront with online ordering.

Peachtree Premium has a few other features that next-in-line Peachtree Complete does not, like advanced budgeting, a free copy of the highly respected Crystal Reports 9.0, and the tracking of employee raise history. Other, smaller changes include a QuickBooks conversion utility, a new account register, and the ability to e-mail forms.

The only real reason for existing Peachtree users to upgrade to Premium is if they need the multicompartment consolidation tools. Otherwise, Peachtree Complete—or QuickBooks Premier—will suffice.

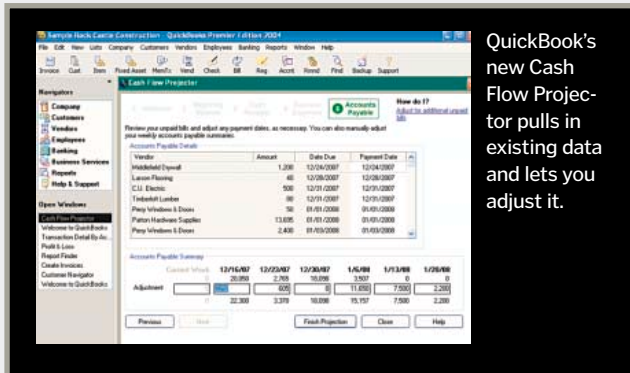
#### Peachtree Premium Accounting 2004

Direct price: Single user, \$499.99; multiuser, \$999.99. Best Software SB Inc., www.peachtree.com. ●●●●

earned this distinction, providing a robust, easy-to-use line of applications for a variety of company sizes and needs. Here we review Intuit's top-end offering for small businesses, but note that QuickBooks Basic 2004 (\$199.95 direct) and QuickBooks Pro 2004 (\$299.95) deliver the same accounting engine less some bells and whistles.

QuickBooks Premier 2004 is not a must-have upgrade if you already have a recent version, but there are lots of tweaks and enhancements here to consider. Notable additions include fixed-asset tracking, a short-term cash flow projector, and support for custom pricing for individual customers and jobs.

QuickBooks' EasyStep interview competently walks you through the steps needed to create your company's files. The



QuickBooks' new Cash Flow Projector pulls in existing data and lets you adjust it.

program helps you set up your business and program preferences, build files of people and items, and fill in additional financial details.

Intuit instituted a main working screen configuration a few years ago that has served QuickBooks well. You can toggle easily among Navigators (company, vendors, employees, and so on) that display a variety of related data and tools. An interactive navigational flowchart spells out the main processes in each area, with links to frequently used functions. Reports are close at hand, as well as links to related activities. A customizable icon bar further simplifies navigation.

When you're ready to work, QuickBooks' depth and layout maximizes the speed and thoroughness of your bookkeeping. Moving from list views of people and items, you can use specialized menus to work with records themselves, enter transactions related to that group, and run reports. Prefab record formats (items, employees, customers, vendors, jobs) are adequate to track the salient details, with several custom fields available.

New per-item price levels are joined by new flexibility in pricing: You can create up to 100 price levels for customers or jobs. Transaction forms are optimized for speed and simplicity in processing, and the program achieves both goals well. You can change some of your forms' basic attributes easily or take on the very intuitive layout designer for more elaborate reconstructions. And there are new tools for tracking fixed assets.

Naturally, QuickBooks offers a full complement of standard business reports. You can filter the body of data that appears in the reports and drill down on line items to see underlying transactions. You can also e-mail reports and export them to Excel. A six-week cash flow projector utilizing what-if scenarios is new in this version. This and other QuickBooks data can be accessed remotely.

If the core features still aren't enough, Intuit has built an impressive stable of add-ons—too many to mention here. There are also industry-specific versions, plus the ability to set up online banking and merchant accounts. And if that's still not enough, the QuickBooks Solutions Marketplace connects you with roughly 300 related programs that integrate with QuickBooks proper. This broad base of third-party developer support is perhaps QuickBooks' greatest asset.

The strength of QuickBooks Premier 2004 proper, and the power to customize it to your needs with the range of available add-ons, make the program the place to start if you are looking for a new small-business accounting platform.

**QuickBooks Premier 2004**  
Direct price: \$499.95. Intuit Inc., [www.quickbooks.com](http://www.quickbooks.com). ●●●●●

**Simply Accounting 2004 PRO**

Simply Accounting 2004 PRO is a reasonably powerful, deceptively simple-looking program with a bargain-basement price tag (\$99 direct). In some areas, it

can match competitors' features, and it has its own unique offerings, like a Spanish/English bilingual version.

Simply Accounting has expanded over the years to move beyond its desktop beginnings, providing tools for electronic transactions and Web-based commerce. The PRO version has only one new feature this year—improved item pricing—but it shares a number of debut enhancements with Simply Accounting 2004 Basic.

To begin, you can create a new company from scratch or copy data over from QuickBooks or MYOB. Model account lists from several industries and business types can form the basis of your own. The setup wizard asks for financial details about your business (though we'd like to see a little more help here) and asks for working preferences. These include the ability to use nonaccounting jargon in the program and to use a foreign currency (with more op-

portional flowchart opens, along with a list of frequently used help tasks. This is your main control panel, since menus don't duplicate the main working screen.

Record forms use tabbed windows to maximize the amount of detail stored. The Inventory & Services window, for example, is divided into sections for entering information about things like quantities and units, pricing (this version lets you create multiple pricing levels for customers and events), inventory assemblies, and tax data.

Transaction screens are fine for the most part, encompassing the fields and data you need. But we'd occasionally run into an impasse, like when we tried to allocate costs to a project: We had to dig into the help system to find we had to have a setting checked in the account records.

Little customization is offered throughout the program compared with competitors, but Simply Accounting's reports fare better in comparison, as do its online



Simple Accounting 2004 PRO comes in a bilingual English/Spanish version.

tions than MYOB has). You can also use the built-in payroll tools or subscribe to a payroll service for easier processing. And you can change the names of fields for things like income and deductions in payroll.

ACCPAC has smoothed out its interface some in this version, but we still find it the least desirable of all those reviewed here. It's not difficult, just not as polished. And we were a tad annoyed that many of our moves insisted on opening new windows. Icons on the opening screen direct you to the program's main functions. Click on an arrow next to a title and a nav-

tools. Simply Accounting PRO was retooled some time ago to interface with a Web-based store. So as you're entering vendor and people records, you can also fill in the data required to move items into the store and customers to shop there. Sales data is transferred between the two.

A better help system and more intuitive financial processing would make Simply Accounting PRO more attractive. But all in all, it's a good choice, especially given its price.

**Simply Accounting 2004 PRO**  
Direct price: \$99. ACCPAC International Inc., [www.simplyaccounting.com](http://www.simplyaccounting.com). ●●●●●

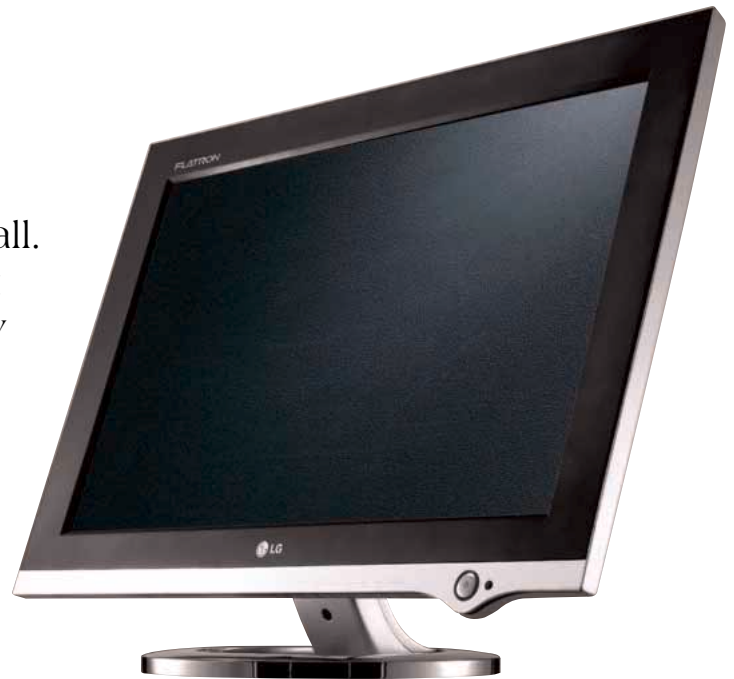


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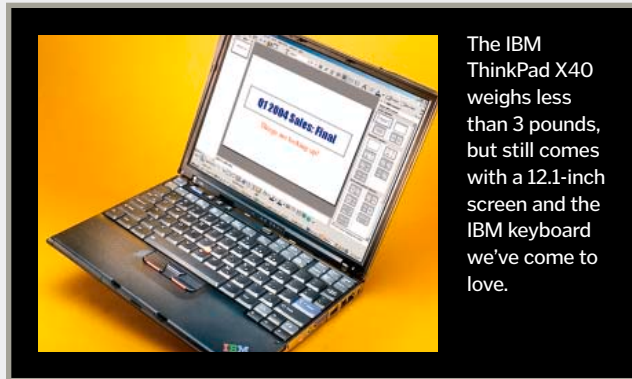
# Our Favorite Ultraportable

BY BILL HOWARD



With the arrival of the best-in-class **IBM ThinkPad X40**, other ultraportables have a lot of catching up to do. Even with a system weight of just 2.7 pounds, the X40 still has the features serious road warriors demand—most notably that wonderful-feeling, full-size IBM keyboard. Best of all, IBM has

previous class leader among ultraportables (which continues on in the IBM lineup). With the X40, the internal battery drops from six cells to four, the hard drive is downsized from 2.5 inches to 1.8 (limiting maximum capacity to 40GB), and the processor choice is initially between the ultra-low-voltage 1.0-GHz Pentium M and the low-voltage 1.2-GHz Pentium M.



The IBM ThinkPad X40 weighs less than 3 pounds, but still comes with a 12.1-inch screen and the IBM keyboard we've come to love.

priced the X40 very competitively: Prices start at \$1,499 direct.

It isn't entirely magic how IBM undercut the 3.6-pound system weight of the X31, the

You can order the X40 with either the four-cell battery or an eight-cell battery. The eight-cell adds about an inch of depth to the 1.1- by 10.6- by 8.3-inch chas-

sis and raises the system weight to 3.2 pounds. The AC adapter adds 0.6 pounds.

Physically, the X40 looks a lot like its ThinkPad siblings. The FireWire connector is gone, giving way to an IBM proprietary power jack for the external optical drive. There remains one PC Card slot and an SDI/O slot that works with both flash memory cards and communications devices from the PDA world. Corporate IT departments will need a separate system image for the X40, since it uses a different graphics engine from previous ThinkPads (in this case it's Intel's integrated 855GME).

Because of the ULV processor, performance tends toward the low end for a premium notebook, with a score of 12.1 on Business Winstone and 12.2 on Multimedia Content Creation Winstone. But those are respectable numbers for an ultraportable, and speed is not an issue for e-mails, presentations, and document creation.

Total battery life depends on how you configure the unit. The four-cell battery lasted 2 hours 26 minutes on our test. The eight-cell battery delivered more

than 6 hours of runtime, and an undermount 0.8-pound wedge battery can add another 3 hours.

With the X40, IBM extends inside-the-box support with its proprietary Rescue and Recovery utility suite, launched by the blue Access IBM button on the keyboard. An embedded preboot operating system provides hard drive, CD, and Ethernet access. The utility helps you recover from crashes, user mistakes, viruses, and even some drive failures. You can have six backups in a hidden partition.

The X40 also includes recent IBM security measures. Most notable among them is the Active Protection System, a vibration and motion sensor for the hard drive that parks the drive heads if the machine senses that it is falling.

All in all, the X40 is a nearly flawless system for users who value portability and ruggedness over big screens, big drives, and big footprints.

## IBM ThinkPad X40

With 1.2-GHz Pentium M, 40GB hard drive, 512MB RAM, 12.1-inch XGA display, Gigabit Ethernet, 802.11b wireless, Microsoft Windows XP Pro, \$2,198 direct. IBM Corp., [www.ibm.com](http://www.ibm.com). ●●●●●

# Fujitsu's Slate Gets Bigger

BY KONSTANTINOS KARAGIANNIS

Fujitsu was doing slate PCs long before Microsoft came out with Windows XP Tablet PC Edition, and that experience shows with the **Fujitsu Stylistic ST5010D**. Despite its large-for-a-slate 12.1-inch screen, the 3.4-pound unit feels well balanced. Alas, some issues with that screen hold the unit back.

An unfortunate trend as of late is that many Tablet PCs, including the ST5010D, switch to only one portrait and one landscape mode. In the case of the ST5010D, that makes for some uncomfortable button presses for left-handed folks.

And as with other models, the ST5010D has one very poor viewing angle in portrait mode; viewing the screen even slightly off-axis from that side shows a washed-out image. Also, its screen suffers from high glare.

Handwriting recognition is as good as you can get with a Tablet PC, and Fujitsu includes Microsoft Office OneNote 2003 to get you going. In case you'd like a keyboard, Fujitsu has a sleek wireless one for \$99. A \$449 Tablet Dock with a DVD/CD-RW drive can make the overall package more like a full system. And the slate itself already has some useful I/O, including Memory Stick and SD slots, as well as FireWire and USB 2.0 ports.

On our benchmark tests, the ST5010D scored 11.4 on Business Winstone. It's no speed demon, but it will suffice for productivity chores. Battery life was good, at 3 hours 22 minutes, and you can swap batteries in suspend mode. The 802.11a/b/g wireless performance was also good.

If you want a slate Tablet PC with a large LCD, the ST5010D is worth a look. Just make sure you can live with the screen's shortcomings before you buy.

## Fujitsu Stylistic ST5010D

With 1-GHz Intel Pentium M, 256MB DDR SDRAM, 60GB hard drive, 12.1-inch XGA screen, wired and wireless Ethernet, Microsoft Windows XP Tablet PC Edition, \$2,249 direct. Fujitsu PC Corp., [www.fujitsupc.com](http://www.fujitsupc.com). ●●●●●

The Fujitsu Stylistic ST5010D has a large screen and plenty of I/O.



# Sony's Notable, Totable Media PC

BY BILL HOWARD

With its Sony VAIO Digital Studio R Series desktop (First Looks, February 3), Sony did the best job of implementing Microsoft Windows XP Media Center Edition we've seen to date, thanks to the platform's superior TV quality. Now the company brings that same TV magic to the notebook sector with the **Sony VAIO GRT260G**—but with Sony's own implementation of a media-centric OS and utilities, not full Media Center Edition.

We are very impressed by the TV tuner integrated into the left side of this 9.1-pound (10.8 with AC adapter) desktop replacement notebook. TV and DVDs play through a 16.1-inch 4:3 display of uncommonly good clarity and brightness. Picture quality from the TV tuner was good, as was video recorded with Sony's GigaPocket DVR (digital video recorder) software, with little or none of the fuzziness and artifacts that ail most TV-tuner PCs and notebooks currently.

The other specs are not uncommon for a big multimedia notebook: 80GB hard drive, DVD multiformat rewritable drive, wired and wireless (802.11g) Ethernet, and enough USB, FireWire, and PC Card connectors to service your multimedia I/O needs capably. And needless to say, the keyboard on the 2.0- by 12.9- by 10.7-inch (HWD) notebook is full size and comfortable.

The GRT260G runs Windows XP Home (you can special-order XP Pro) rather than Media Center Edition. Media Center Edition is the better way to go because of its single clean interface, which can be seen from across the room. Sony's multimedia apps, while quite good, have different interfaces. That said, Sony's Click to DVD applet remains one of the most foolproof programs for making DVDs successfully the first time.

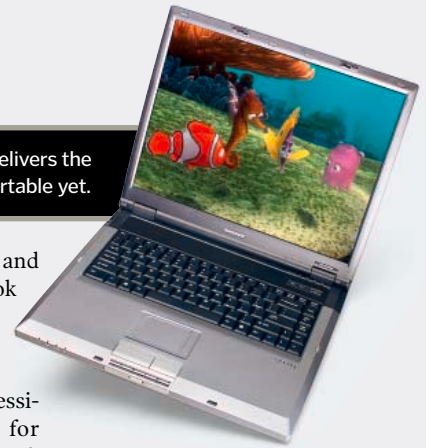
On our performance tests, the GRT260G's showing on Multimedia Content Creation Winstone (20.0) was superior among portables, and wireless throughput showed virtually no falloff until 120 feet from our access point. But the system's mainstream Business Winstone 2004 score of 8.9 was poor for a system running a 2.8-GHz Intel Pentium 4 with 512MB of RAM. We suspect an anomaly with our test unit, as a machine with these specs should deliver a score in the mid teens. Battery life was also low, at 1 hour 14 minutes, although that's not unexpected in a desktop replacement system.

And while it earned top

marks for music capability and as good a score as a notebook can get for video, Sony is less inviting to users of non-Sony digital cameras. It has only one directly accessible flash memory socket, for Memory Stick/Memory Stick Pro. Where others offer a socket that reads SD/MMC cards (and some portables have a second for CompactFlash), with this Sony you have to carry PC Card adapters to read SD or CF.

If you're looking for a big notebook with excellent TV capability, Sony's GRT line is the way to go, and you can't go wrong burning a DVD on this system. But the multimedia notebook

The Sony VAIO GRT260G delivers the best TV experience on a portable yet.



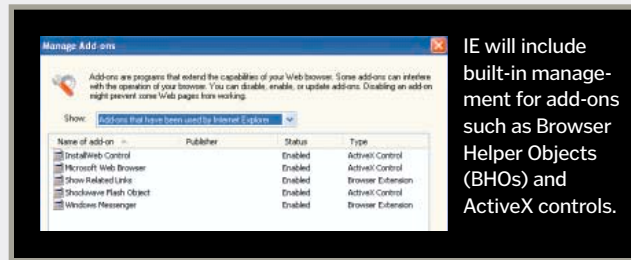
offerings from HP and Toshiba are as good or better if you don't care about the boob tube.

## Sony VAIO GRT260G

With 2.8-GHz Intel Pentium 4, 512MB DDR SDRAM, 80GB hard drive, DVD±RW drive, nVidia GeForce FX graphics, 16.1-inch SXGA+ LCD, wired and wireless (802.11g) Ethernet, Microsoft Windows XP Home, \$2,600 direct. Sony Electronics Inc., [www.sonymstyle.com](http://www.sonymstyle.com).

OVERALL ●●●●●●●● ●●●●●●●● ●●●●●●●● ●●●●●●●● ●●●●●●●●

## Windows XP SP2 in the Works



BY NEIL J. RUBENKING

Microsoft expects to release Service Pack 2 for Windows XP in the first half of 2004. A beta version came out in December, and it reveals a number of interesting security enhancements in Web browsing, e-mail, and networking.

For starters, Internet Explorer will get its own built-in pop-up blocker. At the user's discretion, IE will block any pop-up or pop-under window that wasn't triggered by the user's click. Users can right-click the pop-up icon in the status bar to review blocked pop-ups. IE will also add protection against *drive-by downloads*—downloads that occur without the user's knowl-

edge or permission. It will divert such downloads into a link appearing below the toolbar. If the download is wanted, the user simply clicks the link.

Outlook Express will gain the ability to prevent downloading of images or other external content in HTML-based mail. This is important, since spammers use invisible images (called *Web bugs*, or *Web beacons*) that notify them surreptitiously when you view their e-mail messages.

Browser Helper Objects, ActiveX controls, and other add-ons can enhance Internet Explorer, but poorly written ones can crash IE, and malicious ones can steal personal information. The new Manage Add-ons dialog displays all such add-ons and

lets you disable an unwanted add-on or try for an update of one that's not working correctly. Additionally, both Outlook Express and Windows Messenger will include added protection against malicious attachments.

The Internet Connection Firewall will be renamed to Windows Firewall and will be enabled by default. It will add more stringent protections against misuse of the computer's ports by outside programs. Only specific programs will be allowed to receive connections from outside sources. But it still won't include protection against outbound traffic, like the kind ZoneAlarm provides.

Other enhancements include the ability to restart interrupted downloads in Automatic Update, protection against buffer-overrun attacks, and better support for Bluetooth and wireless networking. You won't want to miss installing this service pack.

Microsoft Windows XP Service Pack 2 (beta)

Free download. Microsoft Corp., [www.microsoft.com](http://www.microsoft.com). Not rated.

# Studio 9: Great Features but Not Problem-Free

BY JAN OZER

**P**innacle Studio has long been one of our favorite consumer-level video-editing packages, thanks to its ease of use and wealth of advanced features. The company recently debuted a major revision of the product, **Pinnacle Studio 9**. In terms of features it's a big advance, with a new special-effects architecture and a polished, intuitive interface. But stability may be an issue on certain computers.

equally impressively in removing minor shakes from video.

These video filters are complemented on the audio front by a noise-removal filter and a range of creative filters from a product called Virtual Studio Technology, courtesy of Pinnacle's recent acquisition of Steinberg (a respected developer of consumer and professional digital audio products). Pinnacle also added pan (left-to-right) and fade (front-to-back) controls for placing and shifting the

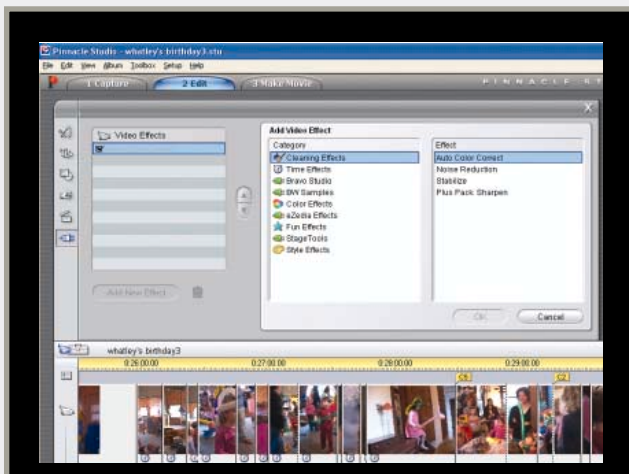
full-screen preview capabilities and an interface that expands to fill a 1,600-by-1,200 display (Studio 8 topped out at 1,024-by-768, leaving those with high-res monitors with wasted screen real estate). Studio 9 can now capture, edit, and output 16:9 video, which is useful for those shooting for wide-screen television sets. Pinnacle has also added an automated movie-making function (à la muvee autoProducer or Microsoft Movie Maker 2's Auto-Movie), which lets you specify video and audio clips and a theme for the project, then let the editor do the rest.

To see how Studio 9 would fare in a best-case scenario, we loaded it on an HP xw4100 workstation with a 3.2-GHz P4 and 2GB of RAM running Windows XP Professional. We started by timing DV and MPEG-2 rendering on a 7-minute project. Though DV rendering time was relatively unchanged compared with what we saw when we tested Studio 8, Studio 9's MPEG-2 rendering time improved from 18 minutes to 12 minutes 15 sec-

anomalies, though, and our tests revealed some caveats potential buyers should consider. First, Studio 9 runs best on computers with a relatively clean Windows installation with few tasks running in the background. We used *PC Magazine's* StartUp Cop utility to remove unnecessary background programs on both computers, which eliminated most stability issues.

Beyond this, Studio 9 exhibited a few less serious problems, almost exclusively during DVD authoring. For example, Studio 9's custom menus often dropped links unexpectedly during editing, and the product dropped certain background music tracks when added to clips accelerated beyond IX speed. We also noted some audio breakup with audio and video menus.

Most current Studio users will find the new filters in Studio 9 invaluable to their production efforts, and the program's interface remains a joy. That said, Studio 9 requires a good deal of proactive maintenance, and users expecting a trouble-free ride



The highlights of Pinnacle Studio 9's new features are the audio and video filters.

Let's start with the good. The highlight of Studio 9 is a new architecture for audio and video special effects and filters. Pinnacle ships a small but highly useful assortment of filters with the base version of Studio 9 and will offer a Premium pack of additional filters. Included with Studio 9 proper is an automatic color-correction filter brought over from Pinnacle's higher-end Liquid Edition product. We tested the filter on the same video clips we used to test prosumer packages, and the \$99 Studio 9 performed comparably with or better than more expensive packages such as Adobe Premiere Pro and Sony Vegas. The image stabilization filter proved

perceived location of sound.

The new filters aren't perfect. For example, there are no true key frame controls like those in Ulead VideoStudio, just simple transition controls. But when it comes to correcting problems in source videos—a critical issue for consumer videographers—Studio 9 is miles ahead of other consumer programs.

Other new features include

onds, an impressive speedup.

Next up were our stability tests, with five different scenarios involving projects up to 2 hours in length, with output to DV tape and DVDs with template-based and custom menus. Ultimately, Studio 9 completed all tests on two different computers, even after we reduced system RAM on the xw4100 to 256MB.

There were some output

need to have a powerful, clean machine to start with. At the very least, those with older systems should download and test the trial version before buying.

## Pinnacle Studio 9

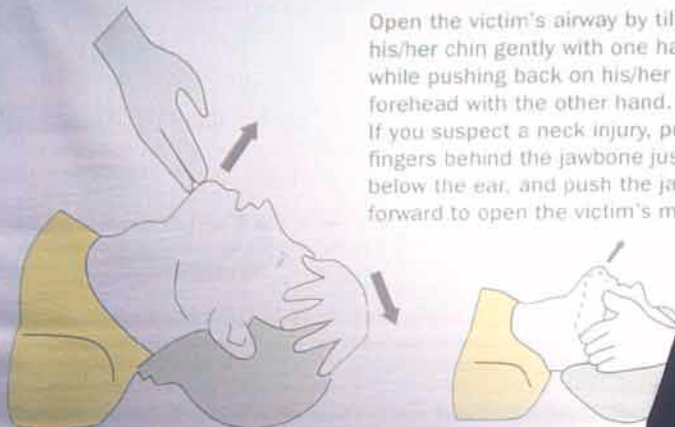
Direct price: \$99. Requires: 800-MHz CPU or better; 256MB RAM; 500MB hard drive space for program files; DirectX 9-compatible graphics card (or later); Microsoft Windows 98 SE, Me, 2000, or XP. Pinnacle Systems Inc., [www.pinnaclesys.com](http://www.pinnaclesys.com). ●●●●●



Yes, the bride did wear white, but it looks pink without Studio 9's color correction, which matched what the high-end Pinnacle Edition delivered.

### 3 OPEN THE VICTIM'S AIRWAY

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\*Repeater function works with Buffalo Access Points and Routers only, but can communicate with other manufacturers' 802.11b and 802.11g client adapters. \*\*Laptop Magazine December 2003 issue - applies to WLA-G54C repeater only.

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# Affordable, Portable Speed Demon

BY BILL HOWARD

The current speed champion of the 32-bit notebook computing world is a 64-bit computer: the **eMachines M6807**. This \$1,600 desktop replacement portable is the first model from a major manufacturer to ship with AMD's new Athlon 64 3000+ mobile processor. We expect others to follow suit, but for now the M6807 can boast the best performance scores of any notebook we've tested to date.

On our Business Winstone 2004 test, the M6807 posted a score of 19.7. Most performance notebooks score in the low to mid teens, and the fastest previous model was the Sharp Actius RD20 (with a 3.06-GHz P4) at 17.2. The M6807's Multimedia Content Creation Winstone 2004 score of 23.7 also beats the previous best of 22.4 among portables.

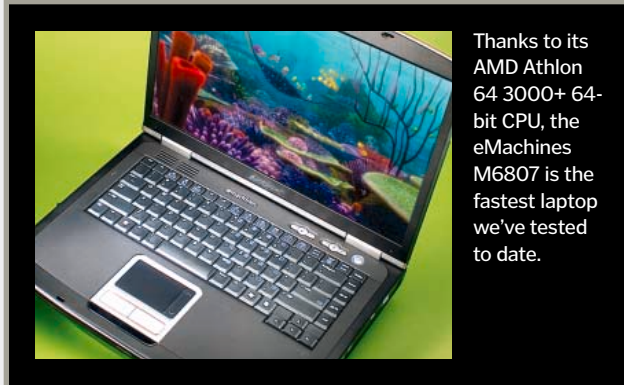
On the outside, this mainstream-looking wide-screen notebook measures 1.6 by 14.0 by 10.4 inches (HWD). System weight is 7.8 pounds, or 8.8 pounds with the AC adapter. It comes with a 15.4-inch (1,280-by-800) display and a Pioneer DVR-K12D multiformat DVD burner. The CPU is paired with a capable ATI Mobility Radeon 9600 graphics subsystem. The quality of the wide-screen LCD is good but not exceptional, and the 60GB Fujitsu drive spins at 4,200 rpm, while many notebooks now use faster units.

The M6807's rundown time of 2 hours 42 minutes is first-rate for machines of this size. Most systems weighing 8 pounds or more deliver only 1 and a half to 2 hours of runtime. The M6807's 802.11g wireless adapter yielded average performance out to 60 feet from our access point (where we measured a throughput of 14 Mbps), but at 120 feet throughput was about a third lower than in other recently tested adapters (3.0 versus 4.3 Mbps).

For multimedia applications,

the M6807 makes a capable desktop replacement. It's best for ripping and burning, thanks to the bundled Roxio Easy CD & DVD Creator 6.1, one FireWire

and four USB 2 ports. Digital photographers will like the dedicated slots for three kinds of media (CompactFlash, Memory Stick, and SD/MMC) in addition



Thanks to its AMD Athlon 64 3000+ 64-bit CPU, the eMachines M6807 is the fastest laptop we've tested to date.

to a single PC Card slot, though no significant image-editing software is included. eMachines also bundles the basic Microsoft Works 7.0 suite.

The real payoff to having a 64-bit computer is down the road, but certainly within the three-year useful lifespan of most notebooks. Meanwhile, you should be quite satisfied with the eMachines M6807. Performance is great, and the battery life is a nice bonus for such a large system.

## eMachines M6807

With AMD Athlon 64 3000+, 512MB DDR SDRAM, 60GB hard drive, DVD±RW drive, ATI Mobility Radeon 9600 graphics, 15.4-inch WXGA LCD, 802.11g wireless, Microsoft Windows XP Home, \$1,600 street. eMachines Inc., [www.emachines.com](http://www.emachines.com). OVERALL



# First Thin-Client Laptop

BY S. JAE YANG

Last year, the theft of a Wells Fargo contractor's laptop—with the banking records of more than 200,000 customers—made some enterprises think twice about storing valuable corporate data on portable PCs. Maxspeed's solution is a simple one: A laptop without a hard drive.

Or more precisely, a thin-client system in a portable form factor. With its black chassis and 12.1-inch display, the 2.9-pound **MaxBook 810** looks like a typical ultraportable PC. But unlike other portables, the MaxBook stores a pared-down operating system and thin-client programs in its built-in flash memory. It runs Windows XP Embedded and can be ordered with a customized mix of thin-client programs (Citrix ICA, Windows Remote Desktop, VNC, terminal emulation clients) based on your enterprise's needs.

Within the walls of an organization, the MaxBook can connect to a LAN via the built-in 10/100 Ethernet adapter or a Wi-Fi-compliant wireless card (the price includes an 802.11b

adapter). When you are on the road, you can still access your corporate applications and the Internet with the built-in 56K modem or via WAN wireless services now offered by Sprint and others.

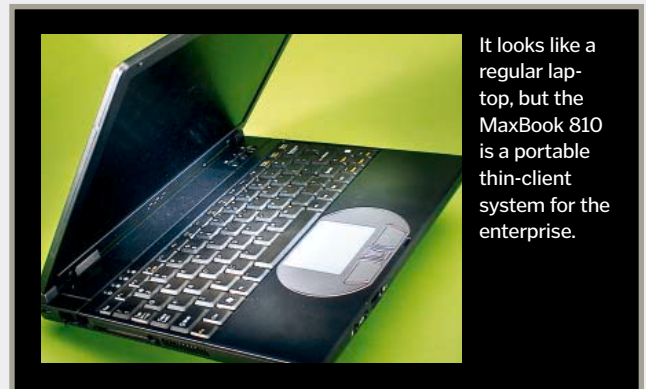
That said, our experience with the MaxBook using the Sprint PCS service was mostly frustrating, due to the long latency in the wireless network. A modem connection will be your primary lifeline back to the home office. And because there is no hard drive, you won't be able to work on files locally when you're away from a phone jack (on a plane, for instance).

The MaxBook's lithium ion battery yielded a runtime of about 2 hours per charge. That's not terrible, but we had expected more. We also don't love the MaxBook's keyboard. The keys are smaller than on other ultraportables, and some functions require a Function-key combo.

Still, if your organization has bought into the thin-client model, the MaxBook 810 is worth a look. It gives employees the freedom to be productive in conference rooms and hotels enjoyed by fat-client users while ensuring that no mission-critical data ever leaves the corporate server.

## MaxBook 810

List price: \$1,499. Maxspeed Corp., [www.maxspeed.com](http://www.maxspeed.com). ●●●●



It looks like a regular laptop, but the MaxBook 810 is a portable thin-client system for the enterprise.

# Apple Adds Music Creation to Its Suite

BY TROY DREIER

Apple has upgraded its popular iLife suite of multimedia creation tools with a range of useful improvements. Chief among the highlights of **Apple iLife '04** is a new app, GarageBand, which is ideal for aspiring rock gods and *American Idol* wannabes.

GarageBand makes music mixing and song creation easy enough for any novice to enjoy yet produces results professional enough for real musicians to use on their demo discs. The app's interface is divided into two sections: The top displays the various tracks of a song, while the bottom shows the 1,000 royalty-free music loops that are available for sampling.

