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JUNE 8, 2004

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—META Group, November 2002
Linux Servers: No "Silver Bullet" for Total Cost of Ownership

Leading independent research analyst META Group found in a recent study that Linux on Intel infrastructure costs are *not* lower than Windows® on Intel. To get the full study and other third-party findings, visit microsoft.com/getthefacts

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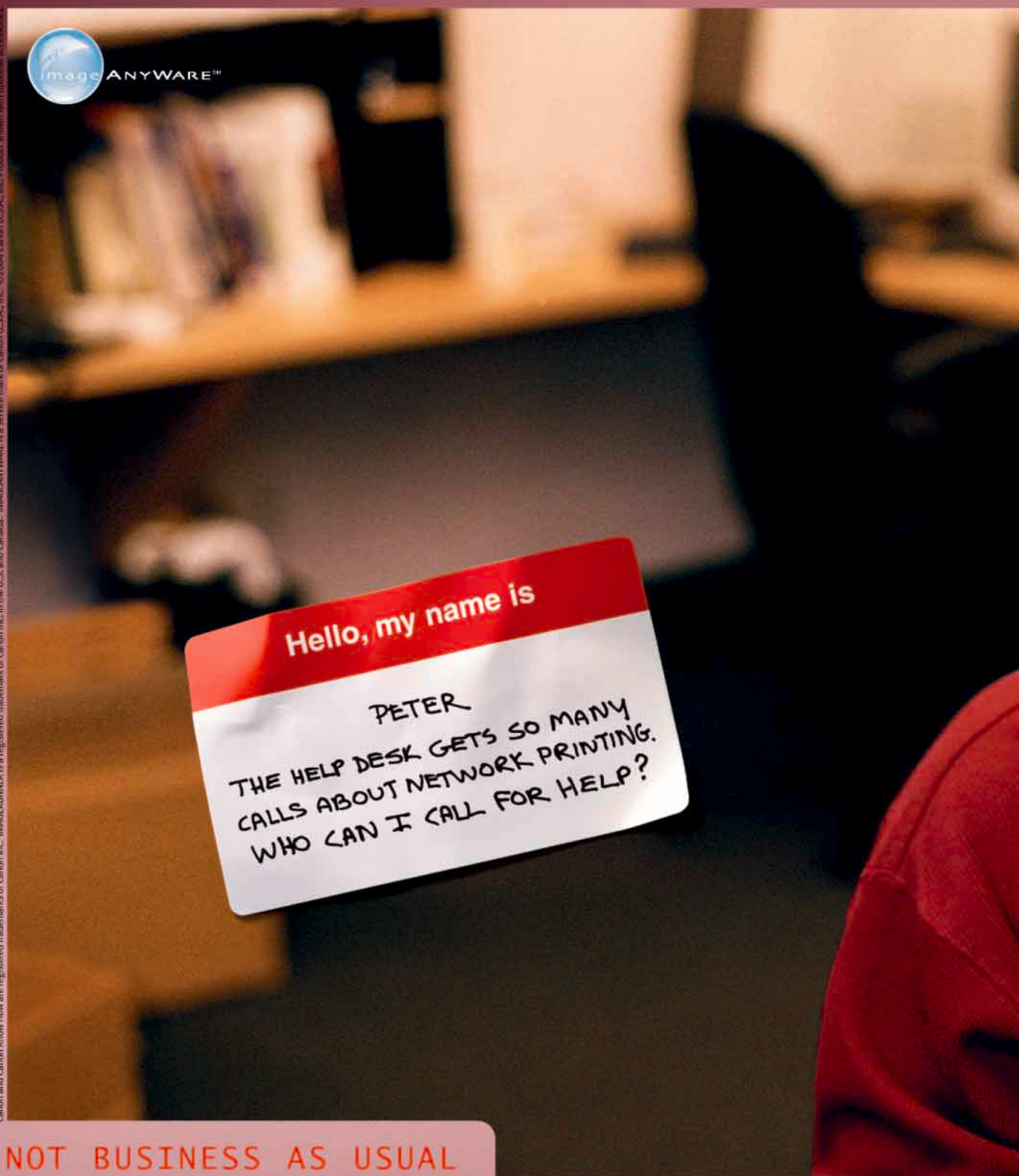

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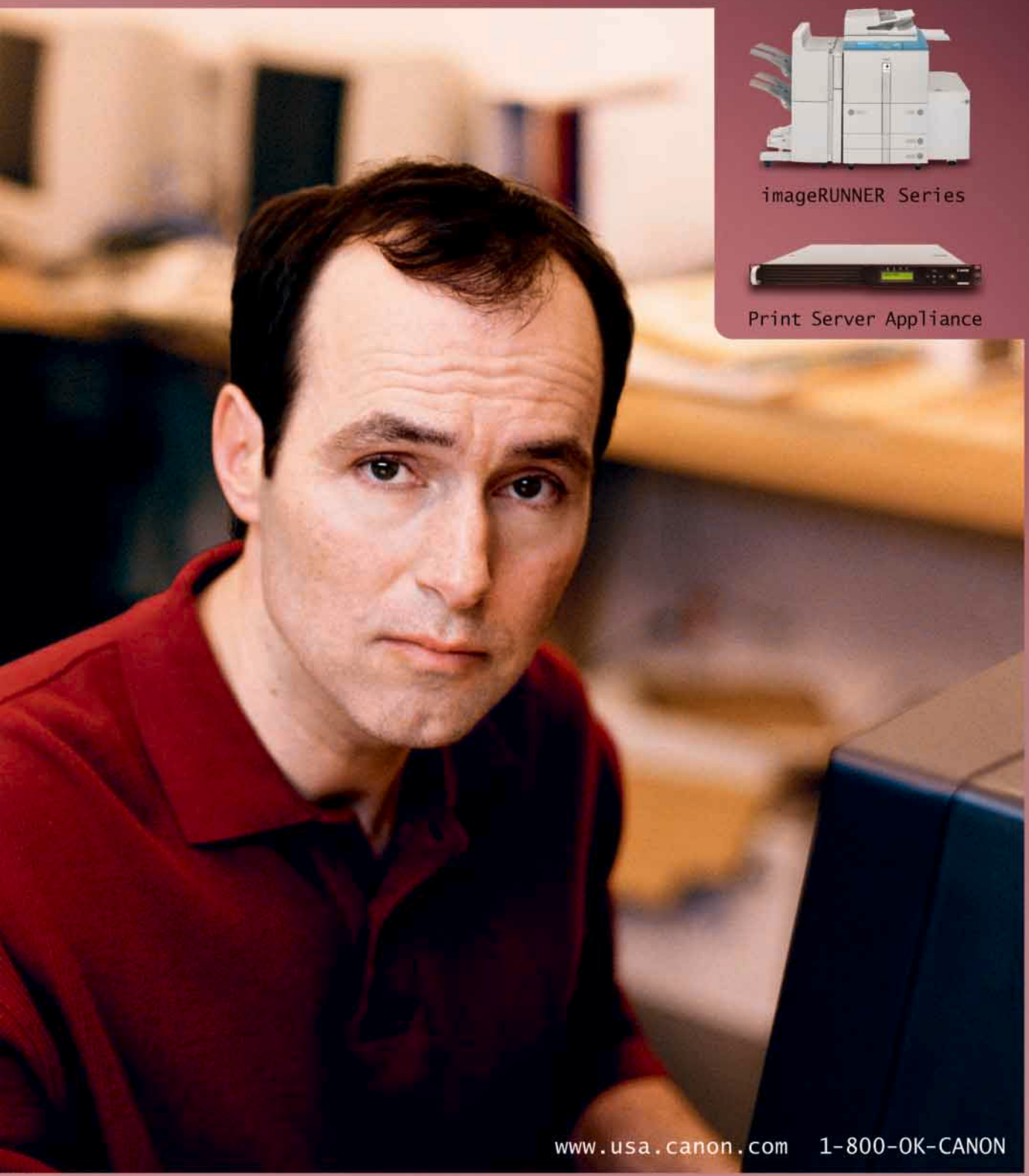

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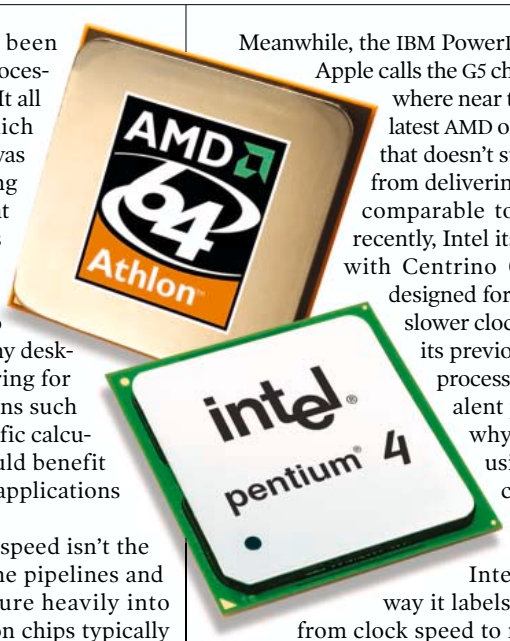
MICHAEL J. MILLER

Forward Thinking

More than a third of adults in the U.S. don't have Internet access of any kind. That's something we all need to work on changing.

Good-Bye, Gigahertz

For the last two decades, we've been measuring the progress of microprocessors in megahertz, or clock speed. It all started with the first IBM PC, which ran at a breakneck 4.77 MHz. That was followed up by the blazing 8-MHz processor—a very big deal at the time. Most recently, Intel has been touting its 3-GHz Pentium 4 chip. But signs are everywhere that megahertz don't matter so much anymore. To begin with, many desktop computer users aren't clamoring for more speed. And while applications such as games, video processing, scientific calculations, and voice recognition could benefit from more speed, most business applications run fast enough.



Most important, though, clock speed isn't the only measure of performance. The pipelines and registers of chip design also figure heavily into overall performance. AMD's Athlon chips typically run at a slower clock speed than Pentium 4 processors. So to promote the chips, AMD uses a model numbering convention, such as Athlon 64 2800+, indicating that the chip runs as fast as or faster than a 2.8-GHz Pentium 4.

Meanwhile, the IBM PowerPC 970 processor that Apple calls the G5 chip doesn't run at anywhere near the same speed as the latest AMD or Intel processors, but that doesn't stop the Macintosh G5 from delivering performance that's comparable to those chips. Most recently, Intel itself proved the point with Centrino (Pentium M) chips designed for laptops that run at a slower clock speed than some of its previous mobile Pentium 4 processors but deliver equivalent performance. That's why we test processors using real-world applications.

So it comes as no surprise to me that Intel is abandoning the way it labels processors, moving from clock speed to model number. This is a good move, as we've seen that clock speed is no longer a great measure of performance. But I'll also miss it. After all, we've spent the last 20 years convinced that with just a few more megahertz, our PCs would run faster.

Chip Innovations

So where do microprocessors go from here? We'll continue to see performance enhancements for some time. In the graphics arena, nVidia recently announced its GeForce 6 line of graphics processors, and by the time you read this, ATI also will have announced its new graphics processor. These are faster chips by every measure, from clock speed to raw horsepower, and they should enable a new generation of entertainment applications in which characters look more lifelike.

Several other exciting chip innovations are also on the way. Intel's Pentium M/Centrino and Transmeta's Efficeon are examples of chips tuned to balance performance with better battery life. I expect we'll see a lot more such processors. We may also start to see chip cores used in lots of different ways. For example, the ARM core is now the heart of several PDA processors, including Texas Instruments' OMAP and Intel's XScale chips.

IBM recently made a big move in the same direction by announcing that its Power architecture will be available to other chip companies for use in their designs. IBM will tightly control the kernel of the chip to maintain compatibility but will let other processor makers build around it to create a variety of compatible chips for everything from embedded systems to mainframe-class computers. IBM executives compare this to the Linux world, where a small group of people control the kernel and others add functions around it.

All of this activity should lead to more innovation in processors, and I can't wait to see the results.

Forward Thinking

MICHAEL J. MILLER

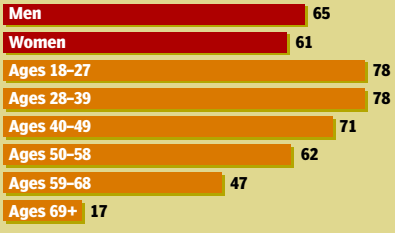
Broadband Revisited

In our April 20 issue, I wrote about how broadband adoption in the U.S. is lagging that of some other countries. A couple of insightful readers correctly deduced that Nielsen/Net Ratings, which supplied the numbers I cited, considers ISDN lines to be broadband. ISDN, which is used for both voice and data, tends to be faster than most dial-up connections, but is not as fast as the DSL and cable connections that most Americans think of as broadband.

This is important to note, but it doesn't change my point that many of us want higher-speed connections everywhere, and the U.S. is in danger of falling behind. We are, however, seeing signs of progress. The Pew Internet & American Life Project's recent phone survey of American adults uncovered some interesting trends in just how much the Internet has become a part of our daily lives.

Who's on the Net?

Percentage of U.S. adults in each group who use the Internet



Source: Pew Internet & American Life Project, February 2004.

According to the study, conducted in February, 55 percent of American Internet users have access to broadband either at home or in the workplace. And 39 percent of U.S. online users have broadband access at home.

Of all adults in the U.S., 24 percent have high-speed access at home and 34 percent have it either at home or on the job. Broadband adoption at home is up 60 percent since March 2003, with half of that growth since November 2003, led mostly by a huge surge in DSL subscriptions.

Among the other interesting facts the study turned up: Of typical Internet users, 55 percent go online daily, and 53 percent say they have six or more years of experience with the Internet. Sixty-five percent say they have shopped online, 23 percent have participated in an online auction, and 17 percent have logged on using a wireless device.

The study also shows that 73 percent of U.S. adults use computers, and 63 percent use the Internet. These are good numbers, but not good enough. More than a third of adults in the U.S. don't have Internet access of any kind. That's something we all need to work on changing.

Google: Innovation Under Fire

You'd think everyone would love Google. Its fast, accurate results and quick-loading pages have made it the most popular search engine on the Web. Yet suddenly, everyone seems to be gunning for it. Yahoo! and MSN are introducing new search engines, which add more content or have new algorithms. At the same time, sites and services have emerged that try to defeat Google's PageRank system. To a large extent, that's the good news; a little competition can only encourage everyone to create better search tools.

But some of the criticism seems unfair. Lately, Google has been criticized for some of its search results. If you search for "Jew" you might see an anti-Semitic Web site at the top of the list. I hate that site, but I don't blame Google for its popularity.

Most recently, Google has been under fire because it plans to place ads in its upcoming Gmail mail service based on the content of mail messages. People are worried that the company will be reading their mail. I do worry about privacy, and it's important that the company has a tough privacy policy. But no matter which mail service you use, it's quite likely your mail is scanned by a computer anyway, searching for spam and viruses. Adding a relevant ad doesn't seem like a big step.

I've been testing out the service for the last couple of weeks, and so far I have to say its well-marked small text ads (see "Sponsored Links" in the screenshot) bother me a lot less than some of the larger ads I've seen at other free e-mail sites. And 1 GB of storage makes this a compelling offer. (I'm not sure about a mail service without user-defined folders; and until it's live, we won't know how well it handles spam.) I probably wouldn't use Gmail for confidential mail, and it would be good to be able to opt-out of scanning, perhaps in exchange for less space or a small fee. Overall, it's great to see innovation in Web mail. That's worth a cheer, not a complaint.

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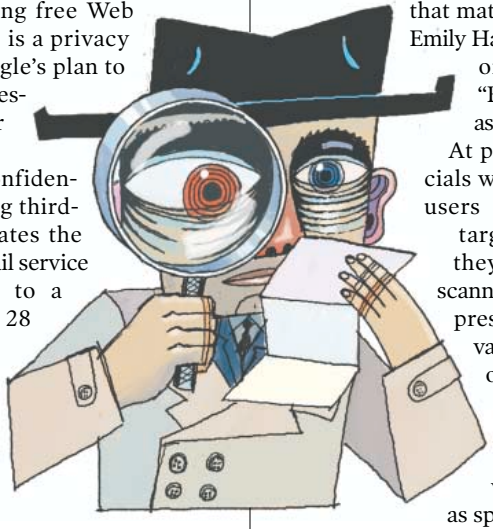
PIPELINE

TECHNOLOGY TRENDS & NEWS ANALYSIS

Will Google Read Your E-Mail?

The company is embroiled in a heated battle over message-snooping plans.

PRIVACY GROUPS GANGED UP ON GOOGLE in April. The company is in the hot seat with nearly 30 organizations, several European groups, and California legislators, who contend that Google's upcoming free Web e-mail service, Gmail, is a privacy threat. At issue is Google's plan to scan the contents of messages in order to deliver targeted advertising.



"The scanning of confidential e-mail for inserting third-party ad content violates the implicit trust of an e-mail service provider," according to a protest letter from 28 privacy groups. "It creates lower expectations of privacy in the e-mail medium, and may establish dangerous precedents."

Hoopla first arose because Gmail, which will compete with Microsoft's Hotmail and Yahoo! Mail, will offer a whopping one gigabyte of free storage—more than 100 times what Microsoft and Yahoo! offer. Deleting messages to comply with tiny storage limits is the bane of every free Web-mail user's existence.

But the message-scanning plan isn't a fair trade-off in everyone's eyes. "It's a marketer's dream to track everything you're doing and give you ads that match your interests," says Emily Hackett, executive director of the Internet Alliance. "But some people see this as a horror story."

At press time, Google officials were considering letting users opt in or out of the targeted advertising, but they still defended e-mail scanning. "The technology for presenting users with relevant Gmail advertisements operates in the same way as all popular Web mail features that process e-mail content to provide a user benefit, such as spam filtering or virus detection," said a Google spokesperson, who asked not to be identified. "We are confident that Gmail is fully compliant with data protection laws worldwide." In Google's current situation, though, laws aren't the only hurdles to jump. —*Sebastian Rupley*

DON'T MONITOR ME Utah is the first state to pass a law, the Spyware Control Act, against installing spyware on PCs without user permission. Several states are considering similar measures, and a federal law, called the SPYBLOCK Act, is proposed.

Keeping Things Nano-Cool

AS TINY CHIPS IN PORTABLE GADGETS GET MORE powerful, they also get dangerously hot. Fans offer some relief, but a Purdue University research team, with National Science Foundation funding, has developed a racy cooling system that could be ideal for keeping notebooks and cell phones cool. The technology generates tiny breezes with nary a fan in earshot. The research team's system uses tiny electrodes built from carbon nanotubes—microscopic cylinders made of a mesh of carbon atoms. The low-voltage electrodes emit electrons and create tiny breezes. Purdue project leader Suresh Garimella calls the technology *nanolightning*. Commercial applications will strike soon.—*SR*

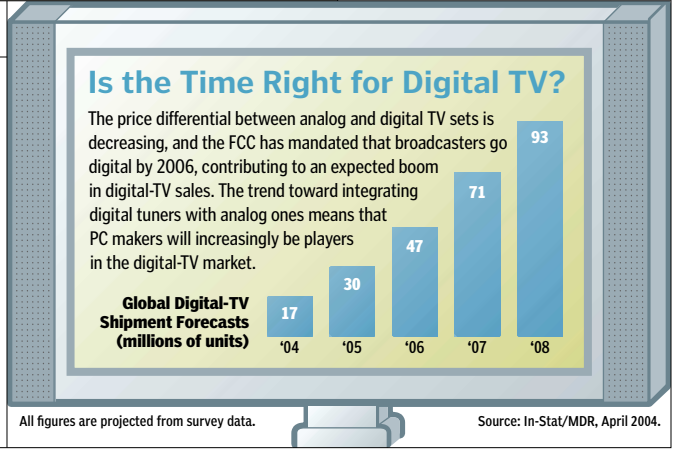
ILLUSTRATIONS BY ROBERT MEGANCK

Phone Chips

How much like a PC can a cell phone get? That's a question Intel is trying to answer with its new family of Intel XScale PXA27x chips, which are optimized for wireless broadband applications like full-motion videoconferencing and streaming video. They'll make their way into handsets starting in May.

The processors, formerly code-named Bulverde, have several technologies inherited from PC-class chips, including Wireless MMX technology for advanced 3D games, and a new 2700G multimedia accelerator. Power consumption could be an issue given the applications Intel is eyeing, but the chips also have Intel's SpeedStep power management technology.

For the chips to do all Intel says they can do, wireless networking technologies such as 3G and WiMAX will be critical. "You have to keep your eye on what the networks are capable of," says John Jackson, senior analyst at the Yankee Group. There's no doubt about that.—*SR*



Shrinking the Small Screen

While big, flat-screen TVs are all the rage, a new gadget—Eyetop Centra—steers the video picture into a pair of glasses. Head-mounted displays aren't new, but early models, like the $1,199 i-glasses HRV Pro from iO Display Systems, have been expensive and ergonomically challenged. And, well, the headgear makes you look like a total geek. By contrast, the $499 Eyetop Centra frames look like regular sunglasses with a tiny screen mounted on the right lens.

"Eyetop Centra is not about bringing stereoscopic vision to users," explains Nicolas Paris, an Eyetop director. "It is about getting a full-size screen in the wearer's field of view while keeping him in touch with what's around him."

The glasses use a 0.6-inch (diagonal) active-matrix LCD to display a 24-bit color, 320- by 240-pixel image. It's comparable to a 14-inch display seen from three feet, fine for viewing video or still images. (Built-in speakers deliver audio.) The frames attach to a control unit that clips on a belt. The control unit takes 4 double-A batteries, and connects to any video output device (such as the Archos) with standard RCA video output.

Ingineo, Eyetop's parent, sees Eyetop Centra appealing to owners of personal video players, but future versions will target other portable devices. Will armies of cell-phone-packing adolescents wear the très-cool shades for their phone-gaming sessions? We'll see.—*John R. Quain*

Capturing Digital Pirates

DOWNLOADERS OF COPYRIGHTED CONTENT COULD soon face a new threat: the pokey. A U.S. House of Representatives judiciary subcommittee has unanimously approved the Piracy Deterrence and Education Act of 2004 (PDEA), which, if passed into law, would punish digital pirates with up to three years of jail time. The bill also calls for the FBI, together with the Copyright Office, to set up a piracy deterrence program.

"The goal is to dedicate more resources toward educating the public on the problems associated with file sharing and copyright infringement, and to give more resources to the federal government to enforce copyright law," says Bart Lazar, an intellectual-property lawyer with the law firm Seyfarth Shaw.

Currently, according to Lazar, digital pirates face criminal sanction only if they infringe copyrights for reasons of "commercial advantage or private financial gain." But the PDEA would allow the government to punish even ordinary file sharers, those who infringe "with reckless disregard of the risk of further infringement."

"This is simply an attempt to stop people who are willy-nilly sharing copyrighted materials on the Internet, knowing that other people will in turn share those materials," Lazar says, "whether it's for financial gain or not." Specifically, the bill targets people who share 1,000 or more songs during a 180-day period.

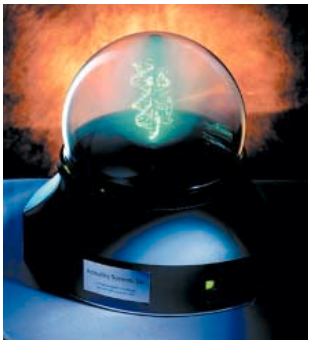
Think twice before file sharing.—*Cade Metz*

EVERYBODY'S A SEARCHER

Amazon.com joined the search engine fray in April, launching a prerelease version of its A9.com site to compete with Google, Yahoo!, and Microsoft's search site due later this year. A9.com has some unique features: You can, for instance, search across the texts of thousands of books. And this summer, Dipsie, which has been in stealth mode, will release dipsie.com, a search engine that started out as a way to search within applications and forms. "Our algorithms are completely unique," says Jason Wiener, Dipsie's CEO.

Creating the Visible Man...In 3D

REMEMBER THE SCENE IN *Star Wars* where R2-D2 projects a holographic image of Princess Leia? The ability to conjure up such 3-D images is making its way into some novel applications—with no droid needed. Actuality Systems has announced new software for its Perspecta volumetric display, designed to help plan surgery and other medical procedures. The system takes MRI images and other scans and displays them as one solid image that can be viewed in 360 degrees.

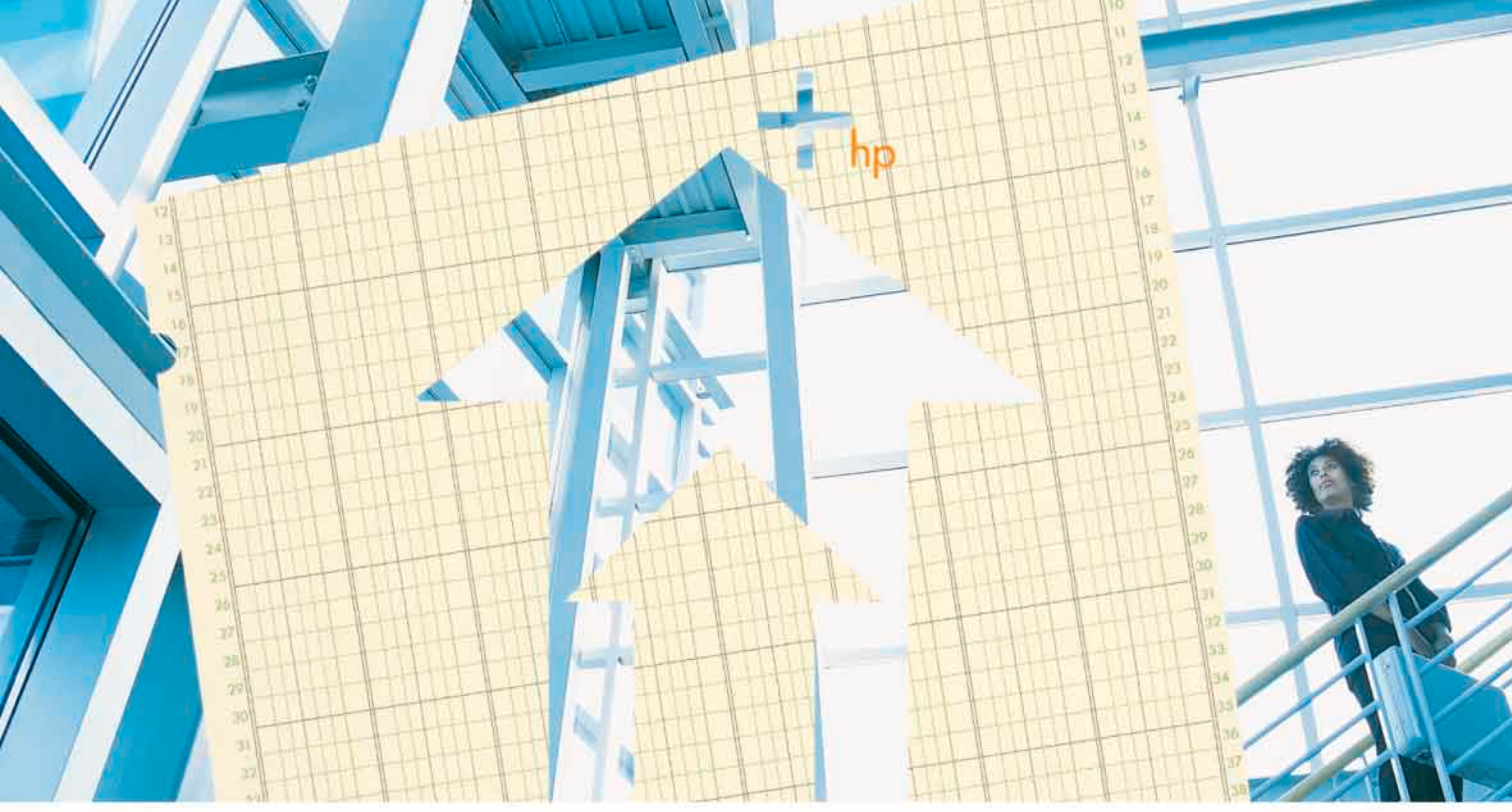


Actuality's display relies on a plastic disc that rotates at 730 rpm inside a 20-inch bell jar–style glass dome (see the photo, depicting DNA). The base of the housing holds a projector that uses Texas Instruments' micromirror DLP display engine. As the disc spins, complex mathematical computations place each voxel—a volumetric pixel—at the correct point in three-dimensional space.

The result is a hologram-like image that you don't need goggles to see. So instead of viewing a series of scanned images, doctors can view them all reassembled into a single three-dimensional image. "The doctor benefits from more accurate identification," says Cameron Lewis, Actuality's CEO. Perspecta displays moving images as well.

The Perspecta display system is already used in oil and gas exploration and in air traffic control to provide real-time information. If you want one to conjure up Princess Leia, though, that'll run you $40,000.—*Alfred Poor*

SMUT FILTER Starting May 19th, all pornographic spam messages must bear a label in the subject line reading "SEXUALLY-EXPLICIT", according to the FTC. The messages may not contain graphic material, although hyperlinks to images are allowed. Violators will face federal fines.



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Sony has revamped its pro-level video-editing and DVD-authoring tools. The **Vegas+DVD Production Suite** includes Vegas 5, DVD Architect 2, and the Dolby Digital AC-3 Encoder software. Vegas 5 now offers 3D track motion and compositing, keyframable Bezier masks, and Flash SWF import. New features in DVD Architect 2 include programmable-end actions, subtitle creation, and multiple audio track support.— *Jamie M. Bsales*

$999.95 list. Sony Corp. of America, www.sony.com.

Nikon's Sweet Prosumer SLR

The **Nikon D70** is a versatile, fast-shooting 6.1-megapixel digital single-lens reflex (SLR) camera that handles like the best expensive pro cameras. But at $1,299 (list), it's priced at thousands less than comparable pro models. The D70's instant-on feature makes boot-up time nonexistent, and Nikon's Dynamic Buffer technology lets you shoot up to three frames per second.—*Daniel Grotta*

$1,299 list. Nikon Corp., www.nikonusa.com.

nVidia's Formidable GeForce GPU

The latest salvo in the graphics chip wars comes from nVidia in the form of the **nVidia GeForce 6800 Ultra,** and it's a bunker-buster. Built with an all-new architecture, the GPU features a staggering 222 million transistors, making it one of the largest processors of any type ever manufactured. Clocked at 400 MHz, the GeForce 6800 Ultra has four times as many pixel pipes and eight times as many pixel shader units as nVidia's previous performance leader, the GeForce FX 5950 Ultra. What does that mean in real-world use? Up to twice the performance, according to our tests, and realistic 3D images the likes of which have yet to be seen on a desktop PC. —*Dave Salvator*

$499 list. nVidia Corp., www.nvidia.com.

DVD Player with Parental Controls

If you're trying to limit the amount of sex, violence, profanity, and other offensive material your kids are exposed to, the **RCA DRC232N** DVD player can help. The built-in ClearPlay technology automatically edits out material from popular Hollywood titles. And there's no need to buy special editions of the movies.—*JMB*

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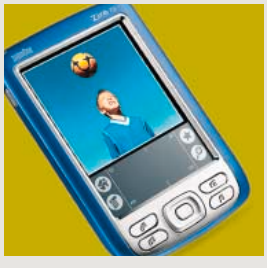
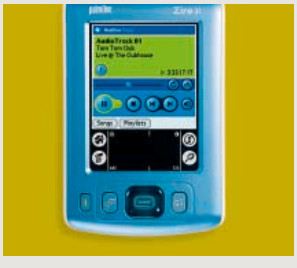
Better High-End palmOne Zire



The palmOne Zire 72 is a new high-end consumer PDA featuring a bright 320-by-320 color screen, Bluetooth wireless connectivity, and a built-in 1.2MP camera with 2X dgital zoom. The expansion slot supports MMC, SD, and SDIO card formats, while the handy five-way navigtion button makes one-handed scrolling a snap. —*JMB*

$299 list. palmOne Inc., www.palmone.com.

Better Entry-Level palmOne Zire



For budget-minded buyers, the palmOne Zire 31 is the company's most affordable color-screen–equipped PDA. The 4.1-ounce model features 16MB of internal memory and MP3 playback capabilities. And unlike other low-cost PDAs, there's even an MMC/SD/SDIO expansion slot.—*JMB*

$149 list. palmOne Inc., www.palmone.com.

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EDITORS' CHOICES

MAY 18–JUNE 7, 2004

In the market to buy? Here are our latest Editors' Choices in the leading technology categories—the products we've picked as the best from the hundreds that PC Magazine Labs has been testing. For links to the complete reviews, including dates of publication, visit www.pcmag.com/editorschoice.

DESKTOP PCs

GAMING DESKTOPS
- Dell Dimension XPS—3.4-GHz Extreme Edition
- Falcon Northwest FragBox Pro
- Velocity Micro Vision FX

MULTIMEDIA DESKTOPS
- Apple Power Mac G5 Dual 2 GHz
- Velocity Micro ProMagix

MEDIA CENTER PCs
- Gateway Media Center FMC-901X
- Sony VAIO Digital Studio PCV-RZ46G

VALUE PC
- eMachines T2865

HOME PC
- Sony VAIO PCV-W500GN1

CORPORATE PC
- IBM ThinkCentre S50

PORTABLE PCs

HP Compaq Presario R3000Z

VALUE NOTEBOOKS
- NEW Averatec AV3225HS
- NEW HP Compaq Presario R3000Z

BUSINESS NOTEBOOK
- IBM ThinkPad T40

GAMING NOTEBOOK
- Dell Inspiron XPS

MULTIMEDIA NOTEBOOK
- HP Pavilion zd7000

ULTRAPORTABLE
- IBM ThinkPad X40

TABLET PCs
- NEW Motion M1400
- Toshiba Portégé M205-S809

Averatec AV3225HS

MOBILE DEVICES

PDAs
- HP iPaq Pocket PC h4350
- Sony Clié PEG-UX50

PDA/PHONE COMBO
- Handspring Treo 600

PHONE
- Motorola MPx200

GPS DEVICE
- TomTom Bluetooth GPS Receiver

HOME ENTERTAINMENT

MEDIA HUBS
- Creative Labs Sound Blaster Wireless (music)
- Prismiq MediaPlayer (multimedia)
- Turtle Beach Audiotron AT-100 (music)

DIGITAL VIDEO RECORDER
- SnapStream Beyond TV 3

HDTV
- Sharp Aquos 37-inch LCD TV

Motion Tablet PC M1400

CAMERAS

COMPACT CAMERAS
- Kodak EasyShare LS743
- Sony Cyber-shot DSC-T1

MIDRANGE CAMERA
- Olympus C-5060 Wide Zoom

PROSUMER CAMERAS
- Konica Minolta DiMage A2
- NEW Leica Digilux 2
- Olympus C-8080 Wide Zoom

DIGITAL SLR CAMERA
- Olympus E-1

ENTRY-LEVEL DV CAMCORDER
- Sony DCR-HC40 MiniDV Handycam

DIGITAL IMAGING

FLATBED SCANNER
- NEW Microtek ScanMaker 6100 Pro

CONSUMER IMAGE EDITOR
- Adobe Photoshop Elements 2.0

PROFESSIONAL IMAGE EDITOR
- Adobe Photoshop CS

PHOTO ALBUM SOFTWARE
- Adobe Photoshop Album 2.0

PHOTO SHARING
- OurPictures
- Smugmug

PHOTO-PRINTING SERVICE
- Shutterfly

Microtek ScanMaker 6100 Pro

DIGITAL AUDIO & VIDEO

ANALOG CAPTURE DEVICE
- HP DVD Movie Writer dc3000

PROFESSIONAL VIDEO EDITOR
- Adobe Premiere Pro

CD/DVD-BURNING SUITE
- Roxio Easy Media Creator 7

DVD AUTHORING
- Sonic MyDVD 5.2 (consumer)
- Ulead DVD WorkShop 2 (professional)

PORTABLE AUDIO PLAYERS
- Apple iPod

NEC MultiSync LCD1960NXi

- Apple iPod Mini
- iRiver iFP-390

SOUND CARD
- Creative Labs Sound Blaster Audigy 2 ZS

SPEAKERS
- Creative Labs Gigaworks S750
- Klipsch ProMedia GMX D-5.1

PC JUKEBOX
- MusicMatch Jukebox 8.2

MUSIC STORES
- Napster 2.0

WEBCAM
- Logitech QuickCam Pro

PRINTERS

PERSONAL PRINTERS
- Brother HL-5040 (laser)
- HP Deskjet 5150 (ink jet)
- Lexmark C510n (color laser)

PERSONAL MFPs
- Brother MFC-8420 (laser)
- Canon MultiPass MP730 (ink jet)
- Dell A940 (ink jet)

PHOTO PRINTERS
- Epson Stylus Pro 4000 (pro)
- HP Photosmart 7960 (consumer)

NETWORK PRINTERS
- HP LaserJet 9000dn (monochrome laser)
- Xerox Phaser 4500DT (monochrome laser)
- Xerox Phaser 7750DN (color laser)

DISPLAYS & STORAGE

BUSINESS DISPLAYS
- NEW IBM ThinkVision C220p
- NEW NEC MultiSync LCD1960NXi

EDITORS' CHOICES

MAY 18–JUNE 7, 2004

•Samsung SyncMaster 171N

BUSINESS PROJECTOR
•NEC VT460

GAMING GRAPHICS CARD
•ATI Radeon 9800 XT

MAINSTREAM GRAPHICS CARD
•PNY Verto GeForce 5700 FX Ultra

DVD BURNERS
•HP DVD Movie Writer dc3000
•Plextor PX-708UF
•TDK 8X Indi

EXTERNAL DRIVE
•Maxtor OneTouch

PRODUCTIVITY SOFTWARE

OFFICE SUITE
•Microsoft Office 2003

OCR
•ScanSoft OmniPage Pro 14 Office

PDF CREATION
•Adobe Acrobat 6.0
•FinePrint pdfFactory PRO 1.57
•Jaws PDF Creator 3.0

DOCUMENT MANAGEMENT
•ScanSoft PaperPort Pro 9 Office

DESKTOP PUBLISHING
•Adobe InDesign CS

FINANCE & ACCOUNTING
•Microsoft Money 2004 Premium
•QuickBooks Premier 2004
•Quicken 2004 Premier

WEB SITE CREATION
•NeoVerve StoreSense

MEDIA CREATION SUITE
•Roxio Easy Media Creator 7

E-MAIL CLIENT
•Microsoft Outlook 2003

VIDEOCONFERENCING
•SightSpeed Video Messenger
•VidiTel

DATABASE
•FileMaker Pro 7

BLOG/WIKI TOOLS
•EditMe
•Socialtext Workplace 1.0
•TypePad

UTILITIES

ANTIVIRUS
•Norton AntiVirus 2004

FIREWALLS
•Norton Personal Firewall 2004
•ZoneAlarm 4.5 (firewall)

NEC VT460

SECURITY SUITE
•Norton Internet Security 2004

ANTISPYWARE
•SpySweeper 2.2

ANTISPAM
•Norton AntiSpam 2004
•Qurb

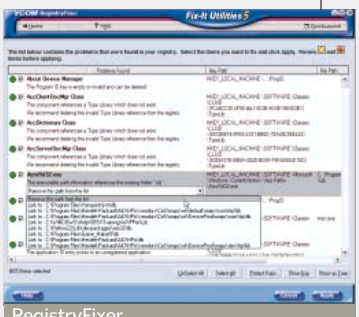
POP-UP BLOCKER
•PopUp Cop

INSTANT MESSAGING
•MSN Messenger 6.1

FILE COMPRESSION
NEW PKZIP 8.0 for Windows
NEW StuffIt Deluxe 8.0

BACKUP
NEW Retrospect Pro 6.5

ONLINE BACKUP
NEW IBackup



RegistryFixer

ROLLBACK
NEW Norton GoBack 3.0

DISK IMAGING
NEW Acronis True Image 7.0

PARTITIONING
NEW PartitionMagic 8.01

DEFRAGGERS
NEW Diskeeper 8.0 Pro
NEW PerfectDisk 6.0

REMOTE ACCESS
NEW LapLink Everywhere 2.0

REGISTRY CLEANER
NEW RegistryFixer

FILE MANAGER
NEW ExplorePlus 6.1

MIGRATION
NEW Alohabob PC Relocator Ultra Control
NEW Desktop DNA Pro 4.7

TOOLBARS
NEW Google Toolbar
NEW Dogpile

KEYBOARD UTILITY
NEW Perfect Keyboard 6.15a

DESKTOP CUSTOMIZATION
NEW Object Desktop 2004

DOWNLOAD MANAGER
NEW DownloadStudio 1.0

SCREEN CAPTURE
NEW SnagIt 7.0.3

TEXT EDITOR
NEW UltraEdit-32 10.0

FILE VIEWER
NEW IrfanView 3.85

TRACE REMOVER
NEW Acronis Privacy Expert Suite 7.0

VIRTUAL PC
•VMWare Workstation 5

PASSWORD MANAGER
NEW AccountLogon 2.5

ENTERPRISE SOFTWARE & DEVELOPMENT

NETWORK ANTIVIRUS
•Trend Micro Enterprise Protection Strategy

ENTERPRISE ANTISPAM
•BrightMail Anti-Spam 5.1
•Postini Perimeter Manager

E-MAIL SERVER PLATFORM
•IBM Lotus Notes and Domino 6.5

WIRELESS PLATFORM
•GoodLink 3.0

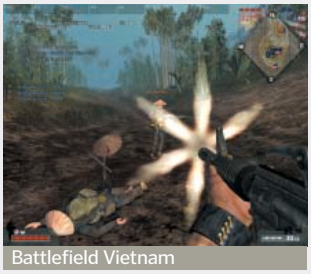
WEB FILTERING
•Websense Enterprise 5.1

CRM
•Salesforce.com

DATABASE
•Oracle 9*i* Database

WEB CONFERENCING
•WebEx Meeting Center

ENTERPRISE DEVELOPMENT
•Borland JBuilder 9
•IBM WebSphere Studio



Battlefield Vietnam

Device Developer 5.6 (mobile)
•SQL Anywhere Studio 9 (mobile)

WEB SITE DEVELOPMENT
•Macromedia Contribute
•Macromedia Studio MX 2004

WEB SITE ANALYSIS
•WebTrends Live Enterprise Edition

VULNERABILITY SCANNER
•Retina Network Security Scanner

NETWORKING

SERVER HARDWARE
•Dell PowerEdge 1750

SERVER OS
•Microsoft Windows Server 2003 Enterprise Edition

WIRELESS INFRASTRUCTURE
•Linksys Wireless-G WRT54GS (802.11g)
•Netgear ProSafe- FWAG114 (802.11a/g)

SECURITY APPLIANCE
•ServGate EdgeForce (small-business)

REMOTE-ACCESS APPLIANCE
•Neoteris Access 1000

GAMES & EDUCATIONAL SOFTWARE

SIMULATION
•Microsoft Flight Simulator 2004

ACTION/COMBAT
NEW Battlefield Vietnam
•Halo: Combat Evolved
•Orbz 2
•Savage: The Battle for Newerth

SPORTS
•Madden NFL 2003

VIRTUAL WORLD
•Second Life

ONLINE
•EverQuest: Evolution

EDUCATION
•Math Mission: The Race to Spectacle City Arcade, The Amazing Arcade Adventure
•Zoombinis Island Odyssey

MOBILE GAME
•Bejeweled

REFERENCE
•Microsoft Encarta 2004
•Visual Thesaurus

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> Eliminate email or ftp of large files
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> It's free, no monthly fees
> Secure encrypted downloads & access

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*– PC Magazine, January 20, 2004**

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FIRST

34 Plextor ConvertX PX-M402U
34 Alera Digital Photo Copy Cruiser
34 Kanguru FC-RW Portable Flash Card Burner
34 Ahanix Wireless Freedom iMon Remote

34 ADS HDUP-1500 HDTV UpConverter
36 Epson Stylus Photo R800
36 Microtek ScanMaker 6100 Pro
36 Microtek ScanMaker i320
36 Lexmark X4270 All-In-One
36 Umax Astra 4950
38 NEC MultiSync LCD1960NXi
38 IBM ThinkVision C220p
43 Leica Digilux 2
43 Canon PowerShot A75
43 Casio Exilim Zoom EX-Z40

Sweet Deals in Laptops

THE MAGAZINE WORLD'S LARGEST COMPUTER-TESTING FACILITY

PC LABS

BY CISCO CHENG

Improvements in processor technology, widespread wireless adoption, and attractive prices are just some of the reasons so many people are buying portables as their primary PC. We've seen some impressive midrange and high-end systems lately, loaded with enough multimedia features to make a desktop envious. But what about budget-conscious buyers? • We set a price cap of $1,100 and challenged the leading laptop makers to impress us. We're happy to report that even the cost-conscious can benefit from the advances in the industry, as the five value notebooks we received don't skimp on features. For example, the entries from Averatec, Compaq, and Dell included fast 802.11g wireless components, while the eMachines unit has a widescreen display.

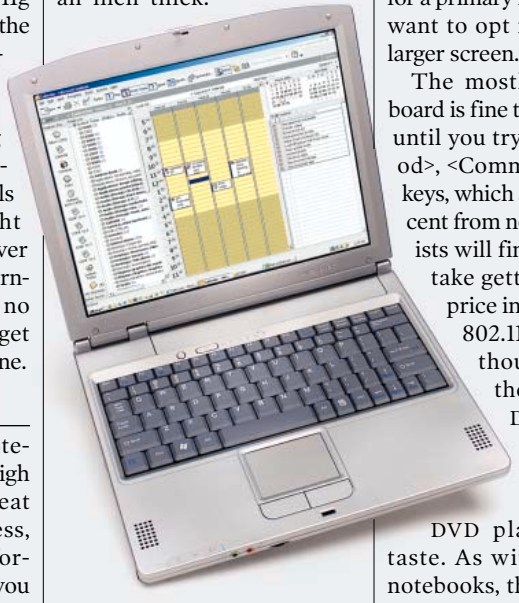
Performance was adequate for basic computing across the board. These notebooks won't have all the bells and whistles you might crave—you'll have to fork over more dough for that DVD burner, for example—but for no more than $1,100, you can get yourself a very sweet machine.