Users can create reasonably polished tunes with the clips alone, but most will want to plug in a microphone or an instrument and record their own performance. We tested GarageBand with the M-Audio Keystation 49e, a 49-key musical keyboard (\$99 direct, available on Apple's online store). The Keystation is powered by the USB port (no extra power brick or batteries required) and is light and easy to carry. It includes pitch bend and modulation wheels and a port for a sustain pedal. To use a microphone or a MIDI instrument with GarageBand, users will need an audio interface adapter (also sold on the online store).

Software like GarageBand has been around for a while, but it's never been so easy to use. Record your music into GarageBand, then make it sound like any of over 100 instruments. Adjusting tempo and volume is a snap. When adding audio loops, you don't need to worry about matching the tempo or key; GarageBand tweaks everything for you. We like that some of the loops are marked with blue icons to show that they were created by live musicians; loops with green icons were created electronically.

We were able to make a decent song without too much fuss, but we would have preferred a small manual to help us understand the controls more quickly.

GarageBand compositions (in AAC format) can be output quickly to the suite's iTunes application, which in turn lets you burn to CD or load onto an iPod music player. You can also easily import your creations into iMovie or iPhoto to use as a soundtrack for home videos or photo slide shows.

Among the other parts of the suite, the iMovie video-editing app sees the most improvement with this upgrade. iMovie was already a solid performer, able to stand up to the best consumer-

level Windows movie apps from Pinnacle and Ulead. With this release, it offers users greater control over editing tools without sacrificing ease of use.

Trimming video clips is now simpler, as users need only grab the ends of a movie directly in the timeline to alter the start and end points. Editing is nondestructive, so users can always go back without the bother of reimporting a clip. And iMovie now shows the waveforms of audio files in the timeline, so syncing on-screen actions with a timpani role or a cymbal crash is now a breeze. The app also now runs more quickly.

iMovie's DVD creation companion, iDVD, adds even more

stunning new visual effects with this release, and it just might be the best consumer-level DVD-burning app on the market right now. In this release, iDVD gains 20 new menu themes (wedding, road trip, movie theater, and more). And some of the menus now have "sister" menus, so that users can create submenus that are visually related but not exactly the same as the main menu.

DVDs can now play intro clips before the main menu appears, and a few of the menu themes come with great-looking matching intros. iDVD can also now create slide shows with multi-song audio tracks and professional transitions, and it can create a DVD map that shows a DVD's organization at a glance.

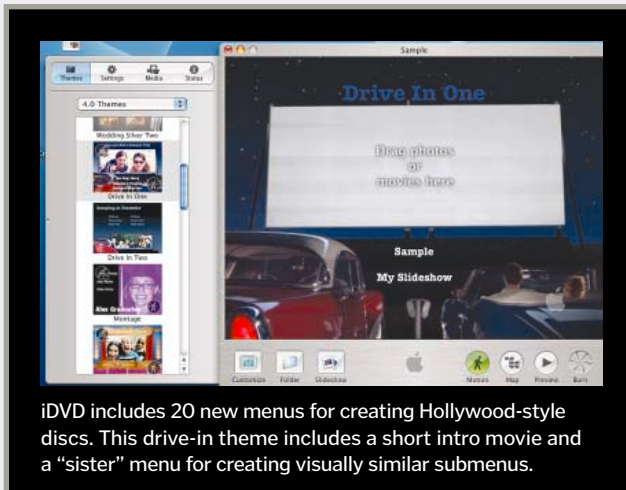
iPhoto gains the most important thing it could with this release: speed. Previously, iPhoto quickly became bogged down as your library grew, but it's now noticeably snappier with large libraries and can support up to 25,000 pictures.

The app also lets users organize photos much the same way that iTunes organizes songs. Users can rate their photos from one to five stars and create smart folders that continuously update as the library grows. iPhoto now uses Rendezvous to share photo libraries with others on a local network. iPhoto also picks up new slide show transition effects.

The only tool in the suite that isn't upgraded is iTunes, which made the leap to Version 4.2 only a few months prior to this release. The iLife suite comes preloaded on new Macs; current users can download the upgrade for \$49. That's a more than reasonable price, especially for those who will use the GarageBand addition.

## Apple iLife '04

Direct price: \$49. Requires: Macintosh PowerPC G3 or better (G4 or better for GarageBand, 733-MHz G4 or better for iDVD), 256MB RAM, 4.3GB hard drive space, MacOS X 10.2.6 or later (10.2.8 or later recommended). Apple Computer Inc., [www.apple.com](http://www.apple.com). ●●●●●



iDVD includes 20 new menus for creating Hollywood-style discs. This drive-in theme includes a short intro movie and a "sister" menu for creating visually similar submenus.



GarageBand's interface is divided into two sections, with the tracks of a song on the top and prerecorded loops below.



# RealNetworks Rolls Out New Player, Store

BY TROY DREIER

With the current maze of online music stores and formats, RealNetworks has delivered something truly useful: a free player that can handle both AAC music files (used by Apple's iTunes) and WMA files (used by most everyone else). So no matter where you purchased your tunes or with which utility you ripped them originally, you can play them with **RealPlayer 10**.

In addition, the new player offers improved navigation and better playback of streaming content. And that's not all: Tucked inside the player is the first iteration of Real's own online music store, which follows the now familiar pay-as-you-go model embraced by the iTunes Music Store and Napster 2.0 (among others) but with a few improvements all its own. The store is now in public beta and should be live by the end of March.

RealPlayer 10 isn't dramatically different from RealOne (the previous iteration), which is a good thing. The utility still offers the same unified interface, although it's been simplified this time around for better ease of use. Tabs have been added to the center of the screen to help users find their way around quickly, and the Media Library now offers a handy tree view, which makes it simple to find a particular artist or song in a crowded library.

Real also offers a new streaming playback system that it calls *PerfectPlay*. PerfectPlay caches live streams so that users can easily pause them or jump backwards or forwards. Perhaps the biggest improvement, though, is that the RealPlayer can now play AAC files—including those purchased from Apple's iTunes store.

As before, the company offers premium RealPlayer features for users who want to pay \$19.95 for the utility. Enhance-

ments include high-quality MP3 encoding: up to 320 Kbps, versus a maximum of 96 Kbps for users of the free player. Paying users also get phone support, a graphic equalizer, cross-fade ability, and jewel-case printing.

You can also get these perks by subscribing to Real's streaming content (\$9.95 per month).

popular network TV shows.

Previous users will attest to the fact that the player has often been its own worst enemy, grabbing audio and video file associations without asking or bombarding users with solicitations from the Real Message Center. We're happy to say that the company has finally dialed it back.

from all five major music labels and 200 independents. We'll have to wait and see if the final live service can match the more than half-million titles found on Napster and iTunes. You can download 192-Kbps AAC files—a big improvement over iTunes' 128-Kbps AAC files—or Napster's 128-Kbps WMA files.

Real's downloads are wrapped in the company's own DRM (digital rights management) software, and purchased songs can be played on up to three computers, burned an unlimited number of times (as long as the playlist changes after five burns), and transferred to a small number of devices that include the Creative Nomad Jukebox Zen Xtra and five Palm PDA models. Note that songs can't be transferred to the popular iPod or Samsung Napster players, and they won't play on Macs.

The store offers a decent browsing experience, but it's not as engaging as Napster or iTunes. Real offers limited biographical info for artists, but it doesn't go as deep as what Napster has. And while it has chart information, it's only the store's own charts, not national rankings like those from Billboard.

Real is moving in the right direction with this latest player. RealPlayer 10 is both more useful and less aggressive. And the company's music store, while not the biggest on the block, gives buyers one more option for downloading songs legitimately, which is always a good thing.



RealPlayer 10 delivers a sleeker, more intuitive interface, giving users easier access to media files and content.



The new RealMusic Store integrates with the player and lists available titles by genre, new releases, exclusives, and more.

We didn't see any must-haves among the current roster, which was mostly a blend of news and entertainment reporting. That said, the company is constantly updating its partnerships, so at any given time there is likely to be something you want. In the past, the service has carried Major League baseball games as well as exclusive content tied to

File associations and the Message Center can be completely controlled during installation, where you can set how much or how little you want RealPlayer to do. Even users of the free version won't be harassed by constant advertisements.

Even in its beta stage, the new RealPlayer Music Store offers more than 400,000 tracks

## RealNetworks RealPlayer 10

Free download. Requires: PII/350 or better CPU (PIII/500 recommended); 64MB RAM (128MB recommended); 52MB hard drive space; Microsoft Windows 98 SE, Me, NT 4 (with SP 6 or later), 2000 (with SP 2 or later), or XP. ●●●●●

## RealPlayer Music Store (beta)

99 cents per song; \$9.99 per album. RealNetworks Inc., [www.realnetworks.com](http://www.realnetworks.com). Not rated.

# Epson's R300M Debuts Unique Features

BY M. DAVID STONE

**T**he **Epson Stylus Photo R300M** is the newest addition to the growing list of printers that can print photos from a memory card. Add it also to the much shorter list of printers that can print on printable CDs. And while you're at it, use the R300M to start a new list of printers that can print directly from a CD or Zip drive attached to its USB port—no PC required. You can also transfer photos from an inserted memory card to one of those drives, making the R300M an ideal tool for archiving photos easily.

The R300M includes a 2.5-inch color LCD screen and card slots for most memory card formats. Physical setup is straight-

forward, requiring you to attach the LCD monitor and snap in the six ink cartridges (one for each color). We also plugged in a Memorex CD-RW drive to the printer via USB. Most of the printer's more unusual features worked well, but not necessarily the way you'd expect.

For example, to print reliably from an attached CD drive, the folder structure has to match the standard for camera memory cards. If you let the printer itself copy files directly

The R300M's memory card slots, USB connector, and color LCD make it easy to print photos without a computer.



Compared with the HP Photosmart 7960, which earned Editors' Choice among direct photo printers in our November 11, 2003, issue, the R300M was slower on our Microsoft Word and Excel tests. But for photos, it was a bit faster, at 2 minutes 30 seconds for a photo printed from Photoshop (compared with 2:35 for the 7960). As with the 7960, photo output from the R300M qualifies as true photo quality.

If you're looking for a dual-purpose printer for both photo output and business documents, the HP entry is the better choice. But if your printing needs skew more toward the photo end, this Epson newcomer offers a wider array of features.

Epson Stylus PhotoR300M

Street price: \$230. Epson America Inc., [www.epson.com](http://www.epson.com).



# Mitsubishi's HD Projector

BY KONSTANTINOS KARAGIANNIS

**B**usiness LCD projectors that can pull double-duty for home entertainment purposes are becoming commonplace. Mitsubishi has a unique spin with its **Mitsubishi HC3**: It's an HDTV home theater projector that can also handle business chores.

Designed primarily for motion video, the HC3 delivers a true 16:9 wide-screen picture at its native resolution of 960-by-540. The 5.9-pound unit can also interpolate a traditional 4:3 aspect signal of up to 1,280-by-1,024. Setup out of the box is easy and minimal. A VGA dongle will connect to the component jacks of a progressive-scan DVD player or HD receiver. A standard VGA cable is included for your PC, and you can also use the composite or S-Video jacks.

To see how it fares as a business projector, we tested the HC3

on images generated by Display-Mate ([www.displaymate.com](http://www.displaymate.com)). Using a 1,024-by-768 signal in 4:3 mode, the HC3 did very well. Color reproduction was excellent, and the HC3 showed off its 500:1 contrast in the gray-scale screens. Fine text was a bit difficult to read in the PC images, but for PowerPoint slides this shouldn't be an issue.

The HC3 really shines as a home theater projector. The rated 1,300 ANSI lumens of output created a terrific-looking 80-inch (diagonal) image in subdued room lighting. We found 100 inches to be the point where you want to start darkening the room significantly. In both cases, the old home theater rule of thumb applied: a seating distance of about three times the height of the image yielded best results. Getting much closer reveals some pixelization; moving too far back robs you of the impact.

When playing the *Underworld*

DVD, the image was very realistic. All the challenging dark, blue-filter scenes were crisp and showed amazing detail. Mitsubishi's ColorView engine delivered accurate flesh tones, and explosive firearm bursts exhibited gorgeous reds and oranges.

Switching to a 1080i HD version of *Shrek* was not quite as free of artifacts, but the image was still good. The occasional jaggies occur because of scaling, since the HC3 has a quarter the pixels of a 1,920-by-1,080 native 1080i display. That said, we've seen plasmas in this price range do far

worse with 1080i signals, and you get a much bigger picture with the HC3.

So if you're in the market for a flat-screen or rear-projection HDTV monitor, consider adding the front-projection Mitsubishi HC3 to your decision tree. It delivers a bigger picture than the other choices, and you can take it with you on the occasional business trip, as well.

Mitsubishi HC3

Street price: \$2,500. Mitsubishi Presentation Products, [www.mitsubishihomecinema.com](http://www.mitsubishihomecinema.com).



The Mitsubishi HC3 is an affordable home theater projector that can also serve as a business projector.



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# Macromedia Centralizes Applications

BY RICHARD V. DRAGAN

Why can't it be as easy to buy, download, and run software as it is to do the same with music? Macromedia is trying to do just that with **Macromedia Central**, which strives to be a better way to distribute and run software. The first release of the service, designed to gain traction among developers, tantalizes with a promising look and feel and several strong demo applications.

The big picture with Central is that new "rich" applets can be downloaded, installed, and run with ease. Unlike the Java platform, which has promised roughly the same thing for years, Central does not require a large runtime download for its virtual machine. All a potential user needs is to have Macromedia's Flash player and Central installed. As with Java, Central applications run inside a protected virtual machine (referred to as a *sandbox*), so they have built-in security. Better yet, smaller developers can charge for their software via Yahoo! Payments.

While it's too soon to tell if Central is the Next Big Thing, the platform does have the ease of use it will take to get a broad base of users interested. Simply download the latest Flash player (if you don't already have it), then install the IMB Central client (available for both Windows and Mac). We were up and running with the Central mini-desktop quickly. An application finder tool let us download and quickly install a handful of test applications, called *Pods*, which run inside a main Central console window.

One of Central's core strengths is that applications can collect data from multiple servers. Using this to good advantage is Movie Finder, one of the first apps to go up. This utility wires together capsule movie reviews from Rotten Tomatoes ([www.rottentomatoes.com](http://www.rottentomatoes.com)), theater information from Fandango

.com, and DVD information from Netflix. This application truly shines and is a real showcase for the platform's potential. We liked how the various windows updated information in real time, a capability that Macromedia calls Blast. Another whiz-bang feature of Central applications is that they use XML to store data off-

Macromedia's own news helped get us started here.

Macromedia also provides a few sample applications that point toward Central's potential for corporate users. There is an application called MAX 2003 detailing the proceedings of last year's Macromedia developer conference. This appli-

users for this year include a corporate directory and better administration abilities.

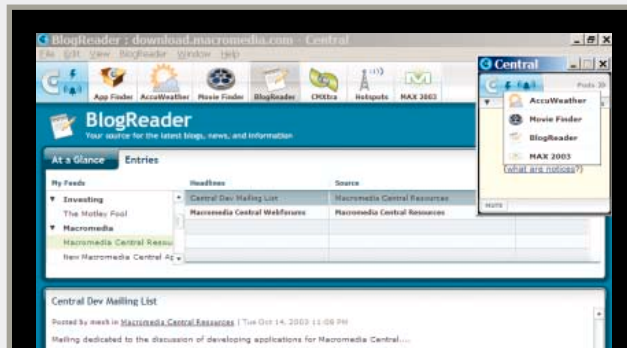
On the development side, the accompanying Central SDK is available as a free download. This module works as an add-on to Macromedia's Flash development tools, such as Flash Studio MX 2004, which we used in our testing. Central adds over a dozen user interface components to the standard Flash platform, plus well over 100 new APIs to manage the Central console, pods, and Web services. There are functions to connect to Web services via SOAP (including support for asynchronous processing), plus calls to manage local, disconnected storage.

These APIs will be easy enough to master for existing Flash developers. Although there is plenty to learn, Central does not substantially change the standard Flash development environment. What is different are the new UI abilities Central adds, plus the fact that you are coding apps that run in a stand-alone window, instead of inside the Flash player. Macromedia is betting that developers will come up with graphically savvy interfaces for Central, such as those that have long been the signature of the Flash platform.

By simplifying the distribution of multimedia-rich pods, Macromedia may have a winner for applications that aggregate all kinds of content—the goal of corporate portals for some time now. Central's interface looks impressive, and it offers developers and enterprises a promising way to distribute Flash software that runs outside a browser. If Macromedia can successfully tap its inventive developer base and create a vibrant online marketplace for selling and swapping applications, Central has potential.



Bringing together information from several online movie services, Macromedia Central's Movie Finder pod shows the potential of this new way to distribute and run software.



With support for disconnected data, Central lets users read blogs and other news, whether they are online or off.

line, so if you are on the road you can still use them.

Other available applications include AccuWeather 1.2 and another that lets you search for wireless hot spots. Finally, we liked the BlogReader app, which taps any blog or news feed (as long as it uses RSS). Sample feeds from *The New York Times* online, *The Motley Fool*, and

can distribute documents to remote users, handle online training, and the like.

A sample chat application shows off support for instant messaging. Macromedia is planning to support AOL's popular IM standard with a client due this year. Other enhancements in the works for business

**Macromedia Central**

Free download. Macromedia Inc.,  
[www.macromedia.com](http://www.macromedia.com). ●●●●●

# Nimble Multifunction PC Appliance

BY JOHN DELANEY

Billed as a Personal Communicator/Personal Computer, the **Nimble V5**, from Nimble Microsystems, is certainly one of the smallest desktop systems on the market. But we're not sure it's the answer to a question anyone asked. As a PC, it's missing too many essentials to be competitive. And as an appliance, it's overpriced.

Incorporating a built-in KVM (keyboard, video, and mouse) switch, DHCP router capabilities, and ultra-low power consumption, this handsome little device certainly wins points for innovative design. The V5 is based on the VIA Technologies C3 Nehemiah 733-MHz processor and CLE266 chipset. This CPU enables the V5 to operate silently (there is no fan) while consuming minimal power. It

also allows for an extremely small chassis. Measuring just 2 by 7.7 by 7.7 inches (HWD) and weighing a mere 2.1 pounds, the V5 is about the size and weight of a hardcover novel.

The slim front bezel contains a built-in speaker and microphone, a volume knob, a button to control the KVM switch, a microphone/speaker mute button, a USB 2.0 port, and external microphone and speaker jacks. The top of the unit holds a Type II PC Card slot, and the rear panel contains three additional USB ports, a WAN port, and a 10/100 LAN port.

As a standalone PC, the V5 is well suited to Web browsing and e-mail. But for \$700 (street), you'd expect at least a few essentials, such as a keyboard, mouse, monitor, or any sort of optical or floppy disk drive.

But this unique device is meant to complement an existing desktop setup that lets you share resources—hence the KVM switch. Configuring the V5 as a router is easy enough using XP's WAN properties dialog box to enable ICS (Internet Connection Sharing), under which the V5 acts as a DHCP server to assign IP addresses. Note that there are no built-in wireless capabilities.

Our V5 review unit shipped with a Logitech QuickCam Pro 4000 USB Webcam. When used with the built-in speaker/microphone, it transforms the V5 into a cool little videoconferencing system using MSN Messenger.



The Nimble V5 is a tiny but pricey PC or appliance.

The Webcam is not a high-end camera, but it was adequate for one-on-one videoconferencing. The V5's circuitry reduces the echo usually associated with speaker phones, and the speaker did a good job of providing distortion-free voice communication.

The V5 looks and runs cool and reclaims wasted desk space, but its price tag is prohibitive considering the cost of today's desktop and notebook systems.

**Nimble V5**

With VIA C3/733, 256MB DDR SDRAM, 30GB hard drive, Microsoft Windows XP Home, \$700 street. Nimble Microsystems Inc., [www.nimblev5.com](http://www.nimblev5.com).



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# FEEDBACK

“Apparently, I bought a notebook that came preloaded with the Blaster worm.”



## LOOKING BACK

I THINK YOUR E-MAIL ISSUE (February 17) was excellent, offering great information on antispam tools. But I'm surprised that you omitted an entire category. You cover consumer-level e-mail software and antispam packages, then server-level e-mail software, but there's no mention of server-level antispam software. I would love to see a follow-up on antispam software packages and appliances.

ED JAMISON

*We covered the six top server antispam products in our issue of November 11 (page 32), and they haven't changed much since. We probably should have made that clear in the story you read. We will revisit that topic soon.—Ed.*

## DATELINE: BANGALORE

AS AN IT PROFESSIONAL, I am saddened, angered, and frustrated with the trend toward moving IT jobs outside the U.S. John C. Dvorak (Inside Track, March 2) sums up my feelings quite nicely. Despite successful claims from Dell and IBM, there are many problems with India-based call centers: Inadequate communication skills, English fluency, and customer service plague such operations. You'll love this story that happened to me.

One of my coworkers has a Dell machine, and his hard drive failed. The system came with a three-year warranty, so I called Dell tech support the next day to resolve the issue. The date was January 10, the last day of the warranty. I was immediately transferred to India, where a young woman told me there was nothing she could do, as the warranty period had expired. I pointed out that today was the last day of the warranty. She replied, "But I am in India, and today is January 11. My computer will not allow me to dispatch a service call."

I told her, "I am an American. Dell is an American company. I paid for this computer three years ago with American dollars. And today, in America, it's January 10, and you'd better get someone on the line who can help me." The problem was quickly resolved, and a technician came to my office to replace the hard drive. Bad story, good ending.

MATT MCLELLAND

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We welcome your comments and suggestions. When sending e-mail to Letters, please state in the subject line of your message which article or column prompted your response.

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## WORM IN THE BOX

I HAD AN EXPERIENCE SIMILAR to the one detailed in a recent Feedback (February 3, page 53). I bought a Compaq Presario 2100 from Radio Shack, and when I fired it up, it would not go online to register with Norton or HP. When I loaded EarthLink and tried to go online, I got a Remote Procedure Call error message, followed by a crash. EarthLink's tech support informed me I had the Blaster worm. The rep said she had had about five calls from folks with notebooks infected out of the box. Compaq's tech support confirmed the problem. Apparently, the units are connected to the Internet during testing and they were infected even before they shipped. At least nobody gave me a hassle about getting my money back.

DON RODGERS

## DATABASE COLLABORATION

OVER THE YEARS, I HAVE OFTEN FOUND myself in the position of explaining the potential advantages of managing data in a database instead of a spreadsheet. In your Solutions article "Spreadsheet≠ Database" (February 3, page 62), you highlight three distinct advantages of using a database. But I believe that there is one more factor that deserves mention: multiuser data entry.

Databases are not loaded into memory, so they perform well in multiuser environments. For the vast majority of applications, record-level locking—which most database engines offer out of the box—provides sufficient protection against simultaneous editing. You can always cut and paste the work of multiple users together, but a group can be much more productive when data entered from several sources is immediately available for viewing and reporting.

THOMAS THEIMER

## TAKING A SNIPE

I FEEL YOU HAVE DONE YOUR READERS a disservice by giving an Editors' Choice award to an online auction-sniping program ("Going Once, Going Twice," February 3, page 148). As a customer service representative for eBay, I can say that our auctions are always won by the highest bidder—regardless of when that bid was placed. You'll do far better on eBay taking the \$19.95 charged for SnipeRight Professional and adding it to your maximum bid instead.

ERIC KRUPIN

## Corrections and Amplifications

■ The Gateway 610XL Media Center PC we reviewed in First Looks (February 3, page 42) comes with a DVD-RW drive for \$2,000 direct, not a DVD/CD-RW drive, which is standard on the \$1,700 Gateway 610X Media Center PC.

■ In "Upgrade to a Home Theater" (February 3, page 86), we did not specify the correct price for the SnapStream/Hauppage bundle. SnapStream Personal Video Station 3.3 (\$79 direct) is available bundled with the Hauppauge PVR-250 video card for \$199.

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TECHNOLOGY



# ExtremeTech

## Photos to DVD: The Final Chapter

Once again, I'm learning from *PC Magazine* readers. I had previously extolled the virtues of Microsoft Photo Story, a handy slide show application found on the Microsoft Plus! Digital Media Edition disc, because of its low cost, ease of use, and ability to do Ken Burns-style pans and zooms over your pictures.

Photo Story burns video CDs, but I consider the resolution too low for TV display. There's no provision for burning DVDs, and the choices for burning DVDs from Photo Story's WMV format are limited. I asked readers for their solutions while continuing my own investigation. I've acknowledged some of your suggestions by e-mail, and I'll recognize some others here. My thanks and apologies to those I may have missed.

If you're serious about editing video, you probably use Adobe Premiere. The current version, 7.0, imports WMV, but if you have 6.5 you'll need a plug-in, which is available from Microsoft's site. Premiere can burn a DVD right from the timeline view, which is very handy. Premiere also gives you complete control over the video and audio tracks, so if you need to synchronize and edit the audio and video it's the most powerful tool available. But at a \$600 street price, Premiere isn't for casual users.

Several readers recommended using a freeware or shareware converter to turn the WMV file into an MPEG-2 file, which all DVD-burning software understands. I tried some of the format-converting programs and was disappointed. Some were very shaky and unstable, others were convoluted, and a few were both!

Mark Fastert recommended ezConverter, which comes in both audio and video flavors. I downloaded the video version from [www.goldlimit.com](http://www.goldlimit.com) and immediately encountered the typical annoyance with programs like this: You have to download the codecs separately. Several of the recommended codec sites were down, and the one I was able to connect with offered a huge package of codecs that you probably don't need. I've navigated these waters before, but if you wouldn't know an Ogg Vorbis if it bit you on the ankle, your chances of success are minimal.

Also, some of the codecs contain adware and spyware, and you will find conflicting instructions on

whether to load all the codecs or only the ones you need. Although ezConverter ultimately worked, the program couldn't successfully minimize and restore itself without mangling its own graphics.

I fail to understand why, since the codecs are free, programs of this ilk don't just bundle them. Also, English is not the first language of the authors of many of these programs; you may find the help files less than helpful.

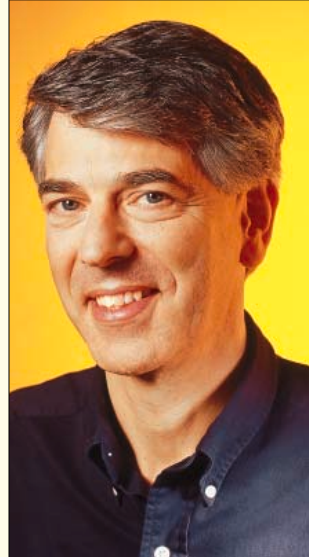
Several readers suggested Sonic MyDVD, which is where I started with all this. My objection to MyDVD is that it created a DVD menu with cheesy music, put my video on a button, and trimmed black space off the lead-in and lead-out.

A couple of readers said they'd had success using Windows Movie Maker to help burn DVDs from Photo Story. Aaron Matson suggested importing the WMV into the Movie Maker timeline and then saving the file as a DV-AVI, which is well understood by DVD-burning software. Better, though, was his suggestion to use Ulead VideoStudio 7, which imports WMV files directly and lets you edit them and burn them to DVD.

I just dragged my WMV file into VideoStudio 7 and chose the option to create an NTSC DVD. It converted my 3-minute-and-44-second video file in a leisurely 2 hours 20 minutes on a 1.2-GHz Centrino-based Toshiba M100 laptop. A 3-GHz-plus P4 would have made much shorter work of the file, but unless you're doing this for a living, speed doesn't matter; you just do other things while the system is busy. I burned the DVD with a Micro Solutions Backpack DVD±RW outboard burner plugged into the USB 2 port. The resulting DVD was of vastly better quality than the VCD I'd burned previously, although some of the panned images were still smoother when Photo Story animated them on the computer. I also heard a couple of minor glitches in the audio track.

Photo Story remains an easy, inexpensive way to tell a powerful story. But if you intend to burn DVDs from the outset, go with a package that does that as well as the pans and zooms, such as DVD X Show or the new ArcSoft DVD SlideShow.

**MORE ON THE WEB:** You can contact Bill Machrone at [bill\\_machrone@ziffdavis.com](mailto:bill_machrone@ziffdavis.com). For more *ExtremeTech* columns, go to [www.pcmag.com/machrone](http://www.pcmag.com/machrone).



I fail to understand why, since codecs are free, shareware media converters don't just bundle them.

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-PC MAGAZINE, Nov 25, 2003

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-GOVERNMENT COMPUTER NEWS, Oct 27, 2003

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-ZDNET, Dec 22, 2003

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-PCWORLD.COM, Nov 7, 2003

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-CRN, Oct 13, 2003

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-FEDERAL COMPUTER WEEK, SEPT 15, 2003



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# John C. Dvorak

## Ode to Napster, Music's Last Hope

**H**ere is the argument nobody wants to make and the reality nobody wants to face, especially those in the music business. As I write this, the Recording Industry Association of America is announcing another 532 John Doe lawsuits against peer-to-peer file sharers. The RIAA collects the IP addresses of alleged pirates, and with judicial approval, subpoenas ISPs to get the names and addresses of the defendants.

Copy protection schemes, the Digital Millennium Copyright Act, and lawsuits against file sharers are not going to save the music business. In fact, the opposite is true. I'm convinced that the shuttering of the original wide-open Napster almost four years ago was the beginning of the end for the recording industry. This is because Napster was not just an alternative distribution network; it was an alternative sampling system.

What I call the Napster peekaboo model no longer exists in any efficient form. Napster encouraged traders to centralize and make available their collections, so perusing someone else's music library became easy. This was its most important function.

On Napster, people were not just trading songs but engaging in mutual discovery. Nobody felt they were doing much wrong, because they tended to already own the music they were downloading. People downloaded files so that they could, for example, listen to them on the computer or burn personal compilations.

You'd begin downloading songs A, B, and C—your favorite songs ever—and you'd see that one other trader had all three of these songs in his or her library. You could then peruse that person's entire collection. You'd notice that the two of you had very similar taste! But wait, you'd find some unknown bands in his or her collection, so you'd download a few new songs and discover another band you liked. The admitted tendency was then to follow up and buy the CD. That's what people said they were doing, and in fact they were. Sales figures for the time bear this out.

So when Napster was active, the music industry was growing. When it was shut down, the business went into a decline. People blame the decline on the economy and random piracy, but the record industry is generally resistant to short economic downturns, and piracy is not universal. The real reason for the decline is that people have no re-

source for helping them choose what to buy.

The music industry refuses to accept this reality. As one of the forum members at PCmag.com remarked: "The sales lost to piracy are represented by the formula  $P=W-R$ , where piracy (P) is calculated by subtracting real sales (R) from wished-for sales (W)."

The value for P is going to keep increasing, because people don't know what to buy in the first place. I know this is true for me. Napster was the last great hope. Radio doesn't do the job anymore. Few stations even back-announce the music, and the playlists are universally mediocre and seldom showcase smart new talent. College stations provide some relief, but inconsistently. Promotional efforts by record companies focus only on a very few big acts. Other methods of discovering new music, such as listening stations at stores, are inefficient and tedious.

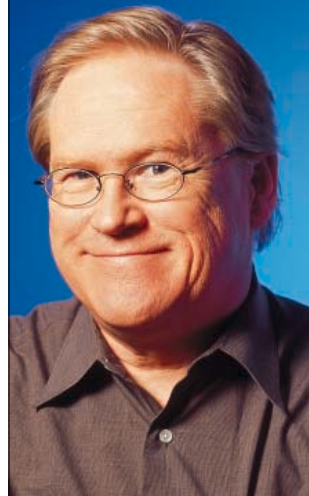
The listen-before-you-buy phenomenon was common before 1960, when most music stores had listening booths. It slowly died off during the golden age of AM radio, when the singles business flourished, and AM radio stations competed with each other for the teenage dollar. EP, then albums, then CDs finally took over the industry, and AM radio mutated into talk and news. When the single was killed off, people were left without a music-sampling resource. This was exacerbated by safe, soft-rock programming on FM radio.

Now there is no way to discover new music except as a fluke or via limited word of mouth. Many bands resort to self marketing and zines—small, mostly crummy magazines—to get any promotion. When Napster appeared, the business was about to be saved.

During the rise of Napster, the industry was flourishing and sales were rising, but music-industry bigs focused on Napster-aided piracy. The belief was that sales would rise even faster if Napster were stopped. Nobody ever thought of using it as a market-research tool and promotional channel. Get rid of Napster and everything will be better, the RIAA folks thought. They did, and things got worse. Now it's too late. The scene is in free fall, and for-pay downloading and cheaper CD prices won't help. Napster provided that crucial marketing channel, but the industry blew it.

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**MORE ON THE WEB:** Read John C. Dvorak's column every Monday at [www.pcmag.com/dvorak](http://www.pcmag.com/dvorak). You can reach him directly at [pcmag@dvorak.org](mailto:pcmag@dvorak.org).



**Protection schemes, the Digital Millennium Copyright Act, and lawsuits against file sharers are not going to save the music business.**

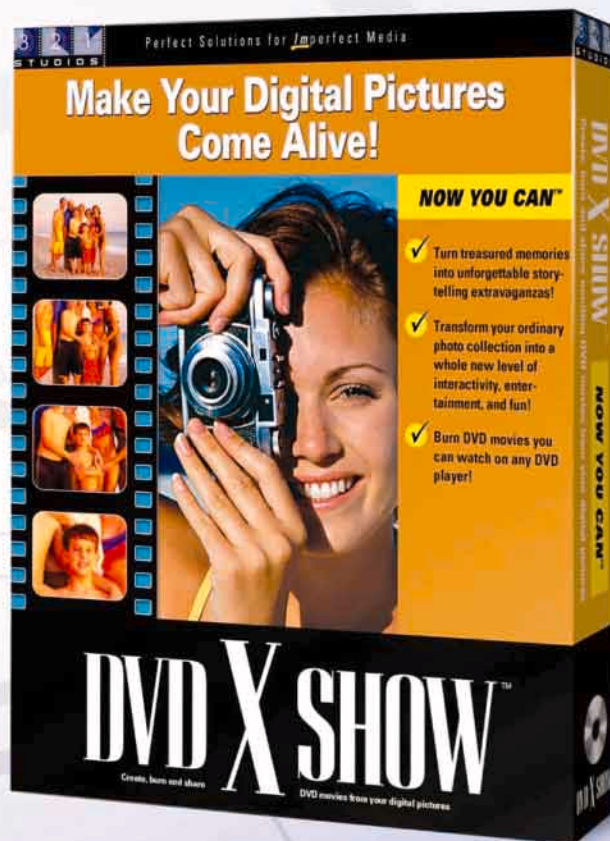


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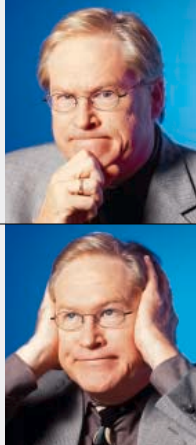


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## JOHN C. DVORAK

**D**oes It Get Any Worse than This? **Dept.:** My minuscule domain [www.dvorak.org](http://www.dvorak.org), which I use mostly for informational purposes and as my e-mail address, was **suddenly blocked** as an e-mail sender by the AT&T Worldnet Service folks. Apparently, I ended up on its private blacklist of spammers. I cannot send to anyone with an *att.net* address. This blacklisting technique of blocking domains for whatever reason **never works** and is a sign of gross negligence, laziness, or incompetence created by wishful thinking. It's also a cheap way to claim you're doing something about spam when you are **doing nothing**.

Because I'm not a spammer, and since I'm the **sole person** who uses this domain, one has to assume that one of the spam viruses spoofed my name some time ago and the AT&T folks **robotically** put me on the blacklist without doing any research. I did a Google search on this problem and found **numerous complainers** who had this happen. All of them said that they could find no mechanism to correct this ridiculous situation. I've received numerous e-mails from AT&T customers, and I can't respond. This is **hurting AT&T's own customers** more than it's hurting me.

Okay, so I called the various Voice Mail Hell systems at AT&T and stumbled on to the AT&T Worldnet **tech-support** number. I called it. First, the recorded message went on and on about how an **e-mail scam** was plaguing AT&T customers. It was one of those billing fraud schemes where you have to give someone your credit card number because someone at HQ lost it. **Do not do this**, the recording pleads. Instead, send the e-mail to [scam@abuse.att.net](mailto:scam@abuse.att.net). Now I'm thinking, these folks blocked me from their own customers for **no good reason**, but this is going on?! There's more. Next on the recorded message was **an apology for double billing**. Now my eyes were really rolling.

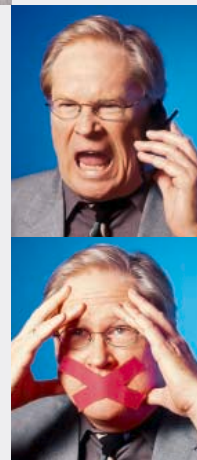
Finally, I hit a few more numbers and

got a message that said they were "experiencing a high volume of calls." The voice said I should stay on the line. This is great. I'm surely going to get a **call center in Bangalore** where nobody knows anything. Within 5 seconds, I heard a couple of beeps indicating that the call was being transferred. Then—get this—a **busy signal!** After 15 minutes of punching around the dial, I got **cut off** with a busy signal!

After that futility, I went through the online and e-mail rigmarole. The online help desk told me to do one thing. I did it and got an **auto-response canned message** telling me to send e-mail to [abuse@att.net](mailto:abuse@att.net). The message to that address was kicked back by the blacklist mechanism! It's disgraceful. I'm now going to drop my AT&T long-distance service because of this incompetence. There's **nobody home** at AT&T.

I suppose that if I spent a month trying to find a media relations person or someone who knew about that dubious blacklist I could resolve this, but it's not worth the trouble. All I can do is **discourage anyone** with any sense from subscribing to AT&T Worldnet Service. There are plenty of small and competent ISPs that can do this job better. And if you already subscribe and wonder why some of your e-mail to friends is never returned, now you know. **Drop these folks** like a hot potato.

**Activation Watch Dept.:** Adobe is following in Microsoft's footsteps with an activation **scheme** for its new and powerful Creative Suite, which incorporates all the high-end publishing and production tools—including Adobe Photoshop, Illustrator, InDesign, Acrobat, and GoLive—into one stupendous \$1,229 product. That said, now it's become obvious that **unless you're a professional** designer, photographer, or artist, you can't stay on this Adobe merry-go-round. And it's not about the expense or the activation. It's about **too many changes**. It's simply just too much relearning and retraining for an amateur to endure. Photoshop itself has changed dras-



**Blacklisting by blocking domains never works and is a sign of gross negligence, laziness, or incompetence created by wishful thinking.**

tically from release to release. While this keeps Adobe out in front of any competition, it's **impossible** to stay current unless you are a **full-time pro** using these products daily. This is a disappointment to digital-photo buffs who use Photoshop as the **macho editor** everyone wants.

Adobe took this into account and produced Photoshop Elements Version 2.0. You'll find it sold everywhere for less than \$100. If you are a photo hobbyist, this is the horse to ride. **Highly recommended.**

**Lawyers and Fees Dept.:** As the story goes, a Canadian named **Mike Rowe** decides to get the domain name *MikeRoweSoft.com*. Microsoft thinks this is an infringement and sends the lawyers after him. He says he'll drop it if the MS folks reimburse him for his trouble. They offer \$10. He gets **insulted** and demands \$10,000. Microsoft accuses him of extortion. As this story unfolds, I'm thinking to myself, how much money are these attorneys **wasting** on this guy? And why didn't they just offer him a couple of hundred bucks in the first place instead of threatening to litigate? Worse, it results in a lot of **bad publicity**.

At press time, the parties announced a **settlement**. Microsoft gets Rowe's domain, and he gets a trip to Redmond, an **Xbox**, free Web site support, and some other perks. I love happy endings. You may now **kiss the bride**.



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# On Technology

## Shrinking Your Entertainment Center

**T**he bigger-is-better school of audio equipment could be on its last legs. The towering rack of AV gear that most audiophiles point to with pride might shrink away to a single box—if that—by decade's end. And it won't be with any loss of quality.

You've seen much of it coming. The glass-tube television that was as deep as the picture tube was wide gave way to the rear-projection set, which is never more than 24 inches deep, and that's giving way to the flat panel, which is essentially two-dimensional.

I am a prime example of do-as-I-say-not-as-I-do AV overkill. The rack of AV gear in our house stands about as tall as I do: AV receiver, 200-disc CD changer, DVD player, PVR, VCR, satellite box, set-top box, game console, cassette deck, amplifier for music playing elsewhere in the house, and old laptop with Ethernet for pulling MP3 files off a home server. (Most people would use a digital media hub for that.)

With an average of half a dozen cables servicing each AV device, when I think of adding another piece of equipment—high-def PVR, maybe—Monster Cable prepares to issue a bonus shareholder dividend. Then there are the remotes. And the cabling hidden in the wall, and the power conditioner and the surge suppressors and the AV cabinet. That's a lot of size, complexity, and cost.

To reduce the number of boxes, we will likely get a DVD player/PVR or a satellite receiver/PVR plus a DVD player. (The DVD player could even be buried inside a cable company set-top box.)

CD changers are giving way to digital media hubs. If you need to play a CD, you can do that in the DVD player. The cassette deck sits unused, but that's less hassle than removing it. The VCR is a legacy device used once a month for playing an old movie.

Another endangered species, longer-term, is the AV receiver. It switches among multiple devices, but if you're down to two, you can plug, say, the DSS receiver into the DVD player's spare input jack. The receiver decodes surround sound, but other devices do that, too. It amplifies audio, but we're on the cusp of seeing high-quality, self-powered speakers. It tunes radio stations, but with premium satellite or cable you've got at least 40 channels of music.

The receiver accepts FireWire video from your camcorder and passes that along to—wait, the receiver

makers all wimped out when Hollywood looked cross-eyed at them. To Hollywood, *FireWire* translates to *piracy*, and although nobody in Hollywood actually pays to watch movies, they want you to. So it's the rare receiver that can decode MP3s, and none work with FireWire. In other words, the newer the technology, the more your receiver feels old-fashioned. Onkyo has an interesting twist—a receiver with drop-in circuit boards that you can replace with newer technology—but it may not be priced competitively.

What should you do to prepare for this brave new future? Almost nothing. Whatever you buy today will be obsolete in a couple years, and its replacement (other than the display) will be dirt-cheap. I'd recommend a digital media hub over a multidisc CD changer, but if you want a changer, heck, it's only \$100.

Eventually, your DVD player will be eclipsed by movies-on-demand over cable, and if so, you're out 50 bucks. Do make sure your next TV is capable of high definition, meaning 720p or 1080i. Buy DVDs in widescreen, not 4:3 format. Windows Media Center Edition PCs make superb replacements for CD changers and for showing photos, but they're generally not up to snuff for tuning TV signals. They're also not that cheap; the fan noise is annoying; and they tend to be bulky, vertical devices—not thin, horizontal ones.

Home theater in a box often compromises the quality of the speakers. You may get better quality with a single array of speakers that sits atop your TV and emulates the rear surrounds. Check out the new line from ZVOX ([www.zvoxaudio.com](http://www.zvoxaudio.com)).

If you're thinking of a big TV and debating rear-projection versus flat-panel, you have to weigh the cost of the finished installation. A \$5,000 flat-panel versus a \$2,000 rear-projection TV is really a \$5,000 flat-panel versus a \$2,000 rear-projection TV plus a \$4,000 custom cabinet to hide the TV. Also, if you're thinking of remodeling and putting in a family room, do not let the architect put the fireplace in the middle of the wall. That's where the TV belongs. You'll cuddle up and watch the fire maybe twice in your life; your buddies will be over to watch the game twice a week. And no, you usually can't put a flat-panel over the fireplace.

**MORE ON THE WEB:** You can contact Bill Howard directly at [bill\\_howard@ziffdavis.com](mailto:bill_howard@ziffdavis.com). For more On Technology columns, go to [www.pcmag.com/howard](http://www.pcmag.com/howard).



**When I think of adding another piece of equipment to my AV rack, Monster Cable prepares to issue a bonus shareholder dividend.**

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# SOLUTIONS

## The Weakest Link

*Even the best-protected networks are vulnerable if employees unwittingly divulge sensitive information.* **BY LEON ERLANGER**

What's the weakest link in your network security infrastructure: your firewalls, antivirus systems, telecommuter PC, road-warrior notebooks? Here's a hint: Go look in the mirror. Most security experts agree that a clever hacker can penetrate almost any network simply by asking the right users for the right information. Using a variety of manipulative techniques—together known as

*social engineering*—that exploit a human being's natural desire to trust and help others, or to gain something for nothing, hackers can learn user names, passwords, and other information that allows them to penetrate networks—even those secured with the most advanced technology.

If you find this hard to believe, take a look at the sidebar "Five Tricks Hackers Use on You" and consider how you might respond in such situations. But the techniques explained there are only a few of the hundreds hackers use to gain valuable information.

In fact, hackers can gain a lot of information without talking to anyone, simply by surfing company Web sites for executive titles, financial information, organizational charts, and employee e-mail addresses and phone numbers. They can also sift through company trash for org charts, employee directories, system and application manuals, marketing plans, memos, company letterhead, human resources manuals, financial printouts, and procedure/policy manuals. Hackers use this information to gain the trust of others through phone calls and e-mails, often masquerading as an employee, customer, or consultant and convincing employees to provide information that can, little by little, get them into company LANs.

The techniques for eliciting information from staffers are similar to those



used in any con. They include

- overwhelming the target employee with lots of different information and strange questions or using strange and confusing arguments that make it difficult to process what is happening;

- helping the target with some technical problem, possibly one that the hacker has created. This is often called *reverse social engineering*;

- making statements that elicit strong emotions or using intimidation tactics;
- in the case of resistance, yielding on one or more small points. After a while the target often feels he must yield to other requests in return;

- sharing information and technology over time without asking for anything in return—at least not at the moment. When it comes time for the hacker to request information, the target feels he must reciprocate;

- pretending to have the same interests as the target, perhaps through information gained in user groups;

- pretending that the target can help a fellow employee fulfill an important commitment that employee has made;

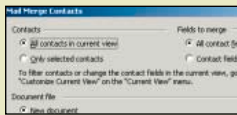
- maintaining a seemingly innocent, friendly relationship with the target during which the hacker learns, bit by bit, company jargon and the names of key employees, servers, and applications.

Remember that a very large percentage of security breaches originate internally from disgruntled employees or from nonemployees—such as consultants, partners, and so forth—who have sys-

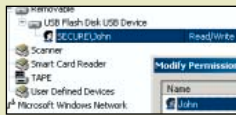


tem access. People rarely question the actions of insiders.

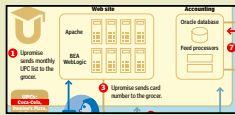
Of course, social engineering doesn't target only companies. The same techniques are also used against individuals to gain personal information such as credit card numbers, user names, and passwords for accessing popular e-commerce sites. One common technique is *phishing*, which uses a combination of e-mail messages and fake Web sites to convince users



**60 Office:** Use Outlook to launch a mail merge.



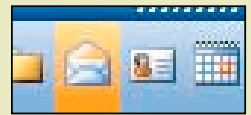
**62 Security Watch:** USB drives aid data thieves.



**64 Internet Business:** U-promise college funds



**66 Internet Professional:** Parked domains.



**69 User to User:** Tips and tricks.

## MAKING TECHNOLOGY WORK FOR YOU

they are dealing with a major company.

If you still have doubts about the efficacy of social engineering, take a lesson from the best. Kevin Mitnick, the notorious late-20th-century hacking superstar has said again and again that he penetrated networks much more easily by manipulating people than by technology.

The truth is that most companies spend a lot more money and resources tackling security with technology than with people. But most products and technologies are not designed to protect against social engineering. So what do you do?

You should approach the problem from two angles: protecting the physical spaces that are commonly penetrated, such as offices, dumpsters, and Web sites, and protecting users through clear policies and ongoing education.

Physical security is the easier part. Here are some important tips, many of which overlap physical security and policy.

- Make sure all employees and visitors wear identification badges. Require that visitors be escorted to their destinations.



- Determine which documents must be kept locked away at all times and which require shredding on disposal.

- Keep your dumpsters in secure, locked, and monitored locations.

- Make sure that all systems, including client PCs, are protected by strong passwords that change frequently. Implement and enforce screensaver passwords that

take effect after a few minutes of idle time.

- Encrypt files stored on hard drives that contain confidential information.

- Avoid posting too much information on your public Web site.

Policy and training are harder. Employees may not understand the value of the information they give away. They must be educated continually on how to respond to unknown people requesting information, and they need to be aware of how easily they can be manipulated.

One of the best ways to give employees insight is to hold a training session and before it begins, use social engineering techniques to elicit confidential information from them. Then have the teacher amuse the class by telling them what she or he learned and from whom.

You need to draw up clear policies on what type of information should not be divulged under any circumstances. Seemingly simple tidbits, such as a server name, organizational structure info, or company jargon, can be invaluable to a hacker. Your policies should spell out clear rules for information access, setting up the physical security and safeguards outlined above. Make sure there are clear penalties for violating those policies. It's much easier for employees to refuse to divulge information if the policy is clearly spelled out.

Tools for fighting social engineering are rare, but content filtering and anti-spam products, such as MailFrontier Matador, can be configured to detect signs of fraudulent e-mails or to prevent employees from giving away sensitive information. Matador in particular uses a number of patented techniques to detect phishing and other suspicious e-mails.

Fighting social engineering is a continuous battle in which the attackers find clever ways around existing safeguards. It's important to keep up with the new tactics social engineers use and to implement policies to stop them quickly. And keep reminding employees that they are the true corporate firewall.

*Leon Erlanger is a freelance author and consultant.*

## FIVE TRICKS HACKERS USE ON YOU

**1.** You receive an e-mail promising a chance at a prize of thousands or millions of dollars. All you have to do is fill in a form with your user names and passwords. You'd be amazed at how many people answer such e-mails and use the same user name and password they use on the company LAN. By sending such e-mails to tens or hundreds of employees, hackers are likely to learn at least a couple of users' network log-on information.

**2.** A dialog box pops up with a message that says you've lost your network connection and asks you to type in your user name and password to regain network access. Or you get an e-mail message from Microsoft, telling you to run the attached security update. Do you trust that the dialog box and the e-mail are legitimate?

**3.** You go out for a smoke and join a group chatting about trouble with the company's messaging servers, during which server names, as well as network and system quirks, are discussed. You don't know everyone, but, hey, it's a large company. After a while, everyone heads inside. Or you discuss the same subjects at your company's favorite local pub and a hacker just happens to be hanging out at the bar.

**4.** Someone shows up saying that the boss, who is on vacation, asked him to come by to fix "that Outlook problem." That sounds believable. Doesn't everyone have an Outlook problem?

**5.** You get a call from a woman claiming to be the president's executive assistant, who says the president asked her to obtain certain personal and user information from you. She dispels your doubts by rattling off the names and nicknames of cooperative colleagues and casually mentions some facts that only an insider is likely to know.—LE

# Start Your Mail Merge From Outlook

Speed your workflow by merging contacts directly into Word.

By M. David Stone

Most people start their mail merges in Microsoft Word. But if the addresses to which you're sending a merge document are in a Microsoft Outlook contact list, the better starting point may be Outlook.

When you start the traditional way, Word may have trouble finding your contact list, because you first have to define your *Contacts* folder as an Outlook Address Book, which is a less-than-obvious step. (The setting is hidden away in the folder properties.) Even once Word finds the list, selecting the contacts you want can be cumbersome. Outlook, however, has no trouble finding Word, and selecting contacts in Outlook is much easier. For our purposes, we'll assume that you're familiar with creating a merge document in Word but unfamiliar with starting the merge from Outlook.

## MAKE A LIST

Ironically, you can't use an Outlook distribution list as your data list for a mail merge. If you have any contacts listed only within a distribution list, your first step for merging those entries is to create individual contact records for each one.

Outlook gives you many other choices for selecting the contacts to merge with the document. Which one you find easiest depends on both your personal taste and how you use Outlook. Here are some strategies you can try.

If you don't have many entries in your Outlook contacts list, you can browse through the list and select the ones you want. Simply hold down the Ctrl key as you click on each desired contact.

You can also create a new contacts folder by choosing *File | Folder | New Folder* and specifying that the new folder contains *Contact Items*. Then copy or move the contacts you want to that folder. You'll be able to choose the entire folder as your merge source data.

For larger contact lists, you may want to divide the entries into categories, with

each category defining a separate merge list. The *Categories* button and text field are in the lower right-hand corner of the *Contact* form. To use existing categories, you can type them in the text box or click on the *Categories* button and check the appropriate boxes. To create new categories, choose the *Categories* button, then click on *Master Category List*. When you start a merge, you can group the entries by category by choosing *View | Current View | By Category*. Then simply select all the contacts in a given category.

You can also take advantage of filters to select contacts. Go to the contacts folder you want to use and choose *View | Current View | Customize Current View*. Click on the *Filter* button and then define the criteria. Choose *OK* and then *OK* again. The contacts list—and any merge you start with the filtered list showing—will show only those contacts allowed by the filter.

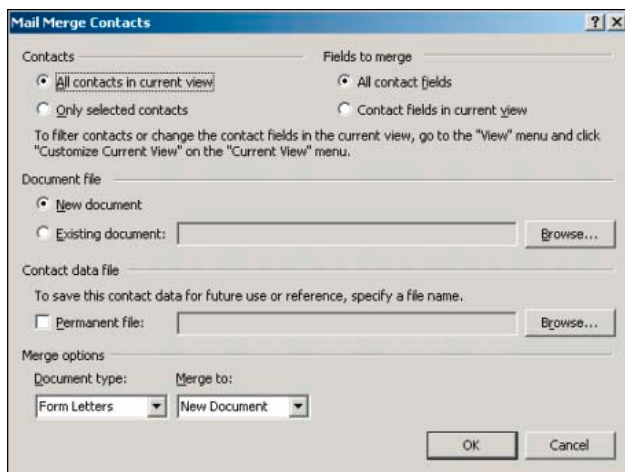
## MERGE YOUR DATA

Once you've selected the contacts to use, doing a mail merge in Outlook is surprisingly simple. First, go to the desired contacts folder and choose *Tools | Mail Merge* to open the *Mail Merge Contacts* dialog box and work your way down the options. Depending on how you've selected the contacts, specify whether to use *All contacts in current view* or *Only selected contacts*. The *Fields to merge* choice designates which fields to make available for merging when you create the merge document. Your choices are *All contact fields* or *Contact fields in current view*, which is

useful if you've defined the view to include only the fields you plan to use.

Since we're assuming that you haven't created the merge document yet, choose *New Document* as the document file. If you want to save the selected data for future use, enter a filename. (As one of the *Mail Merge* options, Outlook lets you save the data as a CSV data file for reuse.) You can also specify the document type (*Form Letters*, *Mailing Labels*, *Envelopes*, or *Catalog*) and choose whether to merge to a new document, your printer, or e-mail. If you choose e-mail, you can enter a subject line for the messages.

When you finish entering the options, choose *OK*, and Outlook will launch Word. You can then use the *Mail Merge* toolbar in Word or choose *Tools | Letters*



**OUTLOOK'S MAIL MERGE CONTACTS** screen lets you designate the contact data that will be pulled over to Word for the merge.

and *Mailings | Mail Merge Wizard* to create the merge document as usual. Note that if you use the *Mail Merge Wizard* feature, it will skip over the first two screens, as you've already specified the document type and merge destination.

On one of our test machines, Outlook didn't successfully pass the information to Word, so you may want to back up and check the settings on the prior screens to confirm that they're correct. In any case, once you're in Word, create the merge document file and run the actual merge just as you would if you had started defining the merge from Word. Your documents will now be populated with the records selected in Outlook.

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

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## SECURITY WATCH

# Hacked in a Flash

Tiny USB drives offer unparalleled convenience to all sorts of users—including data thieves. **By Leon Erlanger**

**H**ow can data thieves sneak behind your firewall, steal hundreds of megabytes of information, and leave without a trace? One way is via the same type of tiny USB drives many of you carry around in your pockets. Most organizations have no policy in place for detecting USB drives or regulating their use. Therefore, it is relatively easy for a visiting customer, technician, consultant, disgruntled employee, or anyone clever enough to gain entry to plug a USB drive into any PC USB port and download dozens or hundreds of files at USB 2.0 speeds when nobody's looking. USB drives have surpassed 2GB of storage and are still growing. Since most of them

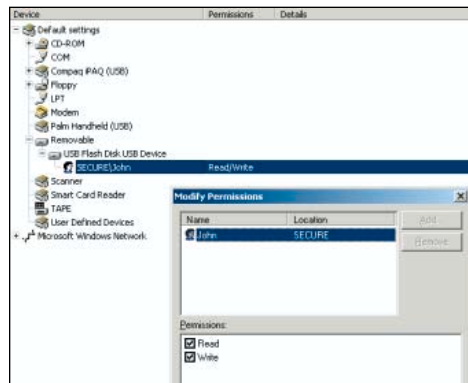
word loggers. A hacker can then use a variety of social engineering techniques to enter your facility or access a notebook and use a USB drive for all kinds of sinister attacks. And if one of these devices is lost, anyone who finds it has easy access to all the stored files.

What can you do to protect your company network? The first line of defense is education. Make sure your organization's security policy specifies the proper and improper use of USB flash drives and possibly the need for prior permission before staff members are allowed to use them. Then educate your users on the policies you have put in place and the reasons behind them.

Configure desktop and notebook PCs to lock when not in use for 3 to 5 minutes, or whatever interval of time you feel is appropriate. An easy way to do this in Windows XP is to use the screen-saver password-protect feature, which can be activated by clicking on *Display* in the Control Panel. Then choose the *Screen Saver* tab and check the box labeled *On resume, password protect*. There are also third-party utilities available for locking a desktop, including TopLang Software's Desktop Lock, Ixis's PC Lock-up, Spytech Software's SpyLock, and Tomorrowware's StayOut.

Provide users with secure USB flash drives. For example, the Lexar Media JumpDrive Secure is a USB flash drive with built-in password protection. And SanDisk offers CruiserLock software with its USB flash drives, letting you password-protect and encrypt individual files. Other vendors offer products with fingerprint authentication.

Set up your antivirus system to scan all drives and removable media for viruses and other malware. Tell your users to confirm that the scanning takes place or to run a manual scan before



**SECURENT LETS YOU** use an access control list to prevent unauthorized users from connecting USB flash drives to your PCs.

are tiny, they are very easy to hide.

Information theft isn't the only threat these little devices pose. As with floppy and ZIP disks, telecommuters or road warriors can introduce viruses into networks through USB drives when they get back to the office, completely bypassing typical antivirus gateways or e-mail servers. Hackers can load a bevy of sophisticated tools on the tiny devices, including port scanners, spyware, password crackers, and key-

## THE LOOKOUT

## VoIP VULNERABLE

Applications such as Voice over IP telephony and videoconferencing could be vulnerable to security breaches because of flaws in the way a major telephony standard is being used.

Some vendors' implementations of the H.323 protocol, an International Telecommunications Union standard for communication among telephony and multimedia devices, are vulnerable to denial-of-service attacks and, to a lesser extent, the execution of code and system takeovers through buffer overflows, according to an advisory issued in January by the U.K. group National Infrastructure Security Co-Ordination Centre (NISCC).

Vendors that identified potential vulnerabilities included Cisco Systems, Microsoft, Nortel Networks, Radvision, and Tandberg. A number of other vendors are still investigating whether their products are vulnerable. Some, including Microsoft and Cisco, have already issued patches.

In the United States, the Computer Emergency Response Team (CERT) Co-ordination Center also issued an advisory about the vulnerabilities in H.323 implementations ([www.kb.cert.org/vuls/id/749342](http://www.kb.cert.org/vuls/id/749342)). It noted that one possible workaround, along with vendor patches and upgrades, is to block ports 1720/TCP and 1720/UDP on network parameters.

—Matt Hicks

transferring any files to the desktop.

For maximum security, you can disable your USB ports. This may be too extreme, but if not, you can do so via the system BIOS settings, which can be password-protected. For more fine-grained protection, SecureWave's SecureNT lets you control end-user access to a number of I/O devices, including USB flash drives, using an access control list. You can even use SecureNT to create lists of company-approved devices, deny access to devices not on the list, and monitor the use of all such devices.

Finally, tell each user to keep a text file with his name and phone number on each USB flash drive, so that if it is lost, an honest person can return it. Make sure such identification files are not encrypted or password-protected.

*Leon Erlanger is a freelance author and consultant.*





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## INTERNET BUSINESS

# Shopping for College Savings

At Upromise, a complex rebate-tracking system follows payments from grocery store to savings account. **By Brad Grimes**

Stocking away a few bucks every month in a college savings account can be difficult. Upromise makes it easier by helping you put aside money while you shop, pay your credit card bill, fill your car with gas, and even bid on eBay.

When you sign up at Upromise's Web site ([www.upromise.com](http://www.upromise.com)), you enter your credit card and grocery store loyalty card numbers so Upromise can follow your spending. Then when you buy stuff from companies affiliated with Upromise, those companies give you a rebate. The money goes into a non-interest-bearing Upromise account until you decide to roll it into a 529 fund, a state-run savings account for education savings. The rebates won't put your kids through college, but over time you could save enough to pay for books—and they aren't cheap.

Upromise has developed a complex system to track the transactions of its 4.4 million members, 38 consumer packaged goods companies (for their 10,000 products), 18,000 grocery and drug stores, 9,000 restaurants, and 200 online retailers. Members also get rebates at Exxon Mobil stations, Staples, and Circuit City.

"We're in the business of exchanging data about transactions," says Dave Andre, Upromise's chief technology officer. "Every day we have a couple hundred data feeds that we exchange between Upromise and our partners, which includes everyone from Vanguard to a small grocery store in Kansas with three locations."

All the Upromise partners have their own ways of processing data, so Upromise had to develop a platform with the flexibility to accept data over a variety of transports, from FTP to VPN. Grocery stores present the biggest challenges. Each month, Upromise sends a list of UPC numbers to each of its grocery partners. The UPCs represent the products—such as Snyder's pretzels and Kellogg's cereal—for which participating companies agree

to offer rebates. Upromise also sends the loyalty card numbers of their members to the grocers. Once the grocers have validated the numbers, members must present their loyalty cards to get rebates. Then when they buy a 12-pack of Coca-Cola, for example, the grocer's system matches up the loyalty card number and the UPC code and prepares to send the transaction information to Upromise.

The Upromise infrastructure, housed in an AT&T facility near Boston, has two main components. First, the servers operate the front-end Web site where members sign up, track their accounts, and shop through Upromise links to get rebates from online vendors. The Web site lives on 12 redundant, load-balanced, SPARC-based servers running Apache, BEA WebLogic, and Sun Solaris.

Second, the back-end servers process

data feeds and loyalty-card information and send invoices to Upromise partners to collect the rebates. All the information is processed using custom Java applications that feed an Oracle database server running eight SPARC CPUs. Andre says Upromise is looking to move to Intel-based servers running Linux because they are easier to expand as traffic increases.

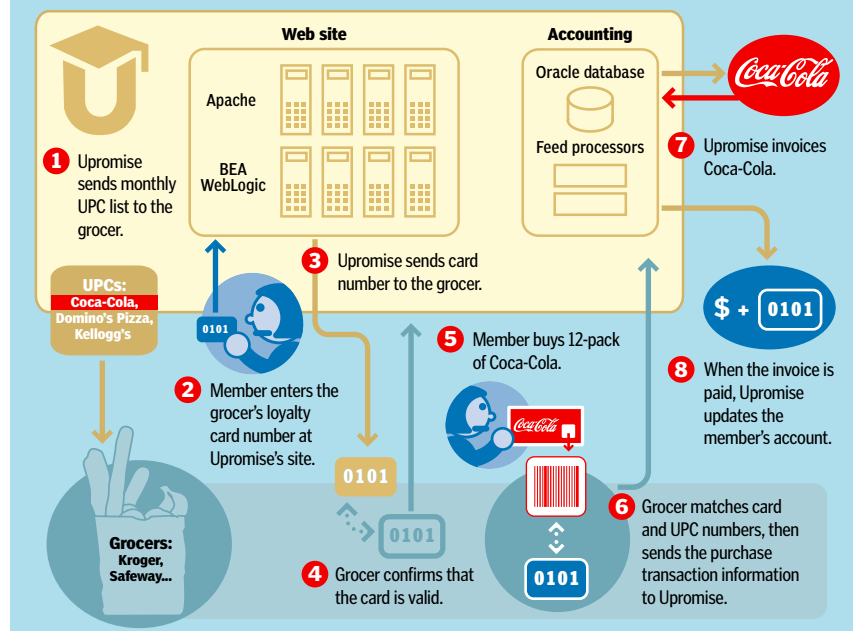
About twice a month, the Upromise accounting system runs batch files to tabulate the number of member transactions for a certain product. Based on that batch file, Upromise sends an invoice to the company, which in turn sends Upromise its payment plus an administration fee. Now Upromise can deposit each member's rebate into his account.

"All data files and communications are encrypted," says Andre. "We have encrypted files going over encrypted channels. And sensitive information like credit card numbers is always stored in an encrypted format while the keys to unencrypt them live in a completely separate system." And Upromise doesn't share its members information with anyone.

Rebates may appear in accounts almost immediately, but every partner has its own schedule for paying up. Not everything runs on Internet speed.

## Rebates on a Roll

Upromise's complex system tracks transactions and gets rebates to its 4.4 million members.



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# Routing Your Web Site Visitors

You can direct your visitors to the Web page you want them to see.

Here's how. **By Jay Munro**

**R**outing a number of domain names to a single site is easy. Most Web-hosting providers allow you to "park" domain names on a single Web site with a single IP address. There's often a one-time fee, but it's usually pretty reasonable. With a parked domain, you can use multiple domain names that all resolve to a single Web site. Parked domains are very handy when you want to cover all top-level domains (such as *.com*, *.net*, *.org*, *.info*, and so on), and have them all funnel your users or customers to your Web site. They're also useful if you want to use several different domain names—for example, *www.awesomedude.com*, *www.somewhatdude.net* and *www.verycoolguys.com*—and have all of them pull up your biographical Web page. If your domain is commonly misspelled, you may want to include the misspelled versions as well.

Let's say, however, that you want each domain name to point to a different Web page, perhaps to reflect the needs of various customers. Your Web-hosting provider will be glad to sell you additional Web space with different IP addresses, adding to your costs. Luckily, there's another way. Using a simple script built into a common default page, you can route your domains yourself, without having to call your sales agent or tech support to do it. And you won't have to lay out any more money. We'll show you how.

When users connect to your Web site, their browsers send information to your Web server that you can use to determine how they got to your site. The Web server stores these bits of information in an array called *server variables*. The array is accessible from most server-side script languages. To create our domain-routing script, the language we'll use is Microsoft

ASP, but the concept is similar for Perl, PHP, and most others. Our example should work for most current versions of Microsoft IIS.