Averatec AV3225HS

PC MAGAZINE EDITORS' CHOICE

Looking for a notebook that won't weigh you down, has great integrated wireless, and yields performance good enough to get you through basic everyday computing tasks—all for just under $1,000? If so, look no further than the Averatec AV3225HS, our Editors' Choice for those who seek a lightweight value notebook.

The AV3225HS weighs in at 4.5 pounds and measures just an inch thick.



THE AVERATEC AV3225HS packs a lot of features into a road-going, value-priced portable.

To keep the size of its footprint (11.2 by 9.6 inches) manageable, the AV3225HS has a smallish 12.1-inch XGA display. That's adequate for a mobile notebook, though if you're looking for a primary machine, you may want to opt for a unit with a larger screen.

The mostly full-size keyboard is fine to type on. That is, until you try to hit the <Period>, <Comma>, Alt, and Ctrl keys, which are shrunk 25 percent from normal. Touch typists will find that these keys take getting used to. The price includes integrated 802.11g wireless. And though we applaud the presence of a DVD/CD-RW combo drive, the unit was a little too noisy during DVD playback for our taste. As with other budget notebooks, the graphics solution (the VIA S3G in this case) is good for 2D tasks only.

Built around the low-voltage 1.67-GHz Athlon XP-M 2000+ processor, the AV3225HS garnered a respectable BatteryMark score of 2 hours 53 minutes. Being the only notebook here with 512MB of RAM also helped its performance on our Business Winstone 2004 benchmark test (13.9). The AV3225HS's Multimedia Content Creation Winstone 2004 score was passable at 15.4. But it did very well on our wireless tests, maintaining a strong throughput of 20 Mbps at close range and registering 7.3 Mbps at 160 feet.

All told, the AV3225HS provides more than enough power to browse the Internet, work in Word, and even play a DVD movie without weighing you down—or breaking the bank.

Averatec AV3225HS

With 1.67-GHz Athlon XP-M 2000+, 512MB DDR SDRAM, 40GB hard drive, 32MB VIA S3G graphics, DVD/CD-RW combo drive, 12.1-inch XGA, 802.11g wireless, Microsoft Windows XP Home Edition, $999 list. Averatec Inc., www.averatec.com.
OVERALL ●●●●○ Music: 32
Photos: 33 Video: 16 Games: 19

Compaq Presario R3000Z

PC MAGAZINE EDITORS' CHOICE

Based on the new 1.67-GHz Athlon XP-M 3000+ CPU, the Compaq Presario R3000Z is a desktop replacement notebook that knows how to perform. Add to that its multitude of features and low price, and you'll agree that the R3000Z is a clear Editors' Choice winner in the heavyweight value class.

The 7.8-pound, silver-and-black R3000Z is rich with features (for a budget notebook), including three USB ports, a

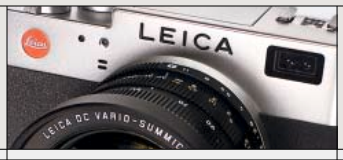
PHOTOGRAPHY BY THOM O'CONNOR

LOOKS

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

43 Sony DPP-EX50 PictureStation
43 Canon PowerShot S500 Digital Elph
44 DVD Copy 2 Platinum
44 DVD CopyWare 3.0
46 McAfee AntiSpyware
46 Symantec Client Security 2.0
47 Motion M1400
48 aveComm
48 Macromedia Breeze Live
49 Raindance Meeting Edition
50 Check Point Safe@Office 225U
50 Netgear ProSafe VPN Firewall FVS328NA
52 SonicWALL PRO 2040
52 IT in a Box IT-100

RED denotes Editors' Choice.



VGA port, and a S-Video port—the only system in our roundup to have S-Video. It also has hardware volume and mute buttons for audio, which we always appreciate. The full-size keyboard is comfortable. Surprisingly for a notebook, the JBL Pro speakers were exceptional: Unlike with the eMachines M2105 and the Dell Inspiron 1150, the sound from the R3000Z wasn't muddy when playing MP3s. Network connectivity options consist of 100MB Ethernet, a modem, and most important, built-in 802.11g wireless.

The R3000Z has a decent graphics chipset—the nVidia GeForce4 420 Go with 32MB of dedicated memory—whereas the other systems reviewed here have lower-performing integrated graphics solutions. DVD playback on the R3000Z's DVD/CD-RW combo drive was smooth and displayed well on the system's 15-inch XGA screen.

The R3000Z's application performance was top-notch in this class, thanks to the 1.67-GHz Athlon XP-M 3000+. This chip is a hybrid based on the Athlon 64 core. Like the Athlon 64, the CPU has an integrated memory controller and SSE2 support. But unlike the Athlon 64, it doesn't run 64-bit code and has only 256K of L2 cache enabled, although 1MB is present.

On our BatteryMark test, the R3000Z delivered a respectable 3 hours 24 minutes. The unit's 802.11g wireless performance was also the best at close range (21.5 Mbps), and good at long ranges (6.4 Mbps at 160 feet).

If you're on a budget and looking for a full-featured desktop replacement system that knows how to perform, the Compaq Presario R3000Z can't be beat.

A SLEEK CASE adds style to the appeal of the budget-priced Compaq Presario R3000Z.

Compaq Presario R3000Z

With 1.67-GHz Athlon XP-M 3000+, 256MB DDR SDRAM, 40GB hard drive, 32MB nVidia GeForce4 420 Go graphics, DVD/CD-RW combo drive, 802.11g wireless, 15-inch XGA, Microsoft Windows XP Home Edition, $1,099 list. Hewlett-Packard Co., www.hp.com.

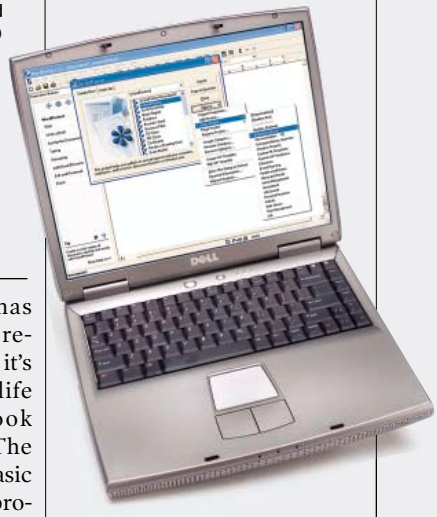
OVERALL ●●●●◐ Music: 46 Photos: 40 Video: 28 Games: 39

Dell Inspiron 1150

The Dell Inspiron 1150 has decent performance and respectable components, but it's the outstanding battery life that makes this notebook worth a second glance. The system can easily handle basic applications such as word processing, CD burning, and Web browsing—and can do it all untethered for hours.

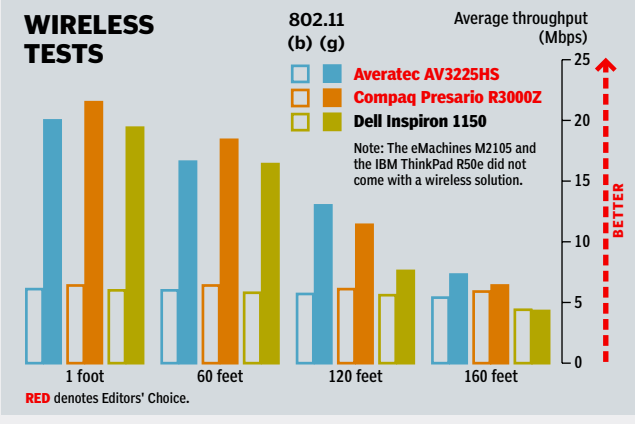
The 1150 comes with a capable 2.6-GHz Mobile Pentium 4 processor, a DVD/CD-RW combo drive, and the Dell TrueMobile 802.11g wireless solution. Its 15-inch XGA display is large but offers only mediocre image quality. As with most other value notebooks, the Intel 82855 GME graphics chipset (using 64MB of shared memory) provides merely adequate graphics capability.

Clad in silver plastic, the 1150 maintains a reasonably stylish design. The keyboard has a comfortable feel, and the touch pad works well. There are two USB 2.0 ports and a VGA port on the back, and one PC Card slot on the side. Where other budget notebooks skimp on software, the 1150 adds a software productivity pack with WordPerfect Office 11, Microsoft Money 2004, Norton Internet Security, and Musicmatch Jukebox Basic.



FOR DAY-LONG COMPUTING away from AC power, the Dell Inspiron 1150 delivers.

Although we were not expecting awe-inspiring benchmark test scores from the 1150, the system's impressive BatteryMark score of 6 hours 13 minutes was by far the best in the group. The excellent battery life is due mostly to its use of a large battery, which brings the system's weight to 7.7 pounds. The 1150 performed respectably on Business Winstone 2004 (12.7) and on Multimedia Content Creation Winstone 2004 (15.6). Its wireless performance was decent,



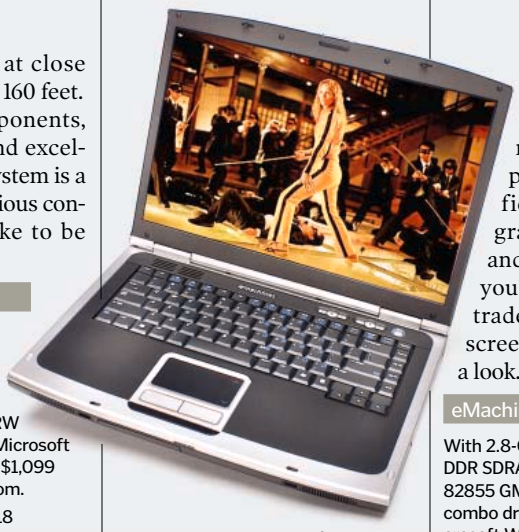
achieving 19.4 Mbps at close range and 4.3 Mbps at 160 feet.

With average components, good performance, and excellent battery life, this system is a good fit for cost-conscious consumers who don't like to be tied down.

Dell Inspiron 1150

With 2.6-GHz Mobile Pentium 4-M, 256MB DDR SDRAM, 30GB hard drive, Intel 82855 GME graphics, 802.11g wireless, DVD/CD-RW combo drive, 15-inch XGA, Microsoft Windows XP Home Edition, $1,099 direct. Dell Inc., www.dell.com.

OVERALL ●●●◐○ Music: 18
Photos: 38 Video: 23 Games: 26



A WIDE SCREEN sets the eMachines M2105 apart, though performance was lackluster, and it lacks wireless at this price.

eMachines M2105

An attractive design, a gorgeous screen, and sufficient USB ports sound like a recipe for a budget notebook winner. Unfortunately, the eMachines M2105 comes up a bit short. It loses points for poor performance and the absence of a built-in wireless solution. But other impressive features, namely the 15.4-inch wide screen, may help you overlook the machine's shortcomings.

The M2105's crisp, high-resolution display (up to 1,280-by-800) should inspire envy among its competitors. Of course, the screen adds heft to the 7.4-pound system. The full-size keyboard is comfortable to use, and the unit has four quick-launch buttons as well as volume control buttons. We really enjoyed the noiseless mouse clicks, which the other systems couldn't quite seem to emulate.

The M2105 has an impressive four USB ports—the most of any system in our roundup. In the configuration we tested, the M2105 lacked an integrated wireless solution, which is disappointing. (Of course, you can use the system's PC Card slot to add a wireless client card.) The built-in DVD/CD-RW combo drive and integrated Intel 82855 GME graphics solution provided viewing clarity and smoothness on DVDs that was very acceptable for a budget notebook.

The M2105 was the turtle in the performance race, however. With its 2.8-GHz Intel Celeron (with 128K of L2 cache), it failed to reach double digits on Business Winstone 2004 (9.7), and its Multimedia Content Creation Winstone 2004 score of 12.6 was also low. And the M2105's battery life was the lowest of the group, at 2 hours 13 minutes.

Although eMachines managed to fit a 15.4-inch wide-screen display on a budget notebook, an upgrade of this type meant that certain components had to be sacrificed, such as an integrated wireless solution and a faster processor. If you're okay with these trade-offs to gain a big screen, this system is worth a look.

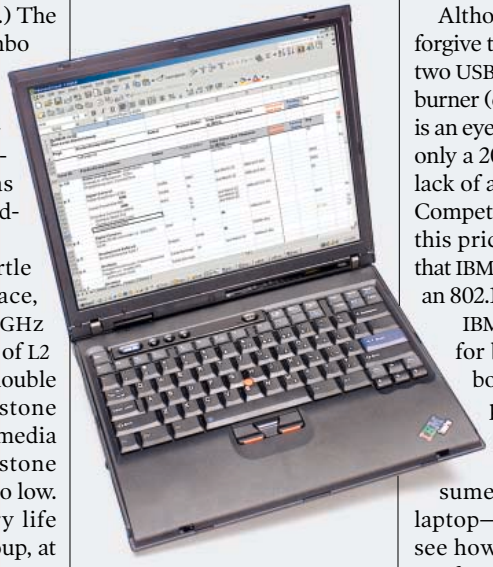
eMachines M2105

With 2.8-GHz Intel Celeron, 256MB DDR SDRAM, 40GB hard drive, Intel 82855 GME graphics, DVD/CD-RW combo drive, 15.4-inch WXGA, Microsoft Windows XP Home Edition, $1,099.99 direct. Gateway Inc., www.emachines.com.

OVERALL ●●●●○ Music: 35
Photos: 37 Video: 23 Games: 26

IBM ThinkPad R50e

There's no disputing that IBM builds some of the best notebooks in the industry. The R50e, with its strong design and solid performance, follows in this vein. Yet its weak feature set—no wireless solution, just two USB ports, and a trailing-edge CD-ROM optical drive—makes it hard for us to recommend this for anyone but a true-blue Big Blue diehard.



IT FEELS LIKE A THINKPAD, but the R50e sacrifices a lot of features to hit its budget price.

In its favor, the 5.5-pound R50e has IBM's useful Rapid Restore Ultra utility, which lets you back up and restore your entire hard drive to use in the event of a failure. The full-size keyboard feels wonderful, as always, and the 14.1-inch screen delivered good-looking images.

The R50e is powered by the 1.3-GHz Intel Celeron M processor, which is based on the Pentium M. It scored a respectable 13.6 on Business Winstone 2004 and 16.0 on Multimedia Content Creation Winstone 2004. Battery life (2 hours 57 minutes) was acceptable but not stellar.

Although we may be able to forgive the R50e for having only two USB 2.0 ports, having no CD burner (even in this price range) is an eyebrow-raiser. So, too, are only a 20GB hard drive and the lack of a built-in wireless card. Competitors deliver 802.11g for this price; one would suppose that IBM could have squeezed in an 802.11b chipset at least.

IBM has a solid reputation for building reliable notebooks. Though the R50e's price tag for such a scant feature set won't satisfy many consumers looking for a home laptop—especially when they see how much more they can get from IBM's competitors—corporate IT buyers with a fleet of ThinkPads might like this budget entry.

IBM ThinkPad R50e

With 1.3-GHz Intel Celeron M, 384MB DDR SDRAM, 20GB hard drive, 64MB Intel 82855 GME graphics, CD-ROM drive, 14.1-inch XGA display, 5.5-pound system weight (6.3-pound travel weight), Microsoft Windows XP Home Edition, $1,099 direct. IBM Corp., www.ibm.com.

OVERALL ●●◐○○ Music: 29
Photos: 21 Video: 14 Games: 19

BENCHMARK TESTS: VALUE NOTEBOOKS

High scores are best. Bold type denotes first place.

	Processor	Business Winstone 2004	Multimedia Content Creation Winstone 2004	Business Winstone 2001 BatteryMark (hr:min)
Averatec AV3225HS	Low-voltage Athlon XP-M 2000+ (1.67 GHz)	13.9	15.4	2:53
Compaq Presario R3000Z	Athlon XP-M 3000+ (1.67 GHz)	**14.6**	**17.3**	3:24
Dell Inspiron 1150	Intel Mobile Pentium 4 (2.6 GHz)	12.7	15.6	**6:13**
eMachines M2105	Intel Celeron (2.8 GHz)	9.7	12.6	2:13
IBM ThinkPad R50e	Intel Celeron M (1.3 GHz)	13.6	16.0	2:57

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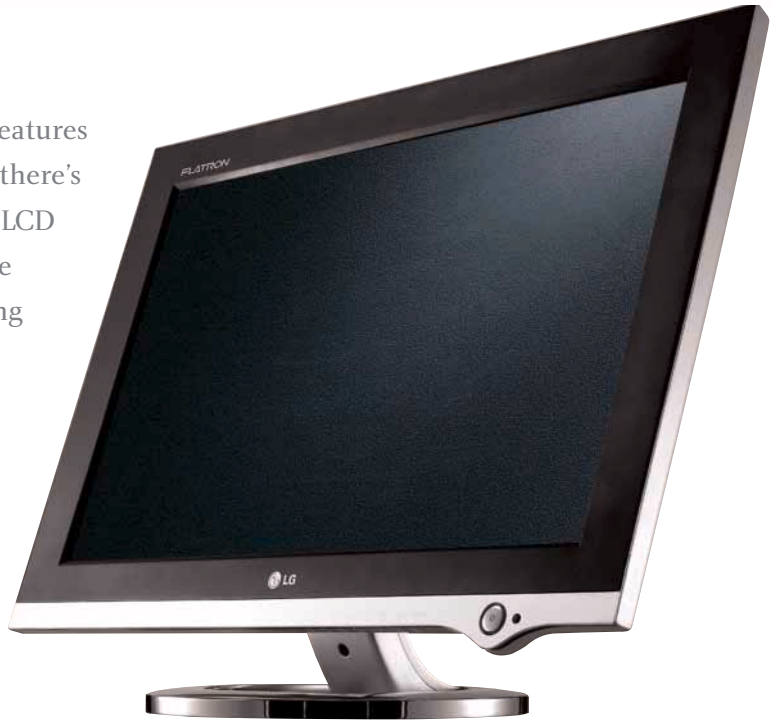

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Life's Good

Capture Analog Video with ConvertX

BY DON LABRIOLA

There's plenty of reason to like the **Plextor ConvertX PX-M402U** video-capture module. This flexible USB 2.0 device can capture almost any flavor of analog video and store it as MPEG-1, MPEG-2, MPEG-4, or even DivX AVI files. It handled our most challenging test footage with aplomb, and its picture quality was excellent for a midpriced device.

Installing the ConvertX is as simple as loading a driver, connecting the device to an analog video source, and attaching it to your PC's USB 2.0 port. Unlike the bidirectional Pinnacle Studio MovieBox USB, the ConvertX is a capture-only device that can't route captured video back to a VCR, camcorder, or TV.

The bundled InterVideo WinDVD Creator 2 disc-creation software offers an easy-to-learn four-step guided workflow that divides projects into capture, video-editing, disc-authoring, and output stages. It lets you capture directly to CD or DVD and then perform basic authoring functions on disc. Less impressive are its video-editing and disc-authoring features; these allow only one video title per DVD and force every project to include a root menu that merely plays the entire disc like a video-tape, unless you manually start a new chapter at each scene—a cumbersome process.

IF YOU HAVE AGING VIDEOTAPES, the ConvertX can help you digitize them for DVD burning.

Our test unit operated flawlessly on our Windows XP testbed, producing output quality clearly superior to that of the MovieBox. Even when capturing poorly recorded test material and tapes made with the Macrovision system, it produced stable, well-saturated output that was free from dropouts.

Power users will want to add more sophisticated software. But all told, the ConvertX is a terrific way to copy analog videotapes and live television broadcasts into a digital format that's ready to incorporate into a Web site, DVD, or Video CD.

Plextor ConvertX PX-M402U

$159 list. Plextor Corp., www.plextor.com. ●●●●○

Watch Standard TV on Your HDTV

BY LOYD CASE

Wide-screen HDTVs are all the rage, but most HDTV owners still have standard-definition TV gear—VCRs, DVD players, and cable TV connections. Cheaper HDTVs have few connections and can't scale standard signals up to full HD resolution. The **ADS HDUP-1500 HDTV UpConverter** is designed to solve these problems by letting you connect multiple SDTV sources to one HDTV component video input and deliver an HDTV-quality picture. Unfortunately, it didn't quite live up to its mission, delivering flawed images.

The HDUP-1500 comes in a low-profile black cabinet. Its rear panel boasts an array of video and audio connections—but alas, no digital audio. It outputs only component video; DVI and RGB aren't supported. Another drawback: Setting the unit up is needlessly complex.

We tested it on a purely digital DLP rear-projection TV and on a low-cost direct-view CRT. It fared better on the CRT. The UpConverter does a good job of processing incoming SDTV sources, including satellite receivers and VCRs. ADS recommends turning off progressive scan for your DVD player, but we noticed distracting image artifacts when we did this on our Pioneer DVD player while playing Pixar's *Finding Nemo* DVD.

WE LIKE THE concept but not the execution of the UpConverter.

Video processors from companies like Focus Enhancements and DVDO offer superior image quality, but also cost substantially more. The unit's real competition is the built-in scalers found in better HDTVs, which deliver a better picture than the HDUP-1500.

Though it's cheaper than the competition and may seem to have a full feature set, the UpConverter's subpar image quality prevents us from giving it a strong recommendation.

ADS HDUP-1500 HDTV UpConverter

$550 street. ADS Technologies Inc., www.adstech.com. ●●○○○

IN SHORT

Alera Digital Photo Copy Cruiser

Pros: Convenient way to back up memory cards to disc. Can play audio CDs.
Cons: Bulky. Can't play video or digital-music files.
Bottom line: This combo memory-card reader/CD-RW burner can back up digital-camera storage cards on CD with just a few clicks, but it falls behind the competition in other areas.
$249 direct. Alera Technologies LLC, www.aleratec.com. ●●○○○

Kanguru FC-RW Portable Flash Card Burner

Pros: Handy for working with multiple memory card formats.
Cons: Somewhat bulky.
Bottom line: If you work with multiple card formats or spend extended time away from your computer, the FC-RW is a fine way to archive your images.
$190 street. Kanguru Solutions, www.kanguru.com. ●●●◐○

Ahanix iMon

Pros: Affordable, full-featured remote with strong IR reception.
Cons: Complicated programming and quirky setup.
Bottom line: A useful remote control for PCs for audiovisual and mouse functions. But programming the additional functions is for power users only.
$59 list. Ahanix Inc., www.ahanix.com. ●●●○○

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Text, Graphics, and Photos—Oh, My!

BY M. DAVID STONE

Almost any ink jet printer today can print photos at something approaching photo quality. But for professional photographers and serious amateurs, nothing short of true photo quality will do. This is the group that the **Epson Stylus Photo R800** takes aim at, and it does a good job of hitting the mark. As icing on the cake, it also prints on printable CDs and DVDs and from standard business applications well enough to serve as your only printer.

The R800 uses eight ink cartridges: cyan, yellow, magenta, red, blue, two versions of black, and a gloss optimizer cartridge. The red and blue inks yield a larger than usual color gamut. The two versions of black—one for plain and matte paper and one for glossy paper—let it use black ink on all media, rather than mixing colors to create a composite black.

EPSON'S R800 is a photo printer that can also serve as your only printer. It even prints on CDs.

In addition to true photo quality, the R800 offers graphics output that rates as very good, missing out on excellent only because colors on plain paper (but not glossy paper) leaned toward a pastel look. Text quality rates as good, with several of the fonts we tested readable even at 4 points.

On our performance suite, using QualityLogic's PageSense software and testing equipment (*www.qualitylogic.com*), the R800 produced middle-of-the-road scores compared with the personal and photo printers we covered in our November 11, 2003, ink jet printer roundup. For the 12-page Word file, for example, it took 5 minutes 27 seconds, compared with 1:59 for the fastest printer in that roundup and 13:28 for the slowest.

So while the R800 is not the fastest ink jet on the block, it is the most versatile. You'd buy this printer for its true photo quality and be able to use it as your all-purpose printer.

Epson Stylus Photo R800

$399 direct. Epson America Inc. www.epson.com. OVERALL ●●●●○
Text ●●●○○ Graphics ●●●●○
Photos ●●●●●

A Flatbed for Film

BY M. DAVID STONE

PC MAGAZINE EDITORS' CHOICE

While the **Microtek ScanMaker 6100 Pro** delivers high-quality scans for photographic prints, a 4- by 5-inch transparency adaptor built into its cover yields surprisingly high-quality film scanning.

The claimed 3,200 pixel-per-inch (ppi) optical by 6,400 mechanical resolution is appropriate for a scanner designed in part for scanning 35-mm slides. Like many scanners, the 6100 claims a 48-bit color depth. Unlike most, it largely delivers on that claim. One of our test slides has a tree line against a bright sky, and most flatbed scanners have trouble retaining the detail. The 6100 did a good (although not perfect) job of retaining detail in both the tree line and the clouds in the bright sky.

MOST FLATBEDS don't do well with slides, but the 6100 does.

In addition to scan quality, the 6100 offers a number of conveniences, including slide and filmstrip holders that coordinate with Microtek's driver to prescan and then scan multiple images, with the driver selecting each image and sending it to a separate file. A light source on the top of the scanner also provides a convenient stand-in for a light box.

The 6100 comes with both its own driver and SilverFast software from LaserSoft Imaging. On tests with photographic prints, the SilverFast scans produced excellent quality, compared with very good quality for the Microtek driver, but they were also slower, taking about 30 seconds for prescans and 31 to 35 seconds for scanning 4-by-6 and 5-by-7 photos. Microtek's own driver took 14 seconds for the prescan and 9 or 10 seconds for the scan.

The welcome—and rare—combination of speed and scan quality for both prints and film makes the 6100 Pro a good choice for those who want both functions in one scanner.

Microtek ScanMaker 6100 Pro

$300 street. Microtek USA, www.microtek.com. ●●●●◐

IN SHORT

Microtek ScanMaker i320

Pros: Digital ICE technology helps remove flaws (scratches, creases) from scans. Automatic color restoration.
Cons: Scanning to OCR using the front-panel OCR button limits you to one page per file.
Bottom line: This is an impressive package by any measure. It's reasonably fast for standard scans, and it's an excellent tool for reviving old photos.
$150 street. Microtek USA, www.microtek.com. OVERALL ●●●●◐
Photos ●●●●● Slides ●●●○○
OCR ●●○○○

Lexmark X4270 All-In One

Pros: Lots of features at a low price. Prints, scans, faxes, and copies in color. Includes an automatic document feeder and a built-in phone handset.
Cons: Slow. Output quality is merely acceptable.
Bottom line: The Lexmark X4270 ink jet all-in-one offers plenty of features for the price but skimps on speed and output quality.
$129.99 direct. Lexmark International Inc., www.lexmark.com.
OVERALL ●●○○○
Text ●●○○○ Graphics ●●●○○
Photos ●●●○○

Umax Astra 4950

Pros: Transparency scanner built into cover. Low price.
Cons: Doesn't have the dynamic range to scan slides very well.
Bottom line: The Umax Astra 4950 offers a number of superficially attractive features. But its scan quality is less than ideal.
$89.95 direct. Umax Technologies Inc., www.umax.com.
OVERALL ●●◐○○
Photos ●●●○○
Slides ●○○○○
OCR ●●○○○

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A Great Picture and More

BY ALFRED POOR

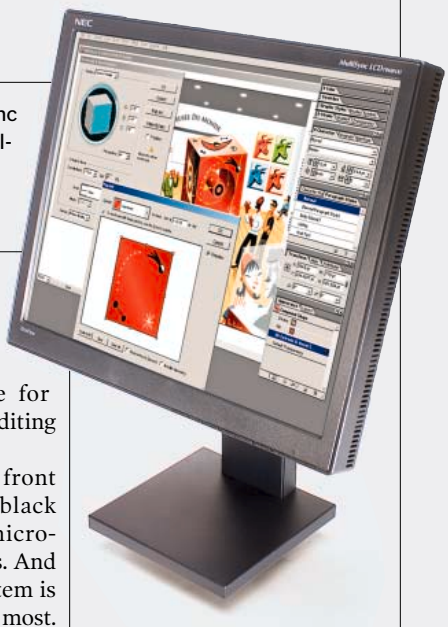
Though the **NEC MultiSync LCD1960NXi** costs more than some similar 19-inch monitors, the slim and attractive panel (with a 1,280-by-1,024 native resolution) delivers a lot of value for the money. Its excellent image quality and extra features go way beyond what you'll find on most other LCDs. That combination makes the LCD1960NXi our current Editors' Choice for people looking for a 19-inch LCD monitor.

The LCD1960NXi has a thin bezel with a simple, narrow black border. The base has tilt, swivel, and height adjustments with a wide range of motion—a rare combination, as many manufacturers settle for a simple tilt-only stand that's far less versatile. Though it has both analog and digital connections, the panel comes with only an analog cable.

But the documentation is above average, with plenty of illustrations. Although the manual doesn't state a policy on pixel defects, a NEC-Mitsubishi representative told us that the screen meets ISO 13406-2 Class II standards, allowing only up to two bright, two dark, and five subpixel defects per million pixels.

At first, our testing showed weak performance on gray-scale settings, and the brightness and contrast controls didn't help. Then we tried the AutoContrast feature, which resolved the problem. Aside from this minor snag, performance was excellent. We saw excellent uniformity and viewing angles and no apparent pixel defects. While the panel has a merely average pixel-response specification (25 ms), we actually saw less-than-average smearing on fast-moving images. That makes the LCD-1960NXi a good choice for watching DVD movies, editing video, and even gaming.

One weak spot is the front control panel. Its tiny black buttons have almost microscopic embossed legends. And the on-screen menu system is more difficult to use than most. Fortunately, you don't have to struggle with the front-panel controls at all: Simply download the free NaViSet utility from the NEC-Mitsubishi Web site and you can adjust most settings using your keyboard and mouse.



THE 19-INCH NEC MultiSync LCD1960NXi delivers excellent image quality and a solid feature set, making it our Editors' Choice.

Image quality is the most important feature for most people, and this monitor delivers exemplary performance.

NEC MultiSync LCD1960NXi

$730 street. NEC-Mitsubishi Electronics Display of America Inc., www.necmitsubishi.com. ●●●●◐

CRTs Aren't Dead Yet

BY ALFRED POOR

One glance at the 22-inch (20-inch-viewable) **IBM ThinkVision C220p** reminds you of everything you love about CRTs—and everything you hate. The flat-faced screen yields images so deep and pure you feel as if you could dive right into them. The $589 price might seem a bit high for a CRT, but that's still half of what an LCD this size would cost. Alas, the enormous case weighs over 67 pounds, and the unit consumes three times the power of an LCD monitor.

A dark-gray case downplays the monitor's bulk as much as possible, and the tilt-and-swivel base makes the screen easy to reposition. Unlike a lot of monitors we've seen lately, the front-panel controls are well labeled and easy to use. The DVI connector on the back (there's also a standard VGA connector) is a minor disappointment, because it is DVI-A—meaning it's analog. A front-panel button lets you switch between DVI and VGA, so two computers can share the monitor easily.

The C220p comes with minimal printed documentation, but fortunately the monitor is easy to set up. Windows Plug-and-Play worked well and recognized the monitor without drama in our testing. You also get driver and color profile files on a CD-ROM, along with an extensive online manual. An easy-to-use on-screen menu provides more choices than do the panel buttons.

Results in our testing (using images generated by the DisplayMate test utility *www.displaymate.com*) were top-notch. The screen's deep black resulted in stunning contrast, with excellent gray-level response at both light and dark ends of the scale. Convergence and screen geometry were spot-on. The test image was stable, and color ramps were smooth.

The IBM ThinkVision C220p is intended for high-end graphics applications, such as image and video editing, CAD applications, medical and scientific imaging, and so on. It's also a fine choice for gamers looking for a big-screen experience without breaking the bank.

All told, the C220p makes good on its premium-quality promises. This monitor is the best we've seen in its class, and its picture is worth a thousand words. Sure, you have to put up with the bulk, but this CRT delivers excellent images and costs far less than comparable LCDs.

BIG IS BEAUTIFUL, especially when you're talking about the C220p 22-inch monitor. It will make you long for a CRT again.

IBM ThinkVision C220p

$589 direct. IBM Corp., www.ibm.com. ●●●●◐

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intel inside pentium 4

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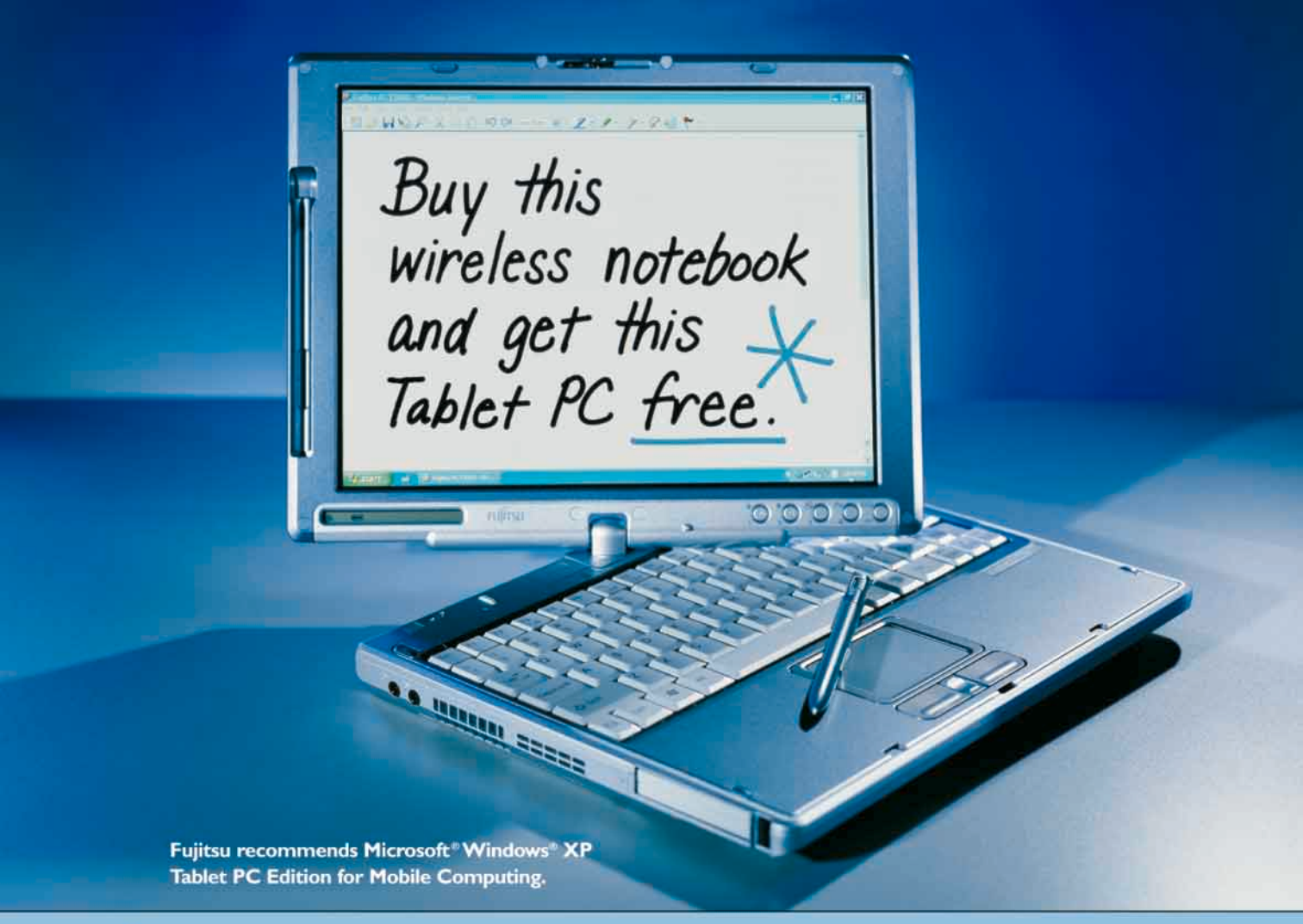

Fujitsu recommends Microsoft® Windows® XP Tablet PC Edition for Mobile Computing.

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The Rolls Royce of Digital Cameras

BY DANIEL GROTTA AND SALLY WIENER GROTTA

PC MAGAZINE EDITORS' CHOICE

Leica still handcrafts what are arguably the world's finest (and most expensive) 35-mm bodies and lenses. The **Leica Digilux 2** is the first digital camera with the true look and feel of a fine handmade Leica—and image quality to match. But be warned: Leica quality does not come cheap.

The 5-megapixel Digilux 2 has the Leica look and superb handling characteristics reminiscent of Leica's legendary M series rangefinder cameras. Though lighter, larger, and thicker than an M series model, the Digilux 2 is beautifully balanced for fast two-handed shooting. It also has an excellent noninterchangeable Vario-Summicron aspherical 3X optical zoom lens (35-mm equivalent: 28 to 90 mm).

Leica aficionados will be instantly familiar with the anodized silver body, black leather trim, rotating knurled shutter-speed dial, well-placed shutter button, and silky smooth manual focus and f-stop rings.

The Digilux 2 has a bright, 2.5-inch LCD and a high-resolution eye-level electronic viewfinder with a magnified square for effortless, precise manual focusing. The built-in flash extends high above the camera when activated. By pressing down the back of the flash, you turn it into a bounce flash, which provides more even, natural lighting than direct flash.

IT'S A LEICA through and through, updated for the digital age.

Image quality is superb. Our flash test shot was among the best we've seen, with accurate exposure, even illumination, and excellent color. Our daylight shot exhibited razor-sharp detail and very good exposure.

Sure, $1,850 is a little rich for most buyers. But those who appreciate the finest—and don't mind paying for it—will understand.

Leica Digilux 2
$1,850 list. Leica Camera AG, www.leica-camera.com. ●●●●◐

A More Powerful Elph

BY SEAN CARROLL

The **Canon PowerShot S500 Digital Elph** is a worthy successor to the extremely popular S400. Compact (a bit larger than a pack of cigarettes) and simple to use, this camera is deceptively powerful and produces sharp, well-exposed images. Canon has packed a lot into this metal-bodied 5-megapixel shirt-pocket shooter, including an f/2.8 to f/4.9, 7.4- to 22.2-mm lens (35-mm equivalent: 36 to 108 mm) that retracts into the body. The lens can focus as close as 2 inches in macro mode, and shutter speeds are up to 1/2000 of a second. All these extras, however, make the S500 surprisingly heavy for its size.

Users can frame shots with either the small but bright LCD or the eye-level optical viewfinder. Shooting is simple, and the S500's reasonably fast boot time (about 2 seconds), acceptable shutter lag, and a responsive zoom motor make using the S500 a pleasure. Most times you can shoot one-handed, thanks to well-placed power, zoom, and shutter controls.

ABOUT THE SIZE of a pack of cigarettes, the Canon PowerShot S500 is easy to carry and use.

The mostly icon-based menus can take some getting used to, which may turn some novices off. Video features are merely okay: up to 640-by-480 at only 15 frames per second for 30 seconds, or up to 3 minutes at lesser resolutions.

The images we took were sharp and generally well exposed. Occasionally, in auto mode, flash shots tended to blow out light or white subjects, obliterating highlights. We corrected the problem in manual mode, but it takes time to sort through the menus. Still, this is a relatively minor complaint. We found the pictures overall to be quite impressive for a point-and-shoot camera.

Canon PowerShot S500 Digital Elph
$499 list. Canon U.S.A. Inc., www.powershot.com. ●●●●○

IN SHORT

Canon PowerShot A75

Pros: Excellent battery life with alkaline batteries. Pictures are consistently well exposed.
Cons: Images are somewhat lacking in sharpness, with purple fringing in high-contrast areas.
Bottom line: The pictures from this 3.2-megapixel model could be sharper, but the exposure is excellent. This camera will satisfy first-time digital camera users, but serious amateurs, enthusiasts, and pros may want to spend the extra $80 for the Canon A80.

$300 street. Canon U.S.A. Inc., www.powershot.com. ●●●◐○

Casio Exilim Zoom EX-Z40

Pros: Tiny and lightweight (5.1 ounces). Extended battery life.
Cons: Average image quality, with visible electronic noise at some settings.
Bottom line: Despite its small size, this 4MP camera has plenty of features that newbies will appreciate. Image quality trails what we've seen from other 4MP models, though.

$399 list. Casio Inc., www.casio.com. ●●●○○

Sony DPP-EX50 PictureStation

Pros: Gorgeous print quality. Very easy to use.
Cons: Limited to snapshot-size photo printing.
Bottom line: You can't use this dye-sub printer for anything but snapshots in three sizes (4-by-6 being the maximum). But the print quality rivals or beats conventional film prints.

$179.95 direct. Sony Electronics Inc., www.sonystyle.com. ●●●●○

www.pcmag.com/cameras

DVD Copying Lives On

BY KONSTANTINOS KARAGIANNIS

Despite a recent court ruling that forced 321 Studios to remove the DeCSS ripper from its XCopy product—foiling the code that gets around a movie DVD's copy protection—the overall category of DVD copying is about as unaffected as peer-to-peer file swapping was after the original Napster shut down. You can still buy legal, ripper-free programs, such as InterVideo's DVD Copy 2 Platinum, and use them in tandem with DVD files that you rip to your hard drive using freeware like DVD Decrypter. Or you can order from liberal Europe a complete package such as Redxpress's DVD CopyWare 3.0, which happily includes the ripper for you.

Now, we at *PC Magazine* do respect copyrights and encourage our readers to do so. We'll let you decide what type of copying constitutes fair use. Our job is to let you know how these two choices stack up, and how they compare with a very popular and powerful bit of freeware called DVD Shrink (*www.dvdshrink.org*).

DVD COPY 2 PLATINUM

If you want an easy way to perform digital black magic to DVD files on your hard drive, consider DVD Copy 2 Platinum. You'll have to get a third-party DVD ripper, but InterVideo will supply the ability to do most everything else imaginable.

For straight-up copying, Copy 2 lets you take a DVD file that is on your hard drive and either recompress it to fit one blank disc or split it over two. Much like with DVD Shrink, you can get rid of content (trailers, bonus material) you don't want; it even lets you preview what you're removing, just to be sure.

Copy 2 lets you select multiple output formats: VCD, SVCD, or even one of three DivX settings (home theater, portable, and handheld). All these alternative formats can go straight to CD or multiple CDs, or to a hard drive as playable MPEG-1 (VCD), MPEG-2 (SVCD), or AVI (DivX) files. Note that transcoding to other formats takes much longer than copying DVDs—two to three times longer, depending on the movie length and your CPU speed.

Because Copy 2 and DVD Shrink do some of the same things to fit movies onto one DVD, we used both apps to make copies of the same film. We removed all extras and recompressed the files to get them to fit. Video quality was identical, even in action scenes. Copy 2, however, lets you keep a menu even with customization, while DVD Shrink forces you to drop it when you change DVD content. Another neat trick: You can load chapters from several different DVD files to create a mixed DVD. It's a great way to make a personal "best of" collection from discs you own.

DVD Copy 2 Platinum

$79 list. InterVideo Inc., www.intervideo.com. ●●●●○

DVD COPY 2 lets you easily back up a movie to DVD, VCD, SVCD, and even DivX formats. You supply the ripper.

DVD COPYWARE 3.0

When we took a look at the first version of Redxpress's copy software last year, we were unimpressed. But the new DVD CopyWare 3.0 rights just about every wrong we found, resulting in a package that consumers will find truly compelling for ease of use and functionality.

CopyWare may not let you reformat DVD content to your heart's content, as does the InterVideo entry, but it will let you back up titles in a mostly click-and-go process. No need for external ripping software here. If you have enough hard drive space, the program rips the entire disc to prepare for a copy; if you're low on storage, the app will rip only one DVD blank's worth (4.7GB) at a time.

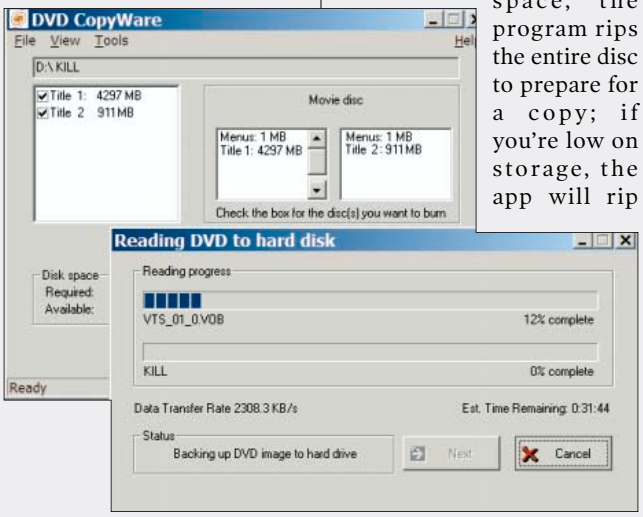
The program is a true bit-for-bit copier, and it splits DVDs larger than 4.7GB in size into two (or more) discs as needed, unless you select bonus material to delete. By default, the program will scan a disc and determine at what chapter point a movie has to be split, though conveniently it tries to get the main movie to fit on disc one, with extras on disc two.

When working with DVD+RW media, we appreciated the program's built-in erase feature. To see if Redxpress really got its act together, we tested this new version with titles the old version had trouble copying. All worked fine this time around, and we were even able to make copies of TV-episode DVDs. Keeping menus intact for TV episodes over two DVDs is no small feat, and we have to applaud Redxpress for getting this right.

The only thing on our wish list now: We'd like the ability to compress a title slightly—enough to fit it on one disc. There's nothing more frustrating than coming just a few MB short of avoiding a second disc.