Though there are a couple of dozen server variables available (depending on the server), we'll use just one, `HTTP_HOST`, to create our script. On a Microsoft IIS server, you get server variables through the method called `RequestServerVariables (variable name here)`. In our

```
<SCRIPT LANGUAGE=vbscript RUNAT=Server>
urlhost = Request.ServerVariables("HTTP_HOST")
select case urlhost
case "www.firstsite.com"
  Response.Redirect("first/index.htm")
case "firstsite.com"
  Response.Redirect("first/index.htm")
case "secondsite.com"
  Response.Redirect("secondsite/index.htm")
case "www.secondsite.com"
  Response.Redirect("secondsite/index.htm")
case "www.thirdsite.com"
  Response.Redirect("thirdsite/index.htm")
case "thirdsite.com"
  Response.Redirect("thirdsite/index.htm")
case else
  Response.Redirect("myindex.asp")
end select
</SCRIPT>
```

**THIS SAMPLE SCRIPT** shows how to direct visitors to a Web page depending on the URL they type.

script, shown in the figure, we request the name of the domain the user clicked on or typed into a browser. This is the `HTTP_HOST` variable. When you call the `RequestServerVariables (HTTP_HOST)` method, it returns a string value—the domain name. We assign that string value to a string `urlhost` and then use a `select case` structure to compare it with our list of domain names. If there's a match, we then call the `Response.Redirect()` function to redirect the user to the page we want. One caveat: if you expect people to use different forms of the same name (such as *pcmag.com*, *pcmagazine.com*, or *www.pcmagazine.com*), then you need to

include all the expected variations. Of course, you'll also need a `case else` in the event that a user types in an unexpected entry, perhaps just an IP address.

To make the script work quietly, we put the code in the IIS default file, `Index.asp`, with no HTML code. This allows the script to execute with no visible activity while users are redirected to the target page. Be sure to set IIS's default file to `Index.asp` only or make sure there is no `Index.htm` file, which takes precedence. Many Web-hosting vendors put a default page in the root folder, so you'll have to remove that page if you haven't already.

Server variables can also be used to customize the viewer's experience, as well as redirect visitors to a specific page. Here are a few you might want to try. The `HTTP_USER_AGENT` variable specifies the operating system and browser a user has, and `HTTP_ACCEPT_LANGUAGE` shows the language. The `HTTP_REFERER` (the misspelling is intentional) shows where a user clicked from, so you can track how people get to your site. The `REMOTE_ADDR` and `REMOTE_HOST` variables give you the IP address of a user, which can be used to verify a user's country when accepting a credit card or before allowing a download of restricted data. Companies such as *cyScape (www.cyscape.com)* offer components for programmers that automate the lookup process.

To view the server variables your browser is sending, visit *www.webenalysis.com/servervariables.asp*, which displays data and variable names you'd see from a Microsoft IIS server. The very cool site ASP 101 (*www.aspl01.com/samples/servvars.asp*) does the same but also shows the ASP source code to help you use server variables. If you're using a Linux-, Unix-, or Mac OS-powered site, you can search the Web with the keywords *server variables* and the language you want to use.

Whether you've got that entrepreneurial spirit and want to host a dozen companies on your site, or you just have an easy-to-remember site for your family pictures, server variables can help.

Jay Munro is a freelance writer and consultant.



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via the web

I surf porn websites  
from behind  
my cubicle walls

I shop online  
after closing  
my office door

## USER TO USER

PC MAGAZINE'S COMMUNITY OF  
EXPERTS AND READERS**Variable CPU Speeds**

I just bought a laptop from HP. It's supposed to run at 2.4 GHz, but when I checked the *System Properties* (by right-clicking on the *My Computer* icon on my desktop and choosing *Properties*), the dialog indicates it's a 2.4-GHz CPU and then says 957 MHz. I checked the same thing on several other computers from Compaq, HP, Sony, and Toshiba in a few computer stores. The same thing happened, though the numbers varied. One system, for example, showed that it was a 2.4-GHz machine but was running at 1.6 GHz. What's going on?

DAVID DANIEL

The first question is, what kind of processor does your laptop have? An AMD Mobile Athlon 2400+ actually runs no faster than 1.8 GHz, while a 2.4-GHz Mobile Intel Pentium 4 Processor-M runs at 2.4 GHz but usually only when on AC power. Both processors have power-saving capabilities built in, known as SpeedStep and PowerNow respectively, which lower

Power scheme	AC power	DC power
Home/Office Desktop	None	Adaptive
Portable/Laptop	Adaptive	Adaptive
Minimal Power Management	Adaptive	Adaptive
Maximize Battery Life	Adaptive	Degrade
Presentation	Adaptive	Degrade
Always On	None	None

None: CPU always runs at maximum speed.  
Adaptive: CPU speed varies with load (high when busy, low when idle).  
Degrade: CPU starts at low speed and performs additional performance reduction (if possible) as battery discharges.

the CPU's voltage and clock speed when the system is running on battery power. Both processors have settings that are affected by the power options set in Windows. And notebook vendors may customize such low-power settings to clock down the CPU to even lower voltages and CPU speeds. The whole reason is to conserve battery life.

A little-known feature built into Windows XP is its automatic switching of processor speed and voltage. For CPUs that support dynamically lowering speed and voltage on battery power, the power-management settings you choose will determine the processor speed as indicated in the chart.

Check the settings in your Control Panel's

*Power Options*. Play around by switching these settings while on battery power to see whether they impact your CPU speed. Even under 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, check your user's guide to learn what they do and how to set them. Along with changing the clock speed and voltage of the CPU, these presets also set power-down timers for your hard drive, LCD screen, system sleep mode, and hibernate mode. You can create a profile to fit your needs, but start with the Win XP defaults and then vary them so you know what effect each will have on the clock speed.

—Richard Fisco

**Count Unique Names in Excel**  
I have a list of some 900,000 names in an Excel worksheet. Most of the names have duplicates. How can I count the number of names without counting duplicate entries?

BRIAN ABBISHAW

We'll assume that 900,000 is a bit of hyperbole, because an Excel spreadsheet cannot have more than 65,536 rows. For a few thousand names, there's a simple and elegant formula to count unique values—one that's worth knowing even if it won't handle tens of thousands.

First, highlight all the names and select *Insert | Name | Define* from the menu to give the range a name. I called it *Names*. Now enter this formula: `=SUM(1/COUNTIF(Names,Names))`. Now this is very important: Press Ctrl-Shift-Enter rather than only Enter; this will tell Excel to make it an array formula.

The second argument to `COUNTIF` is normally a single value, but we've passed an array. Excel substitutes each element of the array in turn and sums all the results. A unique name will return 1. When a name appears twice, each occurrence will add one-half to the sum—and one-half doubled is 1. No matter how many times a particular name appears, it will contribute exactly 1 to the total, so the result will be a count of unique names.

This formula breaks down when the data set is too big. The number of calculations Excel

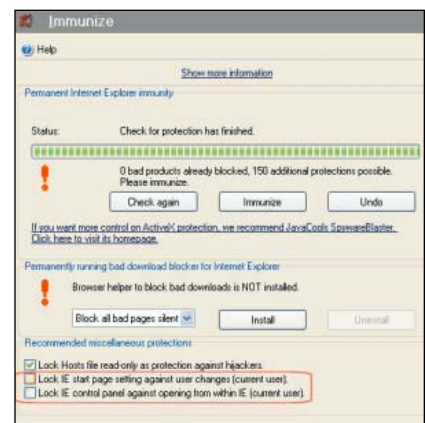
has to perform is proportional to the square of the number of items, so it gets slower and slower with more rows. In one test using a full 65,536 rows, it took almost 20 minutes. Clearly a different solution is needed.

Highlight the row containing the names and select *PivotTable and PivotChart Report* from the *Data* menu. Click on *Next* and then click on *Finish*. This will create an empty PivotTable in a new worksheet. Drag the *Name* field into the *Drop Row Fields Here* area, then drag it into the *Drop Data Items Here* area. Now you have a list of all the unique names, along with the number of times each name occurs. To get a count of unique names, enter this formula in a cell that's not in column A: `=COUNTA(A:A)-3`.

`COUNTA` returns the number of nonblank cells in the column. The two PivotTable headers and the grand total line are not counted, so we subtract 3. One warning: PivotTables are not recalculated automatically. If the list of names changes, click on the *Refresh Data* button (the red exclamation point) in the *PivotTable* toolbar.—NJR

**Internet Options  
Blocked By Spybot**

I recently read the item "Blocked by Phantom Administrator" in your issue of October 1, 2003 (page 74). Earlier this year, I had the same problem discussed in the item, but I found a different solution.



**SPYBOT** can bar you from IE's *Internet Options* and home page settings.

Power-saving schemes lower the CPU's voltage and clock speed when a system is running on battery power.

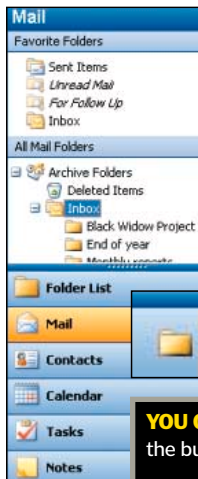
# The buttons on the bottom of Outlook 2003's Navigation pane are useful, but they take up a lot of room.

The problem occurred shortly after I installed the spyware removal software SpyBot Search & Destroy. After a week or more of searching for a solution, I found one in a user-group posting. The solution to this situation was to disable the *Lock IE* settings in the *Immunize* section of the SpyBot utility.

CARL KRIGER

SpyBot prevents launching *Internet Options* from within Internet Explorer; you can still launch that dialog from the Control Panel. When you need to change your home page, launch SpyBot and uncheck the box that locks the home page; don't shut down SpyBot. Close all browser windows and launch *Internet Options* from the Control Panel. Enter the desired home page, click on *OK*, and switch back to SpyBot. Recheck the box that locks the home page and close SpyBot.

—Neil J. Rubenking



## Making More Room in the Navigation Pane

The buttons on the bottom of the Navigation pane in Outlook 2003 are very

useful, but they take up a lot of room, particularly on a relatively low-resolution screen. One solution is to hide all the buttons except the *Folder List* button. To do this, click on the double chevron symbol on the lower right corner of the Navigation pane to open the drop-down

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menu. Then choose *Add or Remove buttons* and click on any button (except *Folder List*). Repeat for each button you want to hide. Because the *Folder List* shows the entire list of folders, you can still move to any folder, even without the buttons.

GRANT HOLLAND

In case you'd rather not hide the buttons, you can also shrink the button area and eliminate the text so that all the buttons appear as icons on a single line.

To do this, move the mouse cursor over the thin bar at the top of the list of buttons. When the bar changes to a vertical double-arrow, click and drag the bar down. As you drag the bar over each button, each one will, in turn, disappear as a space-hogging text button and reappear as a small icon on the bottom row.

—M. David Stone

## Shutdown Problems

One of the most common complaints in the Tips and Solutions discussion forum at [www.pcmag.com](http://www.pcmag.com) is that the computer won't shut down properly. It restarts when it ought to shut down, refuses to restart at all, or any of many other combinations that just add up to trouble. Unfortunately, there

are a wide variety of reasons for shutdown problems, and they occur even in Windows XP. If you experience any kind of difficulty at shutdown, we recommend you ask... Microsoft. No, really! There are impressive resources

available to help at the Microsoft Knowledge Base online.

Visit <http://support.microsoft.com> and click on *Search* to bring up the *Advanced Search* dialog. Select your operating system from the drop-down list and search for *shutdown problem* using the *all of the words entered* option. You can choose from a number of articles, from the general "Resources to Help Troubleshoot Shutdown Problems in Windows XP" to the more arcane "Computer Hangs if USB Selective Suspend Option of USB Mouse Is On." There's even a Webcast called "Microsoft Windows XP: Troubleshooting Startup and Shutdown," which is also a good introduction to troubleshooting in general.—NJR

## Start Windows XP Without Waiting for Welcome

I'd like to change my Windows XP Home Edition start-up back to what it was originally. Windows used to go immediately to my desktop when I booted up. Now when I start my computer, I get a



**USE THE** *Advanced Search* on the Microsoft Knowledge Base to find information on shutdown problems.

split screen showing the Windows XP logo on one side and my user name on the other. I have to click on my name, then my personal settings are loaded, and finally my desktop appears. These extra steps take time. Can you help me get Windows XP to start up without me having to click my user name?

DON SUSZKO

To log on to Windows XP without going through the Welcome screen, you must have exactly one user account defined and you must have the Guest account turned off. That's the arrangement you had originally. A recent Windows XP update screws up this plan by adding a virtual user called *ASP.NET*, which isn't useful unless you're a programmer. Assuming you're not, just delete it.

Of course, subsequent Windows updates are likely to bring back that unwanted account. For a more permanent solution, download *TweakUI* from [www.microsoft.com/windowsxp/pro/downloads/powertoys.asp](http://www.microsoft.com/windowsxp/pro/downloads/powertoys.asp). Install and launch *TweakUI*; unlike earlier versions, the utility launches from the *Start* menu rather than the Control Panel. Double-click on the *Logon* item to open it and then click on *Autologon*. Check the box titled *Log on automatically at system startup*, enter your user name and password, and click on *OK*. Now *TweakUI* will log you on using your user name and password even if more than one account exists.—NJR



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BY DANIEL GROTTA AND SALLY WIENER GROTTA  
PHOTOGRAPHY BY THOM O'CONNOR



REVIEWED IN THIS STORY

**74** SHIRT-POCKET SHOOTERS • **80** MIDRANGE MODELS • **86** PROFESSIONAL MODELS

With hundreds of digital cameras on the market, zeroing in on the best one can be a drag. So we've done the comparison shopping for you: We tested 21 models from \$350 to \$1,800.



# Digital Photography FOR Everyone



## BUYING A DIGITAL CAMERA NOWADAYS CAN BE

a full-time job that requires sorting through a dizzying number of models—not to mention wrapping your head about the increasingly complex wizardry that's showing up in them. Asking advice from friends can confuse matters even more: A serious photographer will give you an entirely different recommendation than a soccer mom capturing her kid scoring the winning goal or a twenty-something snapping party candid. We'll help you sort through the confusion.

For this story, we evaluate cameras in three popular categories: shirt-pocket shooters, midrange models, and professional models. The 21 cameras we test have much in common. All except the Olympus E-1 have a built-in flash, only the Canon PowerShot SD10 Digital Elph doesn't come with or accommodate a zoom lens, and all but the Fujifilm FinePix S7000 Zoom and the HP Photosmart 945 use rechargeable batteries. All the cameras have autofocus, macro settings, exposure compensation, selectable ISO equivalencies, and automatic white balance.

The differences, however, are significant. Shirt-pocket shooters are small, stylish, and sophisticated. They are go-anywhere, always-ready cameras. But packing all that technology into such a small design, they're harder to handle, especially for people with poor eyesight or arthritic hands. And most models come with fewer features and have slower performance, reduced battery life, and slightly inferior image quality.

There are two types of midrange models: One is designed for point-and-shoot use, for those who rarely stray from fully automatic mode and value simplicity over features. The other targets enthusiastic amateur photographers who want total control over f-stops and shutter speeds. This type of shooter also demands professional features like bracketing (taking a rapid sequence at different exposures or white balance settings), a hot shoe for attaching an external strobe, and the ability to save uncompressed RAW or TIFF images.

Both types look and feel like traditional film cameras. They're also more robust and incorporate better ergonomics than subcompacts. They have superior lenses and better strobes, larger and more legible LCDs (some also have eye-level electronic viewfinders), offer more features and faster performance, and produce better image quality. But they're also larger, heavier, more inconven-

nient to lug around, and less appropriate for candid shots. Midrange cameras are also more challenging to learn how to use.

Professional cameras are large and complicated, built for heavy use and moderate abuse. They are far more versatile than shirt-pocket shooters or midrange models and feature eye-level through-the-lens (TTL) viewing and either extended zoom lenses or interchangeable lenses. They also offer image-enhancing functions, fast shooting, plenty of customization, and the ability to save uncompressed files for maximum image quality.

With better lenses, image sensors, and built-in image-processing intelligence, professional cameras can produce extremely high-quality images. What's more, most are *systems* designed for accessories such as interchangeable lenses, auxiliary strobes, filters, and heavy-duty batteries.

Pro cameras require photography skills to create the best possible pictures. Anyone can take reasonably good shots using automatic default settings, but a knowledgeable photographer knows how to tweak settings manually to capture truly great photos.

What's around the corner in the world of digital cameras? For openers, across-the-board higher resolutions. Applying the popular but misleading truism that more is better, manufacturers this year will introduce 6- and even 8-megapixel digital cameras at a price we now pay for 5MP models.

Cheaper and higher-density memory cards, as well as more powerful computers and inexpensive DVD burners, will help fuel the trend toward more megapixels. Ubiquitous eye-level optical viewfinders will probably give way to through-the-lens electronic viewfinders, which requires far less power than the LCD viewfinders users now hold at arm's length to take pictures.

While most cameras will continue to connect via USB (though upgraded from the poky USB 1.1 to the much faster USB 2.0), look for more models with cradles or chargers for greater convenience and easier uploads, as well as wireless Bluetooth or 802.11b interfaces. A handful of today's cameras capture VGA (640-by-480) video at a no-flicker rate of 30 frames per second, letting you show home movies on your TV. Look for this to become standard in most cameras, which means that (with a much higher-capacity memory card) you can leave your DV camcorder at home.

The ability to print directly from your camera will catch on too, as inexpensive and simple desktop printers become available. And last but not least, manufacturers will continue to improve image sensors, optics, and image-processing science for even better photos. Digital cameras are better than ever, and the choices are so varied that you can be certain there's a model out there for you. All you have to do is pick one.

74 Editors' Choice

• 76 Summary of Features:

Shirt-Pocket Shooters and Midrange

Models • 78 Performance Tests:

Pleasant to Aim • 84 Camera-raderie

• 86 Price/Performance Index

Also  
In **THIS**  
STORY

## SHIRT-POCKET SHOOTERS

### Sony Cyber-shot DSC-T1

## MIDRANGE MODELS

### Olympus C-5060 Wide Zoom

## PROFESSIONAL MODELS

### Olympus E-1



The vast number of digital cameras on the market come at a wide range of prices. To help make your buying decision a little easier, we measured the performance, compared the output quality, and evaluated the look and feel of 21 different cameras. Then we singled out three that cater to different-size wallets.

Among the seven shirt-pocket shooters we reviewed, the Kyocera Finecam SL300R surprised us with its extremely fast burst mode, and we found the Pentax Optio S4 very easy to use. But the Sony Cyber-shot DSC-T1 wins our Editors' Choice, because of its excellent styling and huge LCD viewfinder.

Among the nine midrange models we tested, the Olympus C-5060 Wide Zoom earns our Editors' Choice for its superior handling, excellent construction, and extensive feature set. The Fujifilm FinePix S7000 Zoom and the Canon PowerShot G5 are worth honorable mentions, offering tons of features as well.

Be prepared to spend some serious money—the street price for our Editors' Choice is \$1,800, and that price doesn't even include a lens—if you're looking at the professional models. Among the five high-end cameras we tested, our Editors' Choice goes hands down to the Olympus E-1 for its innovative design, tanklike construction, professional performance, and excellent image quality—dramatically better than any other camera in this roundup. With a street price of less than \$800, however, the Konica Minolta DiMAGE A1 is a terrific value for the money, and earns an honorable mention.

## SHIRT-POCKET SHOOTERS

### Canon PowerShot SD10 Digital Elph

As much a fashion statement as it is the smallest camera in our roundup, the slim, elegant Canon PowerShot SD10 Digital Elph delivers good image quality and a fast burst mode. But it lacks an optical zoom lens and an optical viewfinder.

Although you can't focus manually or set f-stop or shutter speed, the SD10 offers various image adjustment options, such as sharpening and vivid color, and several program modes, including an easy-to-follow panorama guide. You can customize the camera by changing setup defaults—even sounds.

Designed for one-handed operation, the SD10 has minimal controls. Selecting settings is somewhat confusing, because both buttons on the back bring up menus, with only icons and single words for identification.

Boot and recycle times are fair, though burst mode is quite peppy. Image quality is good, with sufficient detail and sharpness. Our daylight test shot had pleasing color but was dull and slightly underexposed. The flash image was a bit overexposed.

Style-conscious consumers will like the SD10's size and elegance. But if you want more power, look elsewhere.

4.0 megapixels, no optical zoom, \$350 street. Canon U.S.A. Inc., [www.canonusa.com](http://www.canonusa.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The SD10 is an attractive piece of jewelry with a solid feel, but it has no zoom lens and is only average in ease of use, performance, and image quality.



### Fujifilm FinePix F700 Zoom

Larger than typical subcompact models but smaller than a regular camera, the Fujifilm FinePix F700 Zoom offers 6.2-megapixel resolution (interpolated), 3X optical zoom, fast and easy shooting, and a cradle for downloading and recharging.

The F700 has heaps of big-camera features, such as full manual, aperture, and shutter priority, as well as manual focus, exposure bracketing, and flash intensity adjustment. It can even save uncompressed RAW files for maximum image quality. It has an autofocus assist lamp, but the LCD viewfinder doesn't automatically adjust for low light.

The F700 feels solid and works equally well in point-and-shoot or advanced modes. Despite having two menu buttons, as well as others inconveniently scattered and poorly identified, navigating the menus is intuitive.

Boot-up is faster than all but the Konica and Sony units, and recycle time is top in its class. But image quality is mixed. While images were sharp and colors are good, our daylight test shot was significantly underexposed and lacked luster. The flash shot was bright and well exposed. The F700 is a quick shooter that works well in automatic mode and affords extensive control.

6.2 megapixels, 3X optical zoom, \$499 list. Fuji Photo Film U.S.A. Inc., [www.fujifilm.com](http://www.fujifilm.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● Power, ease of use, and performance are good; underexposure in daylight lowers the overall score.





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## Konica Minolta DiMage G400

The Konica Minolta DiMage G400 is a well-built, neat-looking, fast-shooting camera with the ability to save to either Memory Stick or Secure Digital format, but it stops short of advanced features. With a crescent-shaped shutter that both protects the lens and turns the camera on, the G400 offers manual, aperture, and shutter priority, as well as six program modes and audio recording and annotation. But it lacks a histogram, bracketing, and adjustments for sharpness and flash intensity.



The T-shaped cluster of buttons is designed more for style than convenience. And you may be confused about which functions are accessed by the Mode and Menu buttons. The menus use unfamiliar icons but are accompanied by identifying words.

The G400 is a fast shooter, with virtually no shutter lag and the second-best times on our boot and recycling tests. Images are sharp, with good color. Our flash test shot was well illuminated and evenly exposed, but the daylight shot was underexposed.

The G400 is a good compromise between a simple point-and-shoot camera and one designed for advanced use—especially if you already own gadgets that use Sony Memory Sticks.

4.0 megapixels, 3X optical zoom, \$350 street. Konica Minolta Photo Imaging U.S.A. Inc., [www.konicaminolta.com](http://www.konicaminolta.com).

**Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●●

●●●●● This is a no-nonsense model that will appeal to owners of Sony products that use Memory Sticks.

## Kyocera Finecam SL300R

Although the Kyocera Finecam SL300R has knockout styling and a burst mode to die for, it delivers only 3.2 megapixels, no optical viewfinder, and good—not exceptional—image quality.

The lens and flash head rotate for glare-free viewing from any angle. Aside from its superfast burst mode, the SL300R can also record movies at 30 fps. But it offers only a few other options: manual focus, two f-stops, five program modes, and sharpness levels.

The intuitive controls are strategically placed and well marked, and the simple menus are easy to navigate. Yet despite its small size, the camera is hard to use one-handed.

Kyocera is the first company to incorporate a revolutionary new chip by NuCore Technologies. This lets the SL300R record at an astounding 3.3

fps in burst mode until the memory card fills up. But boot and recycle times are only average. While image quality is good—especially in flash shots—our daylight test shot was disappointingly dull and underexposed.

With its “wow” factor and unrivaled burst speed, the SL300R is as pretty as it is practical, especially for kids, sports, and animal shots.

3.2 megapixels, 3X optical zoom, \$399 list. Kyocera Corp., [www.kyoceraimaging.com](http://www.kyoceraimaging.com). **Ease of use:** ●●●●● **Power:** ●●●●●

**Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●●

●●●●● The SL300R is an impressive, fun camera with a terrific burst mode but few functions.



## Nikon Coolpix 3700

The Nikon Coolpix 3700 has few advanced features, but for a point-and-shooter, its fabulous 15-scene program mode and full-frame, 30-fps VGA movies are worth the price.

Chunky for a subcompact, the Coolpix 3700 lacks advanced controls but does provide a few goodies, such as a best-shot selector, an interval timer, and sharpening. Postshooting image enhancements include halo, monochrome, and sepia effects.

The Coolpix 3700 is easy to use one-handed, especially since the buttons and switches have different shapes. Menus are simple, and the icons with words make selection



effortless, even in the cluttered Scene Mode menu. On our tests, performance was mixed: Shutter delay was noticeable; boot-up was the slowest of all the sub-compacts; and recycling times were longer than average. Image quality was also mixed: Our flash shot was properly exposed and illuminated, but the daylight test image was underexposed.

The Coolpix 3700 is a straightforward camera that can automatically choose all the right settings for typical shooting situations.

3.2 megapixels, 3X optical zoom, \$399.95 list. Nikon USA, [www.nikonusa.com](http://www.nikonusa.com). **Ease of use:** ●●●●●

**Power:** ●●●●● **Performance:** ●●●●●

**Image quality:** ●●●●● **Overall:** ●●●●●

●●●●● This is a wonderful camera for point-and-shooters who need guidance but can live with average image quality.

# SHIRT-POCKET SHOOTERS

## Pentax Optio S4

Simple styling, small size, and exceptional ease of use mark the Pentax Optio S4. But performance is sluggish, and the company's lack of attention to detail mar the body's otherwise excellent construction.

Small enough to fit inside an Altoids mint tin, the S4's styling exudes quality, but a closer look reveals flimsy rubber plugs, a cheap connector, and a plastic tripod socket. Although it's a point-and-shooter, the S4 offers several advanced options, such as sharpness, contrast, and color saturation adjustments. It even has a histogram and 16MB of built-in memory, should you fill

your SD card.

The S4 is a dream to use. The menus are models of clarity—incredibly easy to navigate, even for novices. Controls are simple, well marked, and intelligently placed.

Performance is the S4's weakness: On our tests, it had the second-slowest boot and recycle times in its class. Image quality is generally very good. Our test images were sharp, and colors were clear. The flash shot was the



best among the sub-compacts, but the daylight photo was slightly underexposed.

The S4 is a standout for simplicity and ease of use, but you'll appreciate its small size and very good image quality.

4.0 megapixels, 3X optical zoom, \$369 list. Pentax U.S.A. Inc., [www.pentaxdigital.com](http://www.pentaxdigital.com).

**Ease of use:** ●●●●●

**Power:** ●●●●● **Performance:** ●●●●●

**Image quality:** ●●●●● **Overall:** ●●●●●

The S4 is an easy-to-use camera that produces good images. To save a few cents, however, the feeling of quality is compromised.

## SUMMARY OF FEATURES

### Shirt-Pocket Shooters and Midrange Models

	SHIRT-POCKET SHOOTERS						
	Canon PowerShot SD10 Digital Elph	Fujifilm FinePix F700 Zoom	Konica Minolta DiMAGE G400	Kyocera Finecam SL300R	Nikon Coolpix 3700	Pentax Optio S4	Sony Cyber-shot DSC-T1
<b>BASICS</b>							
Price	\$350 street	\$499 list	\$350 street	\$399 list	\$399.95 list	\$369 list	\$550 list
Dimensions (HWD, in inches)	3.6 x 1.9 x 0.7	2.1 x 4.3 x 1.1	2.2 x 3.7 x 1.0	2.5 x 3.9 x 0.6	3.8 x 2.0 x 1.2	2.0 x 3.3 x 0.8	3.6 x 2.4 x 0.8
Weight (with batteries and memory card, in ounces)	3.5	6.7	7.4	5.2	4.6	4.1	6.3
Total effective megapixels	4.0	6.2	4.0	3.2	3.2	4.0	5.1
Maximum resolution (dpi)	2,272 x 1,704	2,832 x 2,128	2,272 x 1,704	2,048 x 1,536	2,048 x 1,536	2,304 x 1,728	2,592 x 1,944
Included memory capacity and type	32MB Secure Digital	16MB xD-Picture Card	16MB Secure Digital	16MB Secure Digital	16MB Secure Digital	11MB internal	32MB Memory Stick Duo
Included batteries	1 lithium ion	1 lithium ion	1 lithium ion	1 lithium ion	1 lithium ion	2 lithium ion	1 InfoLithium
AC adapter	■	■	□	■	■	□	■
Toll-free technical-support number	800-652-2666	800-800-3854	877-462-4464	800-421-5735	800-645-6689	800-877-0155	888-222-7669
Toll-free technical-support hours (eastern time)	3:00a-midnight M-F, noon-8:00p Sat.	9:00-8:00 M-F	9:00-6:00 M-F	9:00-6:30 M-F, 10:00-5:30 Sat.	24/7	9:30-6:30 M-F	8:00-2:00 M-F; 8:00-8:00 Sat., Sun.
<b>DIGITAL SPECIFICATIONS</b>							
Interface	TV out; USB 1.1, 2.0	USB 1.1	USB 1.1	USB 1.1	USB 1.1	TV out, USB 1.1	TV out, USB 2.0
LCD size (inches)	1.5	1.8	1.5	1.5	1.5	1.6	2.5
Picture file formats	JPEG	JPEG, RAW	JPEG	JPEG	JPEG	JPEG	JPEG
Video file formats	MPEG	AVI	AVI	AVI	QuickTime	AVI	MPEG
Slide show/panorama framing mode	■ □	■ □	□ □	■ □	■ ■	■ ■	■ □
Time-lapse photography	□	■	□	□	■	■	□
USB Mass Storage Class	■	■	□	■	■	■	■
Print Image Matching	■	■	□	■	■	■	■
EXIF 2.2-compatible	■	■	■	■	■	■	■
<b>OPTICAL SPECIFICATIONS</b>							
35-mm equivalent (mm)	6.4	35-105	34-101	38-115	35-105	35-105	38-114
ISO equivalencies	50, 100, 200, 400	100, 400, 800, 1,600	50, 100, 200, 400	100, 200, 400, 800	Info not available	50, 100, 200	100, 200, 400
Aperture range	f-2.8	f-2.8-8.0	f-2.8-4.9	f-2.8-7.5	f-2.8-4.7	f-2.6-4.8	f-3.5-4.4
Shutter speed range (seconds)	15-1/1,500	3-1/2,000	1-1/2,000	8-1/2,000	4-1/3,000	4-1/2,000	1-1/1,000
Continuous-shooting mode	□	■	■	■	■	■	■
Auto-exposure bracketing	■	■	■	□	■	■	■



### Sony Cyber-shot DSC-T1

Like the Kyocera Finecam SL300R, the Sony Cyber-shot DSC-T1 has stunningly good looks but with good ergonomics rather than performance to back it up.

The DSC-T1 is thin, flat, and rectangular like the SL300R, but it doesn't swivel and has more heft. The camera also comes with a convenient cradle/charger. The lens is protected by a sliding shutter, and although the DSC-T1



doesn't have an optical viewfinder, its massive 2.5-inch LCD enables easy viewing and sharing. It offers 30-fps video, manual focus, eight program modes, and a histogram.

This camera handles very well, with intuitive, large menus. The buttons are tiny but have a good feel. The battery is limited, but a minute countdown tells how much power is left. On our tests, the DSC-T1's boot time was fastest in its class, but



recycling and burst mode were slow. Our test shots had a slight yellow cast. The daylight image was underexposed, but the flash image was well exposed and illuminated. Despite its rated 5.1 megapixels, resolution is in line with a 4-MP model.

The DSC-T1 is for buyers who want the sexiest, highest-resolution subcompact camera. And it's refreshingly simple to use. 5.0 megapixels, 3X optical zoom, \$550 list. Sony Electronics Inc., www.sonystyle.com. **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● This well-constructed camera has a large LCD that makes sharing images a breeze.

Download this table, and see the features table for the professional models in this story, at [www.pcmag.com](http://www.pcmag.com).

MIDRANGE MODELS

Canon PowerShot G5	Fujifilm FinePix S7000 Zoom	HP Photosmart 945	Kodak EasyShare DX6490	Kyocera Finecam S5R	Nikon Coolpix 5400	Olympus C-5060 Wide Zoom	Panasonic DMC-FZ10 Lumix Digital Camera	Sony Cyber-shot DSC-V1
\$799 list	\$699 list	\$500 street	\$499.99 list	\$420 street	\$695.95 list	\$700 street	\$599.95 list	\$700 street
4.8 x 2.9 x 2.8	3.2 x 4.8 x 3.8	3.4 x 4.8 x 3.4	3.9 x 3.1 x 3.2	3.9 x 5.9 x 2.5	4.3 x 2.9 x 2.7	4.6 x 2.6 x 3.4	3.4 x 5.5 x 4.2	2.0 x 3.0 x 2.0
14.5	18.0	15.7	11.9	6.3	11.3	17.9	19.4	10.9
5.0	6.3	5.3	4.2	5.0	5.1	5.1	4.0	5.0
2,592 x 1,944	4,080 x 3,040	2,608 x 1,952	2,304 x 1,728	2,560 x 1,920	2,592 x 1,944	2,592 x 1,944	2,304 x 728	2,592 x 1,944
32MB CompactFlash	16MB xD-Picture Card	32MB Secure Digital	16MB internal	16MB Secure Digital	16MB Secure Digital	32MB xD-Picture Card	16MB Secure Digital	32MB Memory Stick
1 lithium ion	4 AA alkaline	4 AA photo lithium	1 lithium ion (on cradle)	1 lithium ion	1 lithium ion	1 lithium ion	1 lithium ion	1 InfoLithium
800-652-2666	800-800-3854	800-474-6836	800-235-6325	800-421-5735	800-645-6689	800-622-6372	800-211-7262	800-222-7669
3:00a-midnight M-F, noon-8:00p Sat.	9:00-8:00 M-F	24/7	9:00-8:00 M-F	9:00-6:30 M-F, 10:00-5:30 Sat.	24/7	8:00-5:00 M-F	9:00-9:00 M-F; 10:00-7:00 Sat., Sun.	8:00a-3:00a M-F; 8:00a-9:00a Sat., Sun.
TV out; USB 1.1, 2.0	AV out, USB 1.1	USB 2.0	USB 2.0	USB 1.1	USB 1.1	USB 1.1	USB 1.1	TV out, USB 2.0
1.8	1.8	2.0	2.2	1.6	1.5	1.8	2.0	1.5
JPEG	JPEG, RAW	JPEG	JPEG	DPOF, JPEG	JPEG, TIFF	JPEG, RAW, TIFF	JPEG	JPEG, TIFF
MPEG	Motion-JPEG	MPEG	QuickTime	AVI	QuickTime	QuickTime	QuickTime	MPEG
■ ■	■ ■	■ □	■ □	■ □	■ ■	■ ■*	■ □	□ □
□	■	□	■	□	■	□	□	■
■	■	■	■	■	■	■	■	■
■	■	□	■	■	■	■	■	■
■	■	■	■	■	■	■	■	□
35-140	35-210	37-300	38-380	35-105	28-116	27-110	35-420	34-136
50, 100, 200, 400	160, 200, 400, 600, 800	100, 200, 400	80, 100, 200, 400, 600	100, 200, 400, 800	50, 100, 200, 400	80, 100, 200, 400	50, 100, 200, 400	100, 200, 400, 800
f-2.0-8.0	f-2.8-8.0	f-2.8-11.0	f-2.8-8.0	f-2.8-9.6	f-2.8-4.6	f-2.8-8.0	f-2.8-8.0	f-2.8-4.0
15-1/2,000	15-1/10,000	16-1/2,000	16-1/1,700	1-1/2,000	8-1/4,000	15-1/2,000	1-1/2,000	1/8-1/2,000
■	■	■	■	■	■	■	■	□
■	■	□	■	■	■	□	■	■

# Pleasing to Aim



We've said it before and we'll say it again: More megapixels doesn't necessarily equal more resolution. Resolving power, which shows up in image clarity and detail, is determined not only by the number of photosensor cells in the CCD but also by the lens, processor, electronics, filters, and algo-

rithms. Pixel transition and resolution tests are better indications of image quality than the number of pixels. But regardless of whether you're an enthusiast or a photo hound, image quality should be your primary concern.

At PC Magazine Labs, we've put the hottest new digital cameras through a suite of tough tests to measure performance and image quality, using industry-recognized practices and a standard ISO target. During our testing process, we worked with Daniel Grotta, president of camera-testing facility Digital-Benchmarks ([www.digitalbenchmarks.com](http://www.digitalbenchmarks.com)).

## THE BOOT, CLICK-TO-CLICK, AND OTHER FANCY DANCE STEPS

Three tests measure camera performance. The faster the boot time and recycle time the better. For burst mode, the more pictures that can be taken in 10 seconds the better.

**Boot time:** From a cold start, we measured the time required to turn on the camera, with both the LCD and the flash on, and shoot a picture.

**Recycle time:** This is the total time required to capture two images in succession, including the processing time between the first and second shots. This procedure is often called a *click-to-click test*. We set the LCD and flash to *on*, and we selected each camera's highest-quality JPEG setting, which

performs the least compression.

**Burst mode:** This mode lets you take pictures in rapid succession, but you usually sacrifice image size or quality in the process. The test revealed how many images each camera could capture in 10 seconds. How many of those you'll keep is a very different question.

To determine the **resolution** of each camera, we selected specific parameters on each, such as auto-exposure and auto-focus. Then we photographed the ISO target and analyzed the image in Adobe Photoshop. The center of the target contains two sets of nine converging lines, one oriented vertically and one horizontally. We counted the lines at a point just before the separate lines become indistinguishable. A high number of lines is desirable.

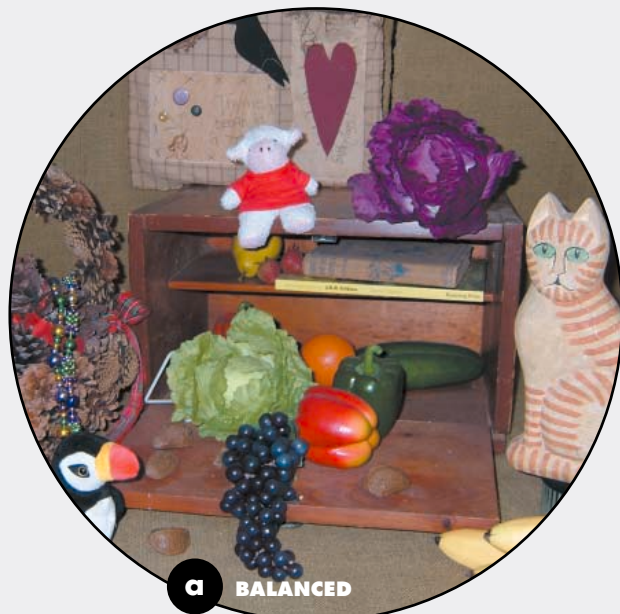
There's a clear correlation between CCD size and resolution. For example, a 3-megapixel camera should be able to resolve from 950 to 1,100 lines, while a 4MP camera should be able to handle 1,100 to 1,300.

## PIXEL TRANSITION: GRAY, GRAY, GO AWAY

Ideally, two adjacent planes—one solid black and one white—should form a clean edge and show no gray pixels. But this is rarely the case with digital cameras. A pixel transition ratio represents the number of unwanted gray pixels that show up in an image.

To determine this, we returned to the ISO target and studied it carefully in Photoshop. We took a section containing adjacent black and white planes, oriented both horizontally and vertically (slightly skewed at 20 degrees), and we examined that section for any transition pixels.

Each score in the table represents the number of gray pixels expressed as a percentage of the total number of pixels in



## DIGITAL-CAMERA TESTS

	Megapixel rating	PERFORMANCE TESTS			RESOLUTION (lines) ▲			TRANSITION PIXELS ▼		
		Boot time (seconds) ▼	Recycle time (seconds) ▼	Burst mode (shots per 10 seconds) ▲	Horizontal	Vertical	Center average	Horizontal	Vertical	Average
<b>SHIRT-POCKET SHOOTERS</b>										
Canon PowerShot SD10	4.0	3.0	3.2	15	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	2.5%	<b>1.9%</b>	<b>2.2%</b>
Fujifilm FinePix F700 Zoom	6.2	2.0	<b>1.1</b>	10	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>2.3%</b>	2.5%	2.4%
Konica Minolta DiMAGE G400	4.0	1.8	2.4	11	1,050	1,050	1,050	4.2%	3.5%	3.9%
Kyocera Finecam SL300R	3.2	2.7	3.4	<b>33</b>	1,050	1,050	1,050	2.5%	2.5%	2.5%
Nikon Coolpix 3700	3.2	3.7	2.8	7	1,000	1,000	1,000	3.1%	2.6%	2.8%
Pentax Optio S4	4.0	3.2	3.4	6	1,150	1,150	1,150	3.9%	3.3%	3.6%
<b>Sony Cyber-shot DSC-T1</b>	5.1	<b>1.6</b>	3.6	4	1,150	1,150	1,150	3.0%	2.9%	3.0%
<b>MIDRANGE MODELS</b>										
Canon PowerShot G5	5.0	4.7	2.4	10	1,300	1,250	1,275	2.2%	2.3%	2.3%
Fujifilm FinePix S7000 Zoom	6.3	3.5	<b>1.2</b>	5	<b>1,600</b>	<b>1,600</b>	<b>1,550</b>	<b>1.6%</b>	<b>1.6%</b>	<b>1.6%</b>
HP Photosmart 945 <sup>1</sup>	5.3	4.4	1.5	6	1,050	1,100	1,075	2.5%	1.8%	2.1%
Kodak EasyShare DX6490	4.2	4.0	1.8	7	1,100	1,050	1,075	3.1%	3.0%	3.1%
Kyocera Finecam SSR	5.0	4.1	3.1	<b>31</b>	1,000	1,050	1,025	3.4%	3.2%	3.3%
Nikon Coolpix 5400	5.1	4.8	2.1	13	1,300	1,250	1,275	2.4%	2.7%	2.6%
<b>Olympus C-5060 Wide Zoom</b>	5.1	3.9	1.7	9	1,300	1,300	1,300	2.2%	2.7%	2.5%
Panasonic DMC-FZ10 Lumix <sup>1</sup>	4.0	5.6	2.0	15	1,100	1,050	1,075	2.8%	3.0%	2.9%
Sony Cyber-shot DSC-V1	5.0	<b>3.4</b>	4.0	4	1,350	1,300	1,325	2.2%	2.5%	2.3%
<b>PROFESSIONAL MODELS</b>										
Canon EOS Digital Rebel	6.3	2.6	0.7	14	<b>1,600</b>	<b>1,600</b>	<b>1,600</b>	2.6%	<b>1.9%</b>	<b>2.3%</b>
Konica Minolta DiMAGE A1	5.0	2.6	0.7	9	1,100	1,100	1,100	3.2%	3.2%	3.2%
<b>Olympus E-1<sup>2</sup></b>	5.1	1.7	0.6	<b>15</b>	1,300	1,300	1,300	<b>2.0%</b>	2.7%	2.4%
Pentax *ist D	6.1	<b>0.9</b>	<b>0.4</b>	11	1,200	1,200	1,250	2.8%	2.5%	2.7%
Sony Cyber-shot DSC-F828	8.0	1.4	1.6	7	1,200	1,300	1,250	3.3%	3.5%	3.4%

RED denotes Editors' Choice. <sup>1</sup>The camera's boot-up parameters differed from our test procedure. <sup>2</sup>The Olympus E-1 does not have a built-in flash.

the image. Low scores are best. We consider 5 percent the maximum acceptable score; percentages greater than that can result in a loss of sharpness. All the cameras we tested achieved acceptable results.

While these tests are important indicators of image quality,



they don't tell the whole story. So we asked our experts to evaluate still-life photos in two scenarios. At each camera's maximum resolution, we used autofocus and auto-exposure settings to capture one scenario that was dark enough to invoke the flash; we shot the other still life under simulated daylight. We also investigated various exposure, metering, and filter options. The results are sprinkled throughout the reviews.—Analysis written by Glenn Menin

### ◀ HIGHLIGHTS IN LOW LIGHT

We shot a series of images to rate the auto-flash capabilities of these digital cameras. We mounted the cameras approximately 5 feet from the still life seen in the sample images at left; these cameras' flashes should handle such a distance adequately. We then decreased the lighting enough to invoke the auto-flash and examined the output in Adobe Photoshop on high-end Sony GDM F520 CRT monitors. Too much flash can oversaturate a photo, losing details in the highlights and washing out the colors, while not enough illumination may leave your image dark and murky. The Fujifilm FinePix F700 Zoom (a) fared the best, creating a well-balanced image with accurate colors. The photo from the Canon PowerShot SD10 (b) was somewhat overexposed, however, blowing out the image's details a bit. This is especially noticeable in the teddy bear, where the nap of the fur is all but gone. The Konica Minolta DiMAGE G400 (c) captured a somewhat dim image. Perhaps the flash lacks sufficient power, or the camera's auto settings inaccurately determined the required exposure.

## MIDRANGE MODELS

### Canon PowerShot G5

Big and inelegant, the Canon PowerShot G5 is a powerhouse camera with all the bells and whistles. And it takes very good shots.

Underneath its utilitarian exterior is almost every function serious photographers need, including full manual control, bracketing options, RAW file saves, numerous white balance presets, time-lapse shots, and even a wireless remote control. It's also equipped with an intelligent hot shoe, a control panel, and a fully articulated LCD viewfinder.



The G5 is not an easy camera to master, but it has a solid feel. The menus are geared for experienced users, and the controls are scattered and marginally inconvenient.

While slow in boot and recycle times, the G5 has an imperceptible shutter delay and a decent burst mode. Images are sharp, colorful, and well exposed. Our test daylight shot was bright and clear with accurate colors, though the flash shot had a yellow cast.

The G5 ranks high. It's an excellent camera for serious amateurs, but it's overkill for occasional shooters looking for simplicity and ease of use.

5.0 megapixels, 4X optical zoom, \$799 list. Canon U.S.A. Inc., [www.powershot.com](http://www.powershot.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● This is an excellent camera for people who take photography seriously, but its design is unappealing.

### Fujifilm FinePix S7000 Zoom

The Fujifilm FinePix S7000 Zoom challenges models from Canon and Nikon for serious photographers' attention with a model that has eye-level, through-the-lens (TTL) viewing, extensive controls, and very good to excellent image quality.

The plastic and metal S7000 looks like a pro single-lens reflex unit with a big lens and extended battery grip. Although not as full-featured as the midrange Canon and Nikon models, the S7000 offers manual exposure, aperture, and shutter priority, as well as manual focus, bracketing, and a histogram. But it ships with four double-A alkalines, not rechargeables.

Although the grip extends too far for comfort, the S7000 is surprisingly easy to use. All the controls are accessible, and the menus are easy to navigate. Boot and recycle times are fast, though you don't get as many pictures in burst mode as with the others here due to the limited buffer. The S7000 scored tops in resolution (its SuperCCD interpolates to 12 megapixels). Our daylight test shot had a slight cyan cast, but the flash image was perfectly exposed and evenly illuminated. The S7000 is a terrific choice for professional ergonomics, exposure controls, and high-quality images without being too complicated.

6.3 megapixels, 6X optical zoom, \$699 list. Fuji Photo Film U.S.A. Inc., [www.fujifilm.com](http://www.fujifilm.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The S7000 is a solid camera, offering fast shooting, quality images, and ultrahigh resolution.



### HP Photosmart 945

The HP Photosmart 945 combines simplicity, good resolution, and very good image quality in a clunky-looking camera. It has an eye-level TTL electronic viewfinder, a pop-up flash, and a nonslip battery grip. A glorified point-and-shoot with relatively few controls, the HP 945 has a digital flash that dramatically improves available exposures and includes neat adaptive-lighting technology, and an e-mail button lets you mark a shot to be sent automatically over the Internet. Like the S7000, it comes with nonrechargeable lithium ion batteries, though HP does sell a cradle (\$79, with rechargeables).

The HP 945 can be held, adjusted, and used quite easily because of its big size and comfortably spread-out controls. Both viewfinders are bright and quite legible; the menus are very simple and clearly labeled, with explanations where necessary.

While the boot time was relatively slow, its recycle time was second fastest of the midrange cameras. But the viewfinder blacks out after each shot, appreciably slowing down throughput. Both test images were very good to excellent—sharp and detailed, with accurate color and exposure.

The HP 945 is an excellent camera for families and seniors who value simplicity, solid handling, and good image quality over style.

5.3 megapixels, 8X optical zoom, \$500 street. Hewlett-Packard Co., [www.photosmart.com](http://www.photosmart.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● This intelligent camera is for amateur photographers who want high-resolution, quality images.



## Kodak EasyShare DX6490

The compact Kodak EasyShare DX6490 combines eye-level TTL viewing, extreme ease of use, a huge zoom lens, and high-quality pictures. It looks like a scaled-down SLR, with its oversized 2.2-inch LCD, electronic viewfinder, and 10X optical zoom lens. But it offers only a few features, such as manual exposure, aperture and shutter priority, color and sharpness settings, and 16MB of built-in memory. Like the HP Photosmart 945, it can share photos via e-mail, and the included cradle makes downloads effortless.

The DX6490 is an extremely easy and fun camera to use. Buttons are convenient and well marked, and the menus display helpful explanations. The autofocus sometimes has difficulty locking on subjects, and without antishake technology, extreme telephoto shots may be blurry.

Boot and recycle times are better than average, and shooting feels fast because of the wonderful ease of use. Both our test shots were sharp, well exposed, and exhibited very good though slightly cool colors. This is an excellent camera for nontechnies who want the look and feel of a sophisticated camera and an extended zoom lens but don't need a surfeit of complicated controls.

4.2 megapixels, 10X optical zoom, \$499.99 list. Eastman Kodak Co., [www.kodak.com](http://www.kodak.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The DX6490 is a simple-to-use cradle camera that offers some advanced features and captures very good photos.



## Kyocera Finecam S5R

Although it doesn't have the knock-'em-dead appearance of its smaller brother, the Kyocera Finecam SL300R, the Kyocera Finecam S5R also offers full-frame video and rapid-fire burst mode, as well as 5-megapixel resolution.

The handsome S5R is only slightly larger than a subcompact. It has few functions, including aperture priority and color and sharpness adjustments, but it can record movies at 30 fps until the memory card fills up. Unique among digital cameras, the S5R has a pop-up flash that automatically closes when you turn the power off.

The S5R is small, convenient, and easy to hold and shoot—even one-handed. Its handful of controls are simple and easy to operate. Menus are scattered and basic, with some confusing terms. On our tests, the S5R's boot time was faster than average, but recycle time was second slowest in its class. In burst mode, however, it can fire off a whopping 31 shots in 10 seconds. Both of our test images looked very good though slightly soft, with accurate colors and excellent exposure.

A blazing burst mode and very good image quality will appeal to those looking for a peppy camera, but its lackluster feature set may discourage some.

5.0 megapixels, 3X optical zoom, \$420 street. Kyocera Corp., [www.kyoceraimaging.com](http://www.kyoceraimaging.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● A terrific burst mode and very good images define this camera, which has little else to offer.



## Nikon Coolpix 5400

Smaller and lighter than the Canon PowerShot G5 and Olympus C-5060 Wide Zoom, the Nikon Coolpix 5400 packs lots of power and takes good pictures. But it's missing certain features, and performance is somewhat sluggish.

The Coolpix 5400 is a brilliantly constructed camera with an articulated LCD, a hot shoe, and a handgrip. Its impressive features include white-balance bracketing and a best-shot selector, but it lacks others, like an autofocus assist lamp and RAW file support. While its zoom extends to a true wide angle, the movie mode records at only 15 fps.

In manual mode, the Coolpix 5400 is complicated to use. But in Scene mode, it's very easy to shoot with. It has a



complex but logical menu structure, with a small LCD that's difficult to read. The buttons are well labeled and positioned for one-handed operation.

Boot and recycling times are slower than most of the competition, and the camera's complexity means shots will take longer. Image quality is very good to excellent, except for a slight underexposure on our daylight test shot.

The Coolpix 5400 isn't for casual use, but it's good for experienced shooters who want power that fits comfortably in a jacket pocket.

5.1 megapixels, 4X optical zoom, \$695.95 list. Nikon USA, [www.nikonusa.com](http://www.nikonusa.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The high-quality, versatile Coolpix 5400 is slow but produces very good to excellent shots.

## MIDRANGE MODELS

## Olympus C-5060 Wide Zoom



The Olympus C-5060 Wide Zoom just about has it all: good ergonomics, solid performance, excellent image quality, and all the professional features you could want.

From its sloping corners to its non-slip grip, the C-5060 looks, feels, and handles like a fine film camera. Like the Canon PowerShot G5, the C-5060 has almost every important function, including a hot shoe, RAW and TIFF support, and an articulated LCD (but without the full range of motion found in the Canon and Nikon units).



The C-5060's sculpted body fits hands perfectly. While the controls will overwhelm newbies, serious photographers will have no difficulty mastering all the choices. The menus are complex and extensive, but Olympus's animated rotating selections make them relatively easy to navigate.

Boot and recycle times were third-best in its class, though burst mode was in the middle of the pack. Our test images were sharp, colorful, and well exposed, though the daylight test shot lacked snap. Serious photographers not quite ready for a digital SLR will find that the C-5060 will satisfy—big time.

5.1 megapixels, 4X optical zoom, \$700 street. Olympus America Inc., [www.olympusamerica.com](http://www.olympusamerica.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The C-5060 is a substantial, high-quality camera with good ergonomics for the serious shooter.

## Panasonic DMC-FZ10 Lumix Digital Camera

Big and well built, with a huge zoom lens, the Panasonic DMC-FZ10 Lumix Digital Camera is remarkably easy to use and has many standard features, but image quality is mixed.

It has a bright 2-inch LCD, an eye-level TTL electronic viewfinder, and a “dumb” hot shoe. Its massive Leica 12X lens is the longest zoom of any digital still camera on the market. And with the built-in optical stabilization, you can shoot telephoto without a tripod. It has a number of advanced features, like manual focus and aperture and shutter priority, but it lacks an autofocus assist lamp and RAW or TIFF support.

The Lumix is very easy to operate and is a lot lighter than it looks. All controls are accessible and well marked, and the menus are easy to navigate. Focus can be a problem; it sometimes tracks endlessly, attempting a lock on the subject.

Boot time was very slow, but recycling was fast, and burst mode scores were high. Our daylight test shot was properly exposed, with good color, but the flash shot was washed out. This is an impressive camera for its extreme telephoto, but its inability to save uncompressed files and the lack of a focus assist lamp will disappoint some.

4.0 megapixels, 12X optical zoom, \$599.95 list. Matsushita Electric Corp. of America, [www.panasonic.com](http://www.panasonic.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● This big, impressive-looking camera handles well, but image quality is mixed and key features are missing.



## Sony Cyber-shot DSC-V1

The Sony Cyber-shot DSC-V1 offers Sony's legendary quality and lots of features, yet it's light on ergonomics, performance, and image quality.

It has no shortage of big-camera features, including an intelligent hot shoe, lots of manual exposure and color options, 30 fps movies, a “smart” battery that displays the number of minutes remaining, a histogram, laser-assisted focus, and Sony's exclusive Nightframing and Nightshot features for viewing and taking photos in total darkness.

Holding and using the DSC-V1 is a bit inconvenient, because its numerous buttons, dials, and levers, though well marked, are almost haphazardly distributed. While menus are easy to navigate, you may have difficulty reading the tiny icons and words in the small LCD. The DSC-V1 has the fastest boot time in its class—but the slowest recycling and

fewest photos in burst mode in our entire roundup. Both our test images were very sharp. The flash shot was well exposed, but the daylight shot was underexposed and displayed a pronounced cyan shift.

Nevertheless, Sony packs good technology into the DSC-V1, which you'll appreciate if you want a small, high-quality camera and do a lot of nighttime photography.

5.0 megapixels, 4X optical zoom, \$700 street. Sony Electronics Inc., [www.sonystyle.com](http://www.sonystyle.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● This quality camera offers average ergonomics but has enough features to entice specialty photographers and Sony fans.



# I'd like to...

...archive my song collection in **MP3**.

...make a **DVD** from last holiday's video.

...make a **Photo CD** of Julie's birthday party.

... **Playback** all my digital media files.

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# Camera-raderie

By **Jeremy A. Kaplan**

For a photography buff, the local camera shop is a lot like an all-you-can-eat buffet: Every time you go back, you see something else you want. This goes beyond the latest and greatest camera—which, of course, we all want. Additional lenses, filters, meters, cases, straps, and so on can really transform your ability to take pictures. To fill that empty spot in your camera bag, we've gathered the following handful of inspiring extras. Happy shooting!

## ◀ **KONICA MINOLTA AUTO METER VF**



You can rely on a camera's automatic settings for most photography, but if you're shooting an important moment and you have to get it just right, turn to the tools the pros use. The Konica Minolta Auto Meter VF tells you just the right exposure correction and shutter speed, to ensure that you don't blow out that special moment. (\$220 street. Konica Minolta Photo Imaging U.S.A. Inc., [www.konicaminolta.us](http://www.konicaminolta.us).)

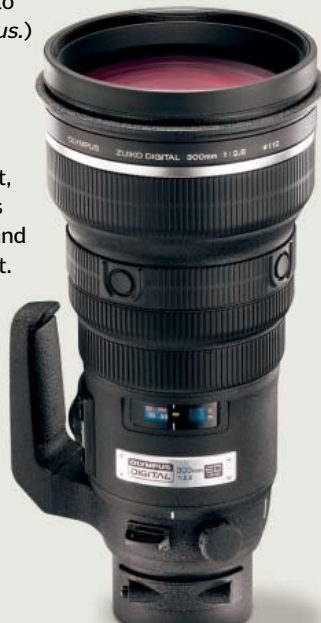
## **LOWEPRO REZO 20 ▼**

Any bag can serve as a spot for spare batteries. But would you place a \$500 add-on lens in the same place you recently stored a half-eaten Mars bar? Lowepro makes water-resistant, stretchy bags with enough compartments to keep your memory cards sorted and your lenses dust-free. (\$20 street. Lowepro, [www.lowepro.com](http://www.lowepro.com).)

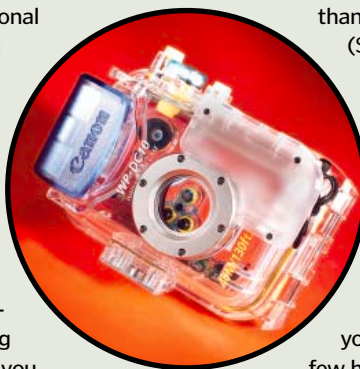


## **OLYMPUS 300MM F2.8 TELEPHOTO ▶**

If you've got a professional digital camera with the resolving power of the Hubble telescope, you need to take advantage of all those megapixels. A giant zoom lens,



such as the Olympus 300mm F2.8 Telephoto, will let you really zoom in on distant subjects. Keep in mind that most lenses are designed for specific cameras—and often cost more than the camera body itself—so ask before you buy. (\$8,000 street, Olympus America Inc., [www.olympus.com](http://www.olympus.com).)



## ◀ **CANON POWERSHOT UNDERWATER HOUSING**

We didn't really need another reason to think digital cameras are cool, but consider this fact anyway: Underwater cameras used to be big clunkers that cost thousands of dollars. Now you can buy a solid-plastic case (make sure you get one specific to your camera model) for a few hundred bucks that will let you take wonderful shots while diving or snorkeling. (\$250 street. Canon U.S.A. Inc., [www.usa.canon.com](http://www.usa.canon.com).)



## **CANON CP-200 ▲**

Ultralight and ultracompact, the Canon CP-200 still gets you ultra-high-quality pictures. Dye sublimation printers have silver halide-quality colors, so you can create 4-by-6 prints worthy of framing on the spot. (\$250 street. Canon U.S.A. Inc., [www.usa.canon.com](http://www.usa.canon.com).)

**More on the Web:** To see a summary of features for the professional cameras, as well as additional camera news and reviews, point your browser to [www.pcmag.com/cameras](http://www.pcmag.com/cameras).

Our contributors: **Les Freed** and **Sally Wiener Grotta** are contributing editors of *PC Magazine*. **Daniel Grotta** is president of DigitalBenchmarks and a frequent contributor to *PC Magazine*. Associate editor **Jeremy A. Kaplan** and PC Magazine Labs lead analyst **Glenn Menin** were in charge of this story.



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PROFESSIONAL MODELS

**Canon EOS Digital Rebel**

The Canon EOS Digital Rebel is the first—and still the only—interchangeable-lens SLR to break the \$1,000 price barrier. It shares much of its internal electronics with the excellent Canon EOS-10D SLR, including the 6-megapixel CMOS image sensor. As a result, the camera's image quality is nearly identical to that of the EOS-10D. But the Rebel's simplified auto-exposure and autofocus systems don't provide as much control as the Olympus E-1 or Pentax \*ist D.



The Rebel is fast and easy to use (although somewhat noisy), and the bundled lens is surprisingly good considering its light weight and low cost. The included rechargeable battery lasts all day, even with prolonged use of the LCD

In our testing, image quality was generally excellent, but our flash shots were often underexposed. The Rebel lacks a flash exposure compensation control, so you're stuck with whatever exposure the camera deems correct. We fixed the problem by using an external flash, but this adds considerable cost and weight. Still, this is a lot of camera for \$1,000, and it gives buyers access to Canon's huge array of interchangeable lenses—many of which cost more than the Rebel itself.

6.0 megapixels, \$900 street. Canon U.S.A. Inc., www.canoneos.com. **Ease of use:** ●●●● **Power:** ●●●● **Performance:** ●●●● **Image quality:** ●●●● **Overall:** ●●●● The overall rating would be higher, but the weak nonadjustable built-in flash is a major drawback.

**Konica Minolta DiMage A1**

If you want everything in one package, the Konica Minolta DiMage A1 is your camera. Weighing just 1.4 pounds (with battery), the A1 looks, feels, and operates very much like a conventional SLR camera. Boot and recycle times are quick, but the shutter lag is a little more noticeable than with the other cameras we tested.

The A1 has several features that make it a pleasure to use, including automatic switching between the LCD and electronic viewfinder, a real-time histogram, and an optional grid overlay that helps avoid tilted pictures. The 28- to 200-mm lens (35-mm equivalent) is one of the best we've seen on a prosumer camera, and Minolta's innovative Anti-Shake technology compensates for camera movement by moving the image sensor.

Unlike the similar lens on the Sony Cyber-shot DSC-F828, the A1 showed little distortion or color fringing at any setting. Image quality was generally very good in our testing, though some sensor noise was evident, even at the slowest ISO setting.

The A1's relatively small size and light weight make it an attractive alternative for those who want SLR features in a light, compact package.

5.0 megapixels, 7X optical zoom, \$780 street. Konica Minolta Photo Imaging U.S.A. Inc., www.konicaminolta.us. **Ease of use:** ●●●● **Power:** ●●●● **Performance:** ●●●● **Image quality:** ●●●● **Overall:** ●●●●

The A1 is a compact package that borders on SLR power but is much lighter and easier to carry.

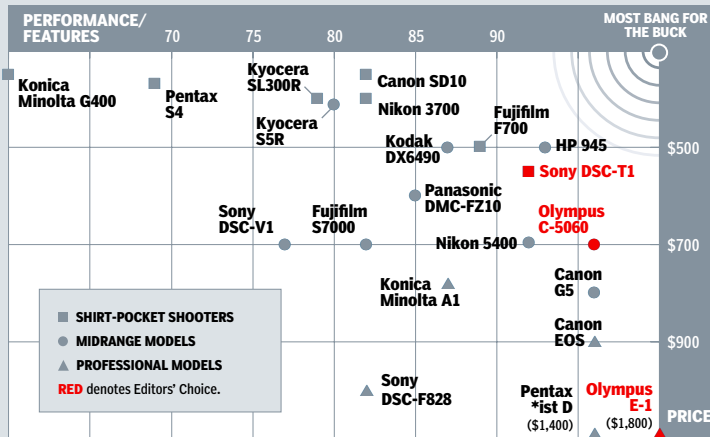


PRICE/PERFORMANCE INDEX



To determine a camera's performance/features score, we evaluate its feature set as well as its test results. Features such as resolution, zoom depth, and weight account for a little more than half of this score. The test results account for about 40 percent. The rest of the score is based on the quality of the company's service and support.

The cameras that cost the most tend to have the highest performance/features scores. The Editors' Choice-winning Olympus E-1 is a case in point: It achieves the highest score but also carries the highest price tag, at \$1,800. Features including time-lapse photography, a slide show mode, and both USB 2.0 and FireWire connectivity, combined with very good test scores, make the E-1 stand out.



# Q: What came before the first computer?

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<p><b>OLYMPUS</b></p> <p><b>E-1 with 14-54mm Lens</b> </p> <p><b>\$1999<sup>00</sup> After \$300 Trade In Call for Details</b></p> <p>Interchangeable Lens - 5.0 Megapixel Digital SLR Camera 4/3's System</p>	<p><b>OLYMPUS</b></p> <p><b>C-5060</b> </p> <p>5.1 Megapixels - 4x Optical zoom Swivel LCD Panel - Shoots 3 FPS</p>	<p><b>EPSON</b></p> <p><b>R800</b> </p> <p>All-in-one printer scanner and memory slot 1.5-picoliter droplets 5760 x 1440 optimized dpi True BorderFree™ (4"x6", 5"x7" &amp; 8"x10")</p>	<p><b>Adobe Creative Suite</b></p> <p><b>Nikon Coolscan 5000</b> </p> <p>Adobe Creative Suite Standard Adobe Creative Suite Premium Adobe Video Suites also available</p> <p>Scan Image Enhancer True Optical resolution Digital ICE-4 Advanced 4000 dpi 35mm. Film Scanner</p> <p>Coolscan V Call   Coolscan 9000 Call</p>

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## PROFESSIONAL MODELS

## Olympus E-1



The Olympus E-1 is the most expensive camera in our roundup, but it's also the most capable, the best built, and the most ahead of its time.

The E-1 is the first camera built on the Four Thirds standard, a system for interchangeable lenses designed by Fuji, Kodak, and Olympus. Kodak provides the E-1's image sensor, but neither Fuji nor Kodak has announced Four Thirds products as of press time.

Shooting with the E-1 is a pleasure. This camera is fast, responsive, and built like a tank. Focusing is fast and shutter lag is virtually nonexistent. The all-metal construction feels solid, and the controls are firm yet responsive. But our favorite feature is the excellent 14- to 54-mm lens (\$500 street), which covers focal lengths equivalent to 28- to 108-mm on a 35-mm camera. Our test images were very sharp and clear, with little noise and excellent color.

If the E-1's base price seems a high, wait a few months. Olympus has announced plans for a consumer-class variant of the E-1 this fall. Although Olympus has not announced pricing, the new camera will probably retail for less than \$1,000, putting it head to head with the Canon EOS Digital Rebel, the Pentax \*ist D, and the upcoming Nikon D70 SLR.