DVD CopyWare 3.0

$69 list. Redxpress Ltd., www.redxpress.com. ●●●○○



AS LONG AS you can live with sometimes needing two blanks for a DVD copy, DVD CopyWare 3.0 is a simple solution.

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Keep Adware, Spyware at Bay

BY JOHN CLYMAN

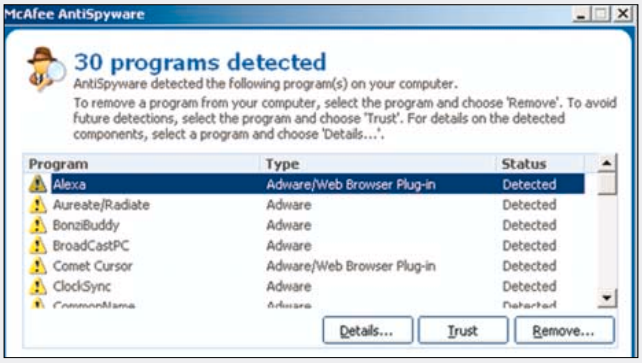
As if the recent proliferation of viruses and worms weren't enough, now spyware and adware—including programs that can hijack your browser and track your behavior—pose a fast-increasing threat. And while traditional antivirus and Internet security suites make some effort to combat spyware, the most effective tools we've found to date have been standalone, single-purpose products such as Webroot's Spy Sweeper. Now McAfee has released a standalone spyware protection tool of its own: **McAfee AntiSpyware.**

In our testing, the program's spyware detection and removal functions placed it among the best antispyware tools we've tested, although (as with others) it still encountered infestations it couldn't eliminate. That said, on the whole we still prefer Spy Sweeper, because the McAfee entry is limited in the guidance it provides and doesn't include scans for tracking cookies.

When we visited sites and downloaded software that tried to infect our test-bed systems with spyware, AntiSpyware was quite effective at identifying threats nearly in real time; it equaled Spy Sweeper in this regard. In most cases it alerted us either as soon as we finished downloading or, at the latest, shortly after we completed the installation. That stands in appealing contrast to less capable antispyware software we've tested, which generally detects infestations only when you get around to running a scan.

Unfortunately, unlike products such as Spy Sweeper and PestPatrol, McAfee AntiSpyware doesn't provide any guidance to help you make an informed choice about whether to allow the spyware or not. And as with other utilities, it was unable to subdue a few wily spyware components like Cydoor and RedV that resurrected themselves after each reboot.

Still, McAfee AntiSpyware provides a solid addition to your defenses.



MCAFEE ANTISPYWARE detected and removed most spyware from our test-bed systems, though it provides too little information to help you decide if a program is a significant threat.

McAfee AntiSpyware

$39.95 list. Requires: 32MB RAM; 5MB hard drive space; Internet Explorer 5.5 or later; Microsoft Windows 98, Me, 2000, or XP. McAfee Corp., http://us.mcafee.com. ●●●◐○.

Keep Remote PCs Safe

BY JAY MUNRO

The new **Symantec Client Security 2.0** is designed to keep a company's mobile and remote PCs safe, and it does the job very well. SCS provides managed and unmanaged antivirus, intrusion detection, and firewall features that can protect remote workers wherever they connect.

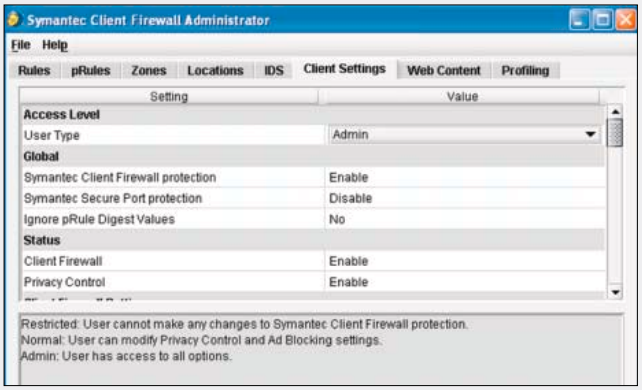
The SCS suite comes with the Symantec Client Security Firewall. This utility is a centrally managed, client-side firewall that gives administrators remote control of rules, IDS signatures, zones, and Web content (including pop-up blocking). You can configure the firewall with prebuilt or custom policies. We found the prebuilt settings worked well, and changing policies was easy enough. If the client is on the road and disconnected, a store-and-forward feature sends the logs at the next connection. You can also merge policy files to take advantage of existing firewall policies instead of writing new ones.

The package also has expanded malware detection to catch nonviral malicious threats, such as spyware, adware, porn dialers, Trojan horses, and hacking tools. Outbound e-mail worm heuristics can catch as-yet unknown viruses and worms. Inbound e-mail features include support for scanning the message body and attachments on POP3 mail. The antivirus also scans running processes, so it can catch and terminate memory-only viruses like CodeRed and Nimda.

As with the previous versions of Symantec's corporate and enterprise antivirus products, SCS uses the MMC-based Symantec System Center console. With it, you can manage, monitor, and deploy clients and servers.

The interface for end users is very similar to that of Symantec's familiar consumer products. For small businesses with ten or more PCs to protect, the price is comparable to individual Internet security suites, but SCS also offers centralized management. For large enterprises, SCS can be integrated with Symantec Enterprise Antivirus products to add client-side IDS and firewall security.

All in all, Symantec Client Security provides a strong defense for PC users on your network. With its easy-to-use interface, clear documentation, and straightforward setup, SCS is a good choice for corporate protection.



THE NEW Symantec Client Firewall Administrator allows fine control over firewall policies and rules.

Symantec Client Security 2.0

10 to 24 users, $66.70 per seat direct; volume pricing available. Symantec Corp., www.symantec.com. ●●●●◐

A Must-See Tablet PC

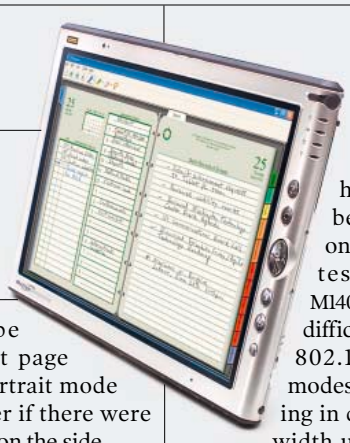
BY KONSTANTINOS KARAGIANNIS

PC MAGAZINE EDITORS' CHOICE

One of our biggest complaints about tablet PCs has been their use of the same LCDs that are found in notebooks. The problem is that these displays usually have one poor viewing angle—the angle from keyboard to screen. So we're happy to heap some praise on Motion Computing's **Motion M1400.** This is the first slate with a 12.1-inch screen to eliminate the bad viewing angle, providing crisp, colorful images no matter which way you look at the screen. A built-in ambient-light sensor helps save battery life, too, making the screen only as bright as room lighting demands.

We were most impressed with the installed Motion Pak software that bundles full versions of Microsoft OneNote 2003, xThink Calculator, Alias SketchBook Pro, and other useful ink-aware titles. The Motion Dashboard app gives quick access to important settings, and it let us adjust the amazing dual-array microphones built into the screen bezel. With barely any tweaking, we were able to block most ambient noise and record only voices speaking directly at the screen.

The stylus that slides into the unit feels fine even after hours of use. You can also add a $99 keyboard that doubles as a thin snap-on screen cover. The M1400 itself could be a little easier to hold when standing, which is why you may also want to add either the optional slip case ($34.99) or the rubber edge protector ($29.99). Another minor gripe we had is that page scrolling in portrait mode would be easier if there were a toggle button on the side.



THE M1400 has the best screen we've seen yet on a slate tablet PC unit.

We did like the fingerprint sensor we found on the side, however. Coupled with the installed OmniPass software, the sensor let us merely swipe a finger to access password-protected Web sites, programs, and other log-ons that we configured it to manage.

The M1400 turned in average performance numbers. But real-world use is not at all sluggish, and the M1400 did achieve an impressive 4 hours 10 minutes of life on our BatteryMark 2004 test.

Tablet PCs have never been leaders on our wireless tests, and the M1400 had similar difficulties in both 802.11b and "g" modes. While turning in decent bandwidth up to our 60-foot marker, it barely maintained a signal when we turned the corner and added interference. The M1400 works fine in open areas like coffee shops, though, as well as in offices with multiple access points.

Motion M1400

With 1.1-GHz Pentium M, 512MB DDR-SDRAM, 20GB hard drive, 12.1-inch XGA screen, 802.11b/g wireless, $2,114 direct. Motion Computing Inc., www.motioncomputing.com.

●●●●○

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Ways to Meet There When You're Here

BY LEON ERLANGER

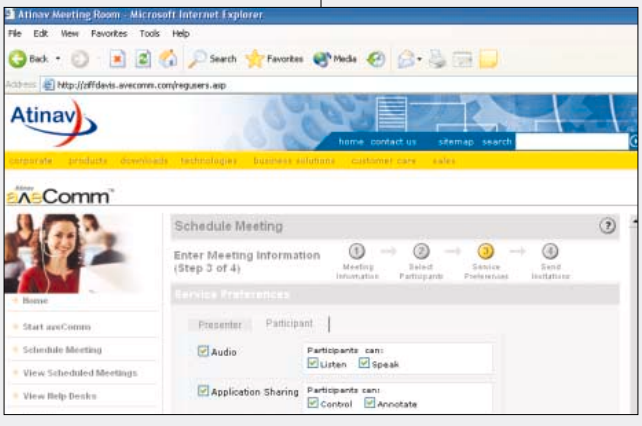
Earlier this year, we took a look at four leading Web-conferencing services from Genesys, Microsoft, Raindance, and WebEx ("Take a Meeting Online," January 2004). Since that story, Raindance has released its Meeting Edition, which far surpasses its previous offerings. So we decided to pit it against two other new services in this growing category, aveComm and Macromedia Breeze Live.

AVECOMM

Atinav's aveComm started as a development platform for adding Web-conferencing capabilities to existing business applications, such as CRM. The company put together an interface for demo purposes, then recently began marketing the entire solution as a behind-the-firewall installation for enterprises and a service for small businesses or workgroups. The service has its pluses, but it is still in an early stage of development compared with Raindance and WebEx.

aveComm's strengths include its instant-meeting capabilities and excellent application sharing. The latter is especially important for this service, because application sharing is the only way to run your PowerPoint presentations, Web tours, and just about anything else. You also get whiteboard and annotation tools, individual and group chat, and file-transfer capabilities. You don't get polls, live video conferencing, quizzes, PSTN integration, or ways to show presentations other than through application sharing.

The meeting controls are decent. You set up rights during the meeting activation or scheduling process, granting presenter and participant permissions for application sharing, annotation, and file sharing. During the meeting, the presenter controls most functions but can delegate host duties to another user as needed. During application sharing, participants can request temporary control, and the host can provide that as well.



ATINAV'S AVECOMM lets you assign detailed meeting permissions during the scheduling process.

There are several quirks, however. aveComm depends heavily on Voice over IP. You can use VoIP to call out to one or more regular phones, but in order to see who's connected by phone, VoIP must be used by the host. We found the VoIP performance variable; it worked well only some of the time. Other times the host was barely audible.

The interface also has some strange conventions. For example, if someone initiates a meeting by calling someone else, the second party, not the caller, becomes the host. This seems counterintuitive, and confused us until we learned the reason: The feature is borrowed from aveComm's help desk applications, in which the calling customer wants the help desk to assume control.

An online scheduler imports entries from your Microsoft Outlook address book and places scheduled meetings in your Outlook calendar. You can also send e-mails with meeting links to participants. But you can't schedule a meeting from within Outlook (as you can with Raindance), and you can't schedule recurring meetings.

Atinav claims it will fix a lot of these quirks and add more capabilities in future releases. Until then, aveComm may work very well as a development platform and behind-the-firewall solution, but not as a service. More mature solutions are available.

aveComm

$40 per user per month (five-user minimum). Atinav Inc., www.avecomm.com. ●●○○○

MACROMEDIA BREEZE LIVE

Like aveComm, Macromedia Breeze Live is in its first version as a service and has some excellent features and some troublesome quirks. Overall, it shows a lot of potential as a multimedia collaboration platform.

Breeze Live is one component of a larger platform that includes Breeze Presentation and Breeze Training. Presentation is a PowerPoint plug-in that lets you add voice, video, audio, surveys, and quizzes to PowerPoint slides and package it all as a self-running Flash presentation. Training is a platform for setting up and managing e-learning courses. All three components can access a Breeze content library, to which you can upload and manage fully searchable presentations and other content for reuse in other Breeze collaborative functions.

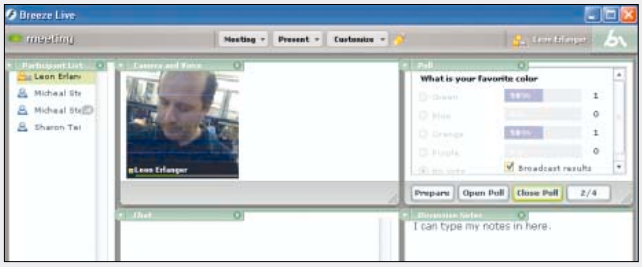
Breeze Live is the Web-conferencing component, and it's geared principally for presenter-dominated events rather than interactive meetings. It relies heavily on VoIP for audio conferences. You have to find your

SCORECARD: WEB CONFERENCING

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

	Scheduling and setup	Web conference management	Collaboration	Videoconferencing	Audio integration	Recording	Administration and reporting	Ease of use	OVERALL
aveComm	●●●	●●●	●●●	N/A	N/A	●●	●●	●●●	●●
Macromedia Breeze Live	●●●	●●●	●●●	●●●●	N/A	●●●	●●●	●●●	●●●
Raindance Meeting Edition	●●●●●	●●●●	●●●●	●●●●●	●●●●●	N/A	●●●●	●●●●	●●●●

* N/A—Not applicable: The product does not have this feature.



MACROMEDIA BREEZE LIVE has a very flexible and elegant interface that you can reconfigure to suit different types of collaboration.

own service for typical PSTN-based audio conferencing, and there is no integration between PSTN and Web, as there is in Raindance.

As you would expect, Breeze Live employs Macromedia Flash both for the interface and presentation format. Breeze Live offers slide presentations, application sharing, Web tours, polling, instant messaging, chat, file sharing, whiteboard, and note taking. It has some nice administration and reporting features, too, letting you assign passwords to users, limit meetings to designated users, and assemble users into groups.

As with aveComm, Outlook integration is limited. You can schedule meetings at the Breeze Central site, which automatically sends out e-mails with meeting links to participants, and you can send out VCal events to add the meeting to their calendars, but you cannot create a meeting off-line in Outlook.

The Flash interface is very attractive, flexible, and easy to use. It includes a title bar on top; buttons for Slides, Screen Sharing, Collaboration, and Discussion at the bottom; and a central stage, which shows display areas (called pods) for the different types of content). As you switch from, say, the presentation layout to the collaboration layout, the pods reconfigure themselves instantly. Presenters can create customized pods and layouts, move layout buttons and windows around, and prepare presentations and take notes outside the staging area, so others can't see them. The presenter can also broadcast a video, add live video of Webcam-enabled participants, and promote participants to presenters with one click.

We did, however find a number of things confusing. First, the only way to have a meeting of equals is to make everyone a presenter. We liked the PowerPoint plug-in and had a good time adding Flash video and audio to our presentation, only to find that we couldn't display the multimedia additions to the group in Breeze Live, but only as a standalone presentation. Web sharing let us type in only a single Web URL at a time—clicked links to other Web pages didn't get transmitted to participants—and each time we activated the feature, two browser screens popped up on every participant's display.

Despite these caveats, we're impressed with this service and look forward to future versions.

Macromedia Breeze Live

$9,500 annually (for up to 10 concurrent users). Macromedia Inc., www.breezecentral.com. ●●●○○

RAINDANCE MEETING EDITION

In our previous review, we found Raindance Web Conferencing Pro Seminar functional but uninspiring. Since then, Raindance has released Meeting Edition, which represents a giant leap forward in multimedia and ease of use.

Raindance Meeting Edition is the best of the products we've tested for small, impromptu meetings (even better than WebEx, in fact). The interface has been completely revamped, with a much more Windows-like feel and intuitive drop-down menus and task panes. Web/PSTN conferencing integration is top-notch. Icons tell presenters which participants are online and in audio conference, and you have the ability to mute and disconnect users directly from the Web.

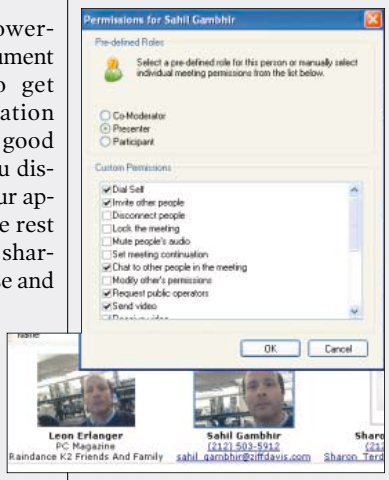
One of the nicest new additions is live videoconferencing, with optional picture-in-picture and a unique feature that switches the video to the person talking. Raindance has added excellent Outlook integration, with a plug-in that lets you set up meetings in Outlook and then enters meeting times in participant's calendars automatically.

You get the usual PowerPoint slide and other document presentation. You also get whiteboard and application sharing, which has very good performance and lets you display small portions of your application while hiding the rest of your screen. Browser sharing was much easier to use and more practical than the same feature in Breeze Live. Only one screen comes up on participant displays, and presenters can lead the audience through a Web tour simply by clicking on links. Annotation is available at all times.

The interface is easy to get used to. A task pane on the left called the Meeting Bar shows live video, a list of participants, and your meeting's feature options. Click on a participant and you get options to chat, e-mail, save a business card file, or initiate a call.

It's easy to fire up instant meetings of equals. You simply send an e-mail invitation containing the meeting link and a conference ID. When the participant clicks on the link, the software is downloaded, the connection made, and a dialog box asks for the person's phone number, which is then dialed by the Raindance bridge. No need for everyone to call an audio-conference number.

Permissions are easy to set up and very flexible. You get default granular permissions for co-moderators, presenters, and participants, which you can adjust to your liking. During the meeting, the moderator can change the permissions of all or individual participants simply by clicking on a name, choosing Permissions, and checking appropriate boxes. Another nice feature: When a moderator or presenter brings a PowerPoint presentation or other document up for viewing, it is first displayed in a private window until the presenter decides to display it to the group, Slide thumbnails are still displayed below for navigation.



RAINDANCE MEETING EDITION comes with an excellent, intuitive interface that lets you reassign meeting permissions while in a conference.

Overall, we still prefer the power of WebEx for a company's overall conferencing needs. But if users in your organization lean more toward small, impromptu meetings, Raindance is worth a close look.

Raindance Meeting Edition

Five-user pack: $274.95 a month plus 20 cents a minute for audio conferencing. 10-user pack: $399.95 a month plus 18 cents a minute for audio. Raindance Communications Inc., www.raindance.com. ●●●●○

VPN Appliances Come to the Small Office

BY LARRY SELTZER

Even in a small business, users need to have access to the company network when they're away from the office. Virtual Private Networks (VPNs) are the most mature and trusted method for providing this access, and a spate of new appliances aims to bring this big-business luxury to smaller firms.

In our testing of three of the latest—from Check Point, Netgear, and SonicWall—we found the entries (save for the latter) accessible enough that a moderately technical business owner could get one up and running, but the learning curve is still difficult and the units a bit pricey.

CHECK POINT has made the Safe@Office line of appliances very approachable for non-IT types, with wizard-driven setup.

CHECK POINT SAFE@OFFICE 225U

The Safe@Office products resemble typical SOHO routers and perform all the same functions with a variety of new features. We tested the Safe@Office 225U, the top-of-the-line model, which has no licensing limit on the number of nodes connected. A less expensive model 225 with a 25-computer maximum is also available. Other lower-priced models support fewer users and features.

The Safe@Office 225U has four LAN ports and two WAN ports, one of which doubles as a physical DMZ port. It also has a serial port that functions as a console interface. For larger businesses, you can deploy a backup Safe@Office unit for high-availability scenarios. As with the SonicWall PRO 2040, the Safe@Office 225U is sold with an optional package of managed services, including Web filtering, e-mail antivirus protection, remote logging, and dynamic DNS. The unit comes with 90 days of software and security updates. A one-year subscription, including online and phone support, for the Safe@Office 225U costs an additional $300. The full package of managed services costs $2,400 for a 50-user license.

We experienced a few glitches in the setup of our router, but all were minor. Without proper warning, the setup wizard fails if the WAN connection is not a DHCP client. The internal network DHCP server is not configurable, making things clumsy if you want to run servers with fixed addresses. And for some reason the internal date on our test unit was set to January 18, 2038.

The Check Point firewall interface has a neat slider control that lets you set the security threshold from low to medium to high, reminiscent of many personal firewall utilities. The default of medium is appropriate for most offices. For fine tuning, creating port rules for the firewall was easy.

VPN configuration is wizard-heavy and probably about as easy as a VPN can be. True, it hides many of the details of IPsec configuration, but the Safe@Office 225U worked fine for us. Even better, you can download Check Point's VPN client for free from the company's site.

All told, the Safe@Office 225U is the easiest appliance here when it comes to setup and management. Folks with enough technical expertise to have configured a personal firewall should be able to set this product up without the aid of a consultant. Unfortunately, its price may keep it out of reach for many small businesses.

Check Point Safe@Office 225U

$1,799 list. Check Point Software Technologies Ltd., www.checkpoint.com. ●●●●○

NETGEAR PROSAFE VPN FIREWALL FVS328NA

At first glance, the Netgear ProSafe VPN Firewall FVS328NA looks like a steal. At $278 list (and as low as $180 street) it's a fraction of the price of other products that support up to 50 VPN tunnels. It even comes with a serial port that can be used for dial-up or ISDN fail-over in case you lose your broadband connection. But the company charges separately for its VPN client software, which is based on the Safenet client. With a list price of $62 per seat (or $209 for a five-user license), the cost of client software could quickly come to dwarf the cost of the router itself.

We also found the complexity of VPN configuration with the Netgear unit such that it requires a consultant not only for setup but for routine maintenance. A simpler VPN wizard, already available in other Netgear units, is on the way for this one. If your needs are for remote users connecting over secure tunnels to the network, this entry is affordable but may not be worth the hassle.

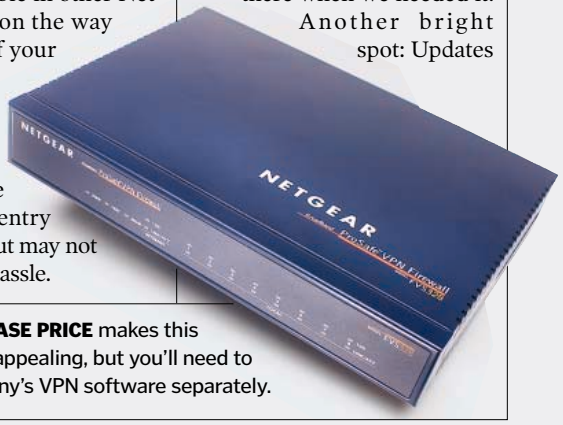
If, on the other hand, you need to set up a secure WAN link between two networks, the FVS328NA is dirt cheap and not quite so terrible to manage. The instructions are complex, but such connections don't often need maintenance once they are functioning.

Unlike the Safe@Office, there's no real concept of user management on the FVS328NA. To have separate management of users, you need to create a different VPN profile for each user, with each having a certificate or shared key. Once again, this is tough sledding.

The non-VPN functions on the router are much more appealing. It comes with eight built-in WAN ports and theoretically can handle up to 253 users. Configuring the basic network connections and the firewall is quite simple. Port rules are well designed, and Netgear includes definitions of a fair selection of predefined services (such as AOL Instant Messenger on port 5190) for you to manage. Adding other services to the list is trivial.

The general layout of the configuration software, accessible through a Web browser, is well thought out. Three vertical frames contain a list of general functions, the main configuration options for the selected function, and help for that function. Several times we were gratified to find help right there when we needed it.

Another bright spot: Updates



A LOW PURCHASE PRICE makes this Netgear entry appealing, but you'll need to buy the company's VPN software separately.

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to the firmware are included for the life of the product.

All told, the FVS328NA has a lot to offer. Too bad the daunting configuration will keep a lot of small-business managers at bay.

Netgear ProSafe VPN Firewall FVS328NA

$278 list. Netgear Inc., www.netgear.com. ●●●○○

THE POWER of the SonicWall PRO 2040 is undeniable, but it's fairly complex to set up.

SONICWALL PRO 2040

The SonicWall PRO 2040 is easily the most powerful—and complex—of the units we tested. Our test unit had a capacity of 150 simultaneous VPN tunnels, 50-Mbps VPN capacity, and 50 internal devices, not to mention intricate controls over the VPN and security policies. The PRO 2040 needs experienced IT people to operate it, but in return it can manage the security needs of a fairly complex organization.

Key to the PRO 2040's architecture are zones, a security concept in the SonicOS operating system. The idea of zones is to give different levels of privileges to different internal users by varying their access to the different interfaces (X0, X1, and so on). Zones are another example of how the PRO 2040 is more powerful and complicated than the other products in this review. With just four interfaces, zones might be overkill. Still, they're a convenient way to manage security, and the planned growth of features in the product might make zones necessary at some point.

There is also very good control over NAT policies, through which the administrator can control address translation to a far greater degree than the usual one-to-many mapping capability. For instance, we could map one external address to one specific internal address, which is handy for keeping publicly accessible servers on the internal network. It's also possible to map many internal systems to a single WAN address, with uniqueness at the port level, and even many-to-many. And even better, these features can be used to define a wireless zone on an isolated port that requires IPsec.

The complexity of such features becomes manageable through the operating system's object-based management approach. Administrators can define objects for ranges of network addresses, users, groups, services and schedules, and apply policies to them. Policies, such as the NAT policies, are applied to these objects. Changes in the objects don't require changes in the policies.

Upgrades are available to the unit to enforce client-side antivirus use (with the McAfee client) and Web-content filtering. The device can be managed remotely by centralized IT or by managed service providers using SonicWall's Global Management System.

The PRO 2040 comes bundled with 10 VPN client licenses (it can support up to 100). The VPN itself has hardware-based IPsec acceleration, so it should be able to perform well up to the capacity of the WAN interface and still leave CPU capacity for administrative functions. The SonicWall VPN Client software is fairly easy to use. The server-side configuration is easier than some. A series of wizards (including a VPN wizard) that should make the whole process much simpler is coming in an upgrade to SonicOS.

The PRO 2040 will intimidate most people without a lot of IT savvy. But it's a very good choice for businesses who need support for more complex networks and have an eye toward scalability.

SonicWall PRO 2040

$1, 995 direct. SonicWall Inc. www.sonicwall.com. ●●●●○

IT Appliance Does It All

BY CRAIG ELLISON

Most small companies need IT services, such as e-mail management and networking, but few can afford a full-time IT person. Enter the **IT in a Box IT-100** from EmergeCore. This appliance provides nearly all the IT functions that a small company needs at a very affordable price.

In addition to 20GB of storage that can be shared among connected PCs (higher-capacity models are available), the IT-100 is an Internet router with a stateful packet inspection (SPI) firewall. It has four 10/100 switched Ethernet ports and a built-in 802.11b wireless access point. Web, FTP, DNS, and e-mail servers are built in. To round out the list of features, the IT-100 is both a VPN client (for connecting to other networks) and a VPN endpoint (to allow remote users to connect securely).

True to its small-business target, EmergeCore did a first-rate job designing the setup wizard and the Web-based configuration/management interface. The Express Setup wizard walks you through each step needed to get the IT-100 up and running; it took us about 10 minutes. After configuring the basic settings for the IT-100, you're ready to add users. For each user, you can set up e-mail and specify FTP and file-sharing privileges.

The IT-100's e-mail server supports POP3 mail and also provides Web mail access. The package even includes server-based antivirus protection to scan incoming and outgoing mail messages, as well as basic antispam capabilities. E-mail worked flawlessly on the multiple test domains we set up.

The IT-100 can host mail and Web servers for multiple domains. Additionally, you can use it either with a static IP address or with a dynamic IP address that takes advantage of the built-in support for TZO.com's DDNS service.

Though the unit's home page provides you with an excellent snapshot of the IT-100's status, the limited number of controls and logs may frustrate some companies as their IT needs grow. Still, the IT-100 offers excellent value for small companies without IT support staffs.

THE IT-100 is an easy-to-use device that supplies the IT services most small businesses need.

IT in a Box IT-100

$1,395 list. EmergeCore Networks LLC, www.emergecore.com. ●●●◐○

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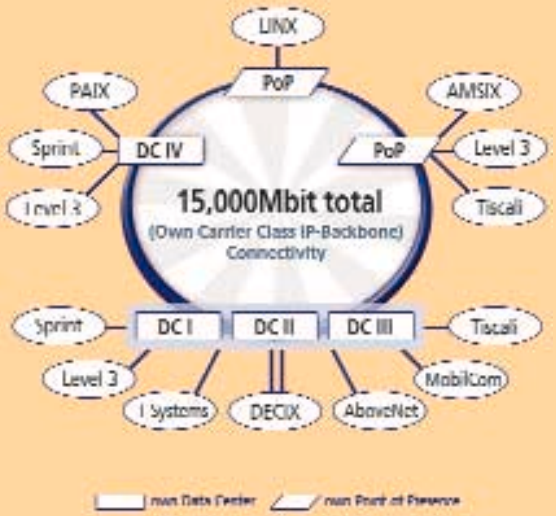

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It's fast, it's easy, and it's only the beginning of what you can accomplish online with 1&1. DNS management gives you full control over your domain. What's more, the most affordable domains in the industry come without hidden charges and binding contracts.

TRANSFER YOUR DOMAIN TO 1&1.

Quickly and easily transfer unlimited existing domains to 1&1 at no additional cost. We only charge you the regular low cost to register a domain – just $5.99 per year! Or if you have a domain that you'd like to keep with another Registrar, DNS transfer allows you to simply point your domain to 1&1 name servers – also at no additional cost!

.COM
.NET
.INFO
.NAME
.ORG

REGISTER DOMAINS FOR **$5.99** PER YEAR

ENJOY THESE GREAT FEATURES AND MORE:

- 1 free e-mail address (alias)
- Masked forwarding
- DNS management
- Domain parking for future use

1&1 INSTANT MAIL

PUT YOUR DOMAIN TO WORK. Easily arranged through your Control Panel, this add-on package gives you the power to send and receive e-mail from your domain name.

$0.99 PER MONTH

ENJOY THESE FEATURES AND MORE:

- 5 POP3 e-mail accounts (50 MB each)
- 10 e-mail aliases
- 1&1 WebMail

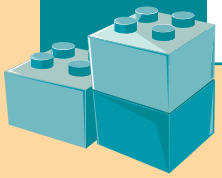
1&1 INSTANT WEBSITE

CREATE YOUR OWN WEBSITE in just 20 minutes. Instant Website is ideal for anyone building a first website or experienced users looking for a quick additional site with no programming hassles.

$2.99 PER MONTH

ENJOY THESE FEATURES AND MORE:

- Includes WebsiteCreator with 12 pages
- Over 100 customizable templates
- Online is just 5 easy steps



SETUP FEE WAIVED FOR A LIMITED TIME

FOR MORE DETAILS GO TO **1AND1.COM**

1&1

HOSTING

THE LATEST SOFTWARE TO CREATE, PUBLISH AND PROMOTE YOUR WEBSITE.

Sign up for Microsoft or Linux shared hosting and we'll include a software bundle, featuring NetObjects FUSION 7.5, PhotoImpact 8 SE, Hello Engines Professional 4.1, Ranking Toolbox 3.0 and WISE.FTP.* Plus, with all Microsoft plans you'll also receive FrontPage 2003! And these are not limited-time trials – you'll be shipped a CD with full-version software plus manuals.

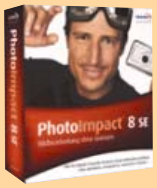
FRONTPAGE 2003

Sign up for any 1&1 Microsoft Shared Hosting plan and you'll receive FrontPage 2003.

Quickly and easily create a sophisticated, dynamic website. Customize your web presence by controlling the site layout and adding interactive features with the built-in scripting tools. Plus, powerful coding tools allow you to expand the power of your HTML and generate better code, faster.

VALUABLE SOFTWARE INCLUDED WITH ALL 1&1 SHARED HOSTING PLANS.

PHOTOIMPACT 8 SE



Ideal for digital photography, artistic design, and web graphics, PhotoImpact concentrates on the needs of web users and offers a wide choice of single and multiple image enhancement options.

$90 VALUE

HELLO ENGINES! PROFESSIONAL 4.1

Register your website with hundreds of search engines like Google, Alta Vista and Fireball with Hello Engines! Generate more traffic by advertising your site to the world.

$170 VALUE

RANKING TOOLBOX 3.0

Arrange the way your site is registered and develop your own assessment criteria. A keyword database informs you of the most frequently searched keywords.

$128 VALUE

NETOBJECTS FUSION 7.5

One of the most popular development programs available! High performance tools like wizards, drag-and-drop functions and more make webpage production faster and easier than ever.

$130 VALUE

WISE.FTP

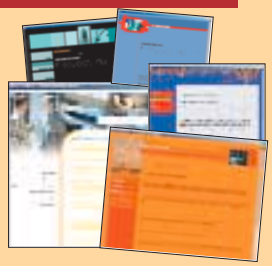
WISE.FTP is ideal for transferring files and directories to the 1&1 server. This new edition contains all the latest functions to manage your files.

$40 VALUE

* Plus $6.99 shipping and handling

ONLINE WEBSITECREATOR

You're 20 minutes away from your own professional website! WebsiteCreator is a browser-based, powerful do-it-yourself solution with over 120 attention-grabbing, professionally designed templates to choose from. Create and amend your site in just 5 easy steps!



1.877.GO1AND1

INCLUDING THE LATEST SOFTWARE AND INTERACTIVE TOOLS TO CREATE THE ULTIMATE WEB PRESENCE.

ADD PERFORMANCE FEATURES FOR A TRULY INTERACTIVE WEBSITE.

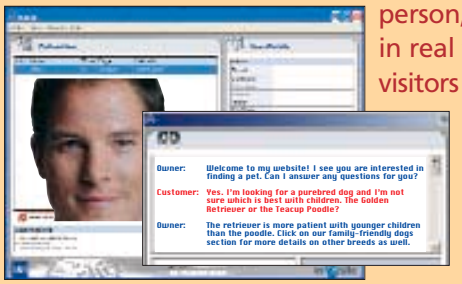
Once you have created your new website, add exciting features that will connect you with your visitors to give them exactly what they are looking for. These features are included with the Business and Developer shared hosting plans – at no additional cost.

1&1 WEBDATABASE

Easily create and integrate customized databases into your website with no programming knowledge needed. Just select the fields you'd like and you're ready to go!

IN2SITE DIALOGUE

The closest thing to selling one-on-one, live and in person, with dialogue in real time. Offers site visitors a live consultant, at your discretion. Informs you of a new visitor by a visual indication or auditory alert.

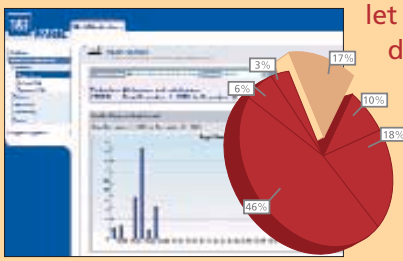


1&1 NEWSLETTER TOOL

Share your news and important information via e-mail newsletters. No special programming is needed! Track your newsletter's performance and store previously published newsletters.

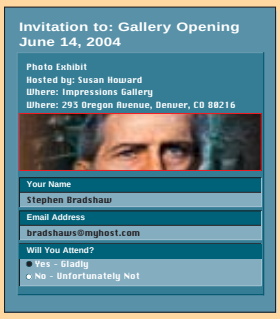
1&1 WEBSTATISTICS

Comprehensive numerical and graphical statistics let you understand the dynamics of your visitors so you can fully optimize your website.



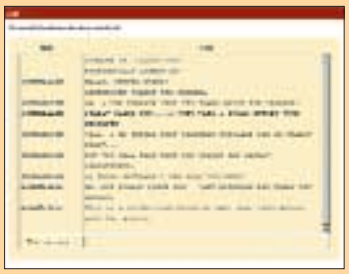
1&1 WEBELEMENTS

Make your site interactive by adding contact forms, online polls, complex Q&A scenarios and more. Ideal for gaining qualified leads. Data is delivered to you easily by e-mail.



CHAT & FORUMS

Great for making your site a meeting place for customers and vendors. Chats in private rooms are possible. You can even trade experiences, interests, and views with a simple step-by-step forum. (Chat feature is not included with Microsoft packages.)



FOR MORE DETAILS GO TO 1AND1.COM

1&1

HOSTING

AFFORDABLE ALL-INCLUSIVE LINUX AND MICROSOFT SHARED HOSTING FROM 1&1.

1&1 feature-rich Microsoft and Linux shared hosting packages offer the best value for your money. And now, for a limited time only, you'll pay one low price per package level for Microsoft or Linux hosting! With six fully-loaded hosting solutions to choose from, we provide everything you need to create a high-performance website and realize the full potential of the internet.

VALUABLE SOFTWARE
INCLUDED WITH ALL 1&1 SHARED HOSTING PLANS.

SEAN SCHWABENLANDER
www.cubeapps.com

"1&1 has provided our company with an incredible range of tools for delivering our web presence. 1&1 has been continuously reliable in their delivery of our web content. The value 1&1 provides has far exceeded that of any other webhosting provider we have used."

1.877.GO1AND1

LIMITED TIME OFFER: MICROSOFT OR LINUX HOSTING. YOUR CHOICE – SAME LOW PRICE.

90-DAY MONEY BACK GUARANTEE
100% SATISFACTION OR YOUR MONEY BACK

#1 Budget Hosting – WEBHOST DIRECTORY AWARD WINNER

– Linux packages
– Microsoft packages

HOME PACKAGE

$ 4.99 PER MONTH

INCLUDES 1 DOMAIN

DOMAIN NAMES		
Included domains at no additional cost	1	1
Manage unlimited domains with one account	✓	✓
Point external domains to 1&1	50	50
Subdomains	5	5
WEBSITE/CONNECTIVITY		
Web space	500 MB	500 MB
FTP accounts, unlimited access	1	1
Included bandwidth/month	5 GB	5 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	12 pgs	12 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	50	50
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	1 POP3	1 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Password protected directories	✓	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channel	1	–
Customizable forums	✓	✓
EXPRESS SUPPORT		
24/7 support by phone and e-mail	✓	✓

BUSINESS PACKAGE

$ 9.99 PER MONTH

INCLUDES 3 DOMAINS

DOMAIN NAMES		
Included domains at no additional cost	3	3
Manage unlimited domains with one account	✓	✓
Point external domains to 1&1	100	100
Subdomains	50	50
WEBSITE/CONNECTIVITY		
Web space	1000 MB	1000 MB
FTP accounts, unlimited access	5	5
Included bandwidth/month	15 GB	15 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	12 pgs	12 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	150	150
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	3 POP3	3 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Advanced password protection	✓	✓
Perl, PHP3 and PHP4	✓	–
Database	1 MySQL	MS Access
SSH shell access	✓	–
SSI (Server side includes)	✓	✓
Cron Jobs / Scheduled Tasks	✓	✓
Directory Protection	✓	✓
Shared SSL	✓	✓
Active Server Pages	–	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channels	5	–
Customizable forums	✓	✓
in2site Live Dialogue	✓	✓
Newsletter Tool	✓	✓
1&1 WebDatabase	✓	✓
1&1 WebElements - Sophisticated Form Editor	✓	✓
EXPRESS SUPPORT		
24/7 support by phone and e-mail	✓	✓

DEVELOPER PACKAGE

$ 19.99 PER MONTH

INCLUDES 5 DOMAINS

DOMAIN NAMES		
Included domains at no additional cost	5	5
Manage unlimited domains with one account	✓	✓
Point external domains to 1&1	200	200
Subdomains	200	200
WEBSITE/CONNECTIVITY		
Web space	2000 MB	2000 MB
FTP accounts, unlimited access	25	25
Included bandwidth/month	30 GB	30 GB
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
APPLICATIONS		
1&1 Control Panel	✓	✓
WebsiteCreator	25 pgs	25 pgs
Full version software worth $550	✓	✓
Frontpage 2003	–	✓
E-MAIL		
POP3 e-mail accounts	300	300
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Included virus scanner	6 POP3	6 POP3
WEBSITE FEATURES		
Logfiles	✓	✓
CGI library (counter, guestbook, etc...)	✓	✓
FrontPage 2002 extensions	✓	✓
Advanced password protection	✓	✓
Perl, PHP3 and PHP4	✓	–
Database	3 MySQL	MS Access
MS SQL	–	✓
SSH shell access	✓	–
SSI (Server side includes)	✓	✓
Cron Jobs / Scheduled Tasks	✓	✓
Advanced developer tools	✓	–
Dedicated SSL Certificate	✓	✓
ASP, ASP.NET, .NET Framework	–	✓
CRM/E-COMMERCE		
1&1 WebStatistics	✓	✓
1&1 Chat channels	10	–
Customizable forums	✓	✓
in2site Live Dialogue	✓	✓
Newsletter Tool	✓	✓
1&1 WebDatabase	✓	✓
1&1 WebElements - Sophisticated Form Editor	✓	✓
EXPRESS SUPPORT		
24/7 support by phone and e-mail	✓	✓

SETUP FEE WAIVED FOR A LIMITED TIME

FOR MORE DETAILS GO TO **1AND1.COM**

1&1

SERVERS

WHATEVER YOU NEED FROM A DEDICATED SERVER, 1&1 HAS THE DEFINITIVE SOLUTION.

1&1 Managed Servers deliver the ease of shared hosting, but with the power and space of a dedicated server. 1&1 Root Servers offer the same power and space, but you are in total control. Windows Server 2003 provides a solid foundation for the latest Microsoft technologies that help connect people, information and systems.

15,000 MBIT CONNECTIVITY

- 500 peerings with 250 different providers for optimized routing
- Own global backbone
- Connection to nine leading carriers for real redundancy

$40 MILLION DATA CENTERS

- Most advanced Data Centers in the world
- Powered by Cisco and Juniper
- Over 99.9% uptime guaranteed
- 43,000 GB of data stored and backed up

RELIABILITY & CREDIBILITY

- 12 years experience
- Offering dedicated hosting for 4 years
- Over 1,100 employees
- Lowest churn rates in the industry for years

FREE PLESK 7 WITH ALL ROOT SERVERS

- Use, create and manage your Linux based system
- Create new e-mail accounts
- Manage entire domains and web spaces
- Become your own host by segmenting your server into shared webspace
- Go to 1and1.com for more details

24/7 MONITORING, SUPPORT & SERVICE

- Netsaint continuously tracks 40 parameters
- Technicians on standby 24/7 to maintain operations
- 24/7 assistance over the phone or by e-mail
- Highly specialized department of trained technicians

PHILLIP ELLIS
www.humanearhost.com

"A year ago, I decided to start my own hosting service as a complement to my web design, programming, and other internet-related services. Unfortunately, I chose a cheap, less reliable service to host my site. After enduring a painful year of downtime, almost non-existent tech support and tons of aggravation, I switched to a dedicated server from 1&1. The difference is unbelievable. I have ample drive space, speed and bandwidth and I get questions answered immediately from real people who understand the products they support. 1&1 has given me a tool that I can use with confidence to build my client base and expand my business."

1.877.GO1AND1

POWER. FEATURES. AFFORDABILITY. EVERYTHING YOU NEED FOR A SERIOUS PRESENCE ON THE WEB.

90-DAY MONEY BACK GUARANTEE

100% SATISFACTION OR YOUR MONEY BACK

PLESK7

	1&1 ROOT SERVERS FOR MAXIMUM FLEXIBILITY & CONTROL	1&1 MANAGED SERVERS FOR PERFORMANCE & CONVENIENCE	1&1 WINDOWS SERVER 2003 FOR SECURITY & RELIABILITY
	1&1 Root Servers are at your complete command, giving you full access to the hardware and the server as well as the administration software. ▪ Includes Plesk 7 Control Panel ▪ Full Root access ▪ RedHat Linux 9	Developed with demanding businesses in mind, 1&1 Managed Servers deliver the ease of shared hosting but with the power and space of a dedicated server. 1&1 handles all the monitoring, management and maintenance to ensure continued service and to give you more time to focus on your business. ▪ Includes 1&1 Control Panel ▪ Administration by 1&1 ▪ Dedicated SSL Certificate	Windows Server 2003 encourages business productivity and allows you to quickly deploy and easily manage a robust solution. ▪ Server I & II: Windows Server Web Edition ▪ Server III: Windows Server Standard Edition ▪ Unlimited administration access
SERVER I ▪ Intel Celeron 2.0 GHz ▪ 256 MB DDR-RAM ▪ 40 GB IDE hard drive ▪ 500 GB bandwidth included	**$49** PER MONTH	**$59** PER MONTH	**$69** PER MONTH
SERVER II ▪ Intel Pentium 4, 2.4 GHz ▪ 512 MB DDR-RAM ▪ 40 GB IDE hard drive ▪ 500 GB bandwidth included	**$69** PER MONTH	**$79** PER MONTH	**$89** PER MONTH
SERVER III ▪ Intel Pentium 4, 3.06 GHz Processor with Hyper-Threading ▪ 1 GB DDR-RAM ▪ 120 GB IDE hard drive ▪ 500 GB bandwidth included	**$99** PER MONTH	**$109** PER MONTH	**$129** PER MONTH

$99 ONE-TIME SETUP FEE

1&1

FOR MORE DETAILS GO TO **1AND1.COM**

ESHOPS

SIMPLE E-COMMERCE WITH HIDDEN POWER.