5.0 megapixels, without lens, \$1,800 street. Olympus America Inc., [www.olympusamerica.com](http://www.olympusamerica.com). **Ease of use:** ●●●●● **Power:** ●●●●● **Performance:** ●●●●● **Image quality:** ●●●●● **Overall:** ●●●●● The only cameras better than the E-1 cost (and weigh) twice as much.



## Sony Cyber-shot DSC-F828

On paper, the groundbreaking 8-megapixel Sony Cyber-shot DSC-F828 seems like the ultimate professional camera. In the real world, it's nearly perfect—but not quite.

The huge lens attached to the camera with a clever swivel lets you hold the camera above or below your head while maintaining eye contact with the LCD. For eye-level shots, you can flip a switch (an annoying step) and use the excellent electronic viewfinder.

Despite the bulky appearance, the DSC-F828 is a pleasure to hold and shoot. The manual zoom ring lets you find the perfect setting quickly, and



## Pentax \*ist D

Once you get past the goofy name (pronounced "star-ist D"), Pentax's first digital SLR is a capable, nearly professional-level camera that is a pleasure to use.

The \*ist D is very solid, especially compared with the all-plastic Canon EOS Digital Rebel. The viewfinder is larger and brighter than the Rebel's, and although both cameras weigh 1.4 pounds, the \*ist D is slightly smaller. The \*ist D is generally easy to use, but we found some controls awkward—notably the white balance and ISO settings. Pentax does not offer a rechargeable battery; two disposable lithium batteries provide power.

In our testing, image quality was generally excellent, although we were not impressed with the 18- to 35-mm lens bundled with our test camera. The lens was very soft in the corners, especially when shooting at the widest 18-mm setting. Canon's less expensive 18- to 55-mm lens offers better optical performance and a wider range of focal lengths for less money.

At \$1,400, the \*ist D faces stiff competition from Canon, Nikon, and Olympus. The \$900 Canon EOS Digital Rebel provides about the same level of performance for less money, and the Olympus E-1 offers professional quality for just \$400 more.

6.0 megapixels, without lens, \$1,400 street. Pentax U.S.A. Inc., [www.pentaxusa.com](http://www.pentaxusa.com). **Ease of use:** ●●●●● **Power:** ●●●●●

●●●●● **Performance:** ●●●●● **Image quality:** ●●●●●

**Overall:** ●●●●● The \*ist D is a solid camera but not worth \$1,400 when compared with others.



the major controls are easy to use. Autofocus, shutter lag, and image storage are nearly instantaneous.

Our only major complaints are with image quality. At the widest setting, the lens shows considerable optical distortion, with purple fringing in high-contrast, wide-angle scenes. Test images were relatively noise-free at lower ISO settings, but noise increased dramatically above 200. Images had startling detail, although Sony applies a little too much in-camera sharpening.

The DSC-F828 is an excellent camera that raises the price/performance bar for prosumer cameras.

8.0 megapixels, 7X optical zoom, \$1,000 street.

Sony Electronics Inc., [www.sonystyle.com](http://www.sonystyle.com). **Ease of use:** ●●●●●

**Power:** ●●●●● **Performance:** ●●●●●

**Image quality:** ●●●●●

**Overall:** ●●●●● Despite its flaws, this is a heck of a camera, but the A1 is better for less money. ☰

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BY BEN Z. GOTTESMAN

If you're ready to buy a digital camera, you probably can't wait to enjoy the convenience of having your photos at your fingertips, share pictures with friends and family, and cover the walls of your house with your masterpieces printed off a photo-quality ink jet printer. But if you've owned a digital camera for a while, you know the reality of the situation: Windows' built-in tools for managing images are underpowered; sharing photos by traditional means such as e-mail is cumbersome, and printing off your ink jet printer means constantly buying pricey little ink cartridges.

Fortunately, when the tech world has a problem, innovators turn up everywhere you look, from the familiar Adobe and Apple to newer kids on the block such as modgods and Snapfish. New image management applications let you sift quickly through thousands of images; photo-sharing sites and tools make setting up Web galleries and pushing pictures to your pals easy; and online photofinishers can give you great-looking prints easily and inexpensively (and they can even print your picture on a cake; don't try *that* at home).

We've tested 24 tools and services that will help you and your PC keep up with your trigger finger.

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## REVIEWED IN THIS STORY

### 92 PHOTO MANAGEMENT

ACDSee 6.0 ●●●●● Adobe Photoshop Album 2.0 ●●●●●  
Apple iPhoto 4 ●●●●● Jasc Paint Shop Photo Album 4 ●●●●●  
Picasa 1.6 ●●●●● Preclick Lifetime Organizer 2.0.4 ●●●●●

### 94 PHOTO-SHARING SERVICES

Funtigo Deluxe ●●●●● PhotoSite ●●●●● Sacko ●●●●●  
SmugMug ●●●●●

### 95 PHOTO-SHARING SOFTWARE

Hello 1.0 ●●●●● PiXPO ●●●●● MSN Photo Swap ●●●●●  
SendPhotos 2.0 ●●●●●

### 96 PHOTO-PRINTING SERVICES

Club Photo ●●●●● dotPhoto ●●●●● ez prints ●●●●●  
Imagestation ●●●●● Kodak Picture Center Online ●●●●●  
Ofoto ●●●●● PhotoWorks ●●●●● Shutterfly ●●●●●  
Snapfish ●●●●● Wal-Mart ●●●●●

# PHOTO MANAGEMENT

The end is at hand for the disorganized shoeboxes, closets, and drawers of photos with just a processing envelope to anchor them in time or relevance. Digital photography has changed all that, as we fill hard drives and CDs instead. Image

managers and organizers have grown right along with digital photography, and here we examine the features that make good image management software.

At their heart, image managers are databases that hold images and information about them, so you can gather digital photos, group them, tag them with keywords, and retrieve them. Then you can go farther, making basic edits and automated enhancements, printing or displaying pictures for personal or group enjoyment, archiving them, and sharing them.

We've looked at six leading image managers in terms of how well they exemplify these tasks—or how far they miss the mark: **ACDSee 6.0** (\$49.99 direct, [www.acdsystems.com](http://www.acdsystems.com)), **Adobe Photoshop Album 2.0** (\$49.99, [www.adobe.com](http://www.adobe.com)), **Apple iPhoto 4** (\$49 as part of iLife '04, [www.apple.com](http://www.apple.com)), **Jasc Paint Shop Photo Album 4** (\$29, [www.jasc.com](http://www.jasc.com)), **Picasa 1.6** (\$29, [www.lifescapeinc.com](http://www.lifescapeinc.com)), and **Preclick Lifetime Organizer 2.0.4** (\$19.95, [www.preclick.com](http://www.preclick.com)). A new version of Preclick should be available by the time you read this.

## CAPTURE

First and most important, an image manager should communicate easily with the device holding the pictures, whether it's

a camera, memory card, USB key, or photo CD. Windows XP has made connecting these disparate devices easier and more reliable, and we recommend it strongly as the version of Windows to use for any image-intensive application.

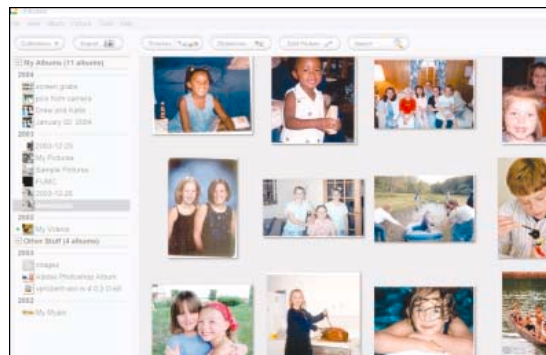
Since you may already have hundreds or even thousands of digital images on your hard drive, you may also want to consider how quickly the application can digest your photos. We found that ACDSee and iPhoto were quickest, while Jasc Photo Album was the slowest of the group, taking several minutes to read approximately 500 photos in half a dozen folders.

You will likely want to scan existing photos into your image manager. All of the products except Lifetime Organizer worked easily with a USB 2.0 scanner. Lifetime Organizer only organizes the images on your hard drive; getting them there is up to you. Accordingly, Lifetime Organizer won't connect directly to a camera, though all the others do.

## TAGGING

The current Lifetime Organizer excels at tagging. Though we didn't officially test the upcoming release, Version 2.5, we did look at the beta and found that the new batch-tagging feature makes tagging even easier, letting you grab groups of pre-viewed images from your camera or memory card and apply the same tags to all the

**Picasa harmoniously displays different thumbnail sizes and orientations.**



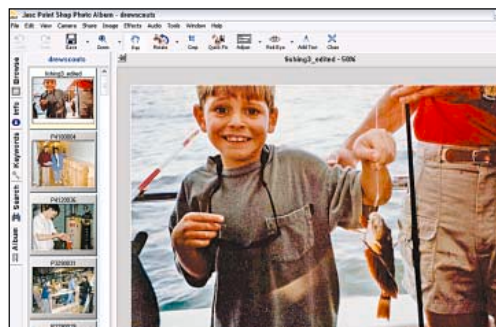
Our contributors: **Bill Machrone** and **Richard V. Dragan** are contributing editors of *PC Magazine*, and **Ben Z. Gottesman** is an executive editor. **Sarah Pike** is an associate editor. Associate editor **Matthew P. Graven** and PC Magazine Labs lead analyst **Jonathan Roubini** were in charge of this story.

pictures in a group. This may seem like an obvious feature, but Preclick's approach is unique.

All of the image managers allow multiple tags and multiple categories of tags. The products let you impose an alternative type of categorization, variously called rolls, albums, or collections. Each product has a somewhat different approach; all are roughly equal in power and convenience.

## SEARCHING

The payoff for all that tagging is, of course, retrieval. All of these programs search easily on keywords, and if you don't remember what words you used, the programs tell you. Add that to date



**Jasc Paint Shop Photo Album's tabs and buttons offer easy access to the program's many features.**

views, folders, albums, and categories and you'll never lose another photograph. But Adobe Photoshop Album is unique in letting you search on photo similarities, such as color.

Preclick has the most limited search feature among these products. And its case sensitivity is extremely annoying. *Camping*, for example, is not the same as *camping*, which impedes searches and consistent tagging.

## BROWSING

Sometimes you want to browse through thumbnails and expand interesting photos, or tag them for a collection. Picasa offers an easy-on-the-eyes approach, replete with soft drop shadows. Picasa is also notable for mixing portrait and landscape images more harmoniously than the others.

As in your shoebox and those processing envelopes, the date a photo was taken is a basic organizing principle. Jasc Photo Album falls short here, lacking a calendar view; its photos are organized in a tradi-



tional hierarchical Windows folder structure. ACDSee is limited also, grouping images simply by month, although you can view the actual date each image was taken. Picasa has a dramatic time line view, where images swoop into the foreground as you scan through time and drill down by opening pictures grouped by date. Unfortunately, the time line isn't tied to Picasa's album view.

Adobe Photoshop Album's calendar view isn't nearly as sexy, but the top-of-screen slider is the most informative, most useful, and easiest to use. It conveniently shows peaks and valleys for how many photos were taken in a given month.

**TOUCH-UP**

All of these programs allow cropping and basic editing, but Picasa and Lifetime Organizer omit specific contrast/brightness adjustments. All allow red-eye reduction and one-click optimization or image enhancement. For the image-savvy, ACDSee has the most comprehensive adjustments, but Adobe Photoshop Album and Jasc Photo Album are adequate as well. We like Jasc Photo Album's Adjust Wizard for its ability to step you through the process.

**PRINTING**

With today's ink jet printers producing images that rival conventional photos for sharpness, color, and archival stability, printing options are important. While Jasc Photo Album defines over 100 papers, image sizes, and forms, ACDSee and Picasa have just 4 presets each. But ACDSee's flexibility in constructing contact sheets lets you print pretty much whatever you want. All of the products try to maximize print quality and either let you select the resolution or, in the case of Picasa, warn you if your selected images are low-res.

**EDITORS' CHOICE**

**PHOTO MANAGEMENT**  
**Adobe Photoshop Album 2.0**

**PHOTO-SHARING SERVICES**  
**SmugMug**

**PHOTO-PRINTING SERVICES**  
**Shutterfly**



When it comes to managing a library of photos, any of these products will be a huge improvement over the shoebox—or Windows' My Pictures folder. Our Editors' Choice goes to Adobe Photoshop Album. Some of the photo managers have individual features that give Photoshop Album strong competition, but overall, this package has the most well-rounded selection of tools, and it

handles every single photo management task with great competence.

If sharing images is your main concern, you should consider a dedicated photo-sharing site for creating Web-based photo albums. Our Editors' Choice, SmugMug, is easy to use and offers a good number of options. It includes a nice selection of built-in styles and decent photo-editing abilities.

Of course, you'll probably want to order prints of your favorite photos. Shutterfly is our favorite all-around printing service. The site is easy to navigate, it includes simple yet effective editing tools, and most important, its print quality is excellent.

**SHARING**

Your image manager should make sharing images via e-mail a painless task, automatically controlling resolution, capping file size, batch-reformatting your images, and handing them off to your

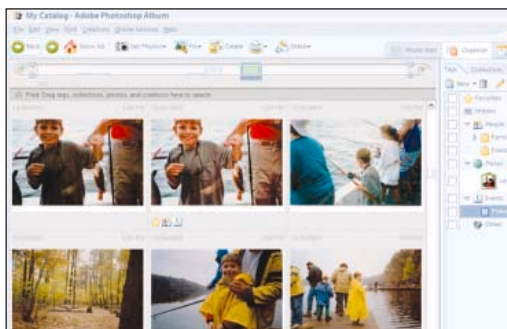
**USER INTERFACE**

None of these products are difficult to use, but they take surprisingly different approaches to essentially the same task. Some, like iPhoto and Picasa, go right to work, cataloging photos as soon as you start them. Jasc Photo Album, by contrast, is a bit more opaque. You have to find the command under the Tools menu to catalog the images on your hard drive.

PC users generally think of Apple products as having gee-whiz interfaces, and iPhoto's speed, cleanliness, and smooth scaling of images are commendable. But Picasa beats it hands down for sheer panache. Everything pans and scrolls with ballistic grace, and the screens are stylish and clean.

Adobe Photoshop Album and Jasc Photo Album are all business by comparison. Jasc Photo Album gets a nod for packing the most functions onto one screen. But Adobe is more approachable.

Although Apple once claimed iPhoto was reason enough to buy a Mac, the PC programs have eclipsed it.—*Bill Machrone*



Adobe Photoshop Album conveniently lays out all its tools so you can easily browse through images.

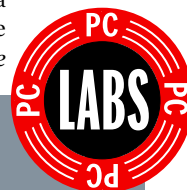
e-mail software. ACDSee gets the nod here for control over the JPEG format, but Adobe Photoshop Album is unique in offering a PDF slide show. We also like Picasa's included Hello app, which lets you share files in an IM-like client.

**SCORECARD**

- EXCELLENT
- VERY GOOD
- GOOD
- FAIR
- POOR

	Ease of use	Image capture	Tagging	Searching	Browsing	Touch-up	Printing	Sharing	OVERALL
<b>ACDSee 6.0</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
<b>Adobe Photoshop Album 2.0</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
<b>Apple iPhoto 4</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
<b>Jasc Paint Shop Photo Album 4</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
<b>Picasa 1.6</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●
<b>Preclick Lifetime Organizer 2.0.4</b>	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●

RED denotes Editors' Choice.



# PHOTO-SHARING SERVICES

One of the great advantages of digital images is how easily you can share them. The photo-sharing sites reviewed here let users store and share digital photo albums online. Compared with print services, which also let you store

images online, sharing sites typically offer more control over the look of your photo albums, more sharing options (such as the ability to download high-res images), easy-to-remember Web addresses, and more security features. Of course, these sites also let you order prints of your favorite pictures from a partnered printing service.

ALL REVIEWS BY RICHARD V. DRAGAN

## Funtigo Deluxe

1,000 photos, \$7.99 a month. Funtigo LLC, [www.funtigo.com](http://www.funtigo.com). ●●●●●

Funtigo Deluxe is an attractive site that makes sharing photo albums online easy. Although it lacks basic photo-editing tools, Funtigo is an intuitive service that offers impressive page layout capabilities. Meanwhile, people who visit your Funtigo album can order paper prints and other items, such as mugs and mouse pads, through a service called ez prints.

Uploading files to Funtigo is extremely

easy. You can simply drag and drop files from your PC to the site.

The first step in selecting a layout for photos is crude; you can choose the number of photos per album page, and that's about it. After that, however, Funtigo really sets itself apart. Thanks to DHTML, you can resize images and drag and drop them around album pages to place them exactly where you want. The other services we looked at don't permit such precise—or quick—placement of pictures.

To add a touch of fun to your albums, you can annotate images with text balloons. Funtigo also provides several dozen basic clip-art images, which can be pasted into your photos.

You can edit navigation options for how a user moves between pages within an album, for example, placing a slide show control at the top of any page, letting users view photos as slides. You can assign navigation options on a page-by-page basis or mark one as the default for an entire album.

Other options, such as password protection, are easy to find and use.

Unfortunately, Funtigo has no photo-editing tools beyond the ability to resize images. It also presented some minor problems when creating thumbnails of our photos. For example, when we reduced an image too much, the thumbnail turned red.

## PhotoSite

500 photos, \$4.95 a month; 2,000 photos, \$9.99 a month. Homestead Technologies, [www.photosite.com](http://www.photosite.com). ●●●●●

With the PhotoSite service, Homestead augments its well-established Web site-hosting offerings by entering the

online photo-sharing market. Despite Homestead's years of experience with simple site creation and site-hosting tools, PhotoSite is somewhat awkward at times. For example, we don't like that it uses a desktop application—rather than a Web-based interface—because this limits you to updating your photo albums from only one computer.

To get started, you have to download the PhotoSite AlbumBuilder software. The application runs on any operating system using Java. You define local directories where photos are stored and then administer your photo albums from within the app. Again, the caveat here is that since the “originals” must exist within the PhotoSite directory on your local hard drive, you can't easily administer albums from another computer.

AlbumBuilder provides the best photo-editing capabilities among the sharing services we reviewed. You can easily crop images, perform color adjustments, fix contrast, and so on. You can select from almost a dozen frame styles for photos.

Once your photo album is complete, you publish it to PhotoSite using AlbumBuilder's Publish Wizard. The first time through is slow, since AlbumBuilder is uploading all the photos. Subsequent updates are much faster, as it uploads only the changed content.

Like Homestead, PhotoSite lets you choose a simple URL, such as [yourname.photosite.com](http://yourname.photosite.com). Completed albums look fine, though some of the style choices (like the “classic” photo album) are downright hokey. Visitors can order prints from photos in your PhotoSite albums, and—a nice touch—you can define on a photo-by-photo basis which images will be printable. You can also add password protection on a per-album basis.

Using a desktop client for building photo albums is a limitation you'll notice if you work from multiple systems. Otherwise, PhotoSite is simple enough for almost any user to master.

## Sacko

Free. Sacko Inc., [www.sacko.com](http://www.sacko.com). ●●●●●

Sacko has a lot going for it. It's the only free service among these sites; it offers unlimited storage; and it displays your images in a snappy Flash-based interface—all without third-party banner ads. Although it lacks the visual customizabil-

## SCORECARD



For the **setup and upload** rating, we look at the ease of creating an account and the process for uploading images. Except for PhotoSite, all the services provide simple Web interfaces and let you drag and drop images on your PC to be uploaded to the server.

The **administration and customization** rating takes into account tools for editing images, annotating photos, and customizing the look of your albums.

**Sharing and security** reflects such features as whether you can password-protect albums, whether you get a personalized URL, whether visitors can download high-resolution images, and so on.

	Setup and upload	Administration and customizability	Sharing and security	OVERALL
Funtigo Deluxe	●●●	●●●	●●●	●●●
PhotoSite	●●●	●●	●●●	●●●
Sacko	●●●●	●●●	●●●	●●●
SmugMug	●●●●	●●●	●●●●	●●●●

●●●●●—EXCELLENT  
 ●●●●—VERY GOOD  
 ●●●—GOOD  
 ●●—FAIR  
 ●—POOR

RED denotes Editors' Choice.

# PHOTO-SHARING SOFTWARE

**B**eyond the scores of Web sites that help you share your photos with family and friends, there are a few applications that take a more local approach. These programs do some innovative things and, in general, are more seamless than having people visit a Web-based photo album. We looked at two dedicated sharing programs, an instant-messenger plug-in, and one e-mail helper.

Picasa's Hello and How2Share's PiXPO are both first-generation products that incorporate P2P photo sharing and chat. Their approaches, however, come off as very different. Essentially, Hello pushes pictures to users, while PiXPO has users "pull" pictures to their system. Because they're peer-to-peer solutions, the two solutions require both parties to be signed in at the same time to share images.

**Hello 1.0** behaves like a simple instant messenger with sophisticated image handling (free; also included with Picasa photo organizer, \$29 direct). The text chat runs along the right-hand side of the screen; most of the window displays the images users send each other. While you're chatting with another Hello user, you can include a group of images—which appears as a filmstrip that both can scroll through, or one user can choose to follow the other user's view. Users can also send Web page shots via a button added to the main Internet Explorer toolbar and screen shots via the Hello icon in the system tray.

The Hello client has one cute IM perk: When you send a :) , :( , or :| emoticon, it is animated and cascades down the screen. But don't mistake this for a rich instant messenger: You can't use font formatting, for example. Hello is for sending photos in a friendly interface that tends to transfer megabytes of image files in about the time it would take to send plain text.

Our one complaint is that image management for the recipient (assuming the recipient doesn't have Picasa) is controlled by a global setting; by default, you download low-resolution versions of all shared images automatically. You can change this to grab full-res pictures or not to download automatically, in which case you can save individually or by entire filmstrip. (Picasa Inc., [www.hello.com](http://www.hello.com). ●●●●●)

**PiXPO** (public sharing only, free; private sharing, \$29.95 direct) takes a different tack, serving photo albums directly from the owner's PC to those you've granted permission. When you install PiXPO, it automatically finds image files on your PC; you

can then organize them into albums designated Public, Private, or Offline (you can also mark them as General or Adult). PiXPO can watch folders for new image files and automatically add them to albums; it also adds the option to import pictures using PiXPO to the Windows Open Media dialog. Like Hello, PiXPO includes a simple chat client. (How2Share Technologies Inc., [www.pixpo.com](http://www.pixpo.com). ●●●●●)

MSN Premium subscribers (\$9.95 and up per month) can use a new MSN Messenger feature to present photos while instant-messaging. (This is not true sharing, and it does not work with Windows Messenger.) **MSN Photo Swap** (beta) requires at least one IM participant to have an MSN Premium log-on; it's accessible via the Launch Site icon in the IM window. Only users with Premium access can share photos this way, but any MSN Messenger user can view them.

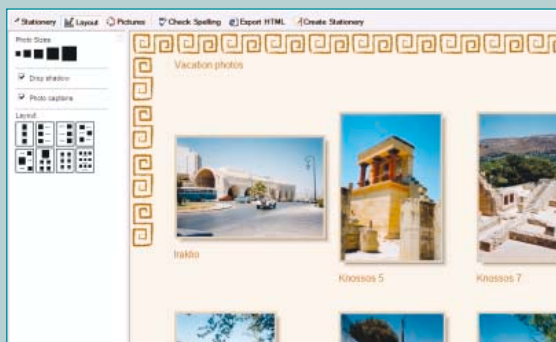
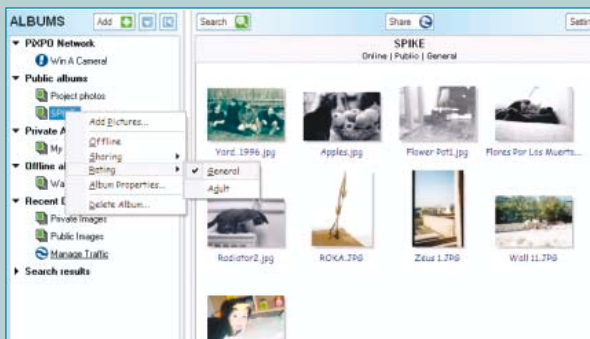
The sole options within Photo Swap are to switch control around, so the other user can select which image to view, and to "play" the images as a slide show. MSN Messenger is a very feature-rich client that lets users view each other's images quickly and easily. Ironically, users don't actually exchange (or swap) image files. (Microsoft Corp., [www.msn.com](http://www.msn.com).

●●●●●)

Attaching files to e-mail is easy, but Novatix Corp.'s **SendPhotos 2.0** (\$19.95 direct) makes it even easier while adding power to the process. With this program, you select the images you

want to include in your message; choose image size, layout, stationery, and picture order; add optional captions; and send. SendPhotos can work directly with Microsoft Outlook and Outlook Express, by adding a toolbar button, or on its own. (Novatix Corp., [www.novatix.com](http://www.novatix.com). ●●●●●)

Illustrating how hot this market is, a few companies were planning to release products after this story goes to press. OurPictures (a new company aimed at the "Photo Mom" market) and TZO (best known for creating static IP addresses, so people with dynamic addresses can host their own sites) were both preparing to release photo-sharing products. Meanwhile, Constant Time Software released Electric Shoebox (\$29 direct, <http://photos.constanttime.com>)—a tool for organizing, editing, and sharing photos via an album—after we finished testing.—*Sarah Pike*



**PiXPO (top)** lets you designate your albums public or private, then adds a new layer: general or adult content. **SendPhotos (bottom)** helps you apply stationery and choose among several layout options when e-mailing photos.

ity found in competing products, Sacko is an appealing choice at a price that can't be beat.

Setup is easy; simply register with the site and you're ready to go. Using ActiveX technology on Windows, Sacko lets you upload images easily by dragging and dropping them. Java support is also available.

When creating an album, you can't change the look beyond choosing whether to display thumbnails. That aside, Sacko has the most polished interface we saw in this roundup. When viewing an album, you can adjust the size of photos and click on thumbnails to select images. And you have great control over zooming into images, a unique feature we especially like.

Sacko also supplies a good range of

photo-editing features, though the interface isn't always intuitive. For example, removing red eye on two people involves saving the image four times. The result, however, is worth the effort.

We are particularly impressed by the feature that lets you select and label faces in pictures. First you define friends in a list, and then you attach identities to faces (or figures) in photos. As you view pictures, the site magnifies each face along with an optional pop-up balloon caption.

Sacko does have some notable limitations. Your friends must register with Sacko before they can see your photos—this will deter some people. Also, you don't get a custom URL as with other sites. And although you can order prints and other merchandise through ez prints,

you can't save the original hi-res images from albums and print them yourself.

## SmugMug

\$29.95 a year. modgods inc., www.smugmug.com.



SmugMug (\$29.95 per year) strikes the best balance between ease of use and options, offering a nice selection of built-in styles for displaying your photos and some slick photo-editing abilities. But it could stand to offer more accessible choices for customizing pages.

The upload tool is the best we saw, offering drag-and-drop support. It's also the only tool we reviewed that shows the upload progress of individual files, as

# PHOTO-PRINTING SERVICES

As people switch from film to digital cameras, they often have questions—and legitimate concerns—about getting prints of photos. How do you get high-quality prints? Will they look as good as film photos? Are they expensive?

Fortunately, ordering prints online is much cheaper and easier than you might think. And almost any digital camera—whether 2 megapixels or 5—is capable of producing prints that will look just as good as any you've gotten from your old film camera. That said, there is some variation in quality depending on the services you use. Some printing services print more accurately, while some do a better job of enhancing photos. Some offer better editing tools, and some are just easy to use.

## HOW WE TESTED

For this story, we tested nine of the top online printing services, according to data provided by InfoTrends. We also tested ez prints, which provides online photo-printing services to many of the sharing services in "Photo-Sharing Services," page 94.

To compare printing services, we ordered and compared prints of ten photos from each site. Paul Aresu ([www.paularesu.com](http://www.paularesu.com)), a professional photographer, took three reference photos of model Ania Suarez ([www.aniasuarez.com](http://www.aniasuarez.com)), using a Canon EOS-1Ds. These photos were shot specifically to test the quality and accuracy

of the photo-printing services.

The other seven photos were taken by amateur photographers using a variety of 2- to 5-megapixel cameras. These provided a good representation of what to expect for photos from casual photographers and hobbyists.

We rated the output based on perceived quality and on how closely it matched the originals. Quality and accuracy each has its own advantages: If you know you want images reproduced exactly, accuracy will be important. Many casual users, however, will like the enhancing features some services use to make prints look better.

## THE RESULTS

We were surprised at how drastic some of the differences among these sites were. Our favorite service overall is **Shutterfly**. It is extremely easy to navigate and offers convenient single-click actions for common tasks, such as rotating images. **Ofoto** offers equally handy tools and is quite easy to use. The service also produces very good prints. Still, Shutterfly, with its impressive image enhancement feature and a slightly easier-to-use Web site, edges out Ofoto for our Editors' Choice.

## SUMMARY OF FEATURES

### Photo-Printing Services

■ YES □ NO

4" x 6" price

5" x 10" price

#### SETUP AND UPLOAD

View previews when adding images

Drag and drop to upload files

TIFF files

Image storage space provided

#### PERSONAL VIEWING MODE

#### THUMBNAIL QUALITY

Set thumbnail size/album style

Arrange pictures manually/by upload date

Arrange pictures by filename/title

Download high-res images

Auto-playing slide show

#### EDITING

Edit title/description

Red-eye removal/rotate/effects tools

Crop images manually/to predefined sizes

Add borders/Adjust border width

Instant Fix tool

#### SHARING MODE

E-mail links/Share public galleries

Add watermark to images

Other user can:

View pictures without an account

View pictures as a slide show

View/add comments

Save pictures/Order prints

#### PRINT ACCURACY

#### PRINT QUALITY

Single or double prints

Prints larger than 11" x 14"

4" x 6" matte/glossy/heavyweight glossy prints

Warns about 4" x 6" cropping

Recommends print size based on image resolution

#### GIFTS

Cards/Printed albums/Calendars

Frames/T-shirts/Mugs

#### OVERALL

RED denotes Editors' Choice.

well as the time remaining, which is exactly what you should get.

SmugMug provides a dozen presentation styles, including thumbnails plus images, thumbnails only, slide show, and journal, which presents photos along with text. We like the "viewer-selected" setting, which lets your viewers choose.

We are disappointed by the lack of choices for customizing albums. There isn't much you can do beyond setting black or white as a background color. Fortunately, you can brand your pages using HTML, CSS, and JavaScript. Obviously, this isn't for everyone.

The photo-editing tools are solid, with support for cropping and resizing images, adding color effects such as sepia tones, and auto-correcting color balance. Digital

**SmugMug offers some handy tools and creates very attractive photo albums.**

watermarking is also an option—and this ties in with the capabilities of the Pro version of SmugMug (\$99.95 a year), which lets you sell images from the site.

The security and sharing options are well-thought-out. Setting basic options (including passwords) for photo galleries is clear and easy. As with Funtigo and PhotoSite, you can share photos via a custom URL (for example, *yoursite.smugmug.com*).

With the appropriate permissions, you can download photos for printing at home, or you can order prints and other



merchandise via ez prints.

Even though SmugMug doesn't let you individualize your albums significantly without digging into HTML, the service is effective and creates very attractive photo galleries.

Download this table at [www.pcmag.com](http://www.pcmag.com).

●●●●-EXCELLENT ●●●-VERY GOOD  
●●-GOOD ●-FAIR ●-POOR

Club Photo	dotPhoto	ez prints	Imagestation	Kodak Picture Center Online	Ofoto	PhotoWorks	Shutterfly	Snapfish	Wal-Mart
\$0.25	\$0.29	\$0.29	\$0.29	\$0.29	\$0.29	\$0.29	\$0.39	\$0.25	\$0.24
\$3.99	\$2.95	\$2.45	\$3.49	\$4.49	\$3.99	\$2.99	\$3.99	\$3.79	\$2.86
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Unlimited	Unlimited	Unlimited*	Unlimited	500 pictures	Unlimited	Unlimited	Unlimited	Unlimited	10MB, 1 year: \$0.74
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N/A—Not applicable: The product does not have this feature. \* Images expire 90 days after the last purchase. \*\* With free dotPhoto Viewer app. \*\*\* If the photo album owner allows.

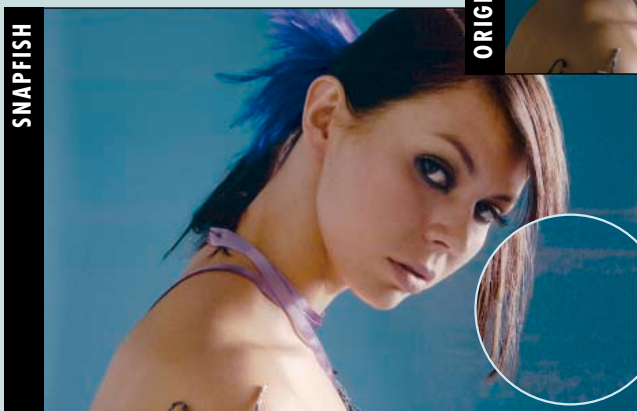
# PHOTO-PRINTING SERVICES



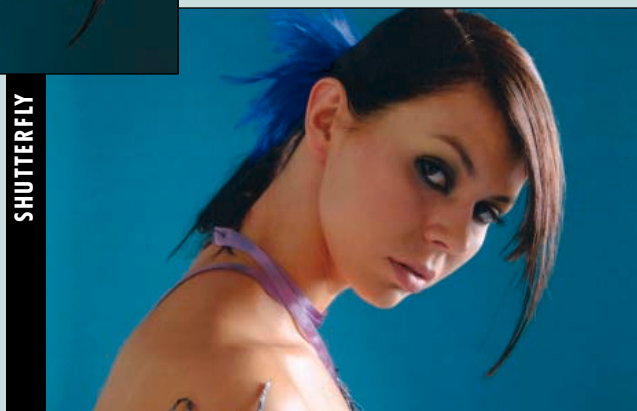
**Club Photo** ([www.clubphoto.com](http://www.clubphoto.com); ●●●●●). The dark profile head shot is kept dark, with slight brightening, yet we see some posterization. In general, Club Photo's prints are decent.