1&1 eShops are as powerful as any major online retailer, but with no software or hardware to install. Online wizards and professionally designed templates offer such simplicity that your online shop can be up and running in less than an hour.

MICHAEL HEIFEZ
www.flowergallery.net

"1&1 has given us all the tools needed to easily set up our Professional eShop and we were online and doing business in no time. One of the reasons we chose 1&1 to host our eShop was that everything is included in one package and at one great price, including the ability to accept secure online payments. The shop templates are fully customizable, giving us the ability to showcase our unique artistry in floral design in the perfect way for our business."

1.877.GO1AND1

EASY TO HANDLE. EASY TO USE. BEING PROFITABLE HAS NEVER BEEN EASIER.

90-DAY MONEY BACK GUARANTEE

100% SATISFACTION OR YOUR MONEY BACK

LOADED WITH 30+ TEMPLATES

If you want to start selling online without a big budget, lots of time and know-how – start off with one of our 30+ professional shop templates ready to be loaded with your products. They've been designed by experts in optimizing online results. You can even customize them to your liking by changing fonts, colors, and positioning.

8 EASY-TO-USE WIZARDS

With eight well-designed wizards to guide you through the shopping basket, order process, delivery methods and, of course, payment settings, configuring your eShop is simple.

HOSTED SOLUTION – ALL INCLUSIVE

There's no software to install – traffic and webspace are included. We even take care of all updates and enhancements, leaving you to concentrate on your business.

FULLY CUSTOMIZABLE

eShops use PHP-based templates and rules so you can change styles, edit all text modules, and even run an eShop in a different language on your completely private skin. Using PHP scripts you can even edit context-sensitive rules.

ACCEPT ONLINE PAYMENTS WITH PAYPAL AND WORLDPAY

1&1 Professional or Developer eShops deliver you secure and easy-to-use e-commerce solutions via PayPal or WorldPay. With PayPal – an eBay company – you don't even need a special merchant account. Just sign up, and without any paperwork or any bank applications, you can accept all payments from 35,000 loyal PayPal users. WorldPay, a member of the Royal Bank of Scotland, provides you with everything you need to securely accept credit card payments.

SSL SECURED

Vital for customers who shop in an SSL-secured environment. All shop-based settings you make on the webserver are in SSL-secured pages for maximum integrity of your confidential data. Third parties cannot access these areas.

STAND-ALONE SOLUTION
WORKS WITH ALL WEBSITES

SETUP FEE WAIVED FOR A LIMITED TIME

BUSINESS

$9.99 PER MONTH

- 50 MB web space
- Full version software worth $550
- 50 item product catalog
- 2 shipping methods
- 10 GB bandwidth/month included
- SSL (Secure server)
- Free support by mail and phone
- Money Back guarantee

PROFESSIONAL

$29.99 PER MONTH

Features as above, in addition to:

- 300 MB web space
- Unlimited item variants
- 200 item product catalog
- 30 GB bandwidth/month included
- Product categories/sub-categories
- Product data import/export
- Multi-currency support
- Offer customer discounts
- 5 shipping methods
- Customer account management
- Newsletter administration
- Import/export customer data
- Self-administration for customers
- Customize images/color/fonts
- Shopping cart integration
- Online credit card clearing with Paypal and Worldpay (charges apply)
- Tax clearing server included (calculates taxes by state, city and country)

DEVELOPER

$49.99 PER MONTH

Features as above, in addition to:

- 1200 MB web space
- FTP access
- Unlimited item product catalog
- 60 GB bandwidth/month included
- Discounts for customers, and specific customer groups
- Unlimited shipping methods
- Export of orders & append customer data
- Customer account management, including customer groupings
- Fully customizable templates
- 1 Dedicated SSL Certificate included
- in2site Live Dialogue

FOR MORE DETAILS GO TO **1AND1.COM**

1&1

COLLABORATE WITH YOUR TEAM EASILY AND EFFICIENTLY

MICROSOFT EXCHANGE HOSTING

ACCESS YOUR DATA ANYTIME, ANYWHERE

Microsoft Exchange Hosting lets you enjoy the communication and collaboration features and benefits of Microsoft Exchange without the hassles of maintaining your own Microsoft Exchange server. Read, send and receive e-mail and access your public folders, contact data, tasks and calendars anytime, anywhere via Microsoft Outlook or any web browser.

OUTLOOK 2003 INCLUDED WITH 1&1 MICROSOFT EXCHANGE HOSTING!*

- Access your most up-to-date information anytime and anywhere
- Simple deployment allows for reduced costs
- Access your data from anywhere with mobile Active Sync
- Microsoft Exchange Hosting from 1&1 includes 1 Exchange account with 200 MB, Virus Scanner and Outlook Web Access

$6.99 PER MONTH

* $6.99 shipping and handling charge applies.

MICROSOFT SHAREPOINT HOSTING

TAKE FILE SHARING TO NEW LEVELS

Microsoft SharePoint is the ideal communication platform for teams that need to share information. It works as an Intranet which makes it convenient for team collaboration. Microsoft SharePoint Hosting allows you to share documents, tasks and contacts. Plus store calendars, web links, discussions, issues lists and announcements. Increase individual and team productivity!

- Collaborate on documents via a secure website from any location
- Keep your information secure on the internet with your private login
- Manage multiple teams and projects with sub sites
- Microsoft SharePoint Hosting from 1&1 includes 50 user accounts and 100 MB web space.

$19.99 PER MONTH

CALL 1.877.GO1AND1 OR VISIT 1AND1.COM

AND MAKE THE SWITCH TODAY

1&1

Member of united internet

FEEDBACK

"If you own a computer, something is going to go wrong sooner or later."

ONETRAVEL: THUMBS UP—

MY EXPERIENCE DOESN'T SUPPORT your low rating of OneTravel.com (April 20, page 156). I check Expedia and Orbitz for every trip I make, and three out of five times I end up choosing OneTravel. OneTravel misses low fares at times. But if you check the site a couple of times, it generally produces a lower fare than either Expedia or Orbitz. The other feature of OneTravel I like is that its hotel listings usually mirror the deposit and more favorable cancellation policies of the hotel provider, while Expedia often requires prepayment and has cancellation penalties. Orbitz is usually a great site to check first, but I almost never book anything there. The last couple of times I tried, the low fare they displayed proved to be bogus. I'd hate to see OneTravel go away.

CRAIG SMITH

—AND THUMBS DOWN

IN LATE 2002, I bought a round-trip ticket from Amsterdam to Valencia, Spain, through OneTravel.com. The airline abandoned the route before my travel date, and I returned the flight coupons, as requested, to OneTravel in June 2003. I have been trying to get a refund ever since. I have sent numerous e-mails, made dozens of calls to their customer service lines, and written formal letters to their managers without response. I've filed a complaint with the Better Business Bureau, which tried to get a response from OneTravel for almost two months without success. They also confided that I was far from the only person with complaints regarding OneTravel. By the way, OneTravel did not notify me of the flight cancellation, and I would have been stranded in Amsterdam. Your readers should be made aware of the problems that can arise when dealing with some online travel agencies!

JOHN M. CLARK

As this issue was going to press, we received another letter from Mr. Clark saying that OneTravel had finally refunded his fare.—Ed.

DOT-ORG PRIDE

AS A FURTHURNET ADMINISTRATOR, I was thrilled that we made your list of the 100 best undiscovered sites (April 20, page 85). Although we've been around for a while, all of the P2P press these days centers around Kazaa and RIAA/MPAA controversies. One minor complaint: dot-org, dot-org, dot-org! We like to think we're not much of a dot-com, as we are a not-for-profit network and organization, but dot-com is what always shows up for us at Google and the like. Not that dot-com will lead you anywhere but to the dot-org site, we're just picky about it.

ALLEN DAVIS

POLITICALLY CORRECT MAGAZINE?

SOME OF THE CONSPICUOUS equal-time omissions from your list of the top 100 classic Web sites (April 20, page 96) include The Wall Street Journal Online's OpinionJournal.com (to offset nytimes.com and BBC News) and The Drudge Report (to counteract MSN Slate Magazine and RollingStone.com). Balance? Who needs it? Right?

BOB HALL

EVEN IT PROS NEED HELP

I CAN'T BELIEVE that you neglected to include protonic.com in your free support category in "What to Do When Things Go Wrong" (April 6, page 76). I am a computer professional, but even us geeks have trouble with computers sometimes. And protonic.com has solved my problem every single time I have used them. They are at the top of my favorites list now. If you own a computer, something is going to go wrong sooner or later.

STEVE HOLT

WHAT'S WITH MEDIAPLEX?

I ENJOYED "SPY STOPPERS" (March 2, page 79), which did a great job of describing spyware issues and provided an excellent review of available products. Interestingly, though, Spybot S&D has some significant issues with *PC Magazine*'s Web site. If I set the program to ask permission before blocking any spyware, I get the following message each time I browse a page on *www.pcmag.com*: "Spybot S&D reports that you want to download Mediaplex. This is a known threat. Do you want to block this download?" What does Mediaplex do, and why is it used?

TED SANDOVAL

Mediaplex, Avenue A, and others are providers of banner advertisements. PCMag.com, *like most large Web sites, supports itself in part through banner ads. The banner ad site uses cookies to track what ads you've already seen, so it can show different ones. No personal information is sent, just the information that your IP address has already seen certain ads. Antispyware programs frequently identify these as "tracking cookies" or "spyware cookies," but they're actually harmless.—Neil J. Rubenking, Lead Analyst, OS and Utilities,* PC Magazine.

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MAIL Letters, *PC Magazine,* 28 East 28th Street, New York, NY 10016-7940.
All letters become the property of *PC Magazine* and are subject to editing.
We regret that we cannot answer letters individually.

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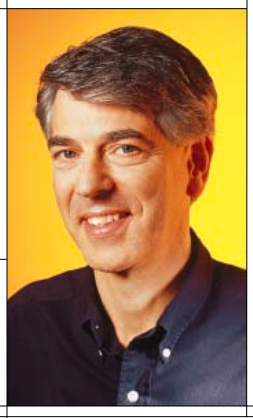
Bill Machrone

Vrooms and Zooms



Many cars display fault codes on the dash, but if you don't know what they mean, you're still at the mercy of your mechanic.

Once again, *PC Magazine* readers are on the ball. I wrote about the AutoXray EZ-Scan 6000 digital engine analyzer, praising the ease with which this handheld device cuts through the mysterious veil of on-board diagnostics (OBD II) codes behind the Check Engine light, then hooks up to your computer for a full diagnostic record.

Readers pointed out that many cars display their fault codes right on the dash, usually after some predetermined sequence, such as turning the ignition off and then on. True, but if you don't know what the codes mean, you're still at the mercy of your mechanic. Fortunately, there are sites that explain the codes, such as *www.obdii.com* for generic codes and *www.iequus.com/obd_def.asp* for manufacturer-specific codes. The latter site is sponsored by a maker of simple, codes-only readers. Codes-only handheld readers don't provide the detail that the EZ-Scan does, but they go deeper than the dashboard display.

If you have a laptop, you have the guts of an OBD II reader. (I'm assuming you don't have a PC in your garage.) All you need is an interface to your car's diagnostics socket, which costs around $100 to $120, plus some software. Readers praised Digimoto (*www.digimoto.com*) not only for its OBD II diagnostics, but for its extended functions, such as compiling performance statistics. Digimoto can clock 0-60 time and quarter-mile time and speed; it will also calculate estimated torque and horsepower curves based on vehicle weight, tire diameter, etc. If you're into performance tuning, this is the kind of proof you need that your newly installed exhaust system makes your car not just louder, but faster.

Of course, you can derive horsepower simply by knowing your vehicle's performance and weight. I grew up with a tattered copy of the National Hot Rod Association's nomograph (specialized slide rule); its three graduated vertical bars let you position a ruler on your vehicle's weight and your quarter-mile time to determine your approximate horsepower. Today, you can enter the information on a Web site, and it tells you your horsepower. For a nice collection of interactive calculators, check out the Hardcore Mustang Drag Racers Forum (*www.hardcore50.com/members/calculators.htm*).

There are big differences between OBD II and ECU readers. If you buy an OBD II device to reprogram your car's engine control unit, prepare to be disappointed. OBD is, as the name implies, primarily diagnostic. You aren't able to do much more than clear fault codes and turn off the Check Engine light. That's for your own protection—a device that can read and write to the engine control unit's registers can be dangerous if you don't know what you're doing. You don't, for example, want to reprogram the antilock braking system.

Why reprogram the ECU? Some modifications to an engine's intake and exhaust systems can cause problems. Improving breathing with larger or tuned intake and exhaust components can cause the engine to run too lean, which results in overheating, detonation (knocking, not explosions), and burned valves and spark plugs. Although most ECUs compensate automatically, there's a limit to what they can do. Telling the ECU to provide more fuel produces more power and returns the air/fuel ratio to its correct range. Take a look at *www.ecutek.com.au* for an example of PC-based tools geared to the professional tuner.

THE KEN BURNS EFFECT AGAIN

Poor Ken Burns has lost control of his name. He should have trademarked it. A Web search turns up as many references to the Ken Burns Effect—panning and zooming on still images—as to his documentaries. Although Apple's iMovie was probably the first piece of software to perform this eye-catching feat, it's quickly becoming a required feature of every slide show–making and DVD-burning program.

Though you may not have made your first slide show with the Ken Burns Effect, I'm hearing some backlash from people who consider it overused already, like the "unnecessary zooms" in *Wayne's World*. Don't listen to them. It's far better to offend the oversensitive aesthetes than to bore the rest of your audience to tears.

Still, don't keep every image in motion all the time. Give the audience a chance to focus on static images when appropriate, or use some subtlety, such as centering an image and zooming in very slowly. Use the effect for transitions and to direct your audience's attention. They'll thank you for it. You'll find some of the best implementations of the effect in Roxio's Easy Media Creator 7 and in 321 Studios' DVD X Show.

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

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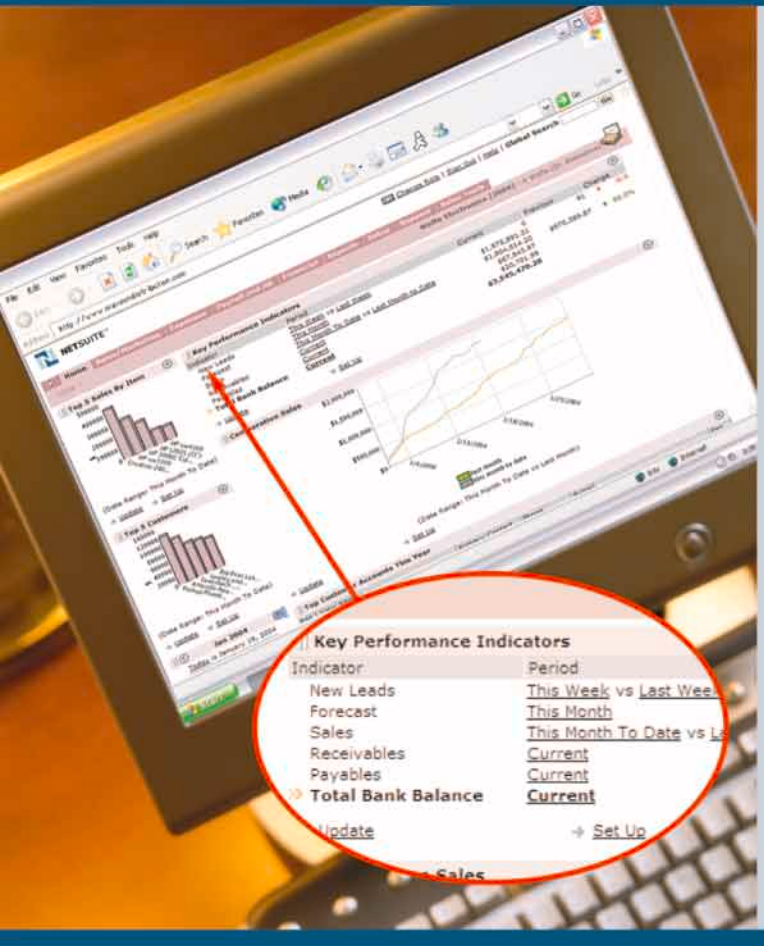

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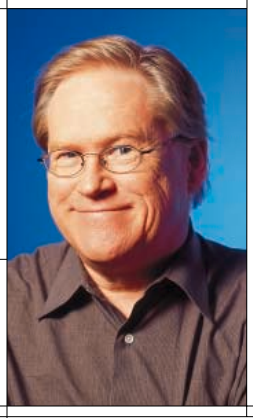

A Phone as Your Next Computer? Never.

Whenever I hear the assertion that one day your mobile phone will become your computer, I can't stop laughing. It's ridiculous. The mobile-phone business is a bonanza, with huge sales (nearly a billion units were sold worldwide over the past two years) and the never-ending upgrades. In case you haven't noticed, people like to chat incessantly on the phone. That's what cell phones are best for, even though the mobile-phone folks with their 3G and now 4G proposals seem intent on making these devices the most important things you'll ever own, your gateway to all your personal information and to the Internet.

It's a shame that mobile phones generally stink. They stink in Asia, in Europe, in Africa, and in Russia, but they really stink in the U.S., which may be our only edge: They stink so much that we are not quite as enamored with them as everyone else. The propaganda message promoted to the American public is, "We are so far behind Asia and Europe when it comes to these phones!" What is that supposed to mean? We're not talking enough?

I won't deny the usefulness of mobile phones, but let's objectively examine the idea that they will replace desktop and laptop computers. As far as I'm concerned, the basic technology has gone downhill over the years. Adding cameras and PDA capability isn't helping.

Let's start with the digitization of the mobile-phone networks. Anyone who remembers the earlier phones — analog car phones, phone packs, or even the big analog cell phone "bricks" — knows that service has progressively deteriorated. The analog system was far superior, but has been supplanted by an "all digital" network that the phone sellers actually brag about! Calls are constantly dropped. The towers are full of chatting teenagers. It's a laugh.

"All digital" is synonymous with poor quality, as the technology is used not to improve performance but to jam more calls into a smaller slot. The next time someone brags about digital phone technology being so great, flick them on the nose as hard as you can. I'm serious.

I recently got the latest Nokia super phone, the 6600. It's a nice phone, but it uses the Symbian OS, which people like for just one reason: It's not the Microsoft OS. I have not been able to use a phone with a Microsoft OS for more than five minutes without wanting to stomp on it. The Symbian OS is marginally better, but nothing makes sense on it. No wonder Psion sold it off. You can't find what you want easily. The menu system is redundant and stupid. It's as if it were invented to be difficult, just because someone enjoyed pushing too many buttons to do a simple chore.

The only phone OS with a prayer is the Palm OS for phones: It's simple and easy to use, and the phone functions are kept well away from the PDA apps, which is good. It's used on the Treo, Samsung, and Kyocera PDA/phone combos. Too bad that those are extremely expensive phones with questionable battery life.

Whatever happens with Palm, all research points to Nokia and Motorola winning the market-share game, with an OS that can go nowhere. This kills any chance of a powerful phone overtaking the desktop computer.

The problem is not just with the operating system. The leaders —Nokia, Motorola, Ericsson, and Samsung — all have so many models that it's nearly impossible for consumers to choose the right phone. Whatever happened to the idea of one perfect device? We don't need this many models and this much confusion.

Take the carriers (please!). The typical phone plan is mostly a lie. This has been the modus operandi of the phone companies for years. They tell you one thing, but there are so many hidden charges and steep price increases that what you get is never the unlimited $30 plan you signed up for. You have to draw the conclusion that all phone companies are basically dishonest.

I think I've made it clear that none of this points to the mobile phone as a computer replacement. It's never going to happen. At best they have a Blackberry-like keyboard, the screen is too small to be used for anything, and browsing is ridiculous — and expensive. Even in a docking station, the phone will never cut it as a computer. I don't think these things are even very good phones — they are annoying on so many levels. My ring tone is a rooster crowing — my revenge!

This is going to be your next computer? Har!

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

The next time someone brags about digital phone technology being so great, flick them on the nose as hard as you can. I'm serious.

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Inside Track

Here We Go Again Dept.: Apparently Iomega is going to make a comeback by reinventing the **removable hard drive.** The new subsystem will have a capacity starting at 35 gigabytes, with upgrades expected to double and triple that amount in the future. Iomega expects this to become a backup option for the monster hard drives we are now seeing. Maxtor and Seagate have massive **standalone** hard drives for the same purpose; and if you ask me, the tape-drive boys led by Quantum won't take this lightly.

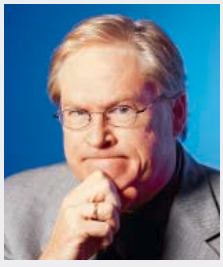
Iomega had the world by the tail for the short time its Zip Drive dominated the scene, but it has since become a ho-hum operation. It's still seen as riding on the reputation it gained as a fine engineering group when it was selling the pre-Zip Bernoulli drives. Its most interesting current offering is a DVD±RW drive that also does DVD-RAM. Years ago, when Iomega developed its Jaz Drive (a removable hard-drive system), all it managed to do was put industry leader SyQuest **out of business.** The new drive seems more of a threat to Fujitsu and its ultrareliable, high-performance magneto-optical drives.

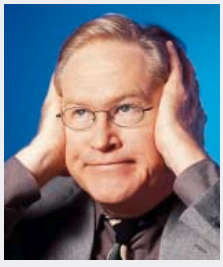
Digital Darkroom for Artistes Dept.: If you have a good photo printer, you won't be able to resist running at least one batch of Lyson's special **monochrome inks**—just to get those archival black-and-white images that make you look like a serious photographer. These are not cheap inks from China but pricey professional inks that are remarkable in every way. Lyson, the leader in this niche, has recently released small-gamut color inks designed to add a slight tone to your monochrome prints. You can hit some real home runs with this ink once you get used to its capabilities.

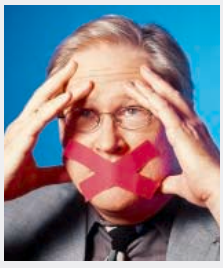
Digital photographers should play around with such inks, if for no other reason than to discover how **different the digital monochrome process** is and how surprising the results can be. Lyson also has its own photo paper that matches the inks. Special Photoshop drivers are used to make these inks work correctly.

I recently had a talk with Lyson about **dye versus pigment,** and the consensus is finally coming back around to dye with the improved formulations. "Pigment prints simply do not look as good as dye and never will," I was told. I agree. Lyson told me that the old predigital darkroom process for color printing was always dye, with dye sublimation being the preferred method for fine printmaking.

Pigment-based inks for digital photography became the vogue when Epson started promoting them a few years back, after people noticed that dye prints were **fading inordinately fast.** Since this turned out to be more a function of the paper than the inks (pigments were fading inexplicably fast, too), the thinking has changed. On top of that, you can expect most of the **research money** to go into dye-based printing, as dye generally works better in an ink jet environment. The Lyson folks are leading in dye-based inks of all sorts (*www.lyson.com*).







What interests me most about the Silicon Valley executive elite is how generally callous they can be about offshore outsourcing.

Hot Spot Mania Dept.: Although it's getting easier to find open hot spots, there are many situations, such as conventions and seminars, where you would like to throw out a hot spot for attendees but don't want to go through the agony of administering a hot spot–based network. If you run a motel or restaurant, you may not want to put up an open network for every passerby to **poach.**

Try out the ZyXEL ZyAIR B-4000 Gateway (*www.zyxel.com*). Designed for commercial applications, it includes a subsystem that uses a printer to print out log-on information. You can even do billing and receipt printing for short-term access if you want to defray costs by charging for a connection. With its home page redirection and "walled-garden" access, you'll give the impression you know what you're doing. **Hot stuff.** Sells for around $650.

Offshoring Update Dept.: It's fun to watch people take sides on this issue. The **Cavalier Comment** of the Month goes to T.J. Rodgers of Cypress Semiconductor, who was quoted in *EE Times* as saying: "The clamor against outsourcing is low-class, a diatribe. In general, the world is much better off when people are working at the skills they are good at. India is one of the most skilled in software, so it is right for the world to buy Indian software."

Hmm, I wonder what Indian software he's talking about. Office? Notes? Windows XP? Linux? SAP? Oracle? What exactly?

What interests me most about the Silicon Valley **executive elite** is how generally callous they are about all this. Instead of showing **even fake sympathy** for the American engineers who made them filthy rich, they instead make comments about how it's all such "low-class" clamor. "Daphne, would you pass the chardonnay, please? More caviar?"

Open Letter to Virus Writers: Since there is nothing anyone can do to stop you, can you at least do computer users one favor over the next year? The current method of finding addresses in a user's address book and **spoofing e-mail** using bogus senders has stopped working, so can you back off and go **back to the basics?** Please, oh please, use the name of the person who actually initiated the virus by stupidly clicking on one of your dopey attachments. We want to see who these people are!

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Bill Howard

Not with the User in Mind

How do consumers benefit from having notebook and portable DVD players that only work in parts of the world?

While we wait for Longhorn, with the magical enhancements to ease of use that this next version of Windows (due out around 2006) promises, it would be great if we could address other niggling usability concerns. Here are some things, involving forms, car electronics, and entertainment devices, that make me wonder, at least momentarily, whether I'm on top of technology or vice versa.

I fill out a lot of forms in my business and personal life. Many of them start in Adobe Acrobat. I have to download a form, print it, and fill it in, then fax or mail it back. Why can't Adobe create an electronic form-filler for its free and ubiquitous Acrobat Reader? All Adobe needs to do is reverse-engineer the brilliant FormTyper utility in Scansoft PaperPort ($100 direct), which treats all horizontal lines in Acrobat and PaperPort files as potential fields and lets you tab among them, then overtype.

Many user manuals are created in Acrobat format but never printed; it's assumed you'll read them on-screen. Vendors should think about making them in landscape format, to match your computer screen, rather than in portrait mode. Also, body text should be 12-point type so it's legible on-screen. Pagination should start with the cover as Page 1 (it doesn't have to say Page 1, it should just be Page 1) and the initial pages should be 2, 3, 4, not i, ii, iii, because when you go to the table of contents and see Troubleshooting on page 51 (there's usually no hot link—something else that should be fixed), jumping to page 51 using Acrobat's go-to tool actually takes you to around Page 45. Arrgh!

When I'm filling out an online air bill using a shipping address someone provides by e-mail, why can't FedEx, Airborne Express, or UPS let me highlight the address block, drag it to the online form, and let their otherwise amazing software figure it out? For reference, they can see how little bitty Anagram (*www.getanagram.com*) does it.

For SOHO (small-office/home-office) or small-business users of courier services, there should be a toggle that says, "If I haven't created any shipments in the past half hour, automatically schedule a pick-up," rather than making you go to a separate window and answer a bunch of questions to ask for one.

The car is another realm of frustration for tech-savvy users. When are more than a handful of automakers going to add iPod line-in jacks to their radios? Privately, some say that would kill dealer sales of trunk-mounted CD changers. Right. Like having six CDs that are a pain to change will make you forget that your MP3 hard-drive player has 1,000 CDs. It would be too much to hope for to have a USB 2.0 connection so you could draw power, transfer music, and transfer song information to your car's LCD panel.

Why can't I create a driving trip on my PC and then transfer the information to my car's navigation system? Oh, right, the most expensive electronics-filled device you own, your car, probably has no Bluetooth and no Wi-Fi. Believe it or not, some 15 car models use Windows CE in the dashboard, so it's possible you could transfer the trip info from PC to Pocket PC or car.

Help me understand again how consumers benefit from having notebook and portable DVD players that work only in parts of the world. If I'm on business or vacation in Europe, why shouldn't I be able to rent discs locally? I'm not in favor of piracy, but I don't have a problem with hardware hacks that make DVD players global devices. It can't be that Hollywood wants to control the regional rollout of movies on DVD. The pirates have already assumed that role.

And why can't I set my DVD player to skip the FBI piracy warning as well as all the coming-soon-to-DVD ads on the disc I paid for? The piracy warning is about as effective as the "Highway Workers—Give 'Em a Brake" signs that you see at road construction sites.

When digital media hubs, which play MP3s from your PC on your stereo system and show song info (or photos) on your TV, are inactive, many launch a screen saver. Often, it's the vendor's logo, which can be neither turned off nor replaced with your own picture. Am I the only one who's annoyed that a vendor uses my $3,000 big-screen TV as an indoor billboard? Especially when the same logo is on the regular screens or the background. Annoying as Microsoft can be, its Media Center Edition doesn't have these quirks, so that's one thing you don't have to wait for Longhorn to fix.

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More Than Just Megapixels

Image size is important in selecting a digital camera, but it's far from the complete picture. **BY DANIEL GROTTA AND SALLY WIENER GROTTA**

Pushing the old adage that more is better, most manufacturers market their newest digital cameras by touting how many more megapixels they have than previous or competing models. By this logic, a 4MP digital camera can't possibly be as good as one with 5MP, and an 8MP unit has to be better than a 6MP model. Right?

Wrong. Megapixels are a measure of *quantity* (the amount of data captured), not *quality*. A digital camera's image quality is based not on a single component, but on an entire system. True, the heart of the system is the image sensor, with however many megapixels, but that's only part of the equation of how image quality is achieved. Here, we explore some of the other factors that go into producing high-quality digital photos.

PIXELS

More pixels do not necessarily make a camera better, but their size is another matter. Pixels on an image sensor are like shallow buckets that catch photons of light, which the sensor then converts into an electrical charge (electrons). The bigger and deeper the pixels, the more photons they can capture, and the greater the pixel's ability to record detail in the shadows and highlights (dynamic range).

Most digital cameras use either CCD (charge-coupled device) or CMOS (complementary metal oxide semiconductor) image sensors. Larger sensors generally produce greater dynamic range, higher sensitivity, and better signal-to-noise ratio, primarily because they have room for bigger, more light-sensitive pixels. For example, among 5-megapixel models, the Olympus E-1's CCD is approximately 4.2 times as large as the Leica Digilux 2's CCD, and 6.3 times as big as the HP Photosmart 945's. This allows for correspondingly sized pixels: the Olympus's pixels are 6.8 microns wide, while the Leica's are 3.4 microns and the HP's are 2.8 microns. (For information on an unusually designed image sensor, see *www.pcmag.com/article2/0,1759,1421879,00.asp.*)

LENS

A camera's lens is just as important to image quality as its image sensor. Depending on their design, lenses may have different resolving power and varied contrast and color characteristics. Generally, high-speed lenses (maximum apertures of f2 or larger) are better for available-light photography, but tend to lose more data near the picture's edge than slower lenses (f2.8 or below) when shot wide open.

Modern zoom lenses are every bit as good as fixed-focal-length lenses, but pictures shot at wide angles (28mm or 24mm equivalencies) have slightly more barrel distortion (where straight lines bow outward from the image center), while telephoto pictures (135mm-280mm) tend to produce the opposite, pincushion distortion. Extreme zooms (6X or greater) are heavier and harder to hold steady, which is why some better models come equipped with antishake technology.

The first digital-camera lens designs were taken from camcorders or film cameras. Some inexpensive models had plastic lenses, which frequently distorted colors and reduced the clarity and quality of light. Even the better models, which used optical glass, often produced vignetting (underexposure of image edges and corners), because light passed through the lens at oblique angles at the edges of the image sensor. (Light must strike image-sensor pixels head-on for the photons to be collected properly.)

Eventually, optical-glass manufacturers

FIGURE 1: Test photos from two 5-megapixel cameras, the Leica Digilux 2 (left) and the Argus DC3810 (right). While the images are comparable in sharpness (the Argus uses a Ricoh lens), the one from the Argus is muddier and poorly exposed.

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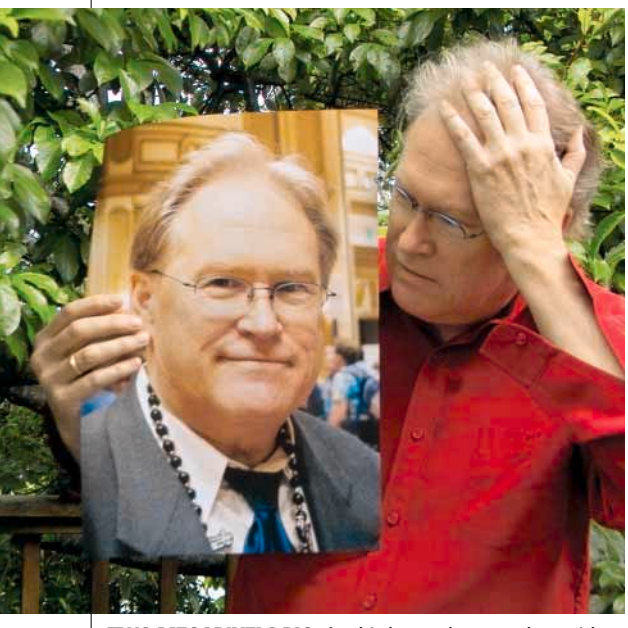

TWO MEGAPIXELS BIG: As this huge photo—taken with a 2-megapixel camera—shows, focusing on finding a good camera, not just on counting megapixels, is what's important. See Bill Machrone's column at *www.pcmag.com/article2/0,1759,1523608,00.asp* for details.

began building lenses specially designed for digital cameras. They made use of aspherical elements, low-dispersion glass, exotic color coatings, and other innovations. Some companies formed strategic alliances with distinguished lens manufacturers—Kodak with Schneider, Panasonic with Leica, and Sony with Zeiss—to add prestige and enhance lens quality. Cameras with brand-name lenses (or from camera companies with a history of superior lenses) almost always rate higher in our image quality tests.

With lenses, cleanliness is almost as critical as quality. Dust, fingerprints, or other surface impurities can significantly reduce image definition and integrity. Stray light can cause flare, chromatic aberrations, and other problems, so a proper lens shade is important.

CONVERTER

Though it might come as a surprise, *all* cameras—film, video, and digital—capture analog, not digital images. The CCD converts each pixel's charge into an analog signal of varying voltage, and then an internal analog-to-digital converter (ADC) changes that signal into digital data (bytes). The better (and more expensive) the ADC, and the higher its bit rate (16-bit or 12-bit, as opposed to 8-bit or 10-bit), the smoother the transitions and the more details in highlight and shadow areas. While you can't (and shouldn't) select your camera based upon the type and bit depth of its ADC, cameras offering higher bit depths may produce richer images. (For more about the inner workings of image sensors, see *www.extremetech.com/print_article/0,1583,a=2036,00.asp.)*

FILE FORMAT

How images are saved can directly affect picture quality. Most users prefer the JPEG file format, which is often the only format offered on consumer digital cameras. A good compromise among speed, image quality, and space savings, JPEG is a compressed format that actually throws away image data to shrink the file to a smaller size. Most digital cameras offer two or three levels of compression. Some inexpensive models typically offer 8:1 to 25:1 compression levels, while better cameras' compression levels range from 2.7:1 to 8:1. Cameras with lower compression ratios tend to have cleaner images.

After testing a number of digital cameras with the ability to save RAW files, we now shoot almost everything in RAW format when image quality is the most important factor. RAW saves all related image data with no in-camera processing, allowing photographers great latitude in how they want their pictures to appear.

THE SECRET SAUCE

Some digital cameras score very well on all our low-level tests, indicating that the lens, image sensor, ADC, and other components are quite good, yet their photos aren't up to our expectations. The key factor is how the manufacturer's color and imaging scientists program the camera to interpret the data that defines the photo. These proprietary algorithms help determine how—and how good—the picture will look. This explains why cameras with the same lens and image sensor (which are often sold as part of a kit) may produce images that look quite different.

If you like the pictures that a camera produces, it's probably because you like the choices the designers made, and those choices will likely be made in most cameras from that manufacturer. When you find a camera brand whose images you like, you will probably do well to stay with it.

Sally Wiener Grotta is a contributing editor at PC Magazine *and Daniel Grotta is a frequent contributor. Their new book,* PC Magazine's Guide to Digital Photography, *will be published this autumn by John Wiley.*

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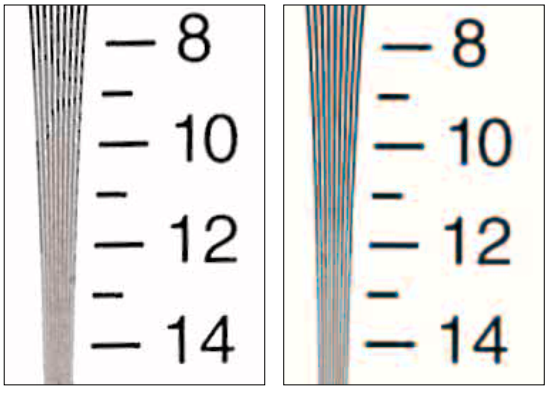
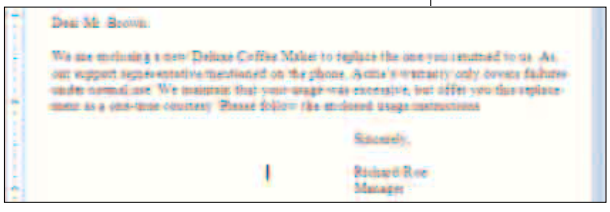


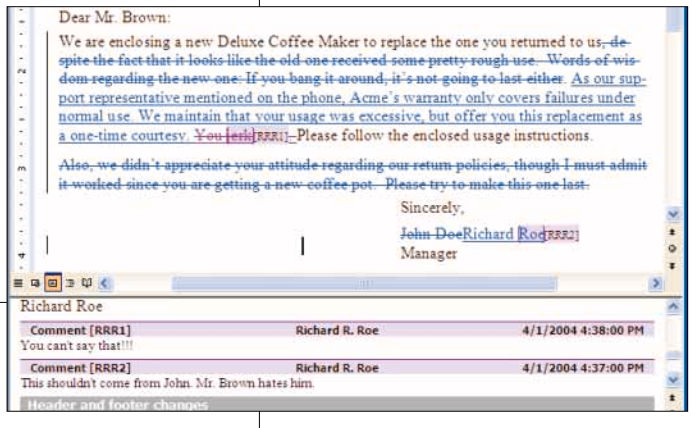
FIGURE 2: An ISO target is used in testing a camera's resolution. Sharpness is determined by the average number of gray transition pixels there are between pure black and pure white; the fewer the transition pixels, the sharper the image. Enlarged portions of the ISO targets from the Kyocera Finecam S5R (left) and Sony Cyber-shot DSC-V1 (right), both 5-megapixel cameras, are shown here.

Revealing Codes

Warning: Hidden data in Word and other Office documents may prove harmful to your career. **BY DAVID A. KARP**

What do your Microsoft Office documents say about you? SCO Group, a Utah-based business software company, found out the hard way when it recently filed suit against DaimlerChrysler and AutoZone. The suit's text had been created in Microsoft Word with Track Changes enabled, which users commonly do so they can see what edits were applied and by whom. Unfortunately, as is too often the case, no one had removed the tracking—which revealed, among other things, that Bank of America had been the original intended defendant.





THIS MIGHT BE what you thought you sent to your customer (above), but if you don't remove revision marks, this might be what he sees when he opens the document (right).

Every Microsoft Excel, Word, and PowerPoint document contains a variety of information that remains present but hidden until you remove it or someone else extracts it. And therein lies the problem: If you plan on sharing or publishing your Office document, you may be sharing more than you intend.

The list of hidden data in an Office document may include everything from your name and e-mail address to deleted text, revision marking, and even the locations of related files on your computer. While some of the data is needed for collaboration features to work, other bits and pieces are not so vital. And whether or not these things are stored in your files depends largely (but not entirely) on settings in your Office applications.

For instance, you can change a setting to remove the information (commonly called metadata) displayed in the document summary. Select Options from the Tools menu, choose the Security tab, and check the "Remove personal information from this file on save" option.

Office apps will keep track of the revisions you (and others) make to your documents if you select Track Changes from the Tools menu, but you'll be able to see them only if you also choose Markup from the View menu. As the file is modified, any text that is deleted will continue to be stored in the file, along with the name of the person who deleted it. It's easy to overlook that deleted text if you choose to view the final (without markup) version of the document, so don't forget to banish any deleted text permanently. You can get rid of specific selections of deleted text by right-clicking the text and selecting "Accept Deletion," or remove them all at once by clicking Accept All Changes on the Reviewing toolbar.

If you really want to rid your documents of sensitive information, use one of the following tools.

Microsoft's Remove Hidden Data add-in (rhdtool.exe) is a command-line utility and macro available at office.microsoft.com. This tool will automatically remove all of the reviewing data and personal information, as well as about 30 types of hidden data that you probably didn't even know were stored in your files (routing slips, e-mail headers, and file paths to embedded objects, to name a few).

To use the add-in from within Word, you'll need to first save your file and then select Remove Hidden Data from the File menu. Or, use the command-line utility—the syntax is described in the included offrhdreadme.htm file—to remove hidden data from multiple files at once. Keep in mind that the add-in is a little buggy, and requires patience to get past the stalls and quirks of this Microsoft freebie.

If you create Web pages with Office, you'll want to look at Office 2000 HTML Filter 2.0 (office.microsoft.com). Not only will this tool remove nearly all hidden data from your Office-generated HTML pages, it will purge the extraneous HTML tags that clutter your Web content. It will also significantly shrink your files, decreasing their size and download time by as much as 50 percent.

If you grasp the implications of situations like the one SCO faced, you'll want something more automated than Microsoft's free tools. Both Esquire Innovations iScrub (*www.esqinc.com*) and Workshare Protect (*www.workshare.net*) include add-ins for Microsoft Outlook that ensure that all Office documents sent as e-mail attachments are cleansed of potentially sensitive information.

But no automated solution is perfect, mostly because of the ease with which these tools can be circumvented. Conversely, such a system might remove collaboration data from a file on its way to an editor. (Tip: put that document in a ZIP file to make it immune to tampering.) Likewise, an e-mail-based tool won't prevent someone from posting an uncleansed Word file on a Web site.

David A. Karp is a slightly paranoid privacy advocate and the author of Windows XP Annoyances *and* eBay Hacks *(O'Reilly). He can be reached at david@ebayhacks.com.*

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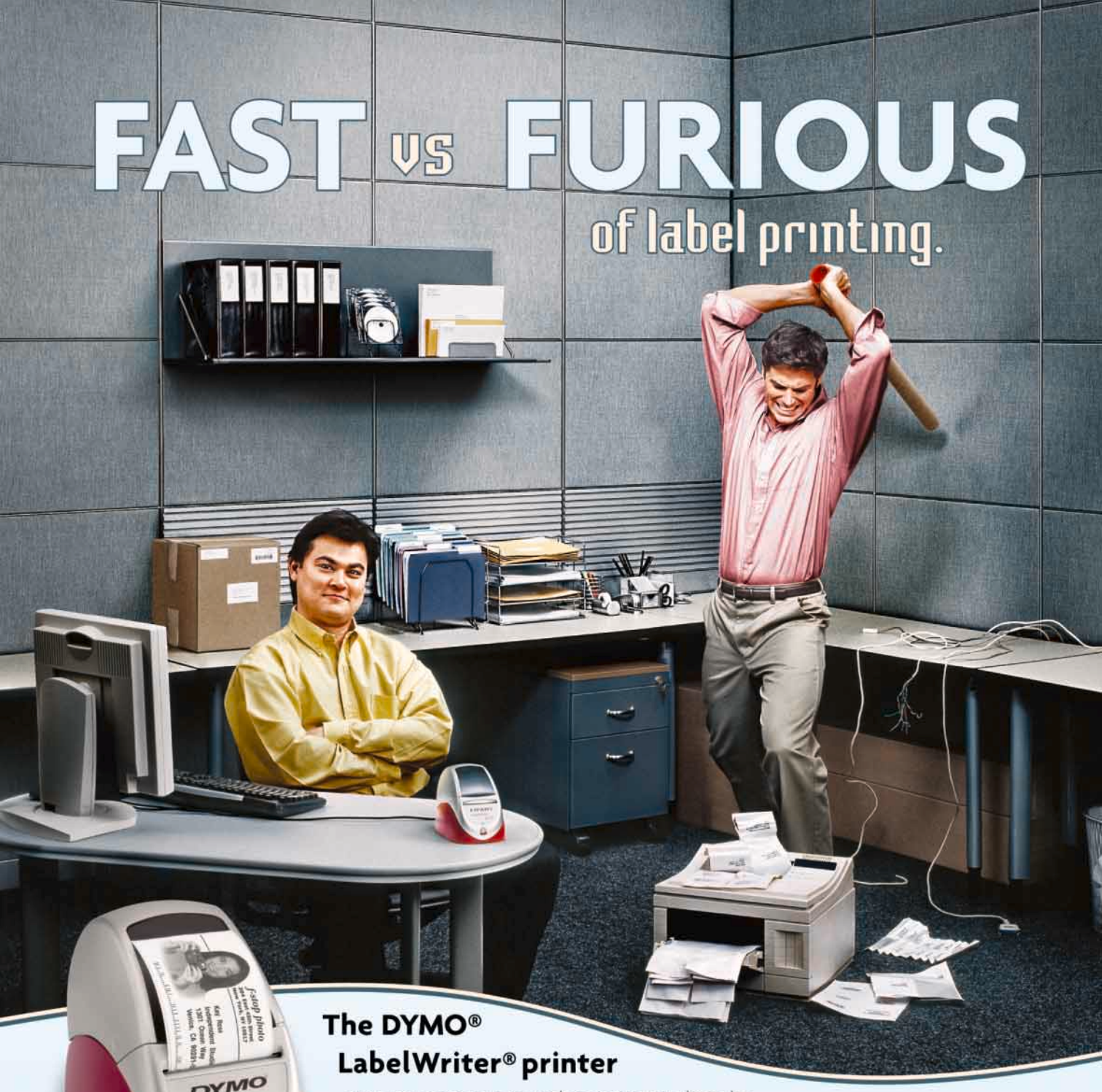

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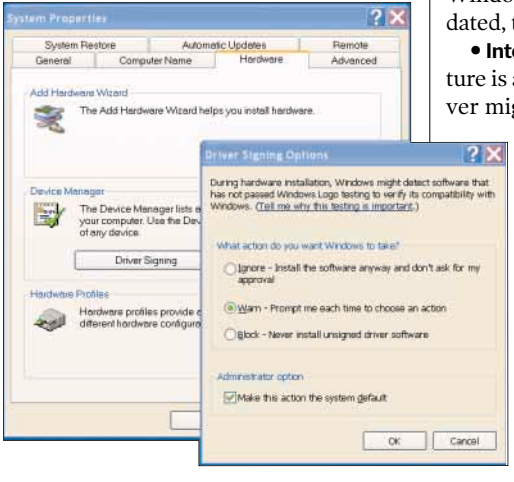
Good-Driver Program

Signed drivers offer the best combination of features and stability. **BY BILL HOWARD**

Your graphics card feels a bit sluggish, and your multifunction printer's duplexing feature isn't duplexing, but at least they work and your PC is stable. Should you live with things as they are or track down new drivers? In the old days, you might have had to decide between stability with fewer features, on the one hand, and getting more features at the risk of destabilizing your system on the other. Now, you'll probably want to go after the new driver. Let's see why.