**dotPhoto** ([www.dotphoto.com](http://www.dotphoto.com); ●●●●●). In the profile headshot, there is some obvious posterization. The service has also brightened dark images the most. Otherwise, dotPhoto offers good prints.



**Snapfish** ([www.snapfish.com](http://www.snapfish.com); ●●●●●). The dark pictures we submitted were automatically brightened, and the result is a posterization effect. Apart from this issue, we are pleased with the quality of Snapfish prints.



**Shutterfly** ([www.shutterfly.com](http://www.shutterfly.com); ●●●●●). Shutterfly successfully enhanced and brightened the dark pictures without any posterization. The only minor issue is that the sky in one picture has some hints of purple.



**ez prints** ([www.ezprints.com](http://www.ezprints.com); ●●●●●). ez prints produces excellent prints. In general, it does a better job in adjusting colors when necessary. The intentionally dark pictures were kept dark—but enhanced to look better.



**Wal-Mart** ([www.walmart.com](http://www.walmart.com); ●●●●●). In this print, the picture is darkened to the point that the hair cannot be distinguished from the background. Wal-Mart has also added some posterization to the test head shot.

ORIGINAL

SNAPFISH

SHUTTERFLY

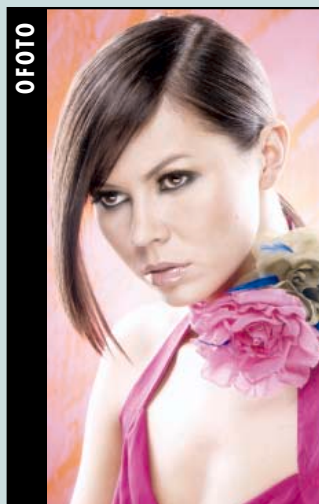
EZ PRINTS

WALMART

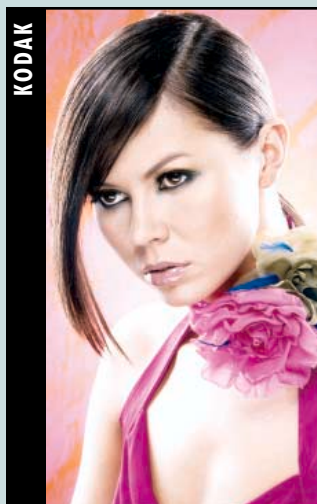
TOP FIVE PHOTOS, THIS PAGE, AND TOP THREE, NEXT PAGE: PAUL ARESU



ORIGINAL



OFOTO



KODAK

**Ofoto** ([www.ofoto.com](http://www.ofoto.com); ●●●●●). Ofoto produces impressive prints that are very close to the original images. The bright model head shot looks realistic, and the hair keeps its natural brown color.

**Kodak Picture Center Online** ([picturecenter.kodak.com](http://picturecenter.kodak.com); ●●●●●). In this print, the model's hair looks closer to black than to the brown of the original image. Our darker pictures were brightened, producing posterization problems similar to those of Snapfish and dotPhoto.



ORIGINAL

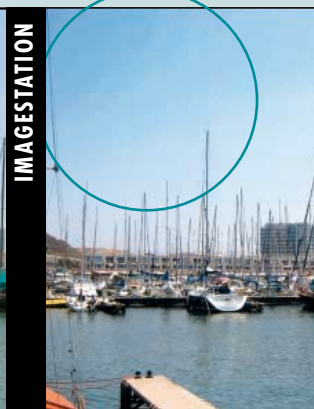


PHOTOWORKS

**PhotoWorks** ([www.photoworks.com](http://www.photoworks.com); ●●●●●). Images from PhotoWorks are generally on the red side. There seems to be a sharpening going on in the pictures; this is noticeable in the details of a face.



ORIGINAL



IMAGESTATION

**Imagestallation** ([www.imagestallation.com](http://www.imagestallation.com); ●●●●●). The posterization is clear in different areas of this picture. In general, the pictures have a slightly exaggerated tone of black and red.

Most of **ez prints'** business comes from partnered Web services that offer photo sharing and other similar tools. For sheer print quality, ez prints is the best. Otherwise, the service is somewhat lacking. For instance, ez prints is devoid of photo-editing tools—no cropping or red-eye reduction, even. The service does provide a general enhancement feature that consistently improved the look of our images.

By contrast, **Imagestallation** offers the most advanced editing tools among these products. But the site is slow, and images are of only average quality.

For the most part, we like **Snapfish**. The prints look very good, though they can't match the quality of Shutterfly and Ofoto. And the tools aren't as streamlined as

with some services; for example, tasks we performed with Shutterfly in just one or two clicks required far more on Snapfish.

The prints **Club Photo** produced were neither exceptionally fine nor glaringly bad. What did make a strong impression was how badly the Web site is designed. Thumbnails of images are very poor. And when you share an album with a friend, the friend gains access to all your albums; you can't be selective. **dotPhoto** suffers the same album-sharing flaw. After we wrapped up testing, dotPhoto told us that its site would soon be redesigned.

**Kodak Picture Center Online** produced relatively poor images. We were particularly surprised when we ordered a print on 16-by-20 paper and received what looked

like an ink jet print on Kodak ink jet paper.

The **PhotoWorks** service is very easy to use. Its print quality, along with **Wal-Mart's**, was the worst of the services. Wal-Mart also suffers from a lack of features. And unless you purchase storage space (78 cents a year for 10MB), your uploaded pictures will disappear after 30 days.

Interestingly, some of these services use the same photo-processing centers, yet that doesn't necessarily mean the quality is the same. Club Photo and Imagestallation use the same lab, and these two services took longer than the others to produce our prints. Meanwhile, dotPhoto and Snapfish both use the same lab, yet Snapfish's prints were the better of the two.—Jonathan Roubini

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## Web Content Filtering

Seven tools that help businesses stop their employees from visiting inappropriate sites.

# DON'T

# GO THERE

BY ROBERT P. LIPSCHUTZ

ILLUSTRATION  
BY ISTVAN BANYAI

Web filtering is possibly the most controversial category of products we review here at *PC Magazine*. No other topic so quickly suggests thoughts of an Orwellian Big Brother or so starkly divides employees and managers. You may consider blocking and monitoring Web access appropriate for children at home or school, but does it have any place at work?



Many companies point to legal liability, productivity, and bandwidth usage as concerns that arise when employees view inappropriate (read: porn) Web sites, shop online incessantly before the holidays, or download and play MP3 files throughout the day. Sexual harassment lawsuits do occur, and it would be hard to argue that someone repeatedly bidding on eBay is being as productive as possible. If Britney Spears is coming through loud and clear but the monthly sales close is bogged down, you've got a problem.

There are, however, two sides to this coin. "There haven't been that many lawsuits, productivity is up overall, and bandwidth is cheap," says Bill Gassman, principal analyst at market research firm Gartner. And many employees wonder whether Web filtering is like taking away pens to prevent idle doodling. Can't you get rid of the offenders some other way and leave us productive employees alone? Privacy and trust issues come up, and though companies do have the right to monitor employees, most are reluctant to enforce procedures that tell their employees "we don't trust you." Like spying on your spouse, these policies can quickly lead to distrust on all sides.

Given the potential for backlash, a company must contemplate and identify business goals while paying attention to employee concerns. Only then can it create an effective policy for acceptable use. Communicating the policy and the presence of filtering software to employees is also critical. A

secret deployment could cause serious repercussions and perhaps a privacy lawsuit from employees when they find out—and they will find out.

Some companies are drawn to Web-filtering solutions by a lack of perceived control, especially in the wake of new regulations like HIPAA and Sarbanes-Oxley, which are meant to protect customer privacy and oversee financial dealings. If you are in this situation, don't just throw technology at the problem: You need to think through policies and avoid letting fear provoke hasty decisions.

## THE PRODUCTS

We tested four software products and three appliances that block and monitor access to various categories of Web sites. You can imagine the really bad ones most companies worry about—porn, drugs, hacking, hate—but the products also work with categories like shopping, sports, hobbies, gambling, and even with those such as blogs, job search (do it on your own time!), and Web e-mail (a common entry point for viruses).

All the filtering products we looked at use block lists that most of the companies update daily, so expect to pay a high yearly subscription fee (half or more of the up-front cost). Some also use algorithmic techniques to determine whether content falls into a blocked category, but it turns out that plain old block lists are the most effective.

It's also important to know what these products don't do. First, they don't protect your network or

## Reviewed In this Story

- 106** Sentian ●●●●●
- 106** SurfControl WebFilter 4.5 ●●●●●
- 110** Web Inspector 7.0 ●●●●●
- 112** Websense Enterprise 5.1 ●●●●●
- 114** 8e6 R3000 Enterprise Filter and Enterprise Reporter 3.0 ●●●●●
- 114** St.Bernard iPrism 3.5 ●●●●●
- 116** Verso Net-Spective ●●●●●
- 104** Editors' Choice
- 104** Filtering Methods
- 106** Scorecard
- 108** Taking on the Really Tough Filtering Jobs
- 110** Summary of Features



## WebSense Enterprise 5.1

Once again the old saw holds true: You get what you pay for. WebSense Enterprise 5.1 costs a bit more than the other filtering products, but the extra cost is justified by its inclusion of every filtering capability you could ask for, all wrapped up in a management interface that's eminently flexible and usable. We consider its best-of-breed remote and centralized management capabilities highly desirable for enterprise customers. It also offers the most soft-blocking features, giving you a way to win over your workforce rather than just clamping down on them.

Other products we tested are worthy of honorable mention. Top on this list is SurfControl. We like its intuitive interface, ability to create combination categories and user groups, flexible policies, and powerful monitoring and reporting tools. It fell behind WebSense in our testing only by letting us occasionally sneak peeks of blocked content. Second, Sentian's interface beats that of any of the other products, and it aced our site-blocking tests.

employees from viruses and hacks. While they can block employees from accessing sites known to contain malicious mobile code or hacking material, you'd be naïve to use them as your only protection. New malware sites appear daily, and users can catch viruses in other ways besides Web surfing. Look to desktop and network antivirus software and firewalls for these needs.

And what about the shenanigans possible when employees use instant messaging, peer-to-peer file sharing, and streaming media? Filtering products address these rogue services with varying levels of protection, and some vendors offer separate products to address them (see the sidebar "Taking on the Really Tough Filtering Jobs").

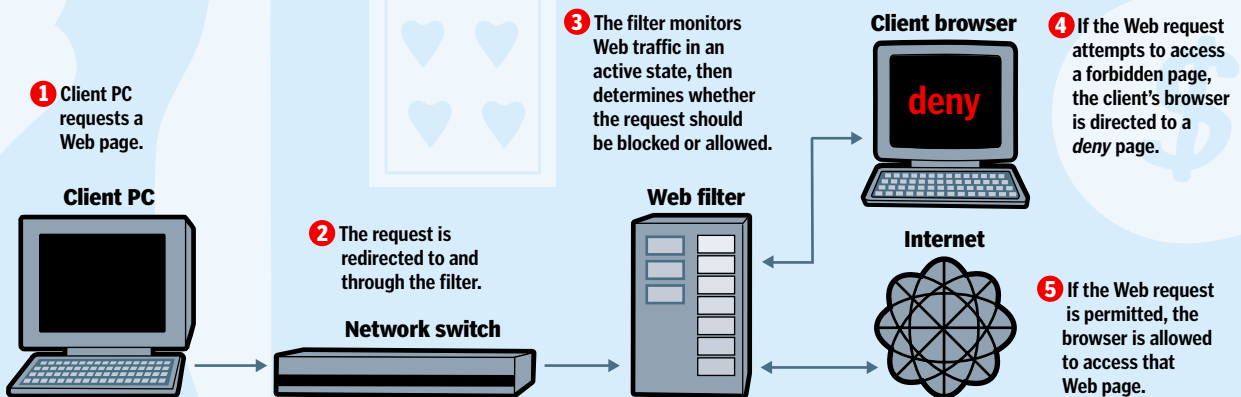
E-mail is a completely separate beast, with the potential for spam and virus attachments. Eventually, we think all these capabilities will come together in a single package, but point solutions rule the day at present.

There are two primary deployment options for these products. They can run either independently, often known as *standalone* mode, or integrated with a firewall, caching device, or proxy server. All the software products we reviewed have both options available, except Sentian, which must integrate with one of a host of supported edge devices. And all the appliances run in standalone mode except St. Bernard iPrism, which sits in the physical path of every URL request.

The standalone products are often classed as *pass-by*, because URL requests needn't go through the product; rather, the product sits alongside the data stream to sniff out and address bad packets. Similarly, the integrated products are known as *pass-through*, since every packet must enter and cross the filter to get out to the Internet. Each type has a number of situational benefits and drawbacks; hence a company should base its decision on its own requirements (see the diagram). Whether you choose pass-by or pass-through software, you must size the hardware appropriately to avoid slowdowns and sneak peaks.

The software products generally have more power and flexibility as well as more intuitive management interfaces than the appliances. But the appliances turned out to be easier to install. Also, because the appliances don't need to integrate with firewall, proxy, or cache servers, they work in any environment without incurring complex integration problems. In addition to block list

### Filtering Methods There are two methods the products we review use to filter content.



**PASS-THROUGH MODE:** Every URL request passes through the Web-filtering product for inspection.

updates, you can receive automatic software upgrades to an appliance. But one drawback with hardware solutions is that you can't just use a more powerful box to increase performance as you can with the software.

We like Web-based consoles, which all the appliances use, because they let administrators make changes from anywhere. But we saw the usual trade-offs compared with Windows interfaces. Integration with Windows domain, Active Directory, and Novell directory services are helpful because they let administrators use existing users and groups for Web-filtering policies.

Some products offer *soft blocking* (in which a warning page is sent to the user instead of the requested page but access to the URL is still allowed through a link), *overrides* (which allow administrators to unlock a page), *quotas*, and *review requests*. Such features avail you of more options and soften the blow for employees. In our testing, artificial-intelligence options for blocking usually didn't measure up and always made for more complexity. Avoid URL and content scanning as a blocking mechanism: It produces too many false positives.

Monitoring and reporting features vary drastically among the products, with excellent interfaces and poor ones, flexible architectures and limiting ones. We care mostly about how well suited the tools are to management and human resources personnel: These people should be the ones enforcing appropriate-use policies by creating and viewing reports—not the IT group.

**HOW WE TESTED**

To evaluate these products, we identified four criteria: configuration and deployment, administra-

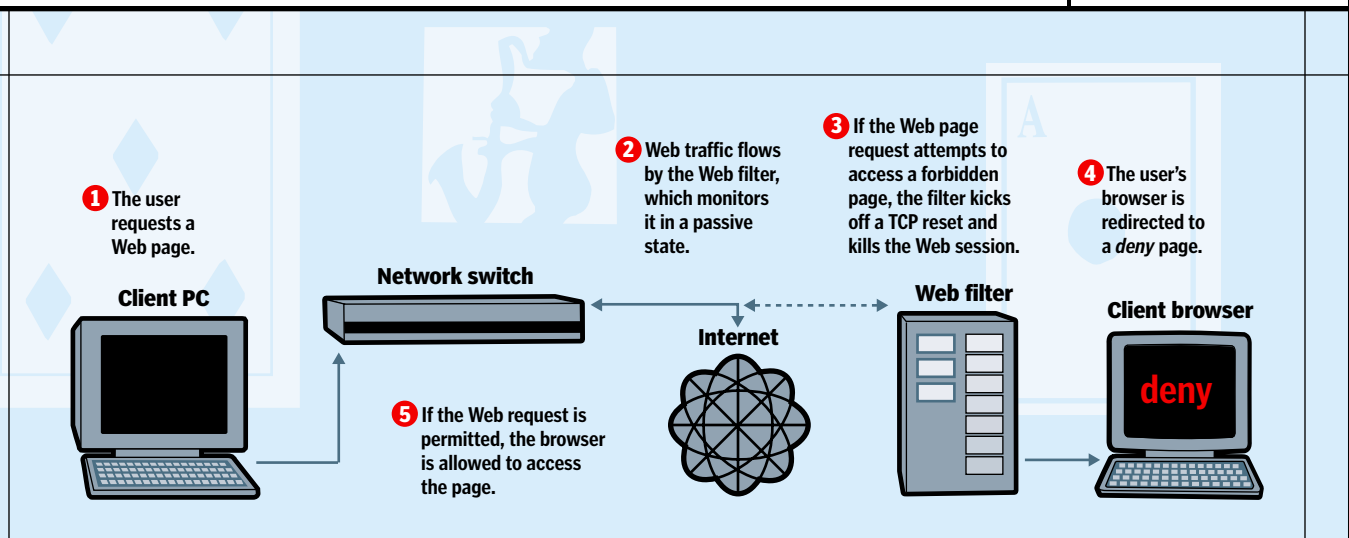
tion, blocking, and monitoring and reporting. We had the unenviable task of testing these products on a carefully selected set of inappropriate content, averting our eyes when the occasional naughty page came through. We tried the sites your mother would know and the sites that only your strange uncle would visit. In an attempt to trip the products up, we used deceptive pages, exploring the loopholes presented by caching and translation sites. On the whole, the products did well, but the occasional piece of flesh did get through, and we could shop at esoteric little sites throughout the Web even when the products were set to block shopping.

Our test configuration made use of a 3Com SuperStack 3 Switch 4400 Family (with a roving analysis port, which is needed for the standalone solutions to work) and Microsoft Internet Security and Acceleration (ISA) Server 2000.

**THE BOTTOM LINE**

Companies with tons of bandwidth and productive employees may just want to block the truly offensive content and monitor the rest, keeping an audit trail and reacting only when egregious misuse occurs. If you do decide to filter, you may as well do a good job of it. Our reviews will help you find the right balance for your company's needs in terms of liability, productivity, privacy, and trust.

59 percent of *PC Magazine* readers we surveyed online said that it would bother them if their company filtered or monitored their Web access.



**PASS-BY MODE:** The filter sits at the edge of your network and passively monitors traffic, waiting to shut down access to a restricted site.

# Software

## Sentian

1,000 users, 1 year, \$9,500 direct. Secure Computing Corp., [www.securecomputing.com](http://www.securecomputing.com). OVERALL RATING: ●●●●●

Compared with the interfaces of other filtering-management products—which can be as crowded as airplane cockpits and somewhat overengineered—Sentian's is one of elegant simplicity. Recently acquired by Secure Computing in its purchase of N2H2, Sentian integrates with several edge products, including Microsoft ISA Server, Microsoft Proxy Server, Check Point FireWall-1, and Cisco PIX firewall. Make sure your firewall, proxy, or cache product is supported, because Sentian has no standalone option. One plus is its nifty Web-reporting interface, with easy drill-down for more detail.

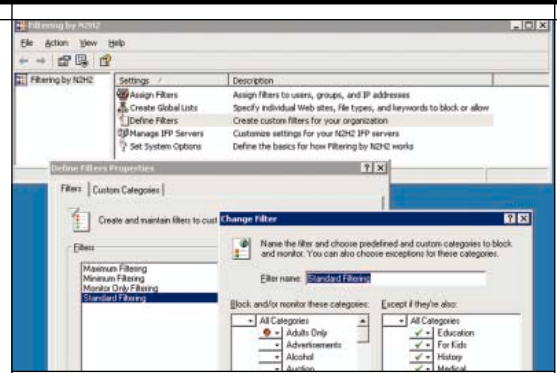
We tested the product integrated with Microsoft ISA Server. Installation was a snap, but we had some minor difficulty installing the reporting application; it should be fixed by the time you read this. Sentian's Windows-based management interface integrates with Microsoft Management Console alongside other MMC-based tools. Remote administration is no problem, but the Windows version does not offer delegated group administration

or a good option for distributing policies to multiple remote filters. An array option is very useful for clustered configurations—good for large-volume installations.

You'll never get lost configuring and assigning filtering policies. Although simply designed, Sentian accomplishes plenty. Administrators have the option to block, soft-block (monitor with warning), monitor, or allow any of 40 categories defined by Sentian. In our testing, Sentian was rock solid at blocking what it should. We were able to sneak only a couple of esoteric sites past it.

Unlike the other products we tested, Sentian offers *exception* categories, such as Education and Medical. For example, in our testing, a site discussing the medical uses of marijuana categorized by Sentian in our blocked Drugs category was let through due to this medical exception category. Custom categories let administrators specify sets of URLs for their own block and exception categories. These also let you block by protocol, file type, or URL keyword. Global lists allow the same options globally.

Sentian can capture unknown sites with its Virtual Inspector tool. These sites are



Sentian's interface is clean and simple—almost everything you need and nothing you don't.

sent to Secure Computing for analysis. One good housekeeping feature is the Virtual Reviewer, which removes items from your custom global block list once they're categorized appropriately. Because you're already blocking the category and the site is now correctly categorized by Sentian, you don't need a global block on it.

We really like Sentian's monitoring and reporting tools. The Web-based interface makes great use of links to let you drill down for more detail. For example, when you're viewing category activity, links to User and Site drill down by user and URL. The interface also has all the customary scheduling and e-mailing options.

Over the next few months, Secure Computing plans to integrate former N2H2 products with its own product line, so you should get improved block lists and the strengths of both lines. We hope they preserve the simple elegance of Sentian's current interface. Sentian is a very appealing choice for companies that want integrated filtering.

## SCORECARD



Our **configuration and deployment** rating reflects the filtering product's ease of setup and the flexibility of network and directory integration. The **administration** rating is based on how precisely a systems administrator can configure and manage blocking definitions, thresholds, and policies for individual users and groups. **Blocking** refers to the breadth and timeliness of blocking lists, soft-blocking options, and how well the product blocks inappropriate content. The **monitoring and reporting** rating includes the ability to monitor domains, users, and groups (both in real time and off-line) and to generate robust audit reports.

	Configuration and deployment	Administration	Blocking	Monitoring and reporting	OVERALL
<b>SOFTWARE</b>					
Sentian	●●●	●●●●	●●●●	●●●●	●●●●
SurfControl Web Filter 4.5	●●●●	●●●●	●●●●	●●●●	●●●●
Web Inspector 7.0	●	●●	●●	●	●
WebSense Enterprise 5.1	●●●●	●●●●	●●●●	●●●●	●●●●
<b>HARDWARE</b>					
8e6 R3000 Filter, Reporter	●●●●	●●●	●●●	●●●	●●●
St. Bernard iPrism 3.5	●●●●	●●●	●●●●	●●●	●●●
Verso NetSpective	●●●●	●●●	●●●	●●●	●●●

RED denotes Editors' Choice.

## SurfControl Web Filter 4.5

1,000 users, 1 year, \$13,000 direct; second year, category subscription, \$6,500. SurfControl Inc., [www.surfcontrol.com](http://www.surfcontrol.com). ●●●●●

SurfControl Web Filter 4.5 makes a great impression, with sufficient flexibility for companies deploying Web filtering either at single or multiple work sites. Its extremely intuitive interface makes easy work of setting up and understanding policies, as well as creating targeted reports that management or human resources personnel could use.

We especially like its ability to create combinations of users and combination categories to handle the needs of real companies. But one glitch that was mag-

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-  4:15:03 PM Within seconds, eBlaster sends you a copy of that SAME EXACT email at your work email address.
-  4:30:00 PM Your daughter replies to the email from Tom.
-  4:30:02 PM Within seconds, eBlaster sends you an EXACT copy of her reply.

\* If you want to receive reports less frequently than once every 60 minutes, it's easy to change to once every few hours or just once a day.

# Taking on the Really Tough Filtering Jobs

The latest trend in filtering technology is to take on the unique challenges of instant messaging, peer-to-peer file sharing, and streaming media. Each of these exposes corporate systems to new security, liability, productivity, and bandwidth risks. Yet when their use is controlled, these same applications can increase productivity, improve collaboration, and in the case of streaming media, provide valuable training.

IM and P2P don't have the best reputations in corporate settings. IM gives employees a way to send confidential information unchecked out to the Internet or unwittingly accept a file containing a virus or spyware. P2P opens a company up to these same viruses and perhaps licensing litigation from intellectual-property owners. And streaming media can waste large amounts of bandwidth delivering entertainment to employees.

One approach to IM filtering is to install one of the corporate IM products we reviewed in our November 11, 2003, feature "IM Everywhere." These products can eliminate the threats that public IM poses.

Another approach is to use a Web filter, which can block access to the sites where IM, P2P, and streaming-media applications are downloaded. But this is only the tip of the iceberg. Employees can easily circumvent these blocks and find what they want on an unmonitored site, a CD, or a laptop.

To block such apps, you have to go to the protocols. Many of the Web-filtering products in our reviews can block the

specific ports that such apps use, but the services are getting smarter. They can either attempt to tunnel through port 80 (the HTTP port) or scan for open ports, making port blocking alone a less effective solution.

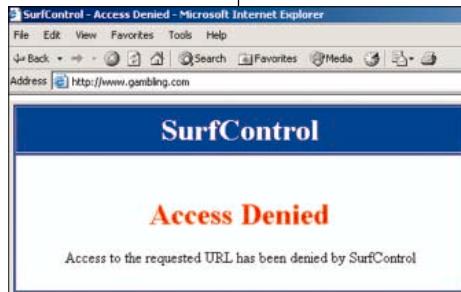
Going a step deeper, both Websense Enterprise and Verso NetSpective include signature-based blocking of IM, P2P, and streaming-media protocols. SurfControl's **Instant Messaging Filter** (\$6,500 for 1,000 users) is a separate product that does this for IM and P2P filtering. All three products block access to the IM log-on servers and also sniff out the packet signatures used by IM, P2P, and streaming-media services.

These filters have the smarts to deal with rogue apps and the flexibility to grant granular access to certain users and specific apps. For

example, while blocking general access, you could still allow the sales team to use Yahoo! Messenger and the human resources team to download Windows streaming-media files.

**Stellar Internet Monitoring** (\$16,000 for 1,000 users) targets IM and is available as a service or in an Enterprise Edition ([www.stellarim.com](http://www.stellarim.com)). Another network appliance, the **EngageIP Traffic Manager** (\$6,795), blocks P2P file-sharing services via packet inspection ([www.logisense.com](http://www.logisense.com)).

In the future, expect developers to come out with even more powerful tools that allow IM but block the file transfers possible with it. Like dealing with viruses, controlling access to such apps requires companies to be constantly vigilant in protecting themselves.—RPL



nified in our testing when we deployed the product in standalone mode was the potential for sneak peeks at pages the first time a blocked domain was accessed.

Setup was straightforward in both standalone and integrated modes. Administrators will love the Windows-based management interface. The Web Filter Rules Administrator—the most flexible policy tool we encountered in this roundup—uses a well-executed access control list concept. Administrators can use a properties screen, a drag-and-drop interface, or a wizard to set rule characteristics. Rules can include any combination of *who*, *when*, and *where* components.

To top it off, administrators can enable notification and design completely custom *deny* pages. They can combine *who*

entities or *where* entities. For example, if you want the entire marketing group along with two conference room machines under the same rule, you can create a *who* list that includes both.

Similar flexibility lets administrators create new categories or combine existing ones. The product starts you off with a set of example rules to demonstrate some common policy choices. For larger companies that may be using multiple filtering devices, SurfControl offers database-centric remote administration and policy delegation.

The well-integrated Monitor and Real-Time Monitor not only let you see what's happening but also let you do something about it. You can drill down to finer detail and assign the sites displayed to categories. The Reporting tool, like the Rules

Administrator, has a wizard in addition to a terrific Properties interface. We found the included reports, such as Comparison and Detail, very useful.

While there's no soft blocking or override, a flexible quota feature lets you set thresholds to limit the amount of time or bandwidth for any rule. SurfControl's Virtual Control Agent will capture and send unknown URLs to SurfControl for analysis. As with other content filters, the presumption is that they will be categorized and distributed in updates in a reasonable time period.

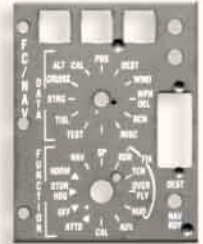
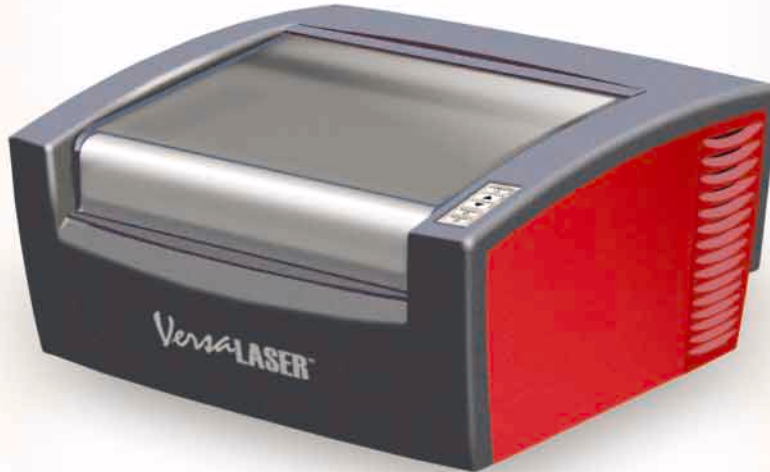
We were a little troubled by the sneak peeks we were able to catch the first time we accessed a site. It looked like the page was broken, which may cause confusion among employees rather than sending a clear signal that the page is being blocked



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SUMMARY OF FEATURES

Content-Filtering Software and Hardware

Download this table at [www.pcmag.com](http://www.pcmag.com).

<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	SOFTWARE				HARDWARE		
	Sentian	SurfControl Web Filter 4.5	Web Inspector 7.0	WebSense Enterprise 5.1	8e6 R3000 Enterprise Filter, Enterprise Reporter	St. Bernard iPrism 3.5	Verso NetSpective
Direct pricing for one year (1,000 users)	\$9,500	\$13,000	\$12,480	\$15,000	Filter: \$10,995; Reporter: \$6,995	\$10,010	\$9,000
Each additional year	\$8,065	\$6,500	\$2,080	\$15,000	Filter: \$10,995; Reporter: \$1,399	\$7,815	\$4,500
<b>CONFIGURATION AND DEPLOYMENT</b>							
Pass-through/pass-by filtering	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Standalone	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Integration with proxies, caches, and firewalls (number supported)	<input checked="" type="checkbox"/> (15)	<input checked="" type="checkbox"/> (4)	<input checked="" type="checkbox"/> (2)	<input checked="" type="checkbox"/> (25)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating systems supported	Linux (Red Hat), Windows	Windows	Windows	Linux (Red Hat), Solaris, Windows	N/A	N/A	N/A
Directories supported	Active Directory, eDirectory, LDAP, Windows Domain	Active Directory, eDirectory, Windows Domain	Active Directory, eDirectory, LDAP	Active Directory, eDirectory, LDAP, Windows Domain	Active Directory, Windows Domain	Active Directory, eDirectory, LDAP, Windows Domain	Active Directory, eDirectory, Windows Domain
<b>MANAGEMENT</b>							
Web-based/Windows-based console	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
Remote administration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Delegated administration by groups	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Centralized administration	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>FILTERING</b>							
Frequency of updates	Daily	Daily	Quarterly	Daily	Daily	Daily	Daily
Number of filtering categories	42	40	50	85	78	60	53
Can filter by:							
Protocol	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
IP address/range	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
File type	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
URL/content keyword	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Can limit surfing time and bandwidth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soft blocking	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overriding	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Block page customization/redirect	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Customizable by user group/category	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Can send unknown URLs back to vendors for analysis	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Can block/pass unknown content	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>
Advanced filtering of streaming media, IM, and P2P	<input type="checkbox"/>	Optional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Optional
<b>MONITORING AND REPORTING</b>							
Real-time monitoring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Web-based/Windows-based reporting interface	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Scheduled reports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Report formats	Graphs, tables	Crystal Reports, DIF, Excel, HTML, Lotus, ODBC, PDF, RTF, text, XML	CSV, HTML	CSV, Excel, HTML, RTF, text, Word	Excel, HTML, RTF, Snapshot, text	Crystal Reports, HTML, syslog, WebTrends	Crystal Reports, graphs, HTML, tables
Drill-down detail in reports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Databases supported	MSDE, Postgres, SQL Server	MSDE, SQL Server	MSDE, SQL Server	MSDE, SQL Server	Microsoft Access	SQL Server	MSDE, SQL Server

RED denotes Editors' Choice. N/A—Not applicable: Appliances do not require integration with firewalls or proxy servers, and they include their own operating systems.

intentionally. Sometimes you can even see enough inappropriate content to argue that the product really isn't doing its job. SurfControl said this was a by-product of first-time site caching, and admittedly, we encountered it more often than most companies would in our testing environment.

SurfControl offers two related prod-

ucts: E-mail Filter (\$13,000 for 1,000 users) for spam and e-mail security, and Instant Messaging Filter (\$6,500 for 1,000 users) for IM and peer-to-peer filtering. Both versions offer the depth necessary to block and manage those applications.

SurfControl is a fine product. Only its few drawbacks prevent it from earning our Editors' Choice.

### Web Inspector 7.0

1,000 users, 1 year, \$12,480 direct. Zix Corp., [www.zixcorp.com](http://www.zixcorp.com). ●●●●●

We found Web Inspector's features and interface more confusing than helpful. It was evidently designed by highly technical people with very little usability experience. Even after we deciphered the interface, we found the filtering approach infe-

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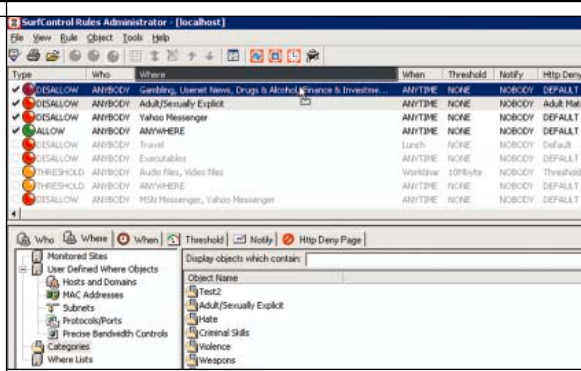
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SurfControl's flexible administration includes a properties interface and wizard, and lets you drag and drop rule components.

rior to that of other solutions. Now part of the Zix Corp.'s product line through its acquisition of Elron Software last year, Web Inspector does offer a lot of flexibility, including custom block pages, soft blocking, and bandwidth and usage control, but this flexibility comes at too high a cost.

Web Inspector takes a unique hybrid approach to blocking traffic. Like other products, it starts by using a block list. But the list is updated only on a quarterly basis, compared with daily updates for all the other products we tested. This keeps the yearly maintenance fee lower, but you get what you pay for. To handle unknown URLs in the meantime, the software inspects unknown URLs for keywords in both the URL and in the page content.

This approach increases the chance for false positives and can slow performance because of the time spent searching for keywords. Administrators can add any number of terms for the product to match, along with parameters for how frequently the term must appear before triggering a match. But in the end, the burden is on the administrator to balance blocking with false positives—and it's an unreasonable burden.

We ran Web Inspector in standalone mode; editions that integrate with Microsoft ISA Server and Proxy Server are also available. Web Inspector gave us constant difficulties in two independent test environments. First, the required IM Web Inspector Filter service would not start up automatically in our testing. Second, the filter takes more than 5 minutes before it actually starts blocking. By com-

Our contributors: **Rob Lipschutz** is president of Thing 7 ([www.thing7.com](http://www.thing7.com)), a technology consulting firm. Associate editor **Michael W. Muchmore** and PC Magazine Labs lead analyst **Sahil Gambhir** were in charge of this story.

parison, other filtering products start up in seconds. In addition to this, it frequently stopped working, and according to Zix, the software has some problems with Intel Ethernet adapters. Though you won't be starting your filter as often as we did, these problems raise doubts about its reliability.

The Java-based management interface can be run from Windows or in a Web browser. As noted above, it's far from intuitive, resembling a router access control list. Web Inspector can integrate with Windows domains and directories, and you can distribute configurations to multiple parent/child architectures—useful for companies with multiple sites.

Monitoring is available only on the server box itself, not remotely from the management interface. Reporting choices are comprehensive, but like the rest of the product, nearly impossible to use at first.

We find it very painful to say this about any product we review, but we suggest you look elsewhere.

### WebSense Enterprise 5.1

1,000 users, 1 year, \$15,000 direct. WebSense Inc., [www.websense.com](http://www.websense.com). ●●●●●



WebSense Enterprise 5.1 is a mature and flexible solution that addresses the most important issues in Web filtering and beyond.

For companies that want fine control over employees' Web access, no other product equals it. WebSense Enterprise has more protocols, categories, and soft-blocking choices than its competitors, and its higher cost is more than offset by its higher quality.

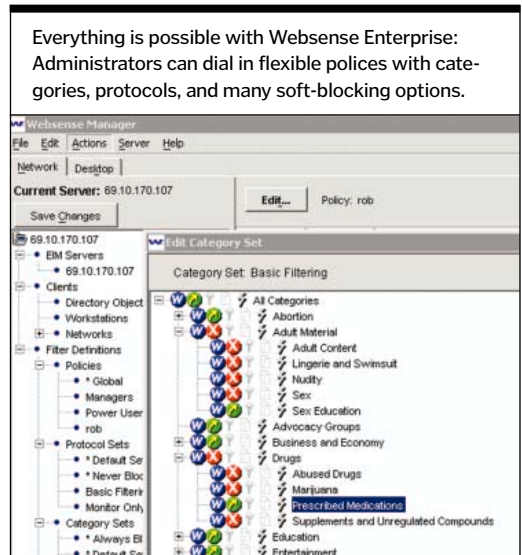
Its support for a vast set of firewalls, proxies, and caching products is further evidence of its maturity. WebSense Enter-

prise integrates with these products if they're already at the periphery of your network, or it can work in standalone mode. While configuration was a bit more complex than with the appliances, we had no trouble setting it up.

The Windows-based management interface makes good use of color, keeps a multitude of information well organized, and gives you more options than other products. Although we like the convenience of Web-based interfaces, Windows-based management interfaces are slicker. Administrators can work remotely over a single TCP port, set policies once, and distribute them to multiple filters throughout a widespread organization. Most companies will opt for Websense Enterprise's integration with Windows domains and directories to set policies based on existing network users and groups, but there's no delegated administration.

Websense Enterprise's flexibility is most apparent when you're configuring filtering policies. A set of 88 categories makes important distinctions between sex education and sex, between prescribed medications and abused drugs. In addition to blocking, it can limit usage by a time quota or display a couple of soft-blocking variants suggesting that the user surf these sites after work hours. Administrators can also block by file type and keywords. Companies can opt to use WebCatcher, a tool that captures unknown URLs and sends them to Websense for analysis.

In addition to using categories, administrators can block protocols for such



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## Hardware

applications as instant messaging, streaming media, and newsgroups. We tried this successfully with AOL and Yahoo!. Websense updates these protocols daily, just as it does category block lists. This became critical for us, as Yahoo! changed a number of log-on servers during our testing. The database update addressed the new servers and blocked traffic flawlessly. The optional bandwidth optimizer (\$5 per user per year) lets administrators set usage policies for network hogs like streaming media and Internet radio.

Websense offers three complementary tools to detect, monitor, and report on traffic. The Real-Time Analyzer monitors recent traffic, with flexible views into the data. This lets you see what's going on in the network before configuring policies. Websense Reporter, a powerful Windows-based tool, has more precision and flexibility than we found in other products we reviewed. Administrators can see any slice of information and schedule reports to be sent via e-mail. Risk Reports—particularly helpful—show any bad stuff happening at a glance. Websense Explorer, a Web-based tool, lets nontechnical users drill down into questionable activity.

Optional categories, called Premium Groups (for ensuring productivity and eliminating high-bandwidth sites as well as those that pose security threats) will bump the price up higher by \$5 per group. The optional Client Application Manager (\$25 per seat per year) protects and controls client machines using your network and the Internet.

As our Editors' Choice, Websense Enterprise is all about options—for categories, blocking, and protocols—presented to the administrator in a highly effective way.

### 8e6 R3000 Enterprise Filter and Enterprise Reporter 3.0

Enterprise Filter, 1,000 users, 1 year, \$10,995 direct; Enterprise Reporter, \$6,995. 8e6 Technologies, [www.8e6.com](http://www.8e6.com). ●●●●●

Simple to install, the 8e6 R3000 Enterprise Filter is a high-performance appliance aimed at large companies. With its delegated and remote-administration features, it's also designed for companies that have multiple locations and either one or many administrators. 8e6 Technologies has typically focused on the big guys but is now hoping to extend its products' reach to smaller companies.

The 8e6 R3000 Enterprise Filter sniffs out packets at the edge of your network to block inappropriate content.



As with the other appliances we review, the R3000 works in *transparent bridge* (invisible) mode and sniffs out packets it can see at the edge of your network. This configuration means you don't have to create two subnets or separate IP networks during installation.

The Web-based management interface is decent but reveals some problems. For example, when you're setting time profiles, the interface does not clearly show the relationship between time slots and rules. We do, however, like the power of the R3000's delegated administration. Administrators can modify a centrally set company filtering policy for individual groups. But the main administrator sets a minimum filter policy that cannot be altered, such as always blocking adult-oriented material.

The R3000's filter has no soft blocking, but an override feature lets a group administrator allow employees access to blocked sites they actually need. Nor can the R3000 capture unknown sites for analysis and possible future inclusion into block lists. Some glitches show up in its Windows directory integration. For one, you can't restrict usage by time of day for

users and groups extracted from Windows domains, though you can put time restrictions on machines identified by IP address. Second, the R3000 doesn't currently support Active Directory, but the company said this capability would be available by press time.

You can do some very basic monitoring on the R3000, but for reporting, 8e6 markets a second appliance, the Enterprise Reporter. The R3000's real-time monitoring interface is overly technical and not very useful, but the Enterprise Reporter's reporting interface is quite good. Having a separate appliance for reporting relieves the filter appliance from this task, yielding better performance. Several kinds of reports are available, with criteria based on categories, IP addresses or users, and sites. Reports can be scheduled and sent in e-mail as attachments. 8e6 will have a separate product in the future for bandwidth prioritization.

Staying true to its original goal, the R3000 is still best for large companies and those with multiple locations.

### St. Bernard iPrism 3.5

1,000 users, 1 year, \$10,010 direct. St. Bernard Software Inc., [www.stbernard.com](http://www.stbernard.com). ●●●●●

The St. Bernard iPrism practically installs itself, has a very serviceable management interface with plenty of features, and works very well. The well-designed appliance is the only one we tested that integrates reporting on the box—a nice option for smaller companies with modest reporting needs. But IT managers may not like the way it's deployed in a network.

This purple appliance, the easiest of all the products to install, typically sits in-line between a switch and your perimeter firewall. Although the box will pass packets even if it's accidentally turned off, having a box physically in-line in a large network may give you the chills, because it introduces a single point of failure and, theoretically, could become a bottleneck. But routers and firewalls often hold this same rarified position, and you can use third-party load balancers to remove any single point of failure, so maybe we just need to relax and trust St. Bernard.

The iPrism operates in pass-through mode and therefore sees every packet. But it does so differently from the other pass-

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through products we reviewed. Those work in conjunction with proxy servers, caches, or firewalls, but the iPrism achieves a pass-through architecture by physically sitting in the path of data, with no dependence on external software.

You can effectively manage the device through both Windows and Web interfaces. Administrators create profiles and then assign them to network address ranges, users, or users and groups extracted from a Windows domain or directory. Each profile can include one or more access control lists that are a pleasure to create. These ACLs can include any combination of the more than 60 predefined categories and 6 user-defined categories. Administrators can use granular time-of-day restrictions on any ACL.

St. Bernard has people review all of its URLs, which contributes to its thoughtful categorization. As with other products, block list updates are produced daily. Administrators can set up flexible override links and request access links on the customizable block pages, giving end users some options when thwarted. Features like these, along with group-level administrator customization, make the iPrism well suited to the realistic boundaries and workings of companies. We would like to have seen a soft-blocking option to seal the deal.

Finally, the iPrism's monitoring and reporting work well. Though these tools aren't as slick as those of some of the other products, which have better drill-down capabilities, they are easy to use. Reports can be scheduled, e-mailed, or uploaded via FTP to a waiting server.

Despite its unusual network placement, the iPrism is a very solid choice for small and medium-size companies wanting the simplicity of an appliance.

### Verso NetSpective

1,000 users, 1 year, \$9,000 direct. Verso Technologies Inc., [www.verso.com](http://www.verso.com). ●●●●●

The Verso NetSpective does a good job of Web filtering and can perform some intelligent blocking of IM, peer-to-peer, and streaming-media traffic. Flexible remote,

delegated, and centralized management make it a good choice for large companies or those with multiple locations.

We like its adaptive filtering technology, by which the unknown URLs that your employees—and employees of other Verso customers—surf are sent to Verso for analysis. Within a few days it categorizes these URLs and includes them in the daily update. We did come across a few drawbacks: Blocking capability is shallow, integration with Windows networks is only basic, and the reporting tool is overly complicated.

As with other appliances, setup is a breeze. Administrators configure the NetSpective using a Web-based interface, so remote management is a snap. Delegated administration is based on groups, and the appliance can work on its own or as part of a parent/child architecture. These are time-saving, useful features for companies with multiple locations.

The basic product does URL filtering and blocks over 50 categories of potentially damaging content. Updates to these block lists can appear daily, and adaptive filtering means that any unknown URLs

will be handled promptly.

An administrator configures group policies that determine whether to allow, monitor, or block groups from the categories for any specified time periods. These groups, defined within the NetSpective's software, typically would match departments or employee roles. Users can be defined by IP address or extracted from Windows domains. Unlike other products, the NetSpective does not import Windows groups or work within Active Directory.

Although administrators cannot add or remove sites to or from categories, they can allow or block individual URLs for

specified groups. In addition, administrators can optionally override a block by typing in a password on the block page. So if an employee has a good case for viewing a banned page, there is a way to allow this at his or her desktop. But the

NetSpective does not offer soft blocking, file-type blocking, or the blocking of unknown sites—a problem for compa-

The NetSpective can optionally filter IM, P2P, and streaming media, but its monitoring capabilities fall short.



nies with restrictive policies.

The NetSpective goes beyond simple URL filtering. The optional P2P filter (\$5,200 the first year for 1,000 users) adds chat, peer-to-peer, and streaming media. These are special categories that not only block known sites used to download and log on to these services but also look inside packets to find known signatures that identify this rogue traffic. Again, this can be done on a group basis, allowing some but not others the privilege.

Monitoring and reporting didn't quite hit the mark. The "real-time" monitoring shows only daily statistics on protocols, users, and blocked sites but doesn't offer more granular control. The Windows-based reporting tool has a lot of options but is a bit complex to use, and producing reports is more difficult than with the other products we tested. This complexity probably stems from the NetSpective's origin as a monitoring tool for other devices. (It still supports a variety of third-party firewalls and proxy log files.)

The NetSpective has no on-box reporting: It sends log files via FTP to a reporting server. This could create uncertainty for administrators as to whether they had the latest information. We do, however, like the included Question Wizard to help formulate reports.

As we went to press, Verso was releasing a software product (\$1,500 for one year, 50 users) targeted at smaller sites.

The NetSpective will suit larger companies that need the flexibility to block IM, P2P apps, and streaming media with the simplicity of an appliance. ☰



The iPrism filters and reports well, though admins may have reservations about its in-line architecture.





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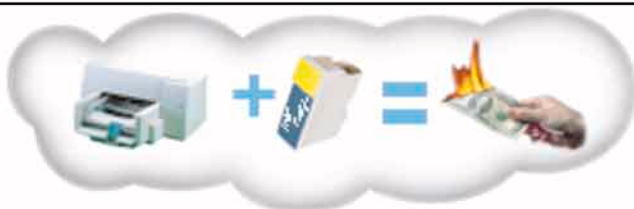
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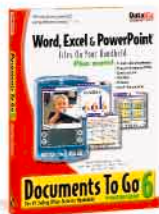
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# AFTER HOURS

TECHNOLOGY ON YOUR TIME

## Exceptional Cases

BY DON LABRIOLA

**B**ye-bye, beige box. Whether you are a gamer who hauls your extreme system across town to LAN parties or a hobbyist who needs to cool an inferno of overclocked components—or even if you just want your PC to match your home decor—today's unprecedented selection of exotic chassis will do the job. Computers don't have to be boring anymore.

In this story, we sample some of the tastiest cases to hit the market in the past year. If you want your computer to make a personal statement, any of these eye-catching offerings should be an open-and-shut case.

### Antec Super LanBoy

The Antec Super LanBoy is a lightweight, luggable chassis that combines rugged good looks with robust construction. It's a fine choice for a system that will be thrown in the trunk of a car and driven to parties, presentations, and trade shows.

The Super LanBoy's stylish illuminated faceplate is made of plastic, but the rest of the case is built entirely from tough anodized aluminum. Interior edges are folded over to eliminate cuts and scrapes, and opening the case is a snap, thanks to molded handles that give you a firm grip on each side panel. The Super LanBoy's five external and four internal drive bays can't be removed or swiveled out of the way to increase interior working space, but Antec does improve access by facing the toolless internal bays toward the side of the case instead of the back, so you can simply drop drives into place.

Other nice touches include large 120-mm silent-running front and rear fans, a nylon carrying strap, a sharp-looking beveled acrylic side panel, hard drive shock-absorber mechanisms, and even a spring-loaded accessories drawer.

\$90 may seem expensive for a midtower that lacks a power supply, but the high quality of

the Super LanBoy's materials and workmanship easily justifies the price.

\$90 street. Antec Inc., [www.antec-inc.com](http://www.antec-inc.com).



### AOpen H360A Slim PC Case

The AOpen H360A Slim PC Case is the only chassis in this roundup designed specifically for compact MicroATX motherboards. Its low-profile shape and size, ultra-quiet operation, and living-room styling are designed for home theaters and media centers, in which PCs must coexist

with racks of consumer electronics gear.

Despite its 3.9-inch width, the H360A incorporates a 250-watt power supply, a 90-mm low-noise fan (with room for a second unit), four PCI slots, and front-mounted line-out, mic, and dual USB jacks. Unlike other MicroATX chassis that require low-power, slimline components, the H360A accepts full-size drives and can be configured for either one 5.25-inch and two 3.5-inch external drives or two 5.25-inch external and one 3.5-inch internal drive.

Our evaluation unit's fit and finish weren't up to the standards of the best cases we reviewed, though they were by no means unacceptable. Interior edges weren't folded over, but they were smooth, and the case includes a clever toolless drive bay cage that swivels up out of the chassis to increase interior workspace and provide easier access to connectors.

The H360A loses points for its poorly translated documentation, but it still impresses us with its ability to pack functions, good looks, and ease of use into such a small package.

\$75 street. AOpen America Inc.,

<http://usa.aopen.com/products>

/Housing/H360series.htm. ●●●●●

### Maxpoint Enermax CS-56881BFS-OY

The Maxpoint Enermax CS-56881BFS-OY exemplifies the recent trend toward premodded cases that look unique right off the shelf. Its retro styling, high-gloss automotive finish (available in four distinctive colors), heavy-duty steel innards, and electroplated chrome trim give it the air of a meticulously restored classic car. Its external 5.25-inch bays are concealed behind



Clockwise from top: AOpen H360A Slim PC Case, Antec Super LanBoy, Maxpoint Enermax CS-56881BFS-OY, Kingwin KT-424-BK-WM.

a set of painted metal louvers that slide down like the cover of a roll-top desk, and the case includes sound-activated

internal lighting and a large, UV-sensitive window with a center-mounted LED fan.

Unfortunately, the case isn't quite as innovative under the hood. It does provide room for four fans, but its admittedly hefty 400-watt PowerUp power supply isn't in a class with better Enermax units. None of its eight drive bays can be swiveled or removed, and one of its seven expansion slots is consumed by a lighting switch. The case also ships without documentation (Enermax was preparing a downloadable manual at review time), but our biggest disappointment is the discovery that the gorgeous paint job can be chipped, much like the finish of a new car.

If you plan to take the CS-5688IBFS-OY on the road, you may soon find yourself in an automotive shop matching bottles of touch-up paint.

\$85 list. Maxpoint Computer Inc., [www.maxpoint.com](http://www.maxpoint.com). ●●●●●

### Kingwin KT-424-BK-WM

**PC** MAGAZINE EDITORS' CHOICE The Kingwin KT-424-BK-WM excels in both design and execution. Aimed at enthusiasts who value flexibility, precision engineering, and ease of use, it's crafted entirely from lightweight aluminum with a tough, anodized brushed-metal finish (in black or white).

Our review unit's interior components aligned perfectly and had no sharp edges, and the removable side panels glided effortlessly on their tracks.

You can't add fans, but few buyers are likely to need better airflow than that provided by the two 80-mm drive bay fans and rear 80-mm chassis fan, which ship as standard equipment. The case also includes a whopping ten drive bays that let you secure drives with screws, thumbscrews, or smooth toolless sliding rails. Best of all, the motherboard tray, power supply, card rack, and backplane all slide out as a single unit, so you can install most components on a tabletop.

Throw in such luxuries as a fan-speed control, aluminum faceplate and bezels, front-mounted FireWire and USB ports, removable fan filters, hard drive shock

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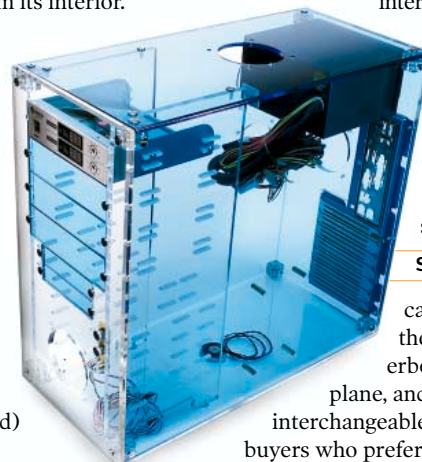
absorbers, and an extra-thick near-full-view acrylic panel, and you have one of the finest cases of its type on the market. \$95 street. Kingwin Inc., [www.kingwin.com](http://www.kingwin.com). ●●●●●

### Soyo Blue Ice

Forget everything you know about metal computer cases. You've never worked with anything like the transparent Soyo Blue Ice chassis.

You'll need to take extra care to avoid scratches and fingerprints when assembling the Blue Ice's plastic components, and remember that you can't ground yourself to any of its nonmetallic surfaces. You must install all accessories, such as front-panel switches, LED indicators, and speakers. And after you've built your system, you'll occasionally need to vacuum dust and dirt from its interior.

Soyo manages to justify all this extra effort. The Blue Ice is a surprisingly sturdy case, constructed from heavy-duty 0.25-inch acrylic panels milled to exacting specifications. Corners are secured with clear plastic blocks that are screwed in from three sides (not glued)



Soyo Blue Ice



Xoxide X-UFO Ultimate Aluminum Cube Case

to relieve stress points and better accommodate thermal expansion. The case also includes cutouts for a standard ATX12V power supply and four 80-mm fans, one internal and five external

drive bays, a generous assortment of specialized mounting hardware, and even a pair of white cotton gloves. The Blue Ice isn't for everyone, but it's a spectacular, one-of-a-kind solution. \$149 list; Soyo 400W Raptor SY-PS400 power supply, \$99. Soyo Group Inc., [www.soyousa.com](http://www.soyousa.com). ●●●●●

### Xoxide X-UFO Ultimate Aluminum Cube Case

**PC** MAGAZINE EDITORS' CHOICE The Xoxide X-UFO Ultimate Aluminum Cube Case is the Humvee of computer cases. Constructed entirely of 2-mm industrial-grade aluminum, this massive 18-inch metal cube provides a tremendous amount of room for exotic lighting, custom cooling systems, and its five external 5.25-inch and nine internal 3.5-inch drive bays.

The bare-bones chassis includes three large acrylic windows, cut-outs for a mind-numbing 11 fans, chrome front-panel switches, and a set of medium-duty casters. You can remove the drive bays, the motherboard tray, and the backplane, and Xoxide plans to offer interchangeable drive bay modules for buyers who prefer different configurations. All three acrylic panes are fitted into the case's U-shaped wraparound cover, which removes them from harm's way whenever you work inside.

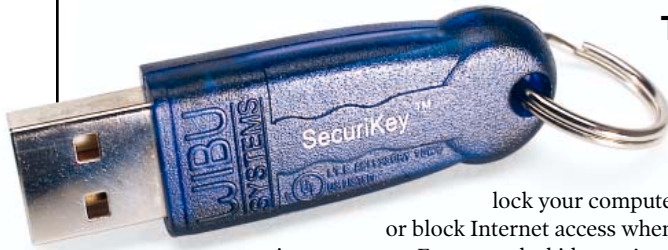
With 14 thumbscrews attaching its huge cover, the X-UFO can be cumbersome to open, but a bigger complaint is our evaluation unit's soft, easily marred untreated aluminum surface. Xoxide evidently agrees; the company recently announced red and high-gloss black powder-coated versions that have much tougher finishes.

The X-UFO isn't cheap, but sometimes you do get what you pay for. We've never seen anything like it. Brushed-aluminum finish, \$320 direct; powder-coated finish, \$399; tested configuration, \$875. Xoxide, [www.xoxide.com/xulalucu.html](http://www.xoxide.com/xulalucu.html). ●●●●●

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To keep your kids from driving the family car, you'd take away the keys. You can do virtually the same thing on your family computer with the **Griffin Parental Internet ControlKey**, a USB dongle. You can

lock your computer or have it log off, shut down, go to sleep, or block Internet access when the key is removed. We do see room for improvement. For example, kids aren't notified with a pop-up to say Internet access is blocked for a site, and your Registry is not completely cleaned when the product is uninstalled; also, the uninstall is not password-protected.—*Craig Ellison*

\$59.99 list. Griffin Technologies LLC, [www.control-key.com](http://www.control-key.com). ●●●●●



## A Good Listener

Ever nearly graze a parked car while looking up the address of your next appointment on your PDA? **Microsoft Voice Command** (sold by Handango)

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The voice recognition isn't infallible, but Voice Command gets it right more often than not.

Microsoft hopes the same core technology will become part of the interactive dashboard

computer on future cars.—*Bill Howard*

\$39.95 direct. Handango, [www.handango.com](http://www.handango.com).

●●●●●



## Pep Up Your Mobile Phone

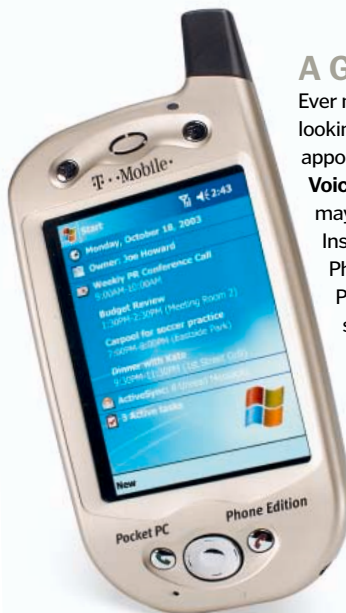
Most mobile phone users have run down their batteries at inopportune times. The handy **CPS Cellboost** is simply a disposable battery that can add around 60 minutes of additional talk time to a power-drained cell phone. Models are available for most brands; toss a couple in your bag and go.—

*Carol A. Mangis*

\$9.95 list. Compact Power

Systems Inc., [www.cellboost.com](http://www.cellboost.com).

●●●●●



## Play On

The **Frontier Labs NEX ia** is a cool little portable music player that looks like a cousin of the Apple iPod—though it's not

a hard drive player (you can use a Hitachi

Microdrive or CompactFlash Type I or

II). The device is sleek and fairly easy

to use, but you won't find all the

iPod's features; there's no calendar,

for example. The player does

have an FM tuner and voice and

radio recording. We tested it with

a Hitachi Microdrive, and we

found that it was slow in switching

from the FM tuner to playing stored

music.—*Jonathan Roubini*

\$119 list; with 1GB Microdrive card, \$279. Frontier Labs Ltd.,

[www.frontierlabs.com](http://www.frontierlabs.com). ●●●●●



# All Aboard

By Peter Suci

*Before the jet age, rails connected the country. Many games have covered this golden age of travel, and one of the best is still Microsoft's Train Simulator. Although the newest release has been derailed until later in 2004, these other titles let you become a railroad robber baron—or just take a ride on the rails.*

## Railroad Tycoon 3

At first glance, this game could seem overwhelming—but its auto-management tool eases you into your role as chairman of a fledgling railroad. You lay track and determine the types of locomotives to purchase and cargo to haul. Once you



RAILROAD TYCOON 3

have your lines up and running, you can transport cargo, produce goods for a robust dynamic economy, and partake in the stock market. You can even sell your own stock short.

Railroad Tycoon 3 features 25 scenarios that re-create key moments in railroad history, along with 40 locomotives ranging from early steam engines to modern bullet trains. There are more than 35 types of cargo and 150 buildings that you can create to produce goods. The game uses an all-new 3D engine that adds realism to this virtual world. For more relaxed play, there is a sandbox mode in which you can build lines and lay tracks at your leisure. \$50 street. Gathering, [www.gathering.com](http://www.gathering.com).

●●●●●

## Train Collection

Casual gamers can hop aboard this budget-priced package that includes some old-time classics, though it's a bit dated compared with other titles. Included is the previous version of Auran's Trainz Railroad Simulator, along with



TRAINZ RAILROAD SIMULATOR 2004

Trainz Paint Shed. The suite lets you drive locomotives, set routes, and even design your own set of logos.

The game also includes Rails Across America, in which you don't just drive the trains—you build an empire by making deals with union leaders and calling in favors from government officials. You either move up to the penthouse suite and oversee a thriving business—or you're run out of town on a rail! It's more simplistic than Railroad Tycoon 3 but still fun. \$20 street. Strategy First Inc., [www.strategyfirst.com](http://www.strategyfirst.com).

## Trainz Railroad Simulator 2004

Trainz Railroad Simulator 2004 isn't the next best thing to a model railroad—it's better. This game lets you control more than 50 real-world locomotives (as well as hundreds more you can download from Auran's Web site). Each has authentic 3D cabs for steam, diesel, and electric engines, with interactive controls. You control all aspects of hauling passengers and cargo and can build a complete train-line infrastructure that includes tunnels, signals, junctions, and bridges.

Playing as an engineer, you drive high-speed passenger trains and navigate cargo trains through steep winding mountain passes. And as a route builder, you set a variety of runs and control the types of goods to haul. Manage daily tasks and ensure that the trains are on the right track as the yardmaster, or set production levels and prepare task lists as an operations manager. All this sounds a lot like work, but Trainz Railroad Simulator 2004 is pure fun, especially as you lay out your tracks and make your own virtual world. \$40 street. Auran, [www.auran.com](http://www.auran.com).

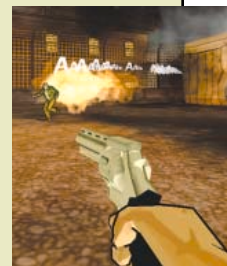
●●●●●

## QUICK CLIPS

### XIII

Cel shading, a comic-book-like look in game graphics, works well in XIII, and game play is action-packed. The story is somewhat of a cliché when compared with others in the genre, but it still manages to stay interesting. Altogether, this is a solid title.—Pete Brown

\$50 street. Ubisoft Entertainment, [www.ubi.com](http://www.ubi.com).



## National Geographic Back Roads Explorer

Adventurers and armchair explorers alike will spend hours with this wonderful package, which includes 17 CDs loaded with highly detailed U.S. maps; you can even drill down to street level. You can customize and print maps,

import them to your Palm OS or Pocket PC PDA, and chart out routes for your GPS. Our only quibble: We'd like a single-DVD option.

—Carol A. Mangis

\$50 street. Topics Entertainment, [www.topics-ent.com](http://www.topics-ent.com).

●●●●●

## Final Fantasy XI

Square Enix took a risk in bringing this role-playing series online, and the result is mixed; it will probably appeal most to fans of the series. The game's story isn't as strong as those of its predecessors. The visual style is clean and attractive, but the landscapes seem bland and repetitive when compared with the flashy battle sequences.—PB

\$49.95 list. Square Enix Co. Ltd., [www.square-enix-usa.com](http://www.square-enix-usa.com).

●●●●●



# BACKSPACE

## TITANIUM IS THE NEW CHROME

Edited by Don Willmott

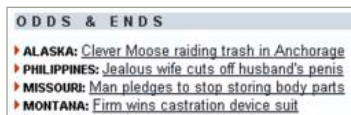


▲ Here's a single negative that should have been doubled.  
(PC Mall ad)

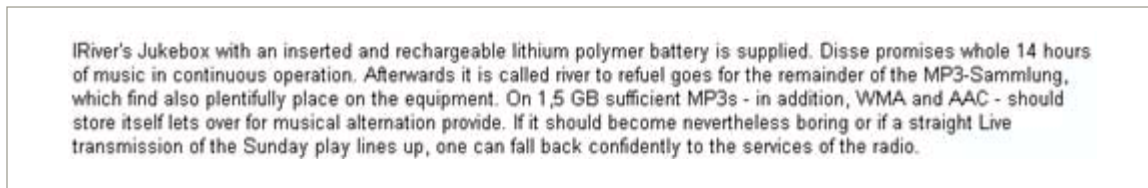


◀ Ingenious! A wireless networking hub with a kickstand!  
(Circuit City ad)

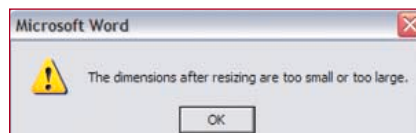
▼ Watch out, guys. These headlines seem to be suggesting some kind of international conspiracy.  
(boston.com)



▼ Bad translations abound online, but few have the consistent nuttiness of this one.  
(Epinions.com)



▼ Visions of "Goldilocks and the Three Bears." (Microsoft Word)



▼ Persistent, to say the least! (MSNBC site)



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*PC Magazine*, ISSN 0888-8507, is published semi-monthly except 3 issues in October (10/14/03 is the Fall 2003 issue) and monthly in January and July at \$39.97 for one year. Ziff Davis Media Inc, 28 E. 28th St., New York, NY 10016-7940. Periodicals postage paid at New York, NY 10016-7940 and at additional mailing offices. POSTMASTER: Address changes to *PC Magazine*, P.O. Box 54070, Boulder, CO 80328-4070. The Canadian GST registration number is 865286033. Publications Mail Agreement No. 40009221. Return Undeliverable Canadian Addresses to P.O. Box 503, R.P.O. West Beaver Creek, Richmond Hill, ON L4B 4R6, Canada. Printed in the U.S.A.





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