Windows XP represents a major step forward in stability for users, in large part because of its certification program for drivers. This program sets minimum standards of performance and stability for drivers that can be bundled with Windows or downloaded from the Microsoft site, or that can carry a "Designed for Windows XP" logo. See *www.microsoft.com/winlogo/benefits* for details.



YOU CAN CHOOSE how Windows will respond when it encounters an unsigned driver. "Warn" is the best choice for most users.

These are called *signed drivers,* because they come with digital certification that tells Windows to accept them and, in most cases, install them automatically. When a driver is signed, Microsoft is stating that it is compatible with the other software and hardware in your system, that it shares system resources properly, and that it won't crash or interfere with other applications running at the same time.

In the early days of Windows XP, vendors wanted their drivers included on the first Win XP upgrade CDs and on the first PCs, so in some cases they pared back the feature set to get the drivers out the door and certified. Users were sometimes left choosing between a stable driver with fewer features and a more interesting and useful driver that might crash.

Today, unsigned drivers typically fall into four categories:

- **Little fish.** Smaller companies may lack resources to certify new products quickly.
- **Older products.** This far into the life of Windows XP, if a product hasn't been updated, that's a bad sign for its future.
- **Interim releases.** If a valuable new feature is added or a bug is caught, a new driver might be posted before it passes the Microsoft certification process.
- **Drivers for gamers.** Final testing for major new games occasionally uncovers glitches that cause problems between the games and some graphics cards. A game's manufacturer often releases an uncertified patched driver that plays the game but might conflict with other applications.

Windows XP is better able to deal with unsigned drivers than previous versions of Windows were. An unsigned driver may crash, but usually Win XP can contain the problem and not let it bring down the entire system.

Win XP also lets you determine how much feedback you get when an unsigned driver is about to be installed. Go to Control Panel, click on *Performance and Maintenance | System,* choose the *Hardware* tab, and then click on the *Driver Signing* button. You can choose from three actions for Windows to take if it detects an unsigned driver: Ignore the situation and don't ask for approval, warn first and let the user decide, or block all unsigned drivers. Most users leave the setting at the default middle option.

These days, however, there aren't many reasons to use an unsigned driver other than for hot new games or for aging devices. You can check whether a device has a certified driver by going to the Windows catalog (*www.microsoft.com/windows/catalog/*) and typing in the product name, though this won't necessarily have a direct link to the most recent version.

You can update drivers from Microsoft's site using Windows Update, but you'll likely find newer drivers with more features on vendor sites.

Bill Howard is a contributing editor of PC Magazine.

FINDING UNSIGNED DRIVERS

There are two ways to check for unsigned drivers in Windows XP. Here's how to find out whether a specific installed driver is unsigned.

- **Click on *Start* | *Control Panel* | *Performance and Maintenance* | *System.***
- **In the System Properties dialog box, on the Hardware tab, click on *Device Manager.***
- **Double-click on the device name in the list of hardware devices on your system.**
- **In the device's Properties dialog box, click on the Driver tab, and then click on *Driver Details.***
- **Signed driver files each have a certificate icon with a green check mark. Unsigned files have no icons.**

To check your entire system for unsigned drivers, use the File Signature Verification tool.

- **Click on *Start,* click on *Run,* type *sigverif,* and then click on *OK.* File Signature Verification opens.**
- **Click on *Advanced* to open the Advanced File Signature Verification Settings dialog box.**
- **Click on *Look for other files that are not digitally signed.***
- **In the *Look in this folder* box, enter *UI SystemRoot UI\System32\drivers,* where *SystemRoot* is the folder in which Windows XP is installed (such as C:\WINDOWS), and then click on *OK.***
- **Click on *Start* to begin.**
- **The results are copied to the log file Sigverif.txt, which is located in the *SystemRoot* folder. In the Status column, look for files listed as Not Signed.**

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SECURITY WATCH

New Online Job Scam

Don't let "Help Wanted" turn into Help! Be wary of online job postings. **BY JAY MUNRO**

In these tough economic times, many of us are looking for work. But don't let your quest for employment suck you into the innumerable "work at home" scams riddling the Internet. In particular, watch out for a new trick that targets PayPal users. We've had several reports lately that describe a similar scenario: An online ad seeks to hire people to use their own PayPal accounts to facilitate sales for customers who allegedly have no other way to transfer funds.

Here's a typical, but real, example reported to us in March. The victim answered a Monster.com job ad like the one in Figure 1, posted by a company called Insync Soft that claimed to be based in Prague, in the Czech Republic. Looking for people with experience using PayPal, the company promised to pay 10% and up on any transactions the person facilitated. (Monster.com has since removed the ad.)

In a follow up e-mail, Insync Soft representative William Lesoe claimed PayPal wasn't allowed in his country (it's not), so the company needed someone from the outside to act as a middleman to receive funds from customers buying software. But—and here's the catch—the job seeker (that is, the victim) had to set up and use his own PayPal account and to send Insync Soft payment and log-on information. And he had to use his own credit card and bank account to guarantee the PayPal account.

You can probably guess the rest of the story. The victim receives credit card payments from "customers" to the PayPal account, then sends the money out of the country by an untraceable Western Union cash transaction. As with the infamous Nigerian scams, the victim is supposed to keep a percentage of the money.

But there's no happy ending. Once the money has been withdrawn and sent, there are charge-backs from the credit card companies because the credit cards were stolen. PayPal returns the money to the credit card company and goes after the account holder for the money. The victim is left to cover the charge-backs out of his own pocket. The customers, of course, are bogus.

We spoke with a woman named Gloria in the account resolution department at PayPal to see what a victim can do. Not much, it turns out, because the victim agreed to be the primary company or person on the PayPal account. And PayPal doesn't allow its account holders to act as intermediaries for others.

Charge-backs usually occur when the credit card company contests a charge because of nonshipment, misrepresentation, or occasionally fraud. The credit card company asks PayPal for the money, who in turn asks the account owner. PayPal will go to the boards to defend its members against charge-backs, but only if there's a paper trail showing that products were shipped or services rendered. In this scam, since the victim is acting as a straw man and not actually shipping anything, PayPal won't fight the charge-backs. These are empty transactions, so the victim has no recourse.

Be wary of variations on this theme. We also received reports of companies called Ross Soft (owned by a Kevin Lesoe) and Eastern Exchange advertising on job boards. Both promised great rewards for PayPal work.

The work-at-home job market is rife with scams. Here are some resources to help you sort them out: WorkAtHomeSuccess.com's scam alert, *http://workathomesuccess.com/scamalert.htm;* Work At Home Moms (tips, forums, and so forth), *www.wahm.com/jobs.html;* the Internet Fraud Complaint Center, *www.ifccfbi.gov/index.asp;* and the Federal Trade Commission consumer page, *www.ftc.gov/ftc/consumer.htm.*

While the prospect of earning $200 - $9,000 a week is enticing, it sounds too good to be true. And, as Gloria from PaysPal reminded us, if it sounds too good to be true, it probably is.

Jay Munro is a freelance writer and consultant.

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Date	Job Summary	Company	Location
Mar 27	**Paypal processing position, work from home!** My name is William Lesoe and I represent In-sync Soft Inc, Eastern Europe based software company. We specialize in developing & support of antivirus and firewall software products. We had a few corpora...[more]	Insync Software	US-NY-New York City

Career Level:	Entry Level
Education Level:	Some College Coursework Completed
Job Type:	Employee, Temporary / Contract / Project, Intern, Seasonal
Job Status:	Full Time, Part Time, Per Diem
Job Shift:	First Shift, Second Shift, Third Shift, Rotating, After School
Salary:	From 200.00 to 9,000.00 USD per week

THIS AD was posted on http://banking.jobs.monster.com/.

THE LOOKOUT

WEB-BASED E-MAIL AT RISK

Israeli security vendor GreyMagic has discovered a security vulnerability in Microsoft's and Yahoo!'s Web-based e-mail services. The vulnerability results from the technology the companies use to filter e-mail in order to thwart potentially unsafe HTML. According to GreyMagic (www.greymagic.com/security/advisories/gm005-mc/), the flaw could result in severe consequences, such as the theft of log-ons and passwords—or distribution of a Web-based e-mail worm as soon as a user opened a message.

The problem arises from functions in Internet Explorer designed to add timing and media synchronization support to HTML pages. Features of this technology make it possible to inject any HTML content into a document, including a script. GreyMagic noted that Microsoft fixed Hotmail shortly after the company was notified of the vulnerability, but attempts to inform Yahoo! failed. GreyMagic also pointed out that other Web-based services may also be at risk.—*Sharon Terdeman*

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ENTERPRISE

Net Calling Is Coming In Loud and Clear

For CDW, VoIP is paying off. BY BRAD GRIMES

In the 1990s, Voice over IP—the ability to place inexpensive phone calls over the Internet—nearly died a premature death. At the time, VoIP calls were hailed as a free way of skirting the phone company. The only problem was that you needed a broadband connection for it to work well.

Even today, only about 20 percent of U.S. households have broadband connections. And for those lucky ones, a new breed of VoIP services, such as Vonage, can deliver everything they need to make VoIP calls on their existing phones for as little as $15 a month—not free but inexpensive.

Fortunately, businesses—with their T1 lines and unyielding drive to manage costs—have continued to experiment with the technology. Companies such as Avaya and Cisco Systems have developed VoIP solutions that deliver real benefits to enterprises. As a result, businesses are giving VoIP a second look. According to Forrester Research, companies can save about 20 percent by choosing VoIP instead of traditional phone service.

For CDW Corp., the computer products reseller based outside Chicago, the move to VoIP began in 2000 and was motivated by very practical considerations. "The primary driver was to reduce operating costs, including the cost of managing separate voice and data networks," says Bill Schalck, CDW's manager of IT infrastructure.

In 2000, Schalck set up IP-based trunks between the private branch exchange systems at the company's two call centers in the Chicago suburbs, to handle some 25,000 calls a day. The following year, he introduced advanced VoIP solutions so the PBX systems could manage call traffic intelligently. "If one call center was more or less busy than the other, we used the IP trunking to route calls between offices," says Schalck. "That helped us improve customer service and get calls answered faster."

Even as it was growing at home, CDW was expanding across the country. It launched a government sales force, CDW-G, and purchased parts of Micro Warehouse. With offices and salespeople now on the East Coast, the company gave remote salespeople VoIP software to run on their home systems. With the software, broadband connections, and USB headsets, CDW's sales force can make VoIP calls from their PCs and have all the phone features that employees in the office have.

The old Micro Warehouse offices had a phone system that was incompatible with CDW's VoIP infrastructure, so the company deployed Cisco routers that converted voice traffic between the two systems. "Pretty much everybody at CDW now uses VoIP," Schalck observes. "If I pick up my phone and dial someone at any of our other offices, I'm using Voice over IP."

The company bought its VoIP solutions from Avaya. It currently owns four PBX servers—three older Avaya Destiny G3R systems and a newer Avaya IP600 server. Mobile workers use Avaya IP Softphone to place calls and manage voice services over the Internet.

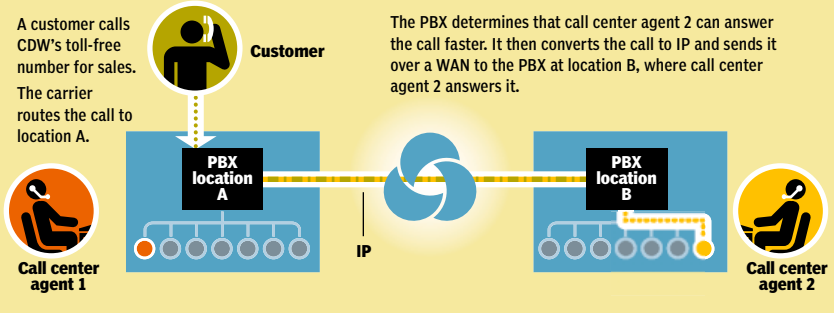
Voice traffic between the PBXs and office phones is still mostly traditional, switched networking. "We've never found a good justification for taking out the traditional digital phones and replacing them with IP phones," Schalck says. Security concerns are the biggest reason CDW hasn't deployed more IP phones.

"Hardware failures you can engineer around, but you don't want a worm generating network traffic to bring down your voice network," he explains. That's one reason most of CDW's phones (except mobile workers' soft phones) are traditional. And the company's PBX servers have failover capabilities that route calls over the public switched network in the event of a network outage.

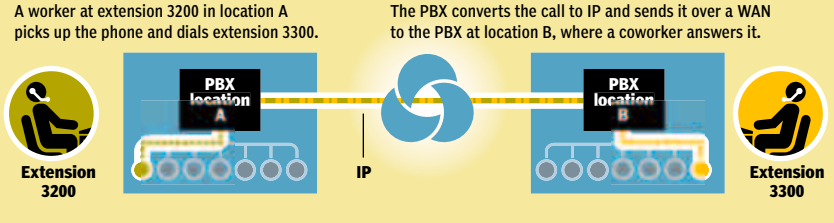
VoIP is not without its challenges, though. "Issues affecting your LAN stability are going to affect your phone system," warns Leathurby. "You may be able to control most of them, but we're still a ways from being able to control everything that causes LAN instability issues."

Net Calling Gets Down to Business

CDW uses VoIP to direct calls into the customer support centers more efficiently.



Employees also use VoIP to communicate with each other.



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Accented Characters Revisited

In our February 17 issue, we presented a number of techniques for entering "Accented Characters in E-Mail" (*www.pcmag.com/article2/0,4149,1463857,00.asp*). If you're willing to retrain your typing fingers, there's another solution that may suit you even better. It involves changing the system's keyboard layout to "United States—International."

The precise technique for making this change differs for different Microsoft Windows platforms. In Windows XP, launch the *Regional and Language Options* applet from Control Panel, then click on the *Languages* tab, the *Details* button, and finally on *Add.* Check the box labeled *Keyboard layout/IME,* select *United States—International,* and click on *OK.* In the *Default input language* pane, select *English (United States)—United States International.* The process is similar in Windows 2000, but you start by launching *Keyboard* from Control Panel, clicking on *Input Locales,* and then clicking on *Change.* In Windows 98 or Me, launch *Keyboard* from Control Panel, click on the *Language* tab and then *Properties,* then select the *United States—International* keyboard layout.

With the new keyboard layout active, the single quote, double quote (representing the umlaut), back quote, circumflex (^), and tilde characters become "dead keys." When you type one of them, nothing happens. If the next character is one that can accept the specified accent, the accented character appears. If not, both characters appear.

To type one of the dead-key characters alone, you must press the space key after it. To type a dead-key character followed by a space, you type the character and *two* spaces. In addition, the right-hand Alt key causes many other keys to generate special characters. For example Alt+c gets a copyright symbol ©, Alt+5 produces the euro sign €, and Alt+1 inserts a Spanish-style upside-down exclamation point: ¡.

Using this keyboard takes some relearning. You're bound to type Ünited States" in place of "United States" a few times. But if you can manage to retrain your fingers, this method of typing accented characters works in any Windows application.—*Neil J. Rubenking*

FIGURE 1: If you're willing to change the keyboard layout, you can use accented characters in any Windows application.

Eliminate IE's AutoComplete Reminder

AutoComplete – some people like it, some don't. Those who don't like it turn it off. Those of us who turned it off are now constantly being prompted to turn it on. By now, we despise it! How do we turn it off completely, with no more pop-ups asking us to turn it on?

DAN ROBERTS

It does seem that Internet Explorer *really* wants you to use AutoComplete. On a system with AutoComplete turned off, it will prompt you from time to time, asking to turn it on again. A Registry tweak will prevent IE's "helpful" reminders. First, close all IE windows. Launch REGEDIT from the Start menu's Run dialog. Navigate to the key `HKEY_CURRENT_USER\Software\Policies\Microsoft\Internet Explorer\Control Panel`. In the right-hand pane, look for a DWORD value named FormSuggest – it will probably not be present. In that case, right-click in the right-hand pane and choose New | DWORD Value from the pop-up menu. Name the new value `FormSuggest`. Whether you found it or created it, double-click this value and set its data to 1. That should terminate the annoying reminder.—*NJR*

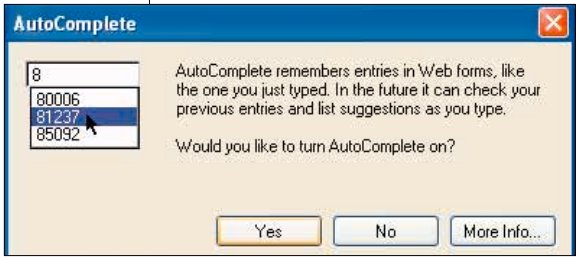

FIGURE 2: The AutoComplete reminder is really annoying.

Tech Support Tale

I recently had a small computer problem. By small, I mean frustrating enough to cause hair loss. Considering that I'm 21, hair loss means hair was being pulled out.

My mouse would turn off randomly and turn back on when it felt like it. This frustrated me, especially when I played Tribes, a really fun online computer game where you fly around in jet packs and shoot people.

I'd be about to get a kill when my mouse would turn off. This meant I would run around like an idiot looking at the ground. Of course, someone would kill me rather quickly.

I'm not one to accept defeat easily. So, I embarked on a journey to fix my mouse problem. Since I'd experienced the problem with different mice on the same computer, a Dell Dimension 4300, I knew the problem wasn't with the mouse.

I started by looking for other people with the same problem. Maybe one of them knew how to fix it. I spent many caffeine-fueled late nights searching the Internet. Eventually I discovered about 6,723,543 other people with the same problem. All of them owned the same brand of computer. I also discovered the same number of solutions—minus about 6,723,543.

So I e-mailed Dell technical support. I told them I'd had the problem with multiple mice. I told them I suspected the mother-

A Registry tweak will prevent IE's "helpful" AutoComplete reminders.

I decided the problem was with Windows. Bill Gates was testing me to wear down my resistance.

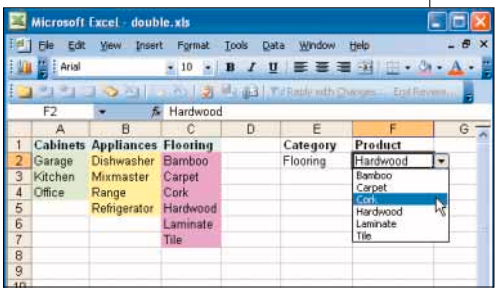

FIGURE 3: Using Excel's data validation, you can create a drop-down list whose contents depend on what a user selects in another drop-down list.

board was the source of the problem. I told them very bluntly not to send me a new mouse. Naturally, they sent me a new mouse. I felt like e-mailing them back, saying, "I asked for a cheeseburger and a large soda, not a taco and a milk shake."

I decided the problem was with Windows. Bill Gates was testing me to wear down my resistance. He would begin sending me subliminal messages to hypnotize me any second. Nobody likes the rich guy.

So, I tried the mouse in another computer that ran Windows. It worked perfectly. Of course, this doesn't mean Mr. Gates can let his guard down. I will discover his evil world domination plot someday.

I was fed up with the mouse problem, so I e-mailed technical support again, and again, and again. After several days, they told me, "We think it's your motherboard and we'll send someone to install a new one." If they weren't thousands of miles away, they would have witnessed me giving them a golf clap, with eyes rolled.

I told them just to send the motherboard. I could install it myself. They insisted on sending someone. Oh well, I thought. While I didn't trust their technical workers, I could use my time for something more productive, like picking lint off my sweater.

When the worker arrived, I had to help her install the motherboard, because she had no idea what she was doing. When she turned on the computer after installing the motherboard, the mouse immediately began turning on and off by itself. The technical worker said to me, "That's weird." She eventually left, completely baffled.

Having tried absolutely everything, I was ready to give up. On a whim, expecting nothing, I grabbed the new mouse and plugged it in. It worked perfectly.

You know, it really is a good thing that I know everything.

—*Chris deCastro*

Double Drop-Down Validation in Excel

Is there a way to make the drop-down list that appears for cell validation conditional on the value in another cell? Suppose one cell contains a drop-down list containing categories like Cabinets, Appliances, and Flooring. I want another cell to show a drop-down list of various cabinets when Cabinets is selected, of appliances when Appliances is selected, and so on.

BOB FUSARI

If your spreadsheet doesn't already have them, create a separate list of each type of product. Highlight each list in turn and choose Insert | Name | Define from the menu, using the category name as the name for this range. For our simple example, we'll put the three categories in the first three columns of a worksheet, with the category names at top. Then select the row of category names and use Insert | Name | Define to name that range Categories.

Let's suppose the user will choose a category in cell E2 and a product in cell F2. Click in E2 and select Validation from the Data menu. Select List from the drop-down titled Allow and enter `=Categories` in the Source box, then click OK. This establishes a simple list-based validation rule – the user can enter only values found in the Categories range, and those values appear in a drop-down list.

Now click in cell F2, select Data | Validation, and choose List from the Allow drop-down, as before. This time in the Source box enter `=INDIRECT(E2)`. This selects the range *named* by the contents of cell E2. If E2 contains "Cabinets," the list of cabinets will be presented in F2, and so on. When the user selects a different category in E2, the list in F2 changes. It is still possible to get a mismatch if the user chooses a product and then changes the category.—*NJR*

Turn Off Startup Task Pane

I couldn't seem to get rid of the Startup task pane (or pane in the neck, as I came to call it) in Microsoft Word 2003 after I upgraded from Office XP. I kept trying the obvious way: select Tools | Options and uncheck the Startup Task Pane box, but it never worked. The box was always unchecked, but the task pane kept appearing. Finally, Microsoft support helped me resolve this issue with a Registry tweak. Here's how: Launch Regedit from the Start menu's Run dialog, then browse to the key `HKEY_CURRENT_USER\Software\Microsoft\Office\11.0\Common\General`.

Look for a `DWORD` called `DoNotDismissFileNewTaskPane`. Double-click it and change its value to `0`. Now the task pane will not automatically open when you start Word.

SCOTT ALAN BLANCHARD

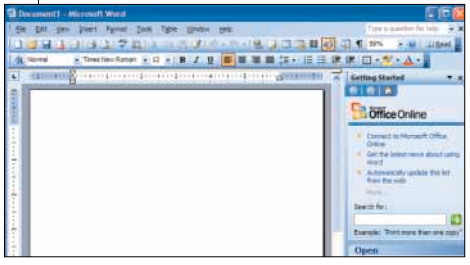

FIGURE 4: Microsoft Word's task pane can be useful, but it's annoying when it appears automatically on startup.

It's not clear why Microsoft would implement a Registry value that would override the checkbox in Word, but you can easily demonstrate that it's true. If your installation of Word always displays the task pane at startup, regardless of the Options setting, this value may be the culprit. For those running Office 2002/XP, the fix is exactly the same, but with 10.0 replacing 11.0 in the Registry key.—*NJR*

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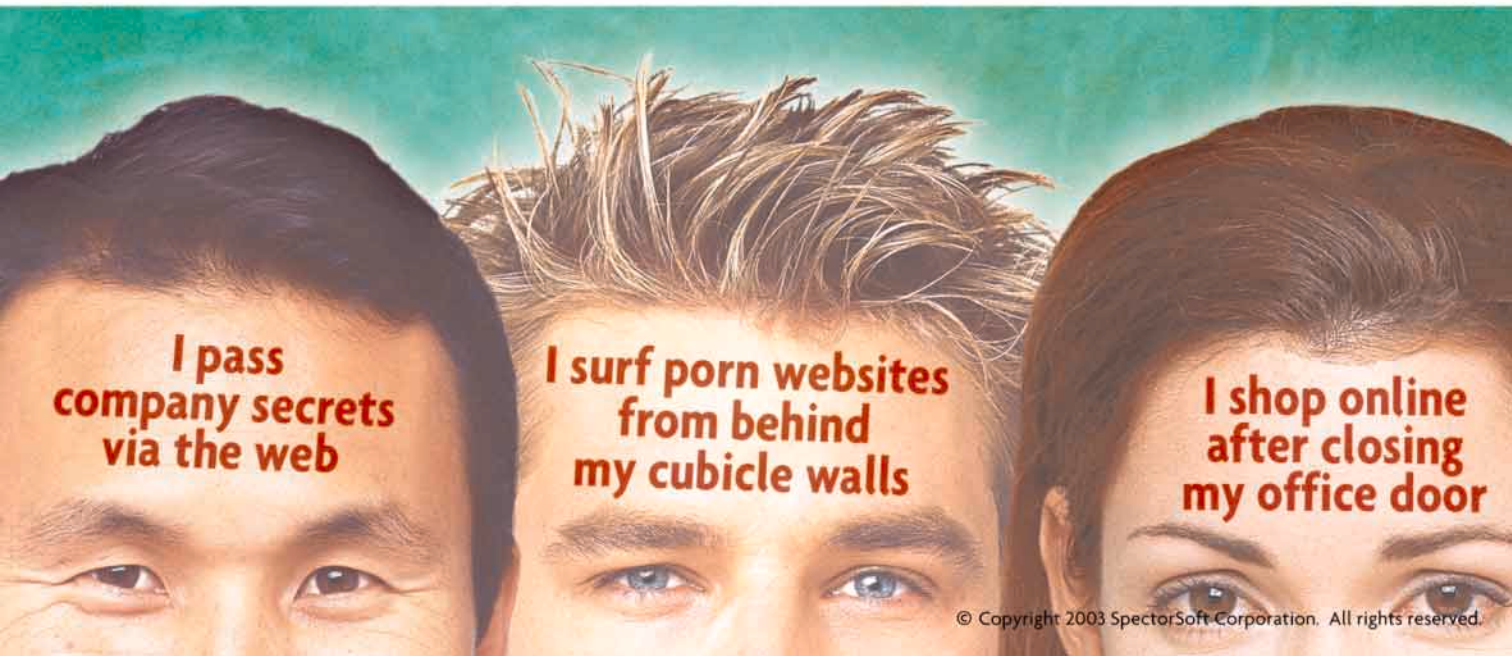

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2004 UTILITY GUIDE

We use our computers to play games, surf the Web, communicate, and manage our lives. And anything we ask them to do can usually be done better with a few new utilities.

For this year's Utility Guide, we've tested and reviewed 161 utilities in 21 categories, including several that will boost your computer's performance and keep it safe, as well as dozens of digital photo tools, customization utilities, Internet Explorer and Microsoft Office add-ons, and more.

You won't find firewall, antispam, antispyware, or traditional antivirus tools in here—they're essential utilities, but we've covered them recently; see our current favorites in the Editors' Choices section (page 27). But with new viruses coming at us faster than AV companies can write signatures to stop them, we take a hard look at alternative detection methods that attempt to root out new threats based on their behavior, not just their signatures.

Some utilities are less fun than important—yes, you do have to back up your data regularly, and your Registry probably could use a good cleaning. The following pages present a mix of tools that taste good *and* are good for you.—*Sarah Pike and Ben Z. Gottesman*

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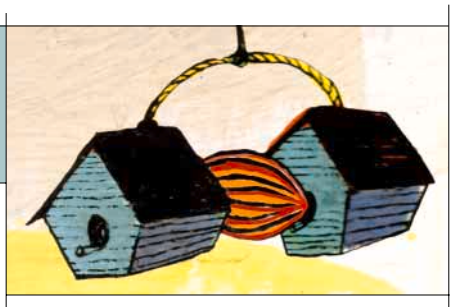
BACKUP

BY BEN Z. GOTTESMAN



Think you don't need to back up your data? Consider this. A few months ago, an editor at PC *Magazine* who shall go unnamed (his initials are BZG) noticed that his system was running slowly, and decided it was time to reinstall Windows.

This unnamed editor (let's call him Ben) had settled into a method over the years that made reinstalling Windows a relatively simple task. Ben uses partitioning software (see our reviews on page 111) to split his hard disk into two drives. He stores all his programs on the C: drive, and he keeps all his data files on D:. Since most programs create their data files in the My Documents folder or one of its subdirectories, Ben redirects My Documents to D:\My Documents. When it comes time to put on a fresh copy of the operating system, Ben simply reformats the C: drive, reinstalls Windows, and points My Documents back to D:. In a few hours, he's back up and running.

Ben was using a Tablet PC, and you can reinstall Windows XP Tablet PC Edition only by restoring it from the computer's recovery CD. But this is normally okay, since the restore should wipe out only the C: drive.

Unfortunately, something went wrong. For some inexplicable reason, the recovery failed, and Windows wouldn't launch. Ben then restarted the PC, booting from the CD, and the recovery worked. Ben went to change the My Documents pointer, but lo and behold, Windows said there was no D: drive. Years of data, gone! Meeting notes, gone! Articles, gone! All his data, gone, gone, gone!

EXCUSES, EXCUSES

It can and will happen to you. Whether it's a hard drive error that corrupts files, a virus that deletes files, or simple user error, one day you will lose data. Some things, like program and system files, can be reinstalled, though the process can be time-consuming. Other data, such as text documents and e-mail messages, are impossible to recreate. Imagine if you lost your financial files or the library of images shot on your digital camera.

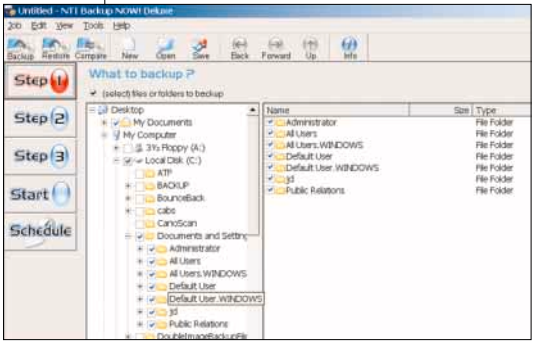
In a recent PC *Magazine* survey, less than half of the respondents said they back up as often as weekly. More than a third said they either never back up or do it only when they think about it. Many said they don't remember, and several complained that backing up interferes with normal use of their PC. But the fact is, backing up doesn't have to interfere with your time on the computer, nor does it require you to remember to back up. In fact, once set up, some solutions don't require you to do anything at all.

On the following pages we review 18 programs that take a variety of approaches to backing up your system. Using one or more of these tools, you can ensure that you'll be able to recover from a bad situation. In addition to these apps, some of the migration utilities reviewed on page 112 can be used to create emergency recovery disks.

THE MEDIA

We've come a long way since the days of backing up to tape. Today, you can back up your data to one of three primary places, each with its advantages and disadvantages. The first is optical media, such as recordable CDs and DVDs. Optical media is cheap, and since it's removable, you can store backup sets in safe places away from your PC. If you back up to optical media, though, it's especially important that you use your software's Verify command to ensure that the data was written properly. You may also want to keep copies of especially important files on a USB key or a flash memory card.

Another option is to back up to a second hard drive. As we worked on this story, we saw 120GB internal hard drives selling for about $60 after rebates, and external drives of the same capacity for about $100, also after a rebate. While you can back up to a second partition on your main hard drive, you'll lose your backup as well as your main drive if you have a disk failure.



NTI BACKUP NOW! DELUXE, which takes the traditional approach, is a structured but thorough backup solution.

The third option for anyone with broadband is to back up to a remote server, using an online backup service. You never have to deal with removable media, and your data is safely stored in a remote location. Of course, these services have monthly charges, and you'll need a fast connection.

Backup Schemes

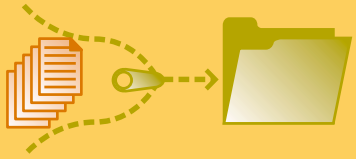
TRADITIONAL BACKUP

These products make sure your data is backed up in an organized manner. Emergency recovery tools let you restore a system that won't boot.

ONLINE BACKUP SERVICES

Online backup solutions copy your data files or, in some instances, your entire system. The data is stored on a remote server.

ZIP ARCHIVES



These tools back up your data files to a compressed ZIP file stored on your hard drive. They don't write to removable media.

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THE METHODS

You'll find a variety of approaches to backing up, and chances are that at least one will be right for your computing lifestyle. Some are extremely thorough, while some are less intrusive. Some require a bit of discipline; you'll forget others are even installed.

The products people usually think of are the *traditional backup* programs, such as Dantz's Retrospect Professional. These provide a very systematic approach to protecting your data. You start by making a full backup of the files you want to save. If you're backing up your entire PC to CDs or DVDs, the process may take several discs, and require you to supervise so that you can switch discs when prompted. After the full backup, you need only incremental backups, which store just the changes made since the last backup, whether it was full or incremental.

You can also choose to do *differential backups,* which store all changes since the last full backup. Differential backups are larger than incremental backups, but easier to restore. Since most people won't have more than a full disc's worth of changes each day, you can often leave a disc in your burner and have this process run automatically overnight.

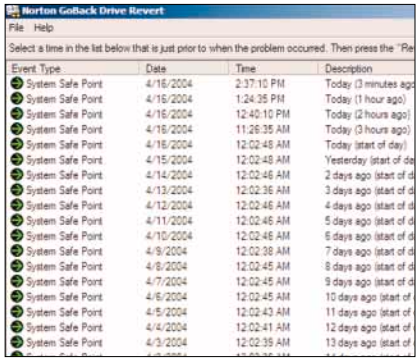
If you have a fast Internet connection, you should consider an *online backup* solution. Online backup services take two different approaches: Some let you back up selected data files, while others let you perform complete system backups. Since many broadband providers have relatively slow upstream data transfer rates, your first backup may take quite some time. But subsequent backups are effortless and can easily be completed when you sleep. A very nice side benefit of backing up online is that you can access your data from anywhere.

Some products store your data files in compressed ZIP *archives.* These don't back up your entire system, and they won't burn your files to CD or DVD. You can, however, use a separate program to burn these ZIP files to removable media. Unlike the files created by traditional backup programs, the data stored in your backup files is easily accessible, since it is stored in the popular ZIP format rather than a proprietary format.

A fourth approach relies on a second hard drive. *Cloning* products maintain an exact copy of your data or entire main drive on a second hard drive—internal or external. Should your primary drive fail, you can replace it with the backup drive and quickly be up and running with little, if any, loss.

In recent years, *disk imaging* providers have been repositioning their programs as backup tools. These applications make an exact copy—byte for byte—of an entire partition or hard drive, which can be stored on another partition, another drive, or optical discs. Most of these products are impractical for daily backups, but they are good for backing up systems when they are in a state you want to protect.

Finally, there are the *system rollback* programs. These store critical system files (some also back up data files) in a separate area of your hard drive. Our favorite tool in this category, Norton GoBack, stores every saved change you make in real time. If you run into any problems, you can return your system to an earlier point in time or just restore individual files to any earlier version.



NORTON GOBACK keeps a list of checkpoints so you can easily roll back.

THE RIGHT SOLUTION

Using at least one of these programs is the first big step. Just be sure that whichever approach you choose, your data is backed up regularly and frequently. Nearly all of these programs can be scheduled to operate in a set-it-and-forget-it mode.

It may sound like overkill, but you should consider using a combination of approaches. (It won't sound like overkill if you ever lose three years' worth of ideas, financial data, digital photos, e-mail messages, and software.) First, pick a traditional or online backup product that's going to keep your data files safe. Then, when you have Windows working exactly the way you like, with all your favorite programs installed and preferences set, use a drive imaging tool to create a copy of your drive. Finally, use a system rollback tool to help you quickly recover from bad driver updates and other system changes that suddenly make your system unstable.

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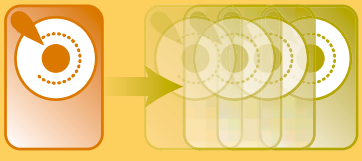
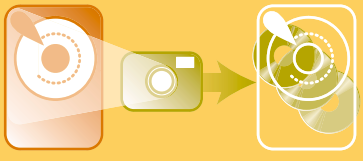
CLONING



The cloning approach creates an exact replica of your hard drive—byte for byte—on a second backup drive.

DISK IMAGING



These tools create an exact snapshot of a hard drive (or a partition), including all applications, data, and preferences.

ROLLBACK

Rollback software maintains copies of files so you can "roll back" corrupt drivers or return to earlier versions of data files.

BACKUP TOOLS

NTI Backup NOW! 3 Deluxe Suite

Type: Traditional/Imaging
$69.99 direct
NewTech Infosystems Inc.
www.ntius.com

NTI Deluxe Suite includes two programs, NTI Backup NOW!, a traditional backup tool, and NTI Drive Backup (reviewed below), a disk imaging program for creating a snapshot of your hard drive. Backup NOW! is extremely easy to use, with large buttons on the left labeled Step 1, Step 2, Step 3, Start, and Schedule. The first step is to select items to back up. The program does this in an interface that resembles Windows Explorer, with checkboxes next to files and folders. In Step 2 you select a destination and filename. Step 3 allows you to select options like whether to compress the data. When restoring data, you have the option to compare files in the backup set to the source, and Backup NOW! guides you through the process. NTI has done a very good job of designing a simple program that offers all the important elements of a complete backup program.—*Laura Delaney*

Retrospect Professional 6.5

Type: Traditional
$89 direct
Dantz Development Corp.
www.dantz.com

Retrospect Professional 6.5 is an extremely comprehensive backup solution, offering an abundant selection of features and options. It allows you to back up your entire system or two networked clients, although the disaster recovery tool works only on the local computer. The interface is well organized and includes information on the right that explains each option, making it easy to access and perform both standard tasks and more complex functions like running a backup, modifying the configuration, and viewing reports. An optional wizard will guide you through the process of setting up backup options, such as the type of media you will use and security options. Once Retrospect has performed a full backup of your computer or files, its Progressive Incremental backups store all files that changed and track the status of files that were removed for more accurate restores.—*LD*

Argentum Backup 2.1

Type: ZIP
$25 direct
Argentum Corp.
www.argentuma.com

Argentum Backup 2.1 is a decent solution for backing up data and system files. But it doesn't provide emergency recovery tools, so it isn't a good choice for backing up your entire system. The program stores files in the common ZIP format, adding 64-bit ZIP extensions that support increased data storage. Backing up data is very easy. You start by creating a backup task and selecting the files and folders you want to back up. Instructions guide you through tasks like scheduling and choosing compression levels. One option, called stacking, lets you store several copies of each file, each from a different point in time. Restoring files is straightforward; you simply go to the Argentum backup task, locate any files you want restored, and unzip them. Our biggest complaint is that it won't burn backups to CD—you'll need a third-party application to do that. We were, however, able to back up files to a USB key.—*LD*

GRBackup Professional 5.4

Type: ZIP
$59 direct
GRSoftware
www.grsoftware.net

GRBackup Professional 5.4 from GRSoftware backs up files and folders into familiar ZIP archives but stops short of providing emergency recovery tools and options for backing up complete systems. To create a backup, you provide a session name, click on the Add button, and choose the source and destination paths. The interface is easy to navigate, with checkboxes next to all files and folders, making it easy to select items to back up or restore. But you have to pay close attention, because there are a lot of settings to choose from. For example, when performing a full backup, GRBackup skipped files in subdirectories, because we accidentally left *Include all sub-folders below checked root folder* unselected. We like how easily you can change options, like disabling compression, from a right-click pop-up menu. The program offers a wide range of settings for backup, restore, scheduling, and reporting but requires a third-party app for writing data to CD.—*LD*

BounceBack Professional 5.4

Type: Cloning
$99 direct
CMS Products Inc.
www.cmsproducts.com

BounceBack Professional offers a complete set of backup and file management tools for users with an extra hard drive. Bundled versions are available with CMS' ABSplus and Velocity external hard drives. The program backs up data to a second drive, offering secure redundancy without requiring you to deal with removable media. After installing BounceBack, you specify your source and target drives, and then select backup criteria. You can schedule backups to run on a daily or monthly basis, and they can run in the background or unattended. The software supports full and incremental backups and lets you manage multiple versions of files using BounceBack Version Administrator. Advanced file management tools, such as bidirectional synchronization, let you sync data from two different PCs. BounceBack can compare files on the main drive with files on the backup drive and display detailed status information for each file.—*LD*

Double Image 5.0

Type: Cloning
$59.95 direct
Host Interface International Inc.
www.hostinterface.com

Double Image 5.0, which stores a copy of your data on an extra drive or partition, is a decent solution for backing up files and folders. But since it lacks emergency recovery tools, this program doesn't provide the complete security offered by products that can back up and restore your entire system. Still, using Double Image is very intuitive, as all its options are readily available in one place. It supports both full backups and incremental backups, either by timestamp or by archive bit. Flexible options make it easy to select files for backing up or restoring. For instance, you can speed the process by specifying files that were modified between specific dates, or you can choose relative or absolute filenames, which will either preserve or ignore the subdirectory structure. The highly useful reporting tool compares files on the source and target drives. Unfortunately, to back up to CD-Rs and writable DVDs, you'll need a third-party packet writer.—*LD*

BACKUP TOOLS

Connected DataProtector

Type: Online
$17.95 per month for 4GB and 1GB of bandwidth
Connected Corp.
www.connected.com
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Connected DataProtector has a strong focus on large business customers but also offers plans suited to small businesses and home users. We tested the Home/Small Office plan. Backing up requires you to use client software, though a browser-based application is available for restoring files. Data Protector provides standard features, such as incremental backups, compression, and encryption (at the data center and over the Internet). Extensive backup rules and scheduling features provide much flexibility, and data is stored in two data centers for extra reliability. DataProtector keeps ten versions of files and retains them for 90 days. In an interesting feature, Connected keeps current versions of popular software on their servers, so you don't have to waste bandwidth or storage space backing them up. DataProtector also supports data sharing with other users. Basic backup operations weren't quite as intuitive as with IBackup.—*Nick Stam*

Glorio

Type: Online
$36 per month for 1GB, unlimited bandwidth
Restorion
www.restorion.com
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"Welcome to the path to data salvation," says the sign-up screen for Glorio, an online backup service from newcomer Restorion. After viewing a few more evangelical messages, we downloaded and tested the feature-rich client software. (Browser-based access should be available soon.) Backups can be highly customized with extensive filtering and scheduling options; Glorio has three different file encryption methods, including the highly secure 448-bit Blowfish encryption. Files remain encrypted on the server. The service provides a complete set of backup statistics during the backup process. Restore operations could be more intuitive: The Restore tab shows the contents of your My Computer folder, including a drive labeled C:, but it's unclear if this is referring to the local C: drive, or the portion of your C: drive that was backed up on the remote server. Multiple users can share a single account at no extra cost.—*NS*

IBackup

Type: Online
$14.95 per month for 4GB and unlimited bandwidth
Pro Softnet Corp.
www.ibackup.com
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PC MAGAZINE EDITORS' CHOICE

IBackup offers all the standard features, such as scheduled backups, data compression, data encryption (on the server and in transit over the Internet), and incremental backups. It also provides some handy nonstandard features. For example, you can e-mail file attachments directly into your online storage, and you can configure an online drive to appear as a local drive. To upload and download files and folders, you use either the very intuitive IBackup for Windows application or one of three different browser-based methods offered. We encountered a glitch when manually backing up individual directories with the Windows client: Because the remote system does not precisely maintain the source system's directory tree, files within subdirectories of the same name can be merged into a single directory. IBackup stores backed-up data in two separate data centers for extra reliability and can maintain 15 versions of individual files.—*NS*

SwapDrive Backup

Type: Online
$50 per month for 2GB, unlimited bandwidth
SwapDrive Inc.
www.swapdrive.com
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SwapDrive operates two online backup services: @Backup (which we covered last year) and the newer SwapDrive Backup. The priciest online backup service in this roundup, SwapDrive Backup performs basic backup functions via browser- and client-based applications. Like the client-based version, the drag-and-drop browser interface permits file and folder operations, but you must relax your browser's ActiveX security settings. Only the client version permits scheduled and incremental backups. But the PC client invokes the Web interface to perform a restore operation. Users can share data by sending file links using WhaleMail, an online file-transfer service. Additionally, you can share folders with other SwapDrive Backup users and configure them with read/write privileges. The client lacks an elapsed backup time indicator. SwapDrive Backup uses WinZip to compress files.—*NS*

Xdrive

Type: Online
$29.95 per month for 2GB, unlimited bandwidth
Xdrive Inc.
www.xdrive.com
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Xdrive entered the market in 1999 and acquired the popular FreeDrive service in 2002, gaining a large customer base. Despite its age (the backup process is executed in a DOS window), the code is still effective and permits command line control. The default doesn't use SSL encryption, but it can be enabled with a checkbox. Both the Web browser and client applications permit encrypted data transmission for backups and restores, but only the client version allows scheduled backups. We found the Web interface a bit sluggish, temperamental, and at times unresponsive. (Xdrive has a beta client that should improve performance.) Restore operations via the client requires users to access the online drive from within Windows Explorer and copy files. You can manage folder permissions via the Web interface, and you can send a URL to multiple people permitting them access to folders you specify as public. Data on the server is not encrypted.—*NS*

Acronis True Image 7.0

Type: Imaging
$49.99 direct
Acronis Inc.
www.acronis.com
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PC MAGAZINE EDITORS' CHOICE

Acronis True Image 7.0 offers an innovative interface and powerful features. Its menu-driven wizards are easy to follow, and its help topics explain common tasks in detail. The Disk Clone function duplicates a hard drive to another one directly, saving time and resources. You can also store a snapshot of a hard drive to optical media or to another networked computer. This release of True Image includes incremental backups, which sets it apart from the other drive imaging products in this roundup; this procedure eliminates the need to regenerate an entire archive each time you need a new image. The Create Bootable Media wizard generates bootable recovery CDs or floppy disks, which load the program in DOS mode to perform common tasks such as restoring a hard drive, provided you've created a snapshot of the drive using the Create Image wizard.—*Omar Cintron*

BACKUP TOOLS

Drive Image 7
Type: Imaging
$69.95 direct
Symantec Corp.
www.symantec.com
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Users seeking an easy-to-use data backup utility will not be disappointed with Symantec's Drive Image 7 (formerly owned by PowerQuest). The main menu lets you select a Basic view or an Advanced view, both of which contain links to wizards for common tasks. The Basic view displays a column with links to help topics and information, while the Advanced view gives links to more tasks. The bootable installation CD launches the Drive Image program in DOS mode, which is ideal for recovering a system. This latest release is a vast improvement over previous versions; it is easier to navigate and provides additional hardware support. The program does have some quirks, though: If you're working with a recovery set that spans several discs, the software requires excessive swapping of media. Its backup sets also require more discs than Acronis True Image 7.0 and Norton Ghost 2003 at equivalent compression settings.—*OC*

Norton Ghost 2003
Type: Imaging
$69.95 direct
Symantec Corp.
www.symantec.com
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Norton Ghost 2003 upholds its reputation as a versatile product. The main menu has buttons that open wizards for common tasks, such as restoring or creating images. Advanced tasks include direct drive cloning and peer-to-peer networking. The program also offers a utility that browses the contents of existing Norton Ghost images. While Symantec made a good attempt at making this product more intuitive, you still need to familiarize yourself with the software before diving in. The wizards are straightforward but provide no thorough explanation of available options. The peer-to-peer feature lets you image to multiple systems simultaneously. While some of the data transfer methods may hinder performance, the added functions prove helpful. Norton Ghost runs in DOS to perform most tasks, as it requires exclusive access to the hard drive, so plan ahead for downtime. Nonetheless, it performs superbly on powerful hardware.—*OC*

NTI Drive Backup! 3.0
Type: Imaging
$29.99
NewTech Infosystems Inc.
www.ntius.com
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NTI Drive Backup! 3.0 is an easy-to-use tool for backing up hard drives, with a basic, straightforward interface. The main menu, reminiscent of telephones with oversize buttons, displays three large buttons for common tasks. There are two backup options to choose from: The emergency recovery discs option creates a snapshot of a hard drive, and the drive image option creates images of data partitions, providing flexibility when archiving for different recovery scenarios. The program can generate bootable floppy disks or CDs for use if a hard drive fails. In case you forget to do this, the emergency backup discs are also bootable. Simply pop in the first disc of the backup set, and Drive Backup! automatically launches in DOS mode. Although Drive Backup! provides no hardware support for network or USB devices, it is a solid product that works as advertised.—*OC*

CPR System Health Suite
Type: Rollback
$45 download, $55 direct
imagine LAN Inc.
www.imaginelan.com
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CPR System Health Suite is a combination of the venerable ConfigSafe, CPR (a file synchronization tool), and a profile editor. You can automatically back up all sorts of information, including the Windows Registry, configuration files, applications, and device drivers. Unfortunately, backing up data files is a manual process, and the menus are difficult to navigate. (You can access a simpler interface via the help system.) You can have the software create checkpoints of your system manually, on a schedule, or any time a new application is installed. If your system won't boot from the hard drive, you can boot from the application CD or from a USB memory key with CPR loaded on it. From here you can perform a restore or copy data to other media. In our testing, checkpoint and restore operations executed quickly. But during one of our restores, it disabled an application, though the affected program was not deleted from the hard drive.—*Matthew D. Sarrel*

Norton GoBack 3.0
Type: Rollback
$39.95 direct
Symantec Corp.
www.symantec.com
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PC MAGAZINE EDITORS' CHOICE

Essentially a version control system for your PC, Norton GoBack 3.0 is the most intuitive solution in the rollback category. GoBack is persistently monitoring file changes—both to data files and system files—so it can restore anything. (Its monitoring did not slow down our system.) You can, for example, restore deleted files or roll back to an earlier version of a word document. You can also roll back changes to configurations, Registry settings, and entire systems. Restoring an entire drive is easy: Just choose the Safe Point or file to be recovered, and sit back. GoBack will reboot your system, launch a DOS-style application, and automatically do all the work. One very handy feature is that the software gives you the ability to right-click on a file in Windows Explorer to see a revision history. From here, you can choose an earlier version of the document and simply select Recover To.—*MDS*

Recovery Commander 2
Type: Rollback
$39.95 direct
V Communications Inc.
www.v-com.com
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Recovery Commander seems best suited for recovering data files from a system that won't boot (as opposed to GoBack, which also excels at managing versions of data files). Like other rollback solutions, Recovery Commander saves checkpoints periodically and when new applications are installed on the computer. Each checkpoint occupied only about 15MB and was saved in less than 20 seconds. The Windows interface doesn't let you do much at all; here you can only configure options, save and delete checkpoints, and set schedules. All the magic takes place in a Linux-based app, which runs from the CD. This means that to roll back settings or file changes, you have to boot your system using the Recovery CD. Compared to other rollback apps, Recovery Commander is the only viable solution for recovering data on a system that crashed before you even purchased the software.—*MDS*

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intel inside pentium 4

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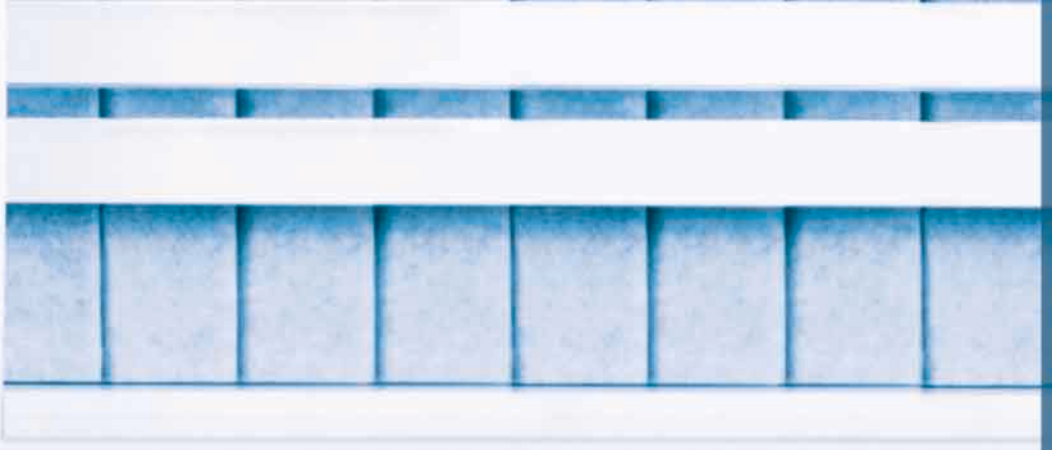

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IBM recommends Microsoft® Windows® XP Professional for Business.

IBM ThinkPad R51

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity

System Features:

- Intel® Centrino™ Mobile Technology
  - Intel Pentium® M Processor 1.50GHz[1]
  - Intel PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Home Edition[2]
- 14.1" XGA TFT display (1024x768)
- 128MB DDR SDRAM[3] • 20GB[4] hard drive
- Ultrabay™ Enhanced CD-ROM
- IBM UltraNav™ – TrackPoint® and touch pad
- 1-yr system/battery limited warranty[5]

$1,199* NavCode 28872KU-M223

ServicePac® Service Upgrade:[7]
3-yr Depot Repair #30L9192 **[132]**

NEW! IBM ThinkPad X40

Distinctive IBM Innovations:

- Rapid Restore™ – Push-of-a-button data backup and recovery

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor ULV 1GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM • 20GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM full-size keyboard[8]
- Only .94" thin[10] • 2.7-lb travel weight[10]
- 1-yr system/battery limited warranty[5]

$1,499 NavCode 23861CU-M223

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IBM ThinkPad® R51

Distinctive IBM Innovations:

- IBM Embedded Security Subsystem 2.0[1] – Strongest security as a standard feature

System Features:

- Intel® Centrino™ Mobile Technology
  - Intel Pentium® M Processor 1.50GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b/g[3]
- Microsoft Windows XP Professional[4]
- 14.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM[5] • 20GB[6] hard drive
- Integrated Ethernet and modem
- Ultrabay™ Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength[12]
- 1-yr system/battery limited warranty[9A]

$1,299* NavCode 28832XU-M223

ServicePac® Service Upgrade:[10]
3-yr Depot Repair
#30L9192 $132

IBM ThinkPad T41

Distinctive IBM Innovations:

- Access IBM – IBM help at your fingertips
- IBM Active Protection System – Airbag technology to help protect your ThinkPad

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor 1.40GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 14.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM • 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- Only 1" thin[8] • 4.5-lb travel weight[8]
- 1-yr system/battery limited warranty[9A]

$1,679 NavCode 2378DHU-M223

With Microsoft Office Small Business Edition 2003:[14] $1,919

ServicePac® Service Upgrade:
2-yr Onsite Repair/9x5/Next Business Day Response
#30L9189 $197

NEW! IBM ThinkPad X40

Distinctive IBM Innovations:

- Rapid Restore – Push-of-a-button data backup and recovery
- IBM Active Protection System – Airbag technology to help protect your ThinkPad

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor ULV 1GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM
- 20GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM full-size keyboard[15]
- Only .94" thin
- 2.7-lb travel weight
- 1-yr system/battery limited warranty[9A]

$1,499 NavCode 23861CU-M222

ServicePac® Service Upgrade:
3-yr Depot Repair
#30L9192 $132

NEW! IBM ThinkPad X40 Solution Pack

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity
- **NEW!** IBM Rescue and Recovery™ with Rapid Restore: One-button recovery and restore solution

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor ULV 1GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM
- 20GB hard drive
- 2.7-lb travel weight
- 1-yr system/battery limited warranty[9A]

Accessories Included:

- ThinkPad X4 UltraBase Dock
- Ultrabay Slim CD-RW/DVD-ROM combo

$1,799 NavCode 23861ZU-M223

ServicePac® Service Upgrade:
3-yr Onsite Repair/9x5/Next Business Day Response
#30L9195 $243

IBM ThinkPad R51

Distinctive IBM Innovations:

- Rapid Restore™ – Push-of-a-button data backup and recovery

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor 1.50GHz
  - Intel PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 15" SXGA+ TFT Display (1400x1050)
- 256MB DDR SDRAM • 40GB hard drive
- Integrated Ethernet and modem
- Ultrabay Enhanced CD-RW/DVD-ROM combo
- IBM UltraNav™ TrackPoint® and touch pad
- 1-yr system/battery limited warranty[9A]

$1,499 NavCode 1836BDU-M223

IBM ThinkPad T41

Distinctive IBM Innovations:

- IBM Active Protection System – Airbag technology to help protect your ThinkPad

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor 1.60GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 14.1" SXGA+ TFT Display (1400x1050)
- 256MB DDR SDRAM • 40GB hard drive
- Ultrabay Slim CD-RW/DVD-ROM combo
- Integrated Gigabit Ethernet and modem
- IBM UltraConnect Antenna for increased signal strength
- Only 1" thin • 4.5-lb travel weight
- 3-yr system/1-yr battery limited warranty[9A]

$1,939 NavCode 2379DJU-M223

With Microsoft Office Small Business Edition 2003: $2,179

ServicePac® Service Upgrade:
5-yr Onsite Repair/9x5/Next Business Day Response
#69P9200 $449

NEW! IBM ThinkPad X40

Distinctive IBM Innovations:

- Longest standard battery life of any leading brand notebook[15]

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor LV 1.20GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- Intel Extreme Graphics
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM full-size keyboard
- 7.5-hr Li-Ion battery[7]
- 3.2-lb travel weight
- 1-yr system/battery limited warranty[9A]

$1,749 NavCode 23866GU-M223

ServicePac® Service Upgrade:
4-yr Depot Repair
#69P9195 $249

NEW! IBM ThinkPad X40 Solution Pack

Distinctive IBM Innovations:

- Longest standard battery life of any leading brand notebook

System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor LV 1.20GHz
  - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- 7.5-hr Li-Ion battery
- 3-yr system/1-yr battery limited warranty[9A]

Accessories Included:

- ThinkPad X4 UltraBase Dock
- Ultrabay Slim CD-RW/DVD-ROM combo

$2,199 NavCode 23826UU-M223

ServicePac® Service Upgrade:
4-yr Onsite Repair/9x5/Next Business Day Response
#69P9198 $299

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(Monitor not included)

(Monitor not included)

(Monitor not included)

IBM ThinkCentre™ A50p

Distinctive IBM Innovations:

- Rapid Restore Ultra – Push-of-a-button data backup and recovery

System Features:

- Intel® Pentium® 4 Processor with HT Technology 2.80GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM[9]
- 40GB hard drive • CD-RW
- Integrated 10/100 Ethernet
- Norton AntiVirus™ (2003 OEM Edition)
- Lotus® SmartSuite® Millennium license
- 1-yr limited warranty with limited onsite service[9B]

$789 NavCode 843398U-M223

With Microsoft Office Small Business Edition 2003: $1,029

ServicePac® Service Upgrade:
2-yr Onsite Repair/9x5/Next Business Day Response
#54P1859 **$75**

IBM ThinkCentre A50p

Distinctive IBM Innovations:

- Rapid Restore Ultra – Push-of-a-button data backup and recovery

System Features:

- Intel Pentium 4 Processor with HT Technology 2.80GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM
- 40GB hard drive • CD-RW
- Intel Extreme Graphics 2
- Integrated 10/100 Ethernet
- Norton AntiVirus (2003 OEM Edition)
- Lotus SmartSuite Millennium license
- 3-yr parts/1-yr limited onsite service limited warranty[9B]

$859 NavCode 843298U-M223

With Microsoft Office Small Business Edition 2003: $1,099

ServicePac® Service Upgrade:
3-yr Onsite Repair/9x5/4-hr Response
#41L2732 **$229**

IBM ThinkCentre M50

Distinctive IBM Innovations:

- Rapid Restore Ultra – Push-of-a-button data backup and recovery

System Features:

- Intel Pentium 4 Processor with HT Technology 3.06GHz
- Microsoft Windows XP Professional
- 512MB DDR SDRAM
- 40GB hard drive • CD-ROM
- Integrated 10/100 Ethernet
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9B]

$1,029 NavCode 8189F1U-M223

With Microsoft Office Small Business Edition 2003: $1,269

ServicePac® Service Upgrade:
4-yr Onsite Repair/9x5/Next Business Day Response
#69P9161 **$89**

IBM ThinkCentre M50

Distinctive IBM Innovations:

- Rapid Restore Ultra – Push-of-a-button data backup and recovery
- IBM Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel Pentium 4 Processor with HT Technology 3.0GHz
- Microsoft Windows XP Professional
- 512MB DDR SDRAM
- 40GB hard drive • DVD-ROM
- Durable all-steel chassis
- Toolless cover removal
- Gigabit Ethernet-integrated
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9B]

$1,069 NavCode 8187F4U-M223

With Microsoft Office Small Business Edition 2003: $1,309

ServicePac® Service Upgrade:
3-yr Onsite Repair/24x7/4-hr Response
#41L2740 **$159**

IBM ThinkCentre S50

Distinctive IBM Innovations:

- The smallest IBM desktop without compromise: 62% smaller than a standard IBM desktop
- Rapid Restore Ultra – Push-of-a-button data backup and recovery

System Features:

- Intel Pentium 4 Processor with HT Technology 3.06GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM
- 40GB hard drive • CD-ROM
- Integrated 10/100 Ethernet
- 3-yr limited warranty with limited onsite service[9B]

$999 NavCode 818346U-M223

With Microsoft Office Small Business Edition 2003: $1,239

ServicePac® Service Upgrade:
4-yr Onsite/9x5/4-hr Response
#69P9162 **$250**

IBM ThinkCentre S50

Distinctive IBM Innovations:

- Rapid Restore Ultra – Push-of-a-button data backup and recovery
- IBM Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel Pentium 4 Processor with HT Technology 3.0GHz
- Microsoft Windows XP Professional
- 512MB DDR SDRAM
- 40GB hard drive • DVD-ROM
- Durable all-steel chassis
- Toolless cover removal
- Gigabit Ethernet-integrated
- 3-yr limited warranty with limited onsite service[9B]

$1,119 NavCode 818343U-M223

With Microsoft Office Small Business Edition 2003: $1,359

ServicePac® Service Upgrade:
3-yr Onsite/9x5/4-hr Response
#41L2734 **$129**

IBM recommends Microsoft® Windows® XP Professional for Business.

IBM Think Express Program

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IBM ThinkPad Accessories

Belkin Components Universal Notebook Travel Surge Protector
#22P7127 **$19.99**

Targus Deluxe Mobile Essentials Kit
#22P7437 **$60**

ThinkPad Premiere Leather Carrying Case[13]
#10K0209 **$99**

ThinkPad 72W AC/DC Combo Adapter
#22P9010 **$99**

ThinkPad Port Replicator II
#74P6733 **$179**

IBM ThinkCentre Accessories

128MB USB 2.0 High-Speed Memory Key
#22P9229 **$59**

Lexmark X6170 All-in-One
#22P9147 **$200**

17" (16" vis) E74 CRT Monitor with system purchase
#W9SP4HN **$129**

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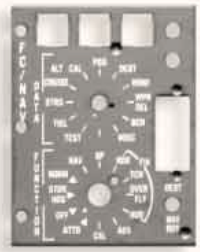

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DEFRAGGERS

BY NEIL J. RUBENKING

Files on hard drives are stored in discrete clusters, even under the more advanced NTFS format used on some Windows XP, 2000, and NT hard drives. If a file's clusters are fragmented, the drive heads have to move a lot more than if the clusters are continuous, so file access takes longer. Windows XP, like previous versions, includes a defragmenter. Third-party products promise more—although for many users the "more" may not justify the cost.

We tested five defragging utilities on a real-world, badly fragmented 60GB hard drive with just 15 percent of its capacity free. We restored an image of the drive, fragments and all, before each test. We configured all the products for a visual display of progress, set them to highest priority, and timed two defragmentation passes, running a boot-time defragmentation in between when available.

We also timed a number of real-world tasks before and after defragmenting. Finally, we simply deleted files from a fresh image of the drive until 40 percent was free; this enhanced performance as much as defragmenting did. For a moderately busy workstation, keeping sufficient free space and using the Windows defragmenter may be enough.

The built-in Windows XP defragmenter is a "lite" version of an earlier release of **Diskeeper 8.0 Professional Edition** ($45.95 direct). Like the built-in defragger, Diskeeper is designed to defragment in multiple passes. Rather than striving for 100 percent defragmentation, it simply aims to improve performance.

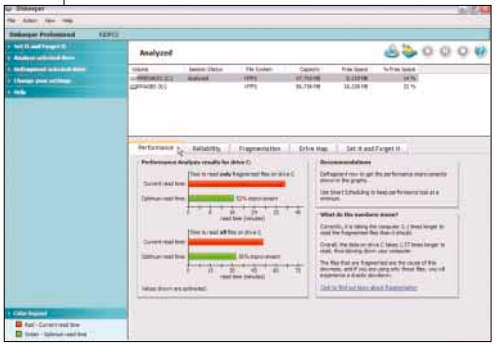
PC MAGAZINE EDITORS' CHOICE

The main working screen emphasizes improvements in speed and reliability more than the obligatory map of fragmented clusters. The software doesn't spend time organizing files by how recently they were used. This philosophy seems to work: In one 2-hour pass it accomplished significant performance gains. We tested manual defragging but recommend the Set It and Forget It mode for normal use. (Executive Software, *www.executive.com.* ●●●●◐)

The **JETDefrag** tool in Fix-It Utilities 5 ($49.95 direct) is too slow for large hard drives. Even set to highest priority, consuming over 90 percent of CPU cycles, its first run took 15 hours; a second run took 3. The boot-time defrag went by in a flash, apparently because it did nothing. Unlike the others here, JETDefrag doesn't use the safe Windows defragmentation API and doesn't defrag the Master File Table or the space occupied by folders. (V Communications Inc., *www.v-com.com.* ●◐○○○)

Like JETDefrag, the venerable **Norton Speed Disk,** an element of Norton SystemWorks 2004 ($69.95 direct), may just be too slow for modern hard drives. In our testing, the initial pass took over 7 hours, and a second run took more than 4. The defragmenting noticeably speeded up our system performance, but getting a return on the initial time investment at that rate would take quite a while. (Symantec Corp., *www.symantec.com.* ●●○○○)

O&O Defrag V6 Professional Edition ($44.90 direct) offers several modes. The Stealth and Space modes work well in situations like running the very first defrag session or improving a drive with little free space: They attempt to consolidate free space and defragment as many files as possible but don't insist on perfection. The three Complete modes defragment all files and completely consolidate free space, as PerfectDisk does.



DISKEEPER emphasizes performance improvements rather than 100 percent defragmentation.

We tested using the Space mode. In about 4 hours it reduced fragmentation to negligible levels and managed to defragment the Master File Table and swap file without requiring a boot-time pass. (O&O Software GmbH, *www.oo-software.com.* ●●●●○)

Want the largest possible area of contiguous free space? Raxco's **PerfectDisk 6.0** ($44.95 direct) can supply it in a single pass. The utility completely defragmented our test system in 4 hours—without hogging the CPU. The result was a huge block of free space that will delay future fragmentation, as will the placement of less used clusters at the beginning of the drive. Because of the complete consolidation of free space, the second run took only a few minutes. PerfectDisk is an excellent solution for systems that routinely process immense files. (Raxco Software, *www.raxco.com.* ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

DEFRAGMENTING TIME

All scores are in hours:minutes. Low scores are best. Bold type denotes fastest time.	Defrag in Windows	Defrag at boot time	Second defrag in Windows
Diskeeper	**2:01**	**0:11**	0:25
JETDefrag	15:01	Failed	3:00
Norton Speed Disk	7:31	N/A	4:14
O&O Defrag	4:24	Not needed	0:56
PerfectDisk	4:12	0:30	**0:11**
Windows XP*	2:03	N/A	0:31

RED denotes Editors' Choice. N/A—Not applicable: The product does not perform this function. * Windows XP Disk Defragmenter, reported for comparison.

PERFORMANCE IMPROVEMENT

All scores are in minutes:seconds. Low scores are best. Bold type denotes fastest time.	Boot time	Loading a 225MB bitmap in MS Paint	Copying a 1.5GB AVI file	Copying a 2GB folder (600 files)
Before defragmentation	*3:10*	*4:32*	*3:11*	*5:38*
Diskeeper	2:23	2:50	**2:36**	5:06
JETDefrag	2:38	4:28	3:04	5:51
Norton Speed Disk	2:11	**2:40**	3:03	**4:30**
O&O Defrag	2:10	4:00	2:49	5:01
PerfectDisk	**2:05**	4:14	2:51	5:23
Windows XP*	2:20	3:18	2:40	5:03

RED denotes Editors' Choice. * Windows XP Disk Defragmenter, reported for comparison.

REGISTRY CLEANERS

BY NEIL J. RUBENKING

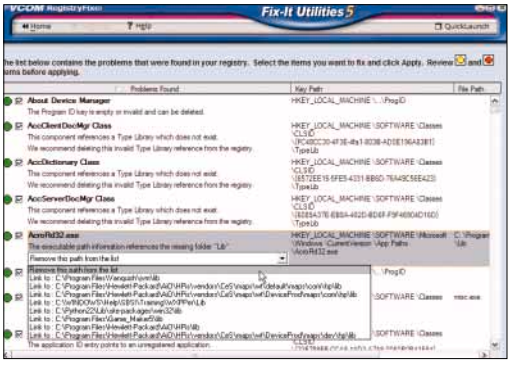
The Windows Registry holds thousands of settings—some for Windows itself, some for applications. Over time, the Registry gets loaded down with useless or erroneous entries left by incomplete uninstall routines, application errors, and even misapplied tweaks. Problems also arise when users move files without realizing that dozens of Registry entries point to the old location. We tested six utilities designed to fix Registry problems and clean out useless entries, giving each tool a chance to work on the same gunked-up Windows XP Registry.

These Registry cleaners made a combined total of over 3,000 distinct fixes. Three or more agreed on about 500 of those fixes. There wasn't a single fix all six agreed on, and nearly half the total fixes were unique to a single application and were ignored by the other five.

All six products let you undo an entire session of fixes; the better ones offer per-item undo. Some even let you specify entries to be excluded from future scans.

Abexo's **Complete Registry Cleaner 1.0** ($24 direct) doesn't spend time locating moved files and folders—but it took less than half a minute to identify nearly 1,000 other problems. Like RegistryFixer, it can undo individual changes, but the interface is awkward; for example, after a cleaning session, the only way out is the window's Close icon. And there's no help file. Still, the program is speedy and includes Registry defragmentation capability. (Abexo, *www.abexo.com.* ●●●○○)

All the programs here create backup files. But only Rose City Software's **Registry First Aid 3.3.0** ($21 direct) prompts you to set a system restore point before each use; if its ministrations make your computer unbootable, you can roll your system back. RFA took almost 45 minutes to analyze our test system—three times as long as the nearest competitor among those that seek missing files. Its display of proposed fixes offers suggested matches for most files, but we recommend checking each one manually: In several cases, the filename matched but the file was clearly not correct. RFA offers the handy ability to search the entire Registry and delete any or all of the found entries. (Rose City Software, *www.rosecitysoftware.com.* ●●●○○)



REGISTRYFIXER corrects references to missing files with the user's help, which is safer than guessing.

RegistryFixer, part of V Communications' Fix-It Utilities 5 ($49.95 direct) made more changes than any of the other products.

PC MAGAZINE EDITORS' CHOICE

When the program finds multiple entries for moved files, it relies on the user to identify the correct one. While tedious, this is safer than just letting the program guess. Additional safety features include per-item undo, protection of specific Registry items, and a full report of all changes. A unique tree view clarifies the relationships among found problems, and the user interface is the slickest of the bunch. Though the suite consists of more than just a Registry cleaner, RegistryFixer is our Editors' Choice in this category. (V Communications Inc., *www.v-com.com.* ●●●●◐)

Registry Mechanic 2.1 ($19.95 direct), from WinGuides, offers neither a means to protect specific Registry entries from future scans nor a way to undo individual changes. These could be significant problems if you discover that the program's default modifications cause trouble instead of solving it. Registry Mechanic doesn't attempt to locate missing files and folders, but by default it steps outside the Registry and repairs shortcuts that point to nonexistent files. It found fewer problems than any of the other programs reviewed here. (GuideWorks Pty. Ltd., *www.winguides.com.* ●●○○○)

ChemTable Software's **Reg Organizer 2.0** ($29.95 direct) can either perform a general check for Registry problems or specifically analyze and edit areas like shared DLLs or start-up programs. It includes an excellent Registry editor that—among other things—displays the effects of a REG file before merging it into the Registry.

The program offers Registry-wide search-and-replace capabilities, and its Age System identifies recently changed Registry items. Among its many other features are removal of unnecessary files, identification of bad shortcuts, and Registry-style editing of INI files. The help system, however, didn't quite match up with the actual program. (ChemTable Software, *www.chemtable.com.* ●●●●○)

Successor to the popular RegCleaner, Macecraft Software's **RegSupreme 1.1** ($12.95 direct) scans your hard drive and caches the locations of files and folders immediately on installation. This speeds the search for missing items later on, and it really works: The program took about 70 seconds to locate more than 800 problems, even when set for "extra deep" scanning. The interface is sparse (though it supports more than 30 languages), and the help system is minimal. Still, if you want fast Registry cleaning, this is the program for you. (Macecraft Software, *www.macecraft.com.* ●●●○○)

SCORECARD

PC LABS

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

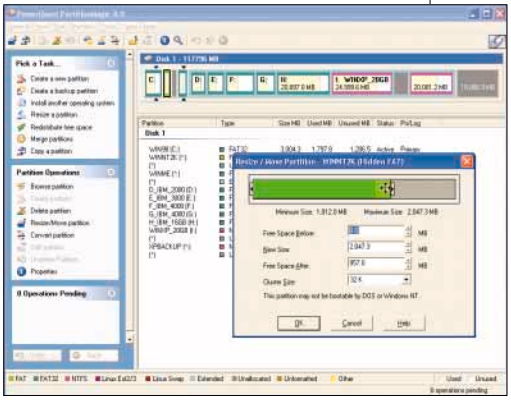
	Speed	Registry fixes	Safety	Features	User interface	OVERALL
Complete Registry Cleaner	●●●●	●●●●	●●●●	●●●	●	●●●
Registry First Aid	●	●●●	●●●	●●●●	●●●	●●●
RegistryFixer	●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●◐
Registry Mechanic	●●●	●●	●●	●●●	●●●	●●
Reg Organizer	●●●●	●●●	●●●	●●●●●	●●●●	●●●●
RegSupreme	●●●●●	●●●	●●	●●●	●●	●●●

RED denotes Editors' Choice.

PARTITIONING

BY EDWARD MENDELSON

Storage space isn't the precious commodity it used to be, with many hard drives boasting 80GB, 100GB, or more. We suggest that you partition a large hard drive into two or more logical drives; this can improve performance and make it easier to organize, protect, and back up data. Unlike the disk management tools built into Windows, dedicated third-party partitioning tools can split a hard drive, reallocate free space, and convert file systems (for example, from FAT32 to NTFS) without losing data.



PARTITIONMAGIC's graphical interface and wizards make it easy to merge partitions and reallocate space.

Acronis PartitionExpert 2003, build 292 ($49.99 direct) is a decent though flawed partitioning program. The main application, which runs under Windows, provides wizards that make it easy to resize partitions, and a batch mode lets you perform a sequence of actions with one click.

We are impressed with PartitionExpert's speed, but unfortunately the program has some notable limitations. For instance, it can't merge two partitions into one. And although the program can resize partitions using any current Linux disk format, it won't work with Windows 2000/XP dynamic drives.

PartitionExpert first asks you to create an emergency boot disk. According to Acronis, the emergency boot application, which runs under Linux, can access external USB and FireWire drives to copy partitions backed up to them. But PartitionExpert failed to detect external drives on all four of our test systems. The vendor speculated that the emergency boot disk may have lacked drivers for our USB ports. The package also includes a separate emergency program for recovering damaged or deleted partitions.

PartitionExpert 9.0 is due out around the time you read this. Acronis says the new version will include a boot manager. (Acronis Inc., *www.acronis.com.* ●●●○○)

Although **Partition Commander 8** ($49.95 direct) is installed under Windows, it runs as a DOS-based application with a graphical interface. You can launch it from the CD, a floppy disk, or your hard drive. It performs basic partitioning tasks like creating, copying, and resizing partitions, and it provides wizards for common tasks such as redistributing free space. The app lacks more complex features like partition merging and batch processing (which means you have to wait for each step to complete before starting the next). It resizes all current Windows and Linux partition types and can convert a Windows 2000/XP dynamic drive back into a normal drive.

Unlike rival products, Partition Commander adds its own code to your hard drive's master boot record—a potentially dangerous procedure. The program worked perfectly but slowly on three of our four test systems. On one system, which was already divided into multiple primary partitions, Partition Commander switched the active boot partition without asking, and then it refused to launch, because it couldn't find a compatible operating system on the new active boot partition. To undo the damage, we had to boot from a DOS floppy disk and use the FDISK /MBR command. (V Communications Inc., *www.v-com.com.* ●●○○○)

PartitionMagic 8.01 ($69.95 direct) is your best choice. It performs all standard partitioning tasks, either through wizards or through intuitive yet option-rich menus. It can merge two partitions and will update shortcuts and Registry entries to reflect the resulting changes in drive letters.

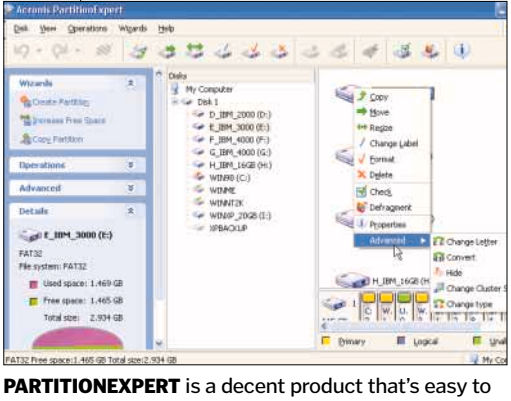
PC MAGAZINE EDITORS' CHOICE

PartitionMagic performs most operations from within Windows; changes that affect the system partition usually occur after you restart Windows. The application works with external USB and FireWire drives, as long as Windows categorizes them as "hard disk drives" rather than "devices with removable storage." Alternatively, you can boot from the product CD and perform basic operations from a limited DOS-based version.

Some operations, namely those that take place while Windows is rebooting and those performed from the DOS-based version, can be done only on internal hard drives. The program won't work with Windows 2000/XP dynamic disks.

We did encounter some problems with PartitionMagic. On occasion, when adding or removing partitions on Windows 2000/XP systems, you have to edit the Boot.ini file manually, because the program sometimes neglects to make the necessary changes. (This occurs when you add or remove a partition located between two bootable partitions.) And if you bought your computer within the past year, you may need to change a BIOS setting to enable IDE Compatibility Mode before the emergency CD can boot. Also, make sure you update to Version 8.01; Version 8.0 rendered a test system totally unbootable.

The included boot manager lets you choose a primary boot partition at each start-up, while a separate utility lets you switch boot partitions semipermanently without installing the boot manager. Also included is DataKeeper, which can automatically back up any file saved to your hard drive and lets you choose among multiple versions to restore. (Symantec Corp., *www.symantec.com.* ●●●●○)



PARTITIONEXPERT is a decent product that's easy to use, but it lacks some important capabilities.

MIGRATION

BY JAY MUNRO

From your second PC on, you've had the same problem: how to get all your stuff from the old PC to the new PC. The solution may be a migration utility. Migration utilities serve one basic purpose: to move your data, your settings, and possibly your programs to your new PC. The four we review here fall into two categories: application movers (Alohabob PC Relocator and Move Me) and settings movers (Desktop DNA and IntelliMover).

The *application movers* gather your programs, settings, and data and move them to your new PC. The advantage of these is that you don't have to reinstall all your apps.

The *settings movers* gather data files—DOCs, JPEGs, MP3s, and the like—as well as personal preferences from e-mail software, office suites, and other applications. Some settings movers have cross-version support, so if you have Microsoft Office 97 on the old machine and Office 2003 on the new one, your preferences will be transferred properly.

The products are similar in speed, depending on the connection; the volume of data moved affects the total job time more than the transfer method used. Ethernet crossover cables are the best, parallel or disk transfers are the worst, and USB bridges and cables are somewhere in between. We tested this software with a crossover cable, as all of the programs supported that equally.

The products all worked as claimed without too much difficulty. Using any one of them is faster than reinstalling applications and moving data manually.

Alohabob PC Relocator Ultra Control

With USB 2.0 and Ethernet crossover cables, $69.95 direct. Eisenworld Corp., www.alohabob.com. ●●●●◐

PC MAGAZINE EDITORS' CHOICE

Alohabob PC Relocator Ultra Control may sound like the name of a Japanese game show, but it's actually a tool that will please novices and professionals alike. Like Spearit Software's Move Me, Alohabob moves complete applications, as well as settings and data, from one PC to another.

Like the settings-only products, Alohabob also supports cross-version migration with Internet Explorer, Microsoft Office, Outlook Express, and Netscape. Unlike any other migration tool here, Alohabob has a color-coding system that helps you determine which applications can and can't be moved; you get a full list before you transfer anything. Another cool and unique feature is that Alohabob lets you stop and exit once you've scanned your system; you can return later and continue without a rescan.

Alohabob now offers automatic, standard, and expert modes. Auto mode does everything for you, standard mode lets you choose categories of applications to customize, and expert mode lets you drill down to the file level.

This flexibility extends to transfer methods as well. Auto mode gives parallel, network, and removable-media choices, while expert mode offers six ways to get the job done, including USB 2.0 and new Ethernet crossover cable support (both kinds of cable are included in the boxed version). A new network assistant wizard helps with connection problems. You can also opt for nonnetwork transfers; Alohabob can split up files to fit on CDs and Iomega Zip or floppy disks.

Like Move Me, Alohabob can create a folder on the C: drive for a source drive (say, D:) that isn't mirrored on the target (thus, C:\driveD\), remapping Registry entries, INI files, and shortcuts to the new location. The only things it can't fix are uninstall logs. Unfortunately, unlike Move Me, it doesn't give you an easy way to remap to another drive (for example, mapping the source PC's drive D: to E: on the target).

Alohabob, like Desktop DNA and Move Me, lets you completely undo the migration if you decide it didn't work. The post-migration report—which shows you a filterable list of warnings and errors, things created, things replaced, and things not replaced—is by far the best in the batch for debugging migration problems.

Move Me 2.4

$19.95 direct per migration; CD, $9.95; parallel cable, $9.95; CD, parallel cable, and migration, $34.95. Spearit Software Inc., www.spearit.com. ●●●○○

Spearit's Move Me 2.4 is an easy way to move data and applications using parallel, network, or removable-media–based transfers. Anyone can download Move Me and run it to get an inventory of what to move; if you don't transfer anything, you don't pay.

Move Me provides a single, basic interface almost anyone can use. When you run the utility, you get a few choices, such as moving your desktop, Outlook, address book, Word, or IE settings. By default, Move Me transfers all apps, data, and set-

SCORECARD

PC LABS

Each product's **interface** rating is based on its ease of use, including the presence of an undo command and the level of migration customization offered. The **cross-application coverage** rating indicates the ability to transfer application settings from one version to another (say, from Microsoft Office 97 to Office 2003). For **reporting,** we look at whether the tool reports on errors only or creates a log file of what it moves, as well as how detailed and customizable the reports are. **Transport flexibility** reflects how many methods the utility has for moving files, such as via Ethernet crossover cable, USB cable, or parallel cable, or over a network.

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

	Interface	Cross-application coverage	Reporting	Transport flexibility	OVERALL
APPLICATION MOVERS					
Alohabob PC Relocator	●●●●●	●●●	●●●●◐	●●●●	●●●●◐
Move Me	●●●	●	●●	●●●◐	●●●
SETTINGS MOVERS					
Desktop DNA Professional	●●●●◐	●●●●◐	●●●	●●●●	●●●●
IntelliMover	●●●◐	●●●●	●●●●	●●●●	●●●

RED denotes Editors' Choice.

tings, as well as all drives—but no peripheral-device data, though advanced mode lets you change a few things, and the Move Me Control Center lets you modify file and setting rules. Like Alohabob, Move Me lets you reassign a drive from the old PC—if it isn't mirrored on the target machine—to a folder (C:\driveD\) or another drive.

Move Me works over a parallel cable (available from the company), a network, or removable media. Since files can get pretty large, Move Me breaks file-based transfers into chunks that you can copy to CDs or Zip disks. Unlike Desktop DNA Professional, which lets you create files for disaster recovery or backup, Move Me is limited to migration. It requires both a source and a destination scan, and migrations are based on both, which means you can't move to another new machine or a wiped one without paying again.

Move Me doesn't resolve cross-version application settings, as Desktop DNA and IntelliMover do. In our testing, Move Me put a copy of Office 2000 from our old machine right next to our Office 2003 installation on the new PC.

Like Alohabob, Move Me can restore the new PC to a nearly premigration state. In our testing, it presented us with a list of some folders and Registry entries that couldn't be removed. While it transfers *all* applications from the source PC, Move Me by default disables ones that start automatically when your PC boots; you may not want hardware-centric or vendor-specific programs from the old machine active on the new PC. The StartUp This utility lets you enable them if you want.

Desktop DNA Professional 4.7

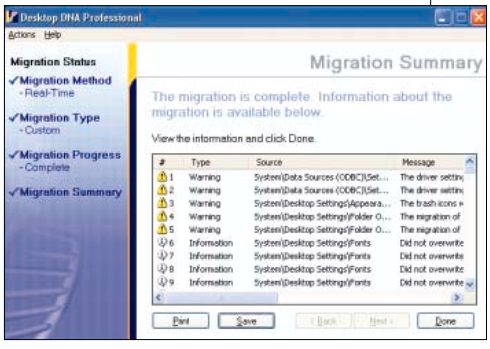
$39 download; with Ethernet crossover cable, $49 direct; with USB 2.0 cable, $59. Miramar Systems Inc., www.miramar.com ●●●●○

PC MAGAZINE EDITORS' CHOICE

Using DNA as a metaphor to describe your computer's unique setup, Desktop DNA Professional 4.7 moves the stuff that makes your PC yours—settings, bookmarks, documents, and so on. This release is available in a USB 2.0 version, though it's more expensive than the version of IntelliMover with a similar cable. Desktop DNA's script-driven migration supports over 60 applications, and the support site lets you request new scripts or try betas. Like Alohabob and IntelliMover, Desktop DNA can perform a real-time transfer or create a deferred migration file.

The deferred migration is implemented in a way unique among the products in our roundup. It produces an executable that you run on the new PC without installing anything else. You can also use the file to transfer your old PC's settings and data to another PC, save personal items, or perform a system restore—or you can simply archive it.

In both real-time and deferred modes, you choose either typical or custom migration. Typical migration includes system and application settings and the My Documents folder (or documents and settings). In custom mode you can deselect items and add folders and file extensions.



DESKTOP DNA checks off migration tasks as they're completed.

Unlike the other migration tools here, Desktop DNA doesn't provide a premigration report. A postmigration error report offers only warnings, as of incompatible settings, and information like "Did not overwrite because...." And unlike Alohabob and IntelliMover, Desktop DNA keeps no detailed log of what it moves.

If the results of the migration are not to your liking, you can roll back the new system with the Undo file that Desktop DNA places on the desktop. This procedure uses an executable file, similar to the deferred file, and it works.

Desktop DNA requires an Internet connection on the source machine for activation; the destination machine requires one only for a deferred migration. If you're using the Ethernet crossover cable, you may have to install and activate the program on the Web, then switch cables to do your migration. The software license lets you install Desktop DNA and move data and settings between two machines.

IntelliMover 3.63

With a parallel or USB 2.0 cable, $49.95 direct. Detto Technologies Inc., www.detto.com. ●●●○○

IntelliMover, another settings and data mover, differs from Desktop DNA in that it requires more extensive manual selections and performs only real-time transfers. Detto expects to release a new version in the third quarter of this year that will, like Desktop DNA, let you save a profile.

For a real-time settings and data migration utility, IntelliMover completes the job but makes you do too much of the work. Though it's easy to install and connect, it lacks both undo capabilities and an automatic mode.

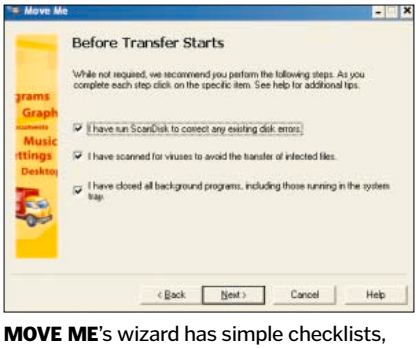
Setup is easy, but you do need to abide by the system requirements—as we found when IntelliMover refused to install on an old Windows 98 SE system. Checking the manual, we found that the software needs a fully updated system. Once we ran Windows Update, it worked fine.

IntelliMover scans the old and new PCs, then shows you a migration list. By default, it saves only system settings; you must select the folders and file types (such as Word, Excel, or Winamp) that you want moved.

It can move all files associated with about four dozen programs. But while you can choose among those apps, you can't use IntelliMover itself to select individual files or folders other than the "My" folders (My Documents, My Pictures, and so on). It recognizes many applications but currently maps cross-version settings only for Microsoft Office, Netscape, WinZip, and several music programs.

You can move files selectively with the File Transfer Utility. FTU is an application, similar to classic LapLink, that offers source and destination windows and lets you drag and drop individual files and folders. You need to run it on both the old and new machines, and it works only with the parallel or USB cable, not over a network.

Detto offers a free online migration adviser (*www.detto.com/hpadvisor/*). It's packed with ads but offers a good overview. And the company's Migration Learning Center (*www.migrationlearningcenter.com*) is a must-see for beginners.



MOVE ME's wizard has simple checklists, such as this migration readiness check.

ANTIVIRUS: WHY YOUR ANTIVIRUS PROGRAM WON'T CATCH THE NEXT ATTACK

BY LARRY SELTZER

"Why me?" That's what plenty of PC users were asking themselves last December, shortly after they opened an e-mail message from an acquaintance with this subject line and found their systems infected with Win32/Sober.C, yet another in a seemingly endless stream of worms zooming around the Internet.

Many of those infected were probably good Internet citizens, running antivirus software with up-to-date signatures that should have stopped every known virus in the wild. Unfortunately, too often today, worms (viruslike programs that can spread themselves to other machines without user intervention) get into the wild before antivirus companies can create and distribute appropriate signatures. Technically, most recent worms are fairly unsophisticated, but they all use clever social-engineering tricks (the e-mail address of someone known to the recipient, with enticing subject lines, message text, and attachment names) to make people open the files, thus kicking off incredibly rapid outbreaks.

According to AV-Test.org, a project of the Otto von Guericke University Magdeburg in Germany and AV-Test GmbH, the Romania-based Softwin (creator of BitDefender) was the first antivirus company to have a definition for Sober.C—10 hours after the virus was first detected. Symantec didn't have a signature available until more than a day after the first sighting, and McAfee's came a day after that. In an article on outbreak response time in the February 2004 Virus Bulletin (*www.virusbtn.com*), AV-Test's Andreas Marx was quick to point out that the company that was first for this particular virus may not be first the next time. But it doesn't really matter. Even a 10-hour response time is too slow. For reaction times to one of the most widespread (so far) viruses of 2004, MyDoom.A, see the table on the facing page.

To date, we've been fairly lucky, in that most of the rapidly spreading worms have been fairly benign in payload, clogging bandwidth but doing little or no damage to the infected machines. But the odds of a worm with a destructive payload seem increasingly high.

All mainstream antivirus programs rely on signatures—patterns of bytes characteristic of specific viruses—to detect malicious code. The products typically check each executable file going by against a database of more than 50,000 signatures. And every time the number of known viruses mushrooms, naysayers argue that signature-based scanning will never be able to keep up without exacting a huge toll on performance. In fact, partly because of increases in PC processing power, many products are getting faster, not slower.

Even the most talented and nimble antivirus companies, however, need a few hours to capture and examine a virus and write a signature so customers' software can detect it. And the signature needs to be distributed to customers before their software will recognize the new threat. This is the main shortcoming of the traditional antivirus model.

IF IT LOOKS LIKE A DUCK...

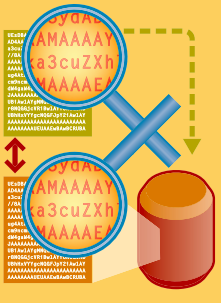
Clearly, we'll soon need a way to detect viruses and worms based on something other than signatures. Several existing products already incorporate techniques for identifying unknown malware. These products generally use one of two techniques: heuristic detection or sandboxing. We tested the effectiveness of five products that use these techniques, including Norton AntiVirus 2004, our current Editors' Choice for antivirus software, as a point of comparison.

Heuristic detection products analyze the program code in a file, looking for behaviors characteristic of viruses. This is far more difficult and time-consuming than signature-based scanning; therefore, some say that the only way to do heuristics right is to throw massive computing resources at it. MessageLabs, a worldwide managed e-mail security service provider, takes this approach. MessageLabs uses a whole data center and 2GB of attack characteristics data to analyze the code in e-mail sent to its customers, far exceeding the capabilities of a single-user PC or even a high-end dedicated server.

Several server-based gateway antivirus products also use heuristic analysis. A server, shared by many users on a network, can perform much more analytical work on code without slowing down individual PCs. We tested GFI MailSecurity, which has extensive heuristic capabilities. Both MessageLabs and GFI first test messages with conventional antivirus signa-

Three Virus Detection Types

SIGNATURE

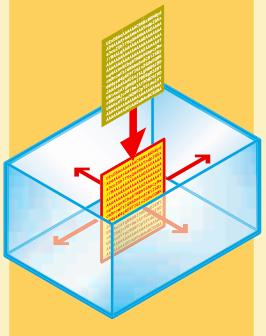


A traditional antivirus program uses *signatures*—byte strings unique to specific viruses—and compares the code being scanned against the signatures in its database.

HEURISTIC

Heuristic virus detection involves scrutinizing the code to find indications of suspicious activity. For example, does the code delete files, change the Registry, or format drives?

SANDBOX



Sandboxing lets programs, including viruses, run in an area sequestered from the rest of the system. If a program does something untoward, the antivirus utility shuts it down.

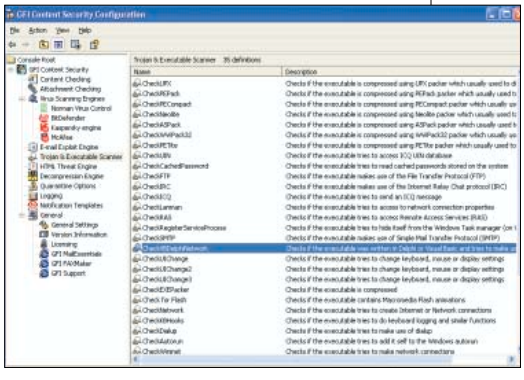
ture-based scanners, because of their speed, and then apply the more time-consuming scrutinies of heuristics to the files that pass the first tests.

Then there are products that use *sandboxing,* which lets programs not known to be trustworthy run on a virtual machine, so nothing they do can affect your computer. The vendors of sandbox products don't view them as a full security solution; rather, they are a safety net to catch the attacks that slip through your main antivirus program and other protection.

To test these products, we had to isolate the infected e-mail on a system and run the attachments—in other words, attempt to infect ourselves.

HOW WE TESTED

We always have two basic concerns about AV products: false negatives, when a product misses actual malicious code, and false positives, when software misidentifies innocent code as malicious. Unlike in signature-based scanning, where a program knows exactly what it's looking for, in heuristic detection and sandboxing there is a trade-off between false positives and false negatives, as a function of the given product's aggressiveness.



A SERIES OF HEURISTIC OPTIONS gives administrators extensive control over what mail is blocked.

Unlike with antispam products, many of which use heuristic techniques to identify spam, we require perfection from antivirus products, and with good reason. It's unacceptable for a nonviral program to be blocked, even worse to let a virus through undetected. False positives are quite rare with conventional antivirus software, although such programs will often flag payloads that cannot infect a system, such as bounce messages (more on them below) and damaged versions of true viruses.

To test scanners' ability to detect "unknown" viruses, we had to be sneaky. We installed the programs, updated them, and set them not to update their virus signatures, forcing them to rely on other methods for detecting new viruses or variants.

We shut the test systems down and waited for about two weeks. For comparison, we also set up systems with Norton AntiVirus 2004 and McAfee VirusScan 2004 in the same way; these claim to use heuristics as well as signatures. We had to relax some default restrictions in Outlook Express 6 that would have blocked many of the attacks, such as the default setting that strips executable attachments. It's harder to get yourself infected on purpose than you might think.

In the meantime, we took the e-mail sent to a popular *PC Magazine* address and forwarded it to some test accounts. During the two-week period, many new viruses came out, as they always do, including a few that made their way to these accounts. At the end of the test period we shut off the flow of mail and loaded the messages into the nonupdated products.

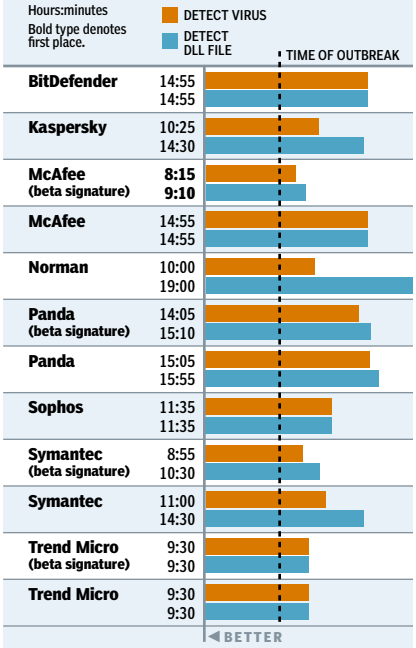
Unfortunately, we were unable to test MessageLabs, because controlling test conditions in this way would be impossible with such a service. Also, VirusScan crashed when we tried to load the messages, and we couldn't update it to fix the bug without potentially updating its signatures and invalidating the results. So we had to pull it from the test as well.

Our testing methodology was a bit more speculative than usual for an antivirus story; we didn't know exactly what viruses we would get. In all, we found 69 infected messages in our mailbox, including several infected with three virus strains that first appeared during the freeze period. If we had tested about a month before, we would have been fortunate enough to experience the birth of several generations of new viruses, including the prolific Bagle and Netsky families. We missed this viral gold rush, but we did see two new versions of Bagle and one of Netsky that were not yet out when we froze our test products. These are sufficient to give you a good idea of the state of unknown-virus detection.

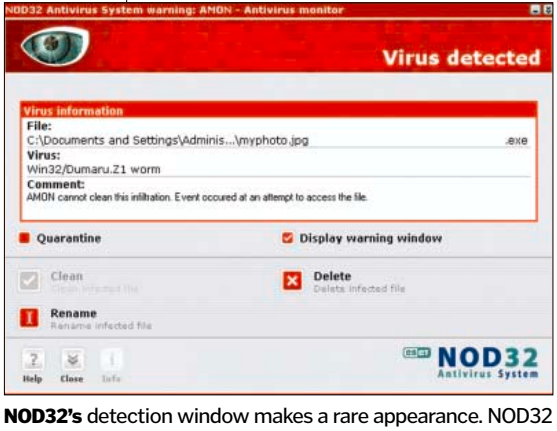
There was another monkey wrench thrown in: Most of the infected messages were in fact *bounce messages.* Someone's infected system sent a virus to a third party using our e-mail address as the From: address. In each case, the recipient's mail server rejected the message, bouncing it back to the apparent sender—us. (Such bounce messages were once useful, but now they only clog network

Major-Vendor Response Times: MyDoom.A

The MyDoom virus has two detectable components: the distributed virus itself and a DLL file that it drops. The chart indicates how much time passed, after MessageLabs' first sightings of the virus, before each vendor released signature files to detect the virus and the DLL file. About 6.5 hours elapsed between the first sightings and the full-scale outbreak.



Source: AV-Test.org. Information is not available for NOD32.



NOD32's detection window makes a rare appearance. NOD32 missed this virus when it was attached to an e-mail.

pipes and cause unwarranted hysteria.)

When the infected message is preceded by the rejecting server's message header, e-mail clients generally prevent the user from accessing the infected payload. Even so, conventional antivirus products, including Norton AntiVirus and Trend Micro's PC-cillin Internet Security 2004 (which we used as an independent standard of comparison), scan such messages, recognize the viruses in them, and flag them.

CONCLUSIONS

Conspiracy theorists will suggest that the antivirus-industrial complex is suppressing heuristics to protect the subscription-based business model, and it's true that the real money in the antivirus business is in the subscriptions. But our testing—and all other evidence—shows that today's heuristics cannot be an effective tool on a single-user PC.

Of our admittedly small number of new viruses, Norton AntiVirus found none using heuristic methods, and NOD32 found only one out of three. GFI MailSecurity showed that heuristics can be helpful on a powerful server, and MessageLabs illustrated what can be done when you throw serious iron at the problem. But as we noted, even these tools still rely primarily on signature-based scanning.

We can't recommend even supplementing your protection with either of the sandbox products, in view of their deficiencies. OS Security's OSsurance did block all the attacks, but its crashes were frustrating.

Administrators looking to protect an entire network would do well with GFI MailSecurity, but they should carefully fine-tune the program's rules to find a point at which they and their users are comfortable. A large organization might do well to outsource its mail to MessageLabs and benefit from the company's worldwide facilities. With service-based protection, however, you still need your own server antivirus program to stop threats that originate from within or pass among users in your organization.

For now, although a signature-based antivirus product is still an absolute must for known viruses, every PC user's best tool for detecting *unknown* viruses is the old noggin: You *can* learn to recognize the traits of virus-bearing e-mail, such as attachments, often with intriguing filenames, on nonsensical messages that seem to come from people you know. Most people just aren't inclined to think like computer security analysts, but if we don't start, a lot more of us are going to be asking, "Why me?"

PERFORMANCE TESTS

False Positives

To test for false positives, AV-Test.org ran a total of 2 terabytes of uninfected files (more than 3,700,000 files) through the signature/heuristic products and noted how many files each product erroneously flagged as infected. For sandbox testing, AV-Test.org attempted to launch 1,200 distinct, uninfected executables and noted how many each product blocked.

SIGNATURE/HEURISTIC PRODUCTS	False positives
GFI using BitDefender	19
GFI using Kaspersky	7
GFI using McAfee	1
GFI using Norman	0
GFI's Trojan & Executable Scanner	28,677**
NOD32 Antivirus System	30
McAfee Antivirus*	1
Norton AntiVirus 2004*	1
SANDBOX PRODUCTS	
OSsurance Desktop	37
SurfinGuard Pro	1,200***

Source: AV-Test.org * Reported for comparison.
** GFI flagged these files as "suspicious."
*** Finjan blocks every executable file except those on a whitelist.

HEURISTIC PROGRAMS

GFI MailSecurity for Exchange/SMTP 8.0

25 users, $315 direct. GFI Software Ltd., www.gfi.com.

●●●◐○

Unlike the other products here, GFI MailSecurity is server-based; it protects all users on a server. The program integrates directly into Microsoft Exchange Server 2000 or 2003, but we tested it as a separate mail gateway for a conventional SMTP server.

GFI MailSecurity has more configuration options than are worth counting. This can be overwhelming, but it confers a great deal of control. Out of the box, though, it comes configured in paranoid secret-police mode, blocking large numbers of nonviral messages. But many of the rules that caused this performance were designed to block typical spam, not viruses, so it's not necessarily fair to call the harmless blocked messages "false positives" in an antivirus context (although some of them undoubtedly were). Moreover, the program blocked every virus we threw at it, right out of the box.

GFI MailSecurity comes with fully licensed versions of conventional antivirus engines from Kaspersky Labs and McAfee Security. It also supports BitDefender and Norman Virus Control, but you have to purchase those licenses separately. For our tests we updated the two included engines and GFI MailSecurity's rules, and then we froze updates, just as with the other products.

The product also includes engines for checking the characteristics of attachments, as well as a series of true heuristic engines. The e-mail exploit engine checks messages against 27 specific exploit rules, including rules for some very recent and specific exploits, such as the Outlook 2002 mailto: exploit, as well as some more generic ones. The Trojan and Executable Scanner checks 35 rules about executables, such as whether they attempt to send an ICQ message, use SMTP, dial, or set themselves to launch at Windows start-up.

The HTML threat engine checks HTML mail for the presence of scripts and removes either most or all of them (removing most is the default). Finally, the decompression engine sets rules for how archive files (like ZIP files) are handled. It lets you set rules for password-protected files, corrupted files, and recursively compressed files. You can also set size limits.

The large number of e-mail messages that GFI MailSecurity's default configuration blocks might scare some people, but we are more impressed with the product's configurability and ability to block actual viruses. It's a shame—though not surprising—that power like this requires a dedicated server.

NOD32 Antivirus System

$39 list. Eset s.r.o., www.nod32.com.

●◐○○○

We chose to review NOD32 Antivirus System because it claims to have a "state-of-the-art virus/worm/Trojan detection engine" for advanced heuristics. We tested the version for Windows NT; other versions support Windows 2000 and XP. Not only did we see little evidence of heuristic virus detection on our tests, NOD32 barely showed up at all.

NOD32 found only 2 of the 69 infected messages. This number is not as bad as it seems, but it's still bad: NOD32 missed all of the bounce messages, as well as most of the Bagle variants and Dumaru.Z.

We manually extracted attachments with samples of each virus and scanned them with NOD32's heuristics feature turned on. The program still missed several viruses, but it did detect a Bagle variant that came out after the test began. Interestingly, NOD32 was able to detect Dumaru.Z once we had separated it as an

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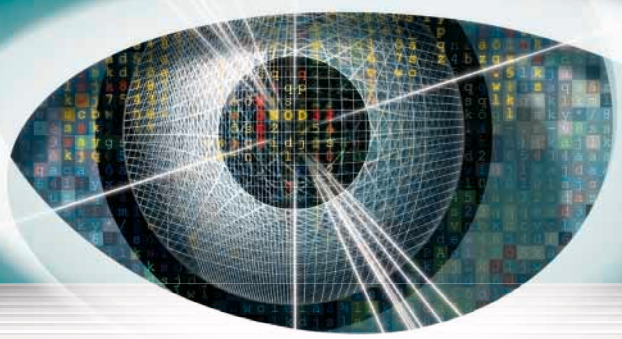
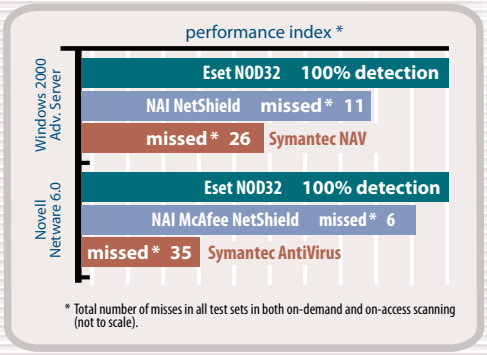
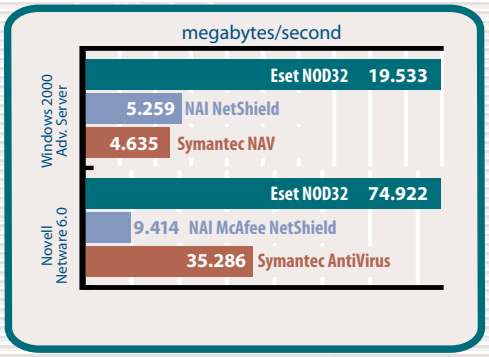


detection rate



Information source: ***Virus Bulletin 8/2003, 11/2002***

scanning rate



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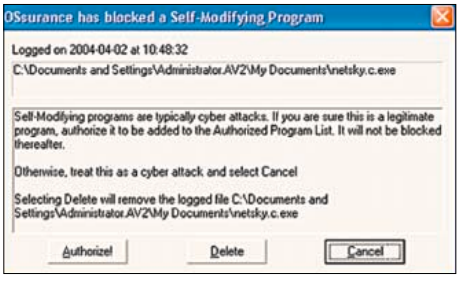


OSSURANCE blocked every virus we attempted to run on the system—then it crashed.

e-mail attachment.

You could make a case that the bounce messages NOD32 missed were not threats at all and that it behaved reasonably in skipping them. We don't think much of this argument; the bar has been set higher by other products, such as Norton AntiVirus and PC-cillin, which found those viruses. The bottom line is that NOD32's failure to detect any of the new viruses in the e-mail stream speaks badly of its capabilities.

SANDBOXES

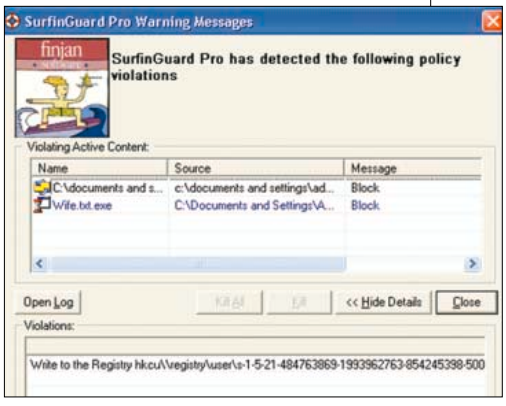
Finjan SurfinGuard Pro 5.7

$30 direct. Finjan Software Ltd., www.finjan.com.
●●○○○

Finjan Software offers nearly identical personal and corporate antivirus packages; we tested the personal version, Finjan SurfinGuard Pro 5.7. These products are neither virus scanners nor cleanup tools, and the company recommends that users also run such software.

At the default security level—Medium—SurfinGuard monitors all active content; it asks you whether to monitor, run, or kill certain file types. Any application violating a policy is automatically killed. At the High setting, the program blocks all active content. Set to Low, it allows everything, although the user is often consulted first.

In general, it's good that SurfinGuard monitors only files that come in directly through one of the monitored applications; otherwise the program would be an unreasonable burden on system performance. This does create one big problem: Many worms these days are distributed in ZIP files, but SurfinGuard monitors the ZIP extraction program, not the extracted content. Finjan says the next version will monitor programs contained within compressed archives.



SURFINGUARD monitors content that comes in from the outside, looking for disapproved behaviors.

SurfinGuard did block all of the non-ZIP attacks on our tests. The Run Safe feature confirmed that the tool would have blocked the attacks within the ZIPs if it had been monitoring those files, but that isn't very reassuring.

SurfinGuard also monitors scripts run directly in a browser or HTML e-mail. And using the panic mode, you can quickly kill all active content and prevent anything else from starting, although by that time it's probably too late.

OSsurance Desktop 3.0 Personal Edition

$100 direct. OS Security Inc., www.ossecurity.ca.
●●◐○○

During installation, OSsurance Desktop 3.0 Personal Edition scans your system to create an Authorized Program List (APL) of applications already on your system. This means that if the computer is already infected, the virus itself will be considered safe. We advise you to scan your PC first with a conventional antivirus scanner—and to keep that scanner active and current.

Since none of our viruses were on the APL, we tested them by simply running them. In every case, OSsurance popped up to block the infected program. (Interestingly, it flagged all the viral programs as "self-modifying," because all of them are compressed and uncompress themselves at load time. If this weren't the case, OSsurance would have blocked some other behavior of the programs.)

A few minutes later, the OS Monitor program crashed. This is not the actual protection process in OSsurance, which runs as part of the Windows kernel; it's the part that can interact with the user, for example by displaying dialog boxes explaining that a program was blocked and why. If we had kept testing viruses at this point, OSsurance would have blocked them, but we would have gotten no feedback. We could have simply rerun the OS Monitor, but we shouldn't have to do that. The company was familiar with the problem and emphasized that the protection was still present.

OSsurance does seem to be aware of the difference between viruses (which unpack themselves) and installation programs (which unpack their contents from an install file). When we ran an installation program, OSsurance gave us a different alert, which said the installation program was a "probable cyber attack," adding that if we knew it was a legitimate program we could add it to the APL.

OSsurance's approach to sandboxing seems more straightforward than SurfinGuard's: Either a program is on the APL or it isn't. These days, we'd prefer to give up some system performance as the price of extra monitoring if it would increase the chances of malicious code being monitored as well. If only the OS Monitor program didn't keep crashing.

PERFORMANCE TESTS

Virus Detection

We shut down all of our antivirus products on March 11, 2004. Over the following two weeks, three brand-new viruses appeared in our mailbox: HTML_BAGLE.Q-1, PE_BAGLE.N-O, and WORM_NETSKY.P. We restored the AV programs but did not let them update their signatures, forcing them to use their ability to detect unknown viruses to stop these new threats. We could not test OSsurance and SurfinGuard with HTML_BAGLE.Q-1, because patches to Internet Explorer stopped it first. Here's how the others fared.

PROGRAM	TECHNIQUES USED	RESULTS
GFI MailSecurity	Content filtering, heuristics	Stopped all three viruses, apparently because of heuristic rules.
NOD32 Antivirus System	Heuristics	Detected only PE_BAGLE.N-O (as "probably unknown NewHeur_PE virus").
OSsurance Desktop	Sandboxing	Caught PE_BAGLE.N-O and WORM_NETSKY.P.
SurfinGuard Pro	Sandboxing	Missed PE_BAGLE.N-O. Caught WORM_NETSKY.P.
Norton AntiVirus 2004*	Heuristics	Missed all three viruses.

* Reported for comparison.

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FileMaker Pro has always offered the best combination of power and ease of use for anyone needing a complete solution for managing projects, people, or any kind of data more efficiently. With its intuitive graphic interface and extensive array of starter solutions, FileMaker Pro allows even the novice to create practical business applications quickly and easily—without needing to master complex database concepts.

The new FileMaker Pro 7 delivers more power and ease of use than ever before. Users of previous versions have many reasons to upgrade, while newcomers will find that no competing product offers a quicker ramp-up time or more secure Web publishing capabilities.

Some of the new and improved features in FileMaker Pro include:

- Enhanced Container Fields that can import, store, and export any type of file, including PDFs, Microsoft Word and Excel files, Quark and InDesign files, photos, videos, and more. So now you can use FileMaker Pro 7 to create your own solution for managing documents.
- Almost infinite scalability to hold all those files, including 8 terabytes of database storage.
- A new relational model to simplify and streamline database creation.
- A new Relationships Graph to link data between tables just by clicking and dragging.
- The ability to open multiple windows in the same database at the same time for unprecedented productivity.
- Confirmation of data and layout changes before you commit them, so you can experiment freely with new layouts.
- Thirty pre-designed starter solutions—including everything from expense reports and contacts to medical and personnel records—that you can use as-is or customize for your specific needs.

But perhaps most important for those who want to make their databases available on the Web, FileMaker Pro 7 contains a bevy of new Instant Web Publishing features. It also boasts a brand-new enterprise-ready unified security model that extends fully from your desktop to your published sites.

Effortless Web Publishing.

Since version 4, FileMaker's Instant Web Publishing has made posting faithful renditions of FileMaker solutions on the Web as simple as clicking on a check box. With FileMaker Pro 7, Instant Web Publishing is as easy as ever, but now it's more powerful as well.

Now you can extend your entire database security model to the Web—including record locking—with a single click. In minutes you can provide highly secure database access to remote employees, partners, and even customers.

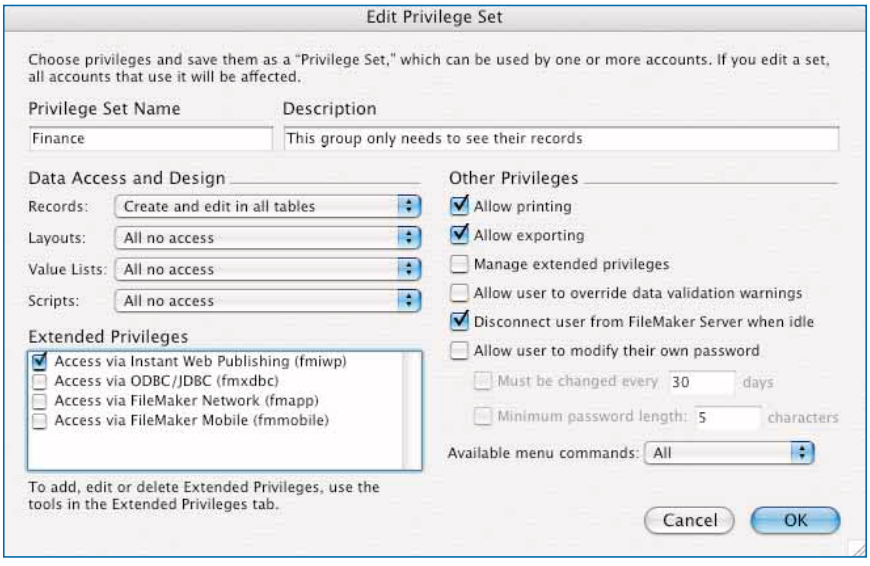
Many other new Web publishing features are available to enhance your database-driven Web sites. For example, FileMaker Pro 7's improved rendering and added controls let you create Web applications that faithfully duplicate those on the desktop—and you don't need to know any HTML.

FileMaker

A new "View As" popup menu lets the Web user choose among Form, List and Table views of data, so you're no longer confined to a restricted number of Web views.

Antonio Rodriguez of New York Cares is very excited about both the new Instant Web Publishing and security features of FileMaker Pro 7. New York Cares is a non-profit organization that offers volunteer organizing and project planning to a wide range of social service agencies, schools, and environmental groups.

"We use FileMaker Pro 7 with our Web site to collect volunteer information, provide information on events and volunteer opportunities, and sign up volunteers for activities," says Rodriguez. "We can get the different levels of data access we need for team leaders and other users, while protecting the integrity of our volunteer information."



Secure Your Data! New advanced security options let you control who gets access to what data.

A New Security Model

FileMaker Pro 7 raises the bar on data protection dramatically, with an entirely new enterprise-ready unified security model.

Now you can easily specify exactly what data each individual user can see, edit, create, and delete down to the individual field level. And you can extend the same level of control to layouts, value lists, scripts, menu items, and even printing.

But FileMaker Pro 7's security model is not only robust, it's incredibly flexible as well. Each database comes with two built-in user accounts, Admin and Guest, to which you add as many individual user accounts as you wish.

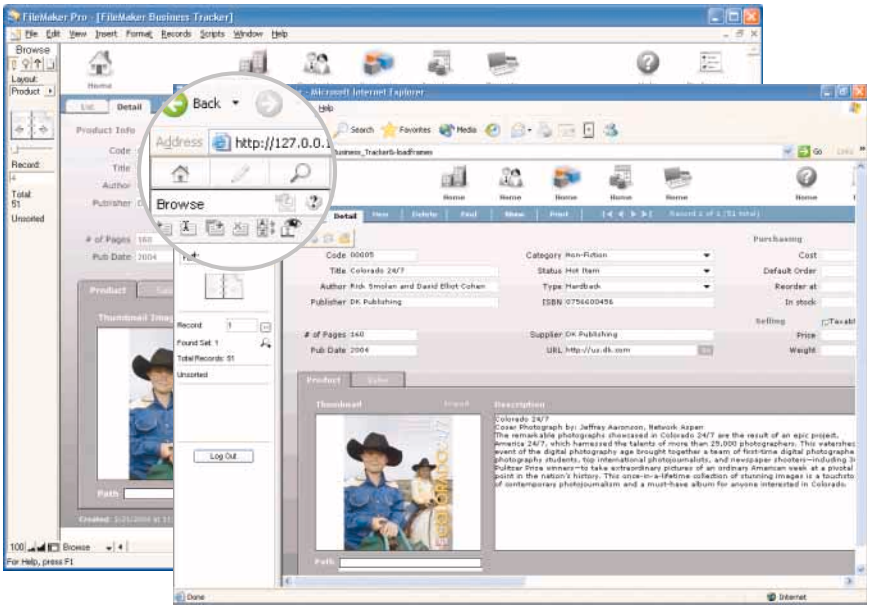
You can create multiple privilege sets for different levels of access (such as Admin, User, Maintenance, and Data Entry), and you can assign any privilege set to multiple accounts. Accounts can be combined into groups, such as human resources or accounting, and privilege sets may be assigned to the entire group.

If you're sharing your FileMaker Pro databases via FileMaker Server 7, there's no need to create accounts and groups from scratch. You simply extend existing Windows domain or Apple OpenDirectory user accounts and groups to your FileMaker users and assign privilege sets as needed. Users may then be authenticated directly to those directory services.

Ken Newell of the Hamilton Glaucoma Center at the University of California, San Diego, is particularly excited with the way security is addressed in FileMaker Pro 7. "We have to make sure we're compliant with HIPAA (Health Insurance Portability and Accountability Act) security regulations in everything we do, so this new security model is huge for us."

Flexible Web publishing and security are among the most important features today's organizations look for in a comprehensive database. FileMaker Pro 7 offers more powerful security and Web publishing tools than ever before, while retaining the unbeatable ease of use that has always been its trademark.

Publish to the Web! New Web publishing functions make it easy to share and collect data with remote users.



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*Only licensed users of FileMaker Pro software are eligible for this promotion. For FileMaker Pro 2.1-5.x customers, this offer expires Sept. 17, 2004. After Sept. 17, 2004, only FileMaker Pro 6 customers will qualify for this offer.

BROWSER ADD-ONS

BY CADE METZ

Internet Explorer, Netscape, Opera, Mozilla. All are more than capable of browsing the World Wide Web. But they're far from perfect, and very often we find ourselves wanting more.

Ever wish it were easier to move back and forth between Web sites? Check out **Easy Go Back 2.3** (free). With this IE utility, you can navigate the Web simply by moving your mouse from side to side while holding down the right mouse button. Move it left and you'll go back to the last page you loaded. Move right to go forward, returning to your original page. With other mouse movements, you can quickly refresh a page, minimize a browser window, or close a window. (UnH Solutions Inc., *www.unhsolutions.com.* ●●●●○)

BROWSE3D gives you a fuller picture of the sites you browse, though it may also slow you down.

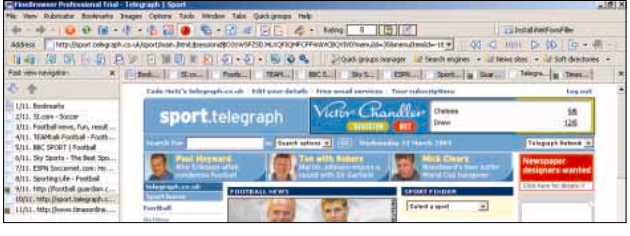
How often do you copy text—a URL, a headline, a paragraph—from the Web? With **Notes Pilot 1.61** ($39.95 direct), moving Web text and Outlook Express e-mails is wonderfully easy. Simply highlight a bit of text and drag it onto Notes Pilot's floating icon. The text will automatically show up in the application's main window, where you can edit it, save it, open it in Microsoft Word, e-mail it to a friend, and more. (Two Pilots, *www.colorpilot.com.* ●●●●○)

Candlelight Favorites Inspector 4 ($20 direct) gives new life to Internet Explorer's Favorites menu. This simple app lets you effortlessly move, copy, rename, and delete bookmarks. It tells you when a favorite page has been updated or shut down. If the name of one of your favorites changes, the tool automatically inserts the new name in your menu; it also protects site-specific icons for bookmarks. (Candlelight Software, *www.candlelight.com.* ●●●●○)

Similar site monitoring is available from Martin Aignesberger's **WebSite-Watcher 3.60c** ($29.95 direct). When one of your favorite Web sites is updated, this tool automatically downloads the page to your hard drive and carefully highlights each change. You'll never miss the latest news again. (Martin Aignesberger, *www.aignes.com.* ●●●◐○)

Offline Explorer 3.1.1548 ($30 direct) fulfills an old Internet fantasy: You can browse without waiting for pages to download. Key in the URLs of your favorite Web and FTP sites, then tend to other business while this standalone utility downloads each site in the background. Once it's finished, you can browse at your convenience, online or off. You can also easily edit pages, and a built-in HTTP server lets you share them with others. Please use this feature for good and not evil. (MetaProducts Corp., *www.metaproducts.com.* ●●●◐○)

Those of you who are a bit more comfortable with PC technology should try **The Easy Bee 2.0.5**, from Altercept ($129.95 direct). With this tool, you can build agents that periodically visit your favorite sites, extract new information, and save it to your hard drive. The difference is that in their search for new data, these macros are smart enough to input passwords, fill in forms, and click Web buttons. Setting up a macro takes time, but the process is fairly intuitive. (Altercept, *www.theeasybee.com.* ●●●●○)



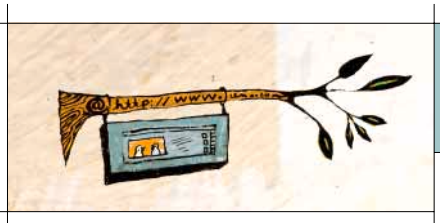
WITH FINEBROWSER, you can open groups of favorite sites all at once, with just one click.

Willing to try an entirely new browser? The innovative **Browse3D 2.1** ($29.95 direct) is essentially Internet Explorer in drag; it just adds its own wrapper to IE. You can load up to 16 Web sites into its 3D-like interface, easily panning from site to site. It's a bit like separating the pages of a magazine and laying them across a table: You can take in the big picture even as you're focusing on a particular page. Particularly on older machines, Browse3D may be a bit slow. (Browse3D Corp., *www.browse3d.com.* ●●●◐○)

MyIE2 0.9.18.20 (free, donations accepted) adds a tabbed interface to the browser window. After loading multiple sites, you can move back and forth among them simply by clicking on tabs running across the top of the screen. These tabs are so simple and so convenient, we can't believe they haven't been added to IE. You can also program the browser to respond to mouse gestures, à la Easy Go Back. (MyIE2 Team, *www.myie2.com.* ●●●●○)

FineBrowser 3.1.01 ($29.95 direct) has a similar interface, but unlike MyIE2—or any other popular browser—it lets you open multiple Web sites simultaneously. Let's say you have a bookmarks folder that holds five Iggy Pop sites. You can open all five simply by right-clicking on the folder and selecting the appropriate menu item. You also get a pop-up blocker, a form filler, and a tool that will automatically erase your tracks as you surf. (SoftInform, *www.finebrowser.com.* ●●●●◐)

And, finally, with YazaaWeb's **iBrowser 1.1.0** ($9.99 direct), you can browse the Web using voice commands. To navigate back, say "back." To navigate forward, say "forward." There are more than 30 voice commands in all, and you can add your own as well. Designed and marketed by a group of teenagers, iBrowser doesn't always work as smoothly as it should—much like any voice recognition app—but once you get the hang of it, it's reasonably effective.(YazaaWeb, *www.yazaaweb.com.* ●●●○○)



BROWSER TOOLBARS

BY CADE METZ

Haven't added a search toolbar to your browser yet? You're behind the times. Nowadays, every major search engine and portal offers a browser toolbar that lets you navigate the Web quicker than ever before. We review eight popular and useful toolbars here. Each adds a thin strip to the top of your browser, including a text entry box that lets you search the Web for keywords and phrases without browsing to a search site. Some are *metasearch* bars, which query several search engines. Most include other small apps, such as search-term highlighters, pop-up blockers, and form fillers. All are free.

There is a price, though: Toolbars can track your online behavior. The entire application category has been hit with a spyware rap, accused of tracking what you type and where you surf. This is mostly, but not entirely, unfounded. It's true that they all know what you're searching for, but search sites know that anyway. A few, however, do record your browser-based movements, though you can typically opt out of this tracking. In addition to our regular testing, we took a close look at how these toolbars handle privacy.

Google Toolbar (version 2.0.108) is the first—and still among the best. It lets you easily define the scope of your search, limiting your query to a particular domain, for example, or quickly searching Google's news index. It can highlight your search terms on each page you view and tell you how popular each site is. Throw in the pop-up blocker and form filler and you're in toolbar heaven. If you turn on PageRank (for site popularity information), Google tracks every site you visit, but you're warned during installation, and Google keeps the data anonymous—and you can always turn the service off. (Google, *http://toolbar.google.com.* ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

Nearly as slick as Google Toolbar, **Yahoo! Companion** (version 5.3.16.0) is most effective for regular Yahoo! users. In addition to many of the same kinds of tools as Google provides, the Companion gives you quick access to your Yahoo! Mail, Shopping, Finance, and Travel accounts. If you sign up for a Yahoo! account to use the specialized services, Yahoo! will record your name, e-mail address, and several other bits of personal information. But Yahoo! promises not to let any of this get outside the company. (Yahoo! Inc., *http://companion.yahoo.com.* ●●●●○)

In similar fashion, **MSN Toolbar** (version 01.01.1501) dovetails with Microsoft's popular online service. You can instantly access your Hotmail account, launch MSN Messenger, or jump to personalized My MSN pages. You also get a search-term highlighter and a pop-up guard. If you use the MSN toolbar, Microsoft may share your search habits with other parts of the company but says it will never share with third parties. (Microsoft Corp., *http://toolbar.msn.com.* ●●●●○)

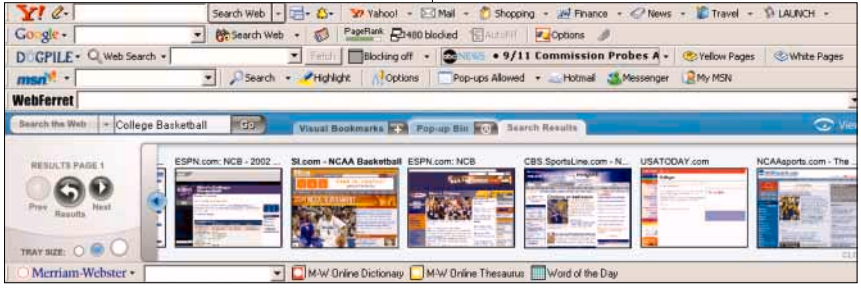
Dogpile (version 2.2.0), from InfoSpace, is the best of the metasearch bars. You can instantly query seven popular search engines, yellow and white pages, public records, and horoscopes, highlight keywords, and block pop-ups. But the live news ticker is what really sets Dogpile apart. It displays hyperlinked headlines from ABC News, Fox News, or any RSS feed you choose. When you install Dogpile, it asks for your ZIP code and date of birth, so it can supply certain customized content, but you can refuse. Regardless, InfoSpace doesn't share your information with third parties. (InfoSpace Inc., *www.dogpile.com.* ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

CNET's metasearch app, **WebFerret** (version 5.0), is an old-school toolbar: It's just a search box. But WebFerret gives you instant access to a wide range of popular search engines, and it carefully identifies which engines delivered which results. WebFerret doesn't collect personal info or share data with other companies. (CNET Networks Inc., *www.webferret.com.* ●●●◐○)

Viewpoint Toolbar (version 1.0.0.37), in beta as we went to press, displays visual thumbnails of sites matching your search. As you move your mouse over the thumbnails, which appear at the top of your browser, they expand, giving you a peek at each site before visiting. Pretty neat, but it can put a significant drag on your browser. And once installed, it's locked into place. You can't reposition it as you can other toolbars. Viewpoint collects anonymous search info and keeps it within the company. (Viewpoint Corp., *www.viewpoint.com.* Beta: not rated.)

Most leading toolbars now offer a dictionary search. But we still have a soft spot for the **Merriam-Webster Toolbar** (version 2.1). With it, you get instant access to the company's excellent dictionary and thesaurus, as well as a quick link to its Word of the Day page for superlative vocabulary enhancement. No privacy worries here either: Nothing personal is collected, and no information leaves the company. (Merriam-Webster Inc., *www.m-w.com/toolbar.* ●●●●○)



TOOLBAR OVERKILL will eclipse your browser window, leaving almost no room for Web site viewing. A few well-chosen toolbars are the way to go.

None of these toolbars suits your needs? With **Toolbar Designer** (version 1.0.0.45), you can build your own. With no programming expertise, you can add search boxes, buttons, menus, text, and images. If you know a little JScript or VBScript, you can do even more. The application is meant for companies looking to attract Web traffic, but why not make a toolbar just for you? (ToolbarDesign Studio, *www.toolbardesign.com.* ●●●●○)

DOWNLOAD MANAGERS

BY NEIL J. RUBENKING

Any good download manager will ease, accelerate, and organize your file-downloading tasks. We tested six products using large and small downloads via HTTP, anonymous FTP, and FTP with log-on from a variety of sites. We also checked their ability to manage downloads from PC *Magazine*'s Utilities Library, which initiates the download using a script after the subscriber logs on.

All can download files via multiple simultaneous connections, significantly increasing speed when servers are bogged down. On our timed tests, the download managers performed almost identically, providing a noticeable speed increase for large files. Small files took a few seconds longer than they did without the download managers, due to program overhead. These utilities share many features, but the best offer capabilities beyond the basics.

SpeedBit's **Download Accelerator Plus Premium 7.0** ($29.95 direct) offers a host of extra features, including a built-in media player, a game download site right inside the application, and integrated searching. For an additional fee, users can subscribe to the Always Resume service, which permits resuming downloads even on servers that don't support it, and to DAP Drive online file storage. Until you enter your registration code, the Premium version is identical to the free ad-supported version. (SpeedBit Ltd., *www.speedbit.com.* ●●●◐○)

DownloadStudio 1.0 ($39.95 direct), from Conceiva, has the unique ability to capture streaming audio and video. It also integrates with search engines to find and automatically download files—either browse Web pages and pick files to download, or download everything on a page. The utility includes a built-in file browser and picture viewer. Though it doesn't yet work with Netscape, its ease of use and unusual features push DownloadStudio slightly ahead of the rest. (Conceiva Pty. Ltd., *www.conceiva.com.* ●●●●○)

PC MAGAZINE EDITORS' CHOICE

Freshdevices's **Fresh Download 6.75** is free, but it has few extras beyond its built-in ZIP extractor. It is the only one in this group that does not automatically categorize downloads. Though it includes the ability to store user-name and password combinations for protected FTP downloads, it couldn't handle our scripted download. (Freshdevices Corp., *www.freshdevices.com.* ●●◐○○)

Headlight Software's **GetRight 5.1** ($25 direct) and **Lightning Download 1.2.1** ($19.95) easily handle downloads of all types. Their FileMirrors.com site helps locate fast mirror sites to speed downloads, and both can browse and download all files on any Web site. Only GetRight and Lightning Download handled our scripted download test perfectly. GetRight can create "OneRun" shortcuts that self-destruct after launching downloaded files, and it includes a built-in download-centric browser. Lightning Download's Site Storm feature grabs all files on a page or site, but the program has few other unusual features. (Headlight Software Inc., GetRight: *www.getright.com.* ●●●◐○ Lightning Download: *www.lightningdownload.com.* ●●●◐○)

Star Downloader Pro 1.51 ($19.95 direct) doesn't attempt to handle password-protected FTP, and it couldn't catch our scripted download. But it did catch HTTP and anonymous FTP downloads, no matter how they were initiated.

The application's separate Link Leecher can download all files on a page, and the program includes a built-in ZIP file extractor. A free edition of a slightly older version is also available, but it omits the Link Leecher and ZIP extractor and is less tightly integrated with the browser. (Star Downloader, *www.stardownloader.com.* ●●●○○)

Download Types

■ YES ☐ NO	Download Accelerator Plus Premium	Download-Studio	Fresh Download	GetRight	Lightning Download	Star Downloader Pro
STANDARD DOWNLOADS						
Downloads via HTTP	■	■	■	■	■	■
Downloads via anonymous FTP	■	■	■	■	■	■
Downloads via password-protected FTP	■	■	■	■	■	☐
SCRIPTED DOWNLOADS						
Downloaded correct file contents	■	■	☐	■	■	☐
Downloaded correct filename	☐	☐	☐	■	■	☐

RED denotes Editors' Choice.

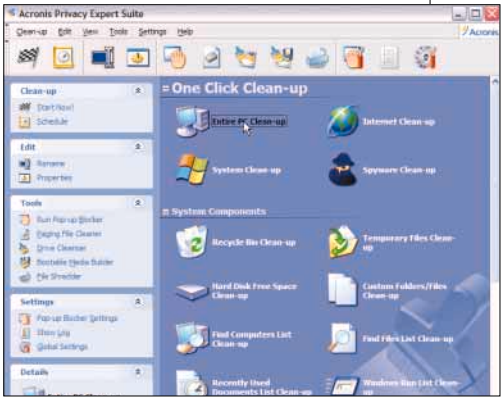
TRACE REMOVERS

BY NEIL J. RUBENKING

Anyone who has physical access to your computer can obtain an amazing amount of personal information. Your browser cache, cookies, and history reveal where you've been on the Web. From recently used file lists someone can tell what you've been working on. Deleted files can even be recovered. Here we review four products that protect your privacy by eliminating unwanted traces from your computer. In addition to removing a variety of specific traces, all four provide on-demand secure deletion of files, and all but one protect against recovery of files not securely deleted by overwriting all free hard drive space.

Their definitions of unwanted traces were similar: More than 700 files and folders were removed by all four products. We set the products to overwrite the files they deleted with a single pass and measured how long the clean-up process took. For those that wipe free disk space, we timed that process separately.

Unlike the others in this group, **Acronis Privacy Expert Suite 7.0** ($39.99 direct) can create a bootable floppy disk or CD that will completely wipe an entire partition. It adds pop-up blocking and spyware removal (not tested) as bonus features. The colorful Windows XP–style main screen puts all features at your fingertips; if this seems overwhelming, you can just click on Entire PC Cleanup and sit back. On the other hand, you can dig into the individual features and set them to remove only certain items: For example, the program can remove specific sites rather than clearing your entire browser History. It can empty specified e-mail folders in both Outlook and Outlook Express or delete messages that match a filter. Although it doesn't clean up third-party applications or browsers other than Internet Explorer, we found this product to be swift and effective. (Acronis Inc., *www.acronis.com.* ●●●●○)



ACRONIS PRIVACY EXPERT SUITE puts all its system cleaning features at your fingertips.

The main screen in **CyberScrub Professional 3.5** ($49.95 direct) is rather sparse, reflecting a no-frills feature set. Cleaning the Recycle Bin, browser traces, system traces, and free space are four separate actions. CyberScrub does eliminate some traces not handled by any of the others; in particular, it will scramble the file property info that remains when a file is deleted. It doesn't include a scheduler, but command-line operation is available, so you can use the Windows Task Scheduler. We found the interface a bit awkward, with some items hard to find and others appearing in multiple locations. (CyberScrub LLC, *www.cyberscrub.com.* ●●◐○○)

Privacy Guardian 3.0 ($29.95 direct) was by far the fastest cleaner we tested, owing in part to the fact that it does not clear Registry-based traces, such as lists of recently used files. On the other hand, it was the slowest at wiping unused disk space, and we needed several tries to get this feature working. It will clean up after 50 popular applications, but it doesn't let you add your own custom cleanup items. It's also the only one of the four that doesn't let the user choose the method for overwriting files (it always uses the U.S. Department of Defense three-pass method). Still, it is generally speedy and very easy to use. (GuideWorks Pty. Ltd., *www.winguides.com.* ●●●○○)

Window Washer 5.5 ($39.95 direct) can potentially eliminate by far the most system traces, and did so in testing, removing over half-again as many as the closest contender. Among those not cleaned by other products are recent application lists for DirectX, recent network and printer connections, and the internal list that Windows XP uses to identify often-used programs in the Start menu. This last feature is useful for hiding just how much you play Solitaire.

Window Washer is attractive and easy to use: Just configure it and click Wash Now. You can also set it to clean automatically on various events, including browser shutdown. It comes with plug-ins for cleaning 60 third-party applications; a total of 150 are available for download. Like the other products, Window Washer can optionally overwrite the files it deletes. Unlike the others, however, it lacks the ability to overwrite all unused hard drive space, leaving some files vulnerable to undeletion. (Webroot Software Inc., *www.webroot.com.* ●●●●○)

SCORECARD

PC LABS

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

	User interface	Removal	Speed	Special features	OVERALL
Acronis Privacy Expert Suite	●●●●	●●●	●●●●●	●●●●●	●●●●
CyberScrub Professional	●●	●●●	●●●	●●	●●◐
Privacy Guardian	●●●	●●●	●●●	●●●	●●●
Window Washer	●●●●	●●●●●	●●●●	●●●	●●●●

RED denotes Editors' Choice.

REMOTE ACCESS

BY CADE METZ

So, you've just bought a new, sleek laptop or top-of-the-line handheld and you think you're ready for life on the road. Think again: A mobile device is only as useful as the data it carries, and all your important data is sitting on your office desktop.

And desktop data is always changing. What if you forget to synchronize devices before your next road trip, or miss an important file? What about all the data that streams in while you're away?

You could purchase a remote-control application for unfettered access to your desktop's operating system from across the Internet. But such apps can be expensive and require serious bandwidth; most don't even run on some handheld devices.

Luckily, there are other ways of gaining remote access to your important data. Over the past year and a half, several companies have introduced applications capable of accessing just certain parts of your remote PC—your in-box, calendar, and file tree—without establishing a full remote-control connection. Such Web-based apps are generally cheaper than remote-control tools, and since they require less bandwidth and less screen real estate, they work well on handhelds and Web-enabled phones.

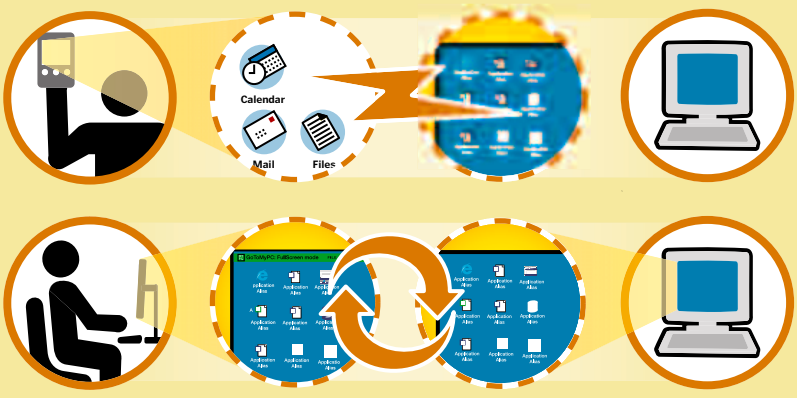
Once installed on a desktop PC, **LapLink Everywhere 2.0** ($89.95 per year direct), the most impressive of the new remote-access applications, gives you easy access from almost any Web-enabled device. When logging on through the LapLink Web site, you get a menu of nine system links: E-mail, Contacts, Calendar, Notes, Tasks, Files, Database, Forms, and PC Desktop. This last component, which lets you remotely control your PC, is the only component that requires Java.

You can do almost anything here you can do with your local copy of Outlook: send and receive e-mail, view and enter contact information, change calendar entries, and more. The Files link provides access to the system's file tree. The Database link gives you access to any SQL databases your system may use. And the Forms option lets you fill out electronic forms re-

Remote Access vs. Remote Control

With remote access, you get limited control of a remote machine, but it's control over what you probably need most: your e-mail, calendar, and files. With relatively modest system and bandwidth requirements, you can use a handheld device or a system connecting via wireless or dial-up.

With remote control, you have total control over a remote system, as if you were sitting in front of the remote machine and using its mouse and keyboard. This is more expensive and requires more bandwidth and a full computer system.



motely and send them via e-mail or fax.

The PC Desktop link is for a VNC (virtual network computing) client that gives you full remote control of your system from any Java-equipped desktop or notebook—much like GoToMyPC. This feature is somewhat slow, but it's good to know that you can get to anything on your remote desktop in an emergency. (Laplink Software Inc., *www.laplink.com.* ●●●●○)

01 Communique offers a similar tool called **I'm InTouch 3.5** ($99.95 per year direct). As with LapLink Everywhere, you can access your Windows file tree and certain parts of Outlook from any Web-enabled PC, PDA, or cell phone. And if you like, you can gain full remote control via a bundled VNC client. Unlike other similar apps, I'm InTouch includes a tool that streams video from a remote machine's Webcam. It doesn't, however, offer forms or database access. (01 Comminique, *www.01com.com.* ●●●◐○)

Not willing to spend close to $100 a year for remote-data access? Rather than storing your important data on your office desktop, you can store it (up to 25MB's worth) on the Web. With **Axentra.net** (free), formerly OEone's Homebase Anywhere, you can move all your Outlook

UTILITY SUITES

BY EDWARD MENDELSON

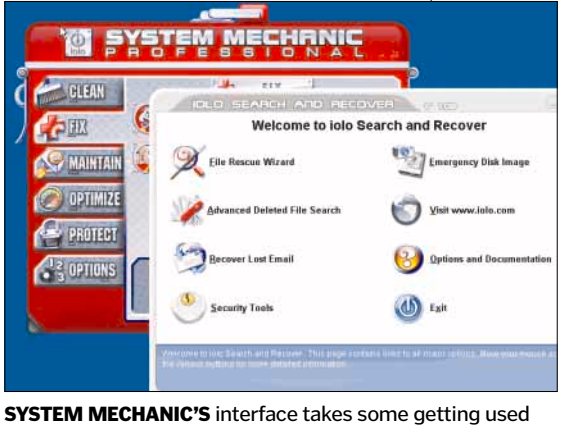
Utility suites may have run their course. Many of the features are now built into Windows. They're clearly not at the top of software companies' priority lists. Truth is, we're not enthusiastic enough about any of them to award an Editors' Choice. Your choice of a suite today may depend on virus and privacy protection, features Windows provides inadequately or not at all.

The best thing about **Norton SystemWorks 2004** ($69.95 direct) is Norton AntiVirus. The rest is an uneven mix. A customizable one-button check-up heads the main menu; below is access to Norton Utilities, which include Norton Speed Disk (actually too slow for modern drives), Norton WinDoctor (an awkward, sometimes inaccurate Registry-repair tool), an unerase wizard, and a secure deleter for files and folders. A few, including Registry management and tracking programs, and the optimization wizard, are so outdated that they can't be installed on Windows 2000 or XP.

The new Password Manager automatically logs on to Web pages and fills in forms. Generally smooth operation was marred only by a "critical error" when we opened Outlook over our VPN. The Web Cleanup module is the best one here, but it's no match for Acronis Privacy Expert Suite. Unlike rival suites, Norton SystemWorks 2004 doesn't include a firewall. (Symantec Corp., *www.symantec.com.* ●●◐○○)

System Mechanic 4 Professional ($69.95 direct), from iolo technologies, has a badly designed interface but a wider range of tools than its professional-looking competitors. Cleanup modules remove junk files, browser caches, and duplicate files. In testing, the Fix modules accurately cleaned out invalid Registry entries and broken shortcuts but left some invalid Add/Remove Program entries. The Undelete module inaccurately reported success in recovering some files, but a deleted-mail finder recovered hundreds of purged Outlook Express messages.

The program's Optimize modules include a defragmenter, an Internet connection settings wizard, and a system optimizer. The Protect menu leads to modules that securely delete files, remove spyware, and adjust settings for the firewall and virus-protection programs (licensed from Panda Software). When we first tried to run System Mechanic, a



SYSTEM MECHANIC'S interface takes some getting used to, but the suite offers more tools than the competition.

tasks and important files onto a private site accessible from any Web-enabled PC.

You get a Web mail address, calendar, and notes app. You can store bookmarks, files, and pictures, and even publish your own public home page. In theory, you could use the application from a handheld with a full HTML browser, but it isn't designed for such use. (Axentra Corp., *www.axentra.net.* ●●●○○)

You can set up a similar data repository at **Yahoo!** (free). Yahoo! offers Web mail, a calendar, an address book, and a Briefcase for storing files. You get 4MB for e-mail and 30MB for Briefcase files—and you can buy more: 100MB of e-mail storage for $49.79 a year, and 100MB of Briefcase storage for $34.95 a year. (Yahoo! Inc., *www.yahoo.com.* ●●●◐○)

By this summer, we should see an even better way of accessing remote data. A new company called DataPod (*www.datapod.com*) plans to offer a peer-to-peer service that will automatically synchronize data among multiple machines—but it's not designed to work on bandwidth- and screen-challenged handhelds.

misspelled error message told us it was running already; we had to restart Windows to solve the problem. (iolo technologies LLC, *www.iolo.com.* ●●○○○)

Behind its compact interface, **VCom SystemSuite 5** ($59.95 direct) is powerful and customizable. The One-Stop Solutions menu provides access to maintenance and repair tasks. Optimization modules include a lame-duck defragmenter (see the Defragger section) and a secure hard drive wiper, but no secure file deleter. Diagnostic features include low-level hardware testers and a log of recent Windows error messages. Repair modules include file system repair tools and the best Registry fixer here.

The wizard-based undeleter has an optional Deleted Files Bin that temporarily stores files deleted from Windows' Recycle Bin; searches for other deleted files consistently stalled. The software uninstaller removes apps that can't be deleted via Windows' Add/Remove Programs applet, and the program mover transfers programs between drives or systems. Internet cleanup features include preservation of specified site cookies while cleaning out all other traces of your Web browsing. Antivirus from Trend Micro and an easily fine-tuned firewall module from Sygate round out the package. (V Communications Inc., *www.v-com.com.* ●●●○○)

FILE COMPRESSION

BY CHARLES RODRIGUEZ

File compression tools have become so essential that Microsoft built support into Windows XP. But its compression capabilities are very basic. Third-party programs provide useful features like support for multiple formats and backup options.

ArchiveXpert 2.02 build 80 ($19.95 direct) integrates tightly with Windows. You can create, extract, and e-mail archives directly from Windows Explorer, as well as drag and drop data into compressed files. Although it lacks certain conveniences—such as an FTP client and backup capabilities—ArchiveXpert is rich with features, including support for disk spanning and password security. It can also create 8 different archive types and extract 15 different types. (C4F–Concepts For Future Lda, *http://archiveXpert.com/* ●●●◐○)

PicoZip 2.6 ($24.95 direct) lacks a flashy interface and FTP support, but it compensates with extensive format compatibility. It can create archives in 7 different formats, extract files from 15 formats, and create self-extracting archives. PicoZip also provides automatic backups, batch options, and e-mail integration. (Softchitect, *www.picozip.com.* ●●●◐○)

It's not surprising that **PKZip 8.0 for Windows** ($24.95 direct) from PKWare (the company that created the ZIP format) leads the pack for compressing files in ZIP format. Its wizards and tight integration with Windows make the product easy to use. Options let you customize default settings, such as whether to encrypt e-mail attachments. And RSA BSAFE encryption lets you password protect files with AES 256-bit symmetric keys. If you are looking purely for a product that can open and compress ZIP files, this is the software to get. (PKWare Inc., *www.pkzip.com.* ●●●●○)

PC MAGAZINE EDITORS' CHOICE

With a highly configurable interface, well-implemented drag-and-drop support, and impressive help files, **PowerArchiver 8.7** ($19.95 direct) is a good choice for beginners—though it could stand to have a wizard added. Still, the program includes a fair amount of power features, including support for numerous formats, automated backups, and a favorites folder to locate archives quickly. (ConeXware, *www.powerarchiver.com.* ●●●○○)

StuffIt, which has a loyal following on the Mac, is also a popular choice for PC power users. The latest version, **StuffIt Deluxe 8.0** ($39.99 direct), is easy enough for novices to use but still offers powerful functions like Compress to FTP and Compress to E-mail. Advanced backup features include scheduling and support for incremental backups. Meanwhile, a new disc-indexing feature lets users create searchable indexes of any CD-R or DVD-R with compressed archives. This is a great choice for users who need powerful tools and extensive format support. (Aladdin Systems Inc., *www.stuffit.com.* ●●●●○)

The name WinZip is practically synonymous with file compression. The newest version, **WinZip 9.0** ($29 direct), adds easy-to-use 128- or 256-bit AES encryption and support for 64-bit extended format, eliminating existing restrictions on ZIP file size and capacity. Still lacking many frills, like backup features, WinZip manages to keep file compression simple. When it comes to basic ZIP functions, WinZip is an easy and competent solution. (WinZip Computing Inc., *www.winzip.com.* ●●●◐○)

COMPRESSION AND DECOMPRESSION
(100MB of mixed files)

Low scores are best. Bold type denotes first place.	File type	Compress (min:sec)	Extract (seconds)	Compressed file size (MB)
ArchiveXpert	ZIP	0:25	11.1	67.7
PicoZip	ZIP	0:25	11.3	67.7
PKZip	ZIP	**0:13**	11.3	67.4
PowerArchiver	ZIP	0:19	10.8	67.7
StuffIt Deluxe	ZIP	0:56	12.0	66.6
	SIT*	1:47	67.7	**66.5**
	SITX*	1:39	42.8	66.6
WinZip 9.0	ZIP	0:20	**7.4**	67.7

RED denotes Editors' Choice. * The product's proprietary format.

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BorderWare

FRONTBRIDGE
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SHOWCASE EXHIBITORS

Clearswift, ePeople, Metamail, Mirapoint, Sigaba, Sophos, SubscriberMail

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- **Fixing SMTP**
- **Email and the Law**
- **Email Security**
- **Mobile Email**
- **Global Business Email**
- **Email and Free Speech**
- **Fighting Spam and Viruses**
- **Email Fraud**

SPEAKERS INCLUDE:

- **Dr. Vinton Cerf**
  MCI
- **Matt Cain**
  META Group
- **Maurene Caplan Grey**
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- **Michael Osterman**
  Osterman Research
- **Phil Zimmermann**
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Protect Your Business from Email Threats

The IronPort C10 is an integrated and affordable email appliance designed for small and midsize businesses that uses the same powerful and proven techniques employed by large enterprises.

Email and groupware play a vital role inside small and medium-sized businesses (SMBs) as the number-one means of communication today. But given the profusion of spam, viruses and other malicious attacks, companies must pay close attention to protecting groupware to ensure that it continues to enable effective communication without compromising network security.

That's why SMBs need a simple, affordable and integrated solution with the power to handle a variety of threats. The IronPort C10 all-in-one email security appliance is just such a solution. It's designed specifically with the needs of SMBs in mind to fight off spam, viruses and other suspicious content and activity. With its unique real-time identity determination and Reputation Filters™, the IronPort C10 works around the clock to fight dynamically against the latest threat techniques. For employees, email once again becomes a productivity tool rather than a source of disruption and concern. With the IronPort C10 in place, everyone saves time and the company is protected.

PROVIDING VISIBILITY AND CONTROL

As a 1U rack-mountable appliance, the C10 easily plugs into the network behind the perimeter firewall. Its capabilities extend those of traditional firewalls that do not defend against most email threats, nor allow administrators to centrally manage and report on all email activity. The C10 works with all standards-based groupware and email servers (including Microsoft Exchange and IBM Lotus Domino) not only to thwart spam and virus attacks, but to protect against mail bombs, directory harvest and denial-of-service attacks on the mail server as well.

A simple DNS change ensures that all e-mail (inbound and outbound) goes through the IronPort appliance. Then, administrators can easily control, manage and report on all email traffic flowing into and within their organization. They may use the Web-based Mail Flow Monitor™ to get an integrated view of all inbound and outbound email activity, highlighting trends or specific threats from viruses or spam.

THE POWER OF INTEGRATION

The IronPort C10's email protection capabilities start with IronPort's own unique **Reputation Filters**. By monitoring email activity across the globe in real time, IronPort identifies suspicious traffic patterns and suspect mail servers. It then sends this information in real time to the C10 so that bad or suspect senders are blocked or throttled automatically and immediately.

Also integrated within the IronPort C10 are the following business-critical functions:

- **Brightmail® spam detection** offers the most accurate detection and lowest false-positive rate in the industry. New rules are updated automatically to protect against current spam techniques.
- **High-performance virus scanning** powered by Sophos® prevents damage even in the face of worm outbreaks. New virus definitions are updated behind the scenes to protect against the latest threats.
- **Content filtering** ensures any confidential information or inappropriate content found in email is monitored, and if required, blocked. Administrators can create policies based on any combination of content or threat level present within email messages including reputation and spam scores, attachment profiles and email message headers including sender and subject.

POWERFUL PROTECTION FOR SMBs

The IronPort C10 leverages the same powerful and automated email protection that Fortune 500 corporations use to defend against attack, yet delivers it in an easy-to-use appliance that fits the budgets of smaller businesses. As email evolves over the next few years and new identity and content schemes emerge to solve spam and other problems, you can rest assured that the IronPort C-Series will be there to implement the best techniques to protect your business—automatically.

IronPort C10:
Power and Simplicity for SMBs

- ✔ Unique real-time identity determination and Reputation Filters
- ✔ Anti-spam powered by Brightmail
- ✔ Anti-virus powered by Sophos
- ✔ Content filtering on confidential information or inappropriate content
- ✔ Integrated policy enforcement
- ✔ Groupware protection

How much is spam costing your organization? IronPort's **TCO Calculator** can tell you. For access to this calculator, as well as product information and white papers on IronPort technology, visit **www.ironport.com**

IRONPORT™

PASSWORD MANAGERS

BY JOSEPH A. GUILBEAU IV

E-mail and Internet accounts, network log-ons, online banking, shopping sites: With computers and the Internet comes a seemingly endless list of passwords you need to remember. If you find managing your passwords a dizzying task, check out these products that make your passwords readily available to you while keeping them secure. *PC Magazine* also offers a password manager, Password Profiler.

The best-known password manager, **RoboForm Pro 6** ($29.99 direct) adeptly stores information, such as your address, credit card numbers, user names, and passwords, so you can automatically log on to Web sites and fill in almost every kind of online form. It also includes support for Palm-based devices and removable media; when you remove a device from any PC, your personal information and passwords disappear from that PC. Unfortunately, the program doesn't let you add your own fields to the database, and its interface can be a bit confusing at times. (Siber Systems, *www.roboform.com*. ●●●●○)

PassCrypt 2 ($29.95 direct) stands out among these products, because it combines a highly configurable database with the ability to save and automatically fill in form data. The database is easy to manipulate, letting you customize folders and columns. To organize data you can drag and drop passwords and other information between folders. The app provides five undo levels, making it difficult to lose data accidentally. Your data is protected with very strong 448-bit Blowfish encryption. We highly recommend PassCrypt, but we aren't rating it because the owner of Permutations Software, Sheryl Canter, is also a contributing editor of *PC Magazine*. (Permutations Software Inc., *www.permutations.com*. Not Rated.)

Using **Password Manager XP 1.9** ($24.95 direct) can be tedious; it requires you to input new user names, passwords, and other form data manually. This approach, however, makes for a product that gives you excellent control over the database. We also like that it lets you encrypt stored information using several algorithms simultaneously. Password Manager also lets you store data on a network and set access rights and privileges on a per-user basis. And as with RoboForm, Password Manager lets you store data on removable media, such as a USB key. (CP-Lab.com. ●●●◐○)

Boasting one of the most polished interfaces in this roundup, **Account Logon 2.5** ($24.95 direct) excels at automatically logging you on to password-protected sites. Its database isn't extremely customizable, but with easy-to-follow instructions and a strikingly intuitive interface, this is by far the simplest password manager in this roundup. After installing the program, a short setup process launches your browser and instructs you to navigate to sites that require log-on information you want to record. Once you've stored the data, you can automatically log on to saved sites with a single click. (Rhodes Software Pty. Ltd., *www.accountlogon.com*. ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

Password Agent 2.3 ($19.95 direct) has a utilitarian interface that resembles Windows Explorer. Rather than providing automated wizards, this app offers manual control of what, when, and where data is stored. It isn't as flexible as Password Manager, but it does a good job of storing passwords and automatically logging you on to Web sites. The free version, Password Agent Lite, is fully functional but limits you to a maximum of 25 entries per file. (Moon Software, *www.moonsoftware.com*. ●●●○○)

DESKTOP CUSTOMIZATION

BY NICOLE GRAHAM

Windows XP is a powerful operating system, but it doesn't let you do much to customize how it looks and acts. But there are plenty of utilities that will give your desktop a new look, provide new tools for organizing applications and data, and add powerful features to the interface. It's your computer, so make it look that way. Here are some of the many apps—some useful, some just very cool—that can give your system a makeover.

INTERFACE

Stardock has created some impressive products for customizing Windows. A popular program, **WindowBlinds 4.2** ($19.95 direct) has a simple purpose: It doesn't add features or change how Windows works; it simply lets you change how Windows looks. Like the themes included with Windows XP, WindowBlinds can alter the color and shape of windows, title bars, and scroll bars. You can also choose the style of button you want to appear in the top right of each window and select new icons for the toolbar in Internet Explorer. The app is easy to use and doesn't slow down your system. Only a few are included in the software itself, but you can download more from Stardock's Web site. Our only complaint is that, while the skins are attractive, there isn't much variety. Most of the skins are very similar to one another, and there aren't many options for customizing them. (Stardock Corp., *www.stardock.com*. ●●●●○)

An even better (though more expensive) facelift for your computer is Stardock's **Object Desktop 2004** ($49.95 direct). This suite, which includes WindowBlinds along with other Stardock apps, lets you customize the look of your computer's windows, cursors, toolbars, and icons, but with more control than WindowBlinds. The graphics, such as the icons you can use in place of the standard Windows desktop icons, are flashy and add a lot of

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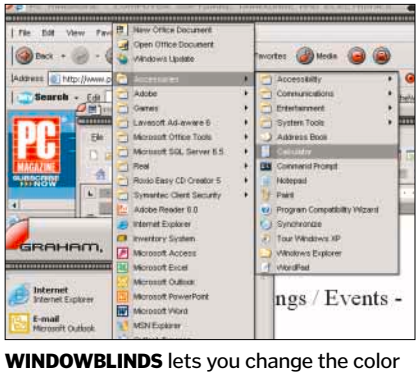
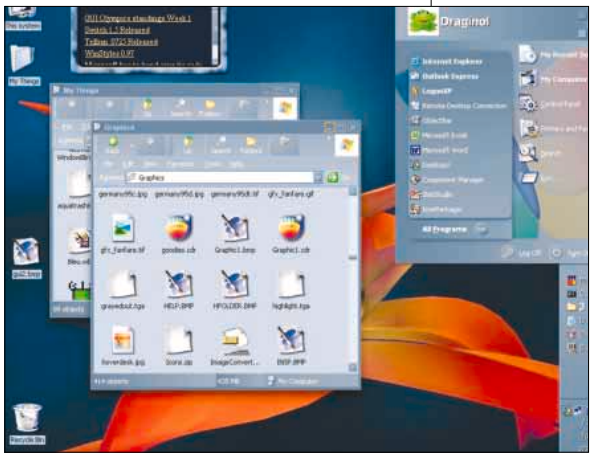


WINDOWBLINDS lets you change the color and shape of windows and menus.

character to your computer. And we like that you can control effects like shadows and animations. You can, to a limited extent, also modify how your system functions. For example, you can create your own pop-up menus and define keyboard shortcuts that enter passwords, link to Web sites, and open frequently accessed files. (Stardock Corp., *www.stardock.com.* ●●●●◐)

Another option, if you're tired of looking at the same old icons on your desktop, is **IconChanger 3.0** ($19.95 direct). This utility provides hundreds of unique icons to choose from. (ShellLabs, *www.shelllabs.com.* ●●●○○)



OBJECT DESKTOP goes beyond WindowBlinds, letting you change icons, add effects, and define new keyboard shortcuts.

One of the most drastic ways to change your system is to add another dimension. **3DNA Desktop v1.1** ($29.99 direct) replaces the Windows desktop with a 3D world that is more like a first-person shooter than an operating system. (Think Doom meets Microsoft Bob.) You select an environment, such as a loft space. In the loft, there is a room where you can hang pictures—your own digital images—on the wall. If you navigate down the stairs, you'll find a kiosk, which displays icons for applications, has a stereo where you can play MP3 files, and has arcade machines that let you launch games. You can even step outside and shoot some hoops. And once you get bored with the loft, you can find yourself a new environment, such as an underwater lab. Okay, its not practical or efficient, but it is very cool. (3DNA Corp., *www.3dna.net.* ●●●●◐)

If you want a subtler change that will help you get all your files in order, check out **Filing Cabinets 2.0** ($19.95 direct). This software creates virtual filing cabinets on your desktop where you can organize files and shortcuts in one location, while keeping the clutter out of sight. The cabinets will roll up into the side of your monitor to keep out of the way. (Macroworx, *www.macroworx.com.* ●●●◐○)

Post-it Software Notes Lite 3 (free) is a handy way to jot down notes and keep reminders in sight. As the name implies, these are similar to paper Post-it notes, except you place these notes on your Windows desktop or attach them to electronic documents. There aren't many options, but you can add images to notes and set alarms to remind you of tasks. (3M, *www.3m.com.* ●●●◐○)

Another solution for reminders is **Say the Time 6.0** ($24.95 direct). This strange little utility tries to keep you on schedule by reminding you of the time. A voice actually says the time. You can set Say the Time to remind you of important events, like meetings. Or you can select to have it remind you of the time at specified intervals, such as every hour on the hour—this setting gets old very quickly. Unfortunately, when the program reminds you of a meeting, it only says the time. We would prefer that it provided some specific info. (Provenio Software Corp., *www.provenio.ws.* ●●●○○)

SCREEN SAVERS

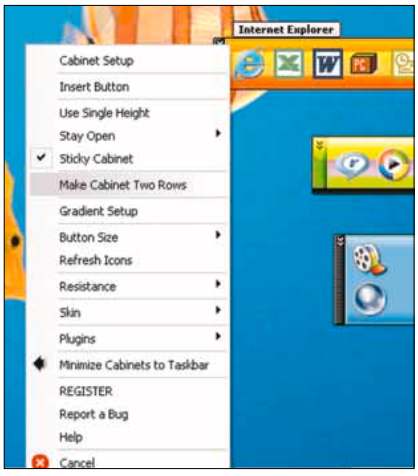
There are thousands of screen savers you can add to your computer. Many are more interactive than you might think, offering educational content, up-to-date information, and games. Here are some worth checking out.

The Distant Suns—Grand Tour 3D 1.2 (free) offers a stunning view of our solar system using 3D technology and amazing graphics. As the day passes, the planets rotate, transforming your desktop into a 3D telescope. The retail version, **The Distant Suns 5.3** ($39.95 direct), offers an even more intense experience. (First Light Software, *www.distantsuns.com.* ●●●●○)

The Really Slick Screen Savers site offers a variety of downloadable psychedelic 3D screen savers. **Helios** (free), for example, displays bright colors and bubbly figures set against a dark background. (Really Slick Screen Savers, *www.reallyslick.com.* ●●●◐○) Equally mellow, **Ripple Screensaver 3.0** ($14.95 direct) is an eye-catching app that gives the impression of falling rain drops and insects skimming across your screen causing a rippling effect. (WC-Game Studio, *www.wcgame.com.* ●●●●○)

Online News Screensaver v1.0 beta 5 ($14.95 direct) feeds up-to-date news to your desktop. You can customize the news to your interests by selecting from channels. And it can use RSS feeds. (CoolScreensavers.Com. ●●●●◐)

The Instant Chess Screen Saver 1.0 (free) lets you watch chess matches and play against real people. The graphics aren't spectacular, but the concept is great. (Talanto Technologies, *www.instantchess.com.* ●●●◐○)



FILING CABINETS brings order to your desktop, allowing you to organize files and applications in tidy "drawers".

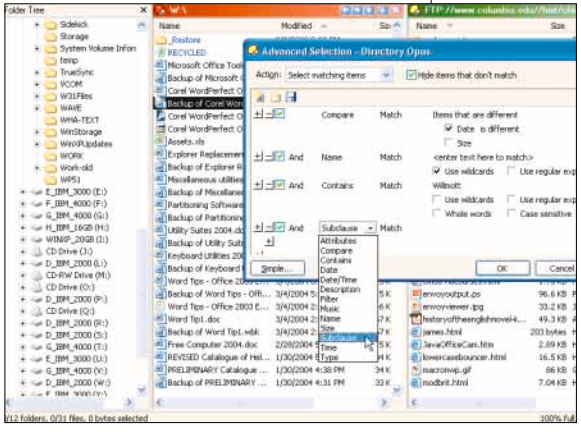
3DNA DESKTOP turns your Windows desktop into a 3D submersive world that you navigate around in first person.

FILE MANAGERS

BY EDWARD MENDELSON

For basic file management tasks, Windows Explorer gets the job done but leaves plenty of room for improvement. A third-party file manager can supplement Explorer with handy features you'll grow to love, or it can replace Windows Explorer as your default tool for browsing and managing files.

When you want to perform basic operations like selecting, deleting, and copying files, **Directory Opus 6.2** ($57 direct) is a fast and intuitive solution. But the product gets slightly confusing when you dive into more complex tasks, owing to its profusion of options and features that aren't organized in any obvious way.



DIRECTORY OPUS includes very powerful, though somewhat complex features, like its highly customizable filters that help you locate files.

By default, the program displays two different directories in panes that it calls *Listers,* complete with information like the bit rates for music files and ISO speeds for camera images. An optional file viewer displays standard graphics formats and uses Stellent's Outside In viewers if they've been installed on your system (by a different app). Keyboard shortcuts and toolbar buttons perform tasks like copying selected files and folders between Listers. If you right-click on buttons, you get different options, such as a prompt to rename the copied files. There are a lot of features here, and you'll have to spend a lot of time studying the tool tips before you get the hang of them all.

Directory Opus also provides tightly integrated FTP and ZIP compression tools. And if you're willing to do a bit of learning, you can benefit from the program's more complex features, such as its elaborate, reusable filters. You can, for example, display all files with names modified in the past 7 hours, between 10K and 100K in size, and with filenames containing the letters "xyz." Unlike with Explorer Plus, folder synchronization in Directory Opus requires a lot of manual labor and careful review before you actually move files.

At times the interface is downright clunky. For example, when you switch between dual- and single-directory modes, you can't resize the file viewer until you switch out of Filmstrip mode—even though it appears you've already stopped using the Filmstrip mode. One questionable design element is the use of the same Output window for unrelated information like FTP logs, an undo history, and file-search results. (GPSoftware, *www.gpsoft.com.au.* ●●●◐○)

ExplorerPlus 6.1 ($39.95 direct) places emphasis on making advanced functions, such as file searches and folder synchronization, easy to access and use. For example, to synchronize files you click on the Compare button, which appears on the right of the customizable toolbar. This brings up two lists, so you can compare versions of files in two locations and use a drop-down menu to copy or move files between these locations.

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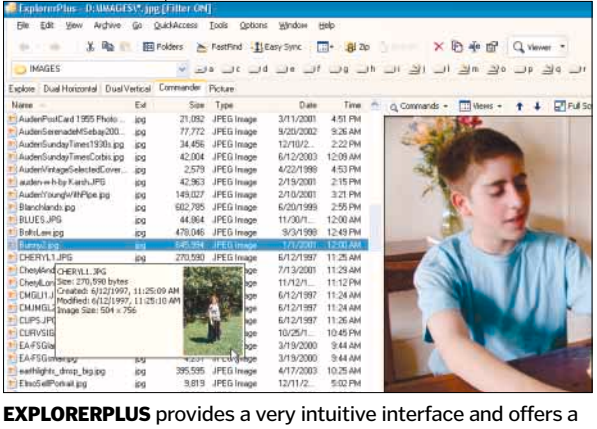
The main window resembles Windows Explorer, but with customizable toolbars that give quick access to drives, applications, and even a command line for running DOS commands. ExplorerPlus employs the Verity file viewers for viewing file contents, and can also display thumbnails of documents—a handy feature. Compared with Directory Opus, ExplorerPlus isn't as sleek; it's slower at most operations, and it lacks the elaborate selection filters. But ExplorerPlus has an important advantage over Directory Opus: You won't have to spend days studying before you can use it effectively.

Some of the best parts of ExplorerPlus work outside the program itself. Its file-management features can be added to the Windows Explorer right-click menu. Other items that can be added to right-click menus include Edit Playlist (this opens an MP3 playlist editor), Edit ID3 Tags, ZIP files, and one-click encryption. One feature we grew to love adds drop-down lists of recently used files and folders to the Save and Open dialogs in all Windows programs. If you're looking for a more powerful alternative to Windows Explorer, this is the app you need. (Novatix Corp., *www.novatix.com.* ●●●●○)

PowerDesk Pro 5 ($39.95 direct) looks a lot like ExplorerPlus. Both programs are the work of the same author. But PowerDesk Pro is an older, slightly slower, and less capable product. The basic feature set matches that of ExplorerPlus, but PowerDesk Pro lacks the ability to show images of document files in thumbnail view, and it's missing tabs that let you switch quickly between different styles of directory listings. This used to be the best of the third-party file managers, but ExplorerPlus now does the same job, only better. (V Communications Inc., *www.v-com.com.* ●●◐○○)



EXPLORERPLUS provides a very intuitive interface and offers a host of powerful yet easy-to-use features.

SCREEN CAPTURE

BY CADE METZ

Yes, you can do it free, using nothing but good ol' Windows, that Print Screen button at the top of your keyboard, and Microsoft Paint. But there are better ways to capture screenshots of your PC desktop. With specialized apps, you can capture individual windows and objects, irregular portions of your screen, and even images too big to fit on your screen.

TechSmith's **SnagIt 7.0.3** ($39.95 direct), the most expensive of the dedicated screen-capture applications, is also the most versatile. It can grab an area you've outlined in freehand with your mouse pointer. It can scroll through a document or Web site and capture the whole thing, not just the portion that fits on your screen. It can even grab images from DirectX apps—including PC games—or record an AVI video of your screen movements. And if you capture words, SnagIt converts them to editable text. All this sound complicated? It's not. SnagIt is remarkably intuitive and includes plenty of tools for editing captured images. (TechSmith Corp., *www.techsmith.com.* ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

SNAGIT has more options for capturing screens than you may know what to do with—but you'll adjust.

HyperSnap-DX 5.50.01 ($35 direct) isn't quite as easy to use as SnagIt, but it's nearly as versatile—and five bucks cheaper. It captures windows, buttons and other controls, freehand regions, complete documents and Web sites, and DirectX apps. It offers a wide range of easily accessible editing tools, and it can save images in more than 20 file formats. You can't capture on-screen video and you don't get that very cool SnagIt text-conversion tool, but HyperSnap-DX is worth every penny. (Hyperionics Technology LLC, *www.hyperionics.com.* ●●●●○)

$35 still too steep? **Easy Screen Capture 1.2.3** ($19.95 direct) gives you all the essentials for about $20. It lets you grab windows, buttons, controls, and any other rectangular region, and it has a modicum of editing tools. If you're on a budget, it's certainly worth a look. (Longfine Software, *www.longfine.com.* ●●●○○)

KEYBOARD UTILITIES

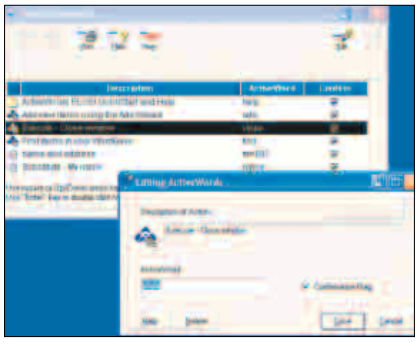
BY EDWARD MENDELSON

Macro programs type text, click buttons, run software, and open files. There are two types: abbreviation expanders, which launch an action when you type a string of characters; and hotkey programs, which jump at a key combo.

Powerful but intrusive, **ActiveWords PLUS 1.9** ($49.95 direct) prompts you to create abbreviations to launch tasks you perform often. Abbreviations can expand into text or run tasks. An optional toolbar lets you type abbreviations in a command window, and free add-ons calculate sums as you type or automate common Microsoft Outlook tasks. (ActiveWord Systems Inc., *www.activewords.com.* ●●●●○)

Keep **AllChars 3.6.3** (free) handy for its Compose feature, which builds special characters like *é,* and creates abbreviations that can be encrypted to keep sensitive data private. (Jeroen Laarhoven, *http://allchars.zwolnet.com.* ●●●○○)

Nimble **KeyText 2000 2.24** ($25 direct) lets you use hotkeys, a scheduler, or a pop-up menu to launch macros. The app can wait for specific dialogs to appear, then enter passwords or click on buttons. A wizard-style interface builds scripts easily but may overwhelm beginners. (MJMSoft Design Ltd., *www.mjmsoft.com.* ●●●◐○)



ACTIVEWORDS observes, then prompts you to create abbreviations for common tasks.

QuicKeys 2.5 ($99.95 direct) launches macros via hotkeys, a scheduler, a pop-up menu, or user-created toolbars. You can restrict hotkeys and macros to work only in specific programs, and macros can be recorded or scripted in a large but well-organized interface with menus listing common actions. (CE Software, *www.cesoft.com.* ●●●◐○)

Hotkey powerhouse **Perfect Keyboard 6.15a** ($19.95 direct) has hotkeys that record macros (which then launch with other hotkeys) and the ability to launch macros by pressing two hotkeys in sequence. You can restrict macros to run only in specified windows. The scripting language and interface will scare off beginners but give experts easy access to if-then branching and built-in commands that read and write to the Registry. (Pitrinec Software, *www.pitrinec.com/pkindex.htm.* ●●●●○)

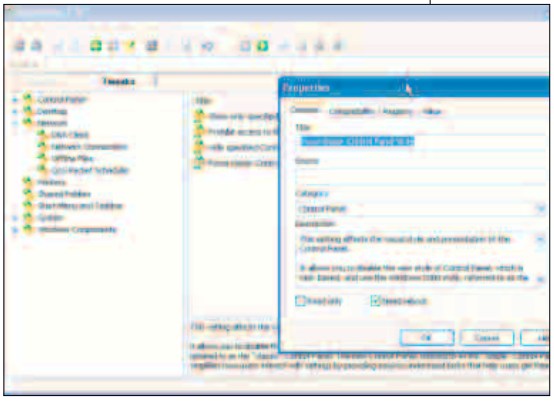
PC MAGAZINE EDITORS' CHOICE

MISCELLANEOUS TOOLS

BY EDWARD MENDELSON

REGISTRY EDITOR

The RegEdit utility that is built into Windows is a very basic tool that lets you modify the Windows Registry. Compared with **RegWorks 1.3** ($30 direct), RegEdit is about as full-featured as Notepad. RegWorks is packed with features and is much easier to use. Unlike RegEdit, it searches the Registry at lightning speed, performs search and replace, and includes an undo history. A much-appreciated safety net, the backup and restore capabilities make experimenting with modified Registry keys risk-free.



REGWORKS is an absolute must for anyone who ever works in the Windows Registry.

A tweaking tab offers dozens of fully explained Registry modifications that you can make and reverse. You can also build your own tweak items to save changes that you might otherwise forget. The monitor feature lets you track down Registry changes made by your software. (RegWorks Software Inc., *www.regwrks.com.* ●●●●●)

START-UP MANAGERS

Although Windows' Msconfig command lets you control which items run at start-up, it is uninformative and difficult to use. Mike Lin's **Startup Control Panel 2.8** (free) lists all the items that will run when Windows launches with checkboxes and pop-up menus that let you delete and temporarily disable items. (Mike Lin, *www.mlin.net.* ●●●●○)

The same author created the handy **StartupMonitor 1.02** (free), which brings up a dialog box whenever an item is added to your start-up programs. It lets you remove the new item with a simple click. (Mike Lin, *www.mlin.net.* ●●●●◐)

PC Magazine's **StartupCop Pro** (available by subscription; $4.97 a month direct or $14.97 a year for PC *Magazine* subscribers) is about as simple-looking as a jetliner's instrument panel. It provides an updatable database of program identification aids, links to the Web sites of the creators of start-up items, options to switch among multiple start-up profiles, and the ability to block programs like QuickTime or RealPlayer. We don't feel it's appropriate to rate our own program, but we think you'll find it useful. (*PC Magazine, www.pcmag.com.* Not Rated.)

DESKTOP LAYOUT TOOLS

EzDesk 1.8 ($15 direct) is an unobtrusive little app that will automatically restore the layout of your icons. EzDesk is completely hidden and can be accessed by a hotkey. Other hotkeys can rearrange desktop windows, hide all desktop windows so that they don't even appear on the taskbar, and display a list of recently opened windows. (Melissa Nguyen, *http://home .comcast.net/~ezwaretech.* ●●●●○)

Frozen Icons 2.21 ($19.95 direct), which appears in the system tray, offers an option to save the layout of your desktop icons. If your icons ever move, the app will automatically restore their layout when you restart Windows or when you select the Restore option. You can save and switch among multiple icon schemes, each with different icons displayed. Frozen Icons can also rearrange icons when you change screen resolutions. During testing, the Option screen sometimes crashed, but ordinary operations were trouble-free. (DjokiSoft.com. ●●●○○)

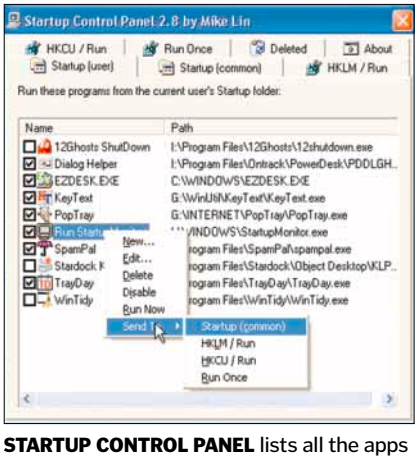
Microsoft's **Layout.dll** (free) file, which is included in the Windows NT Resource Kit, can be installed on Windows 2000 and XP systems. This adds the Save Desktop Icon Layout and Restore Desktop Icon Layout options to the pop-up menus associated with system icons like the Recycle Bin and My Computer. It's a bare-bones solution that lacks the useful frills found in EzDesk, but it gets the job done. (Microsoft Corp., *www.microsoft.com.* ●●●○○).

FILE VIEWERS

There are many reasons to use a file viewer. Maybe you don't have PowerPoint or Photoshop installed on your system. Or perhaps you are security-conscious and just received a Word file as an e-mail attachment. Opening a document in a file viewer will prevent any worms or viruses in the file from being unleashed. The most robust file viewer is **Quick View Plus 8** (download, $35 direct; CD, $39), which is based on Stellent's Outside In technology. It is slow at times, but supports more file types than any other viewer. (Avantstar Inc., *www.avantstar.com.* ●●●●○)

Many programs that start out as simple graphics-file viewers get increasingly bloated with each new version. In fact, most are now too slow for us to recommend. The exception is **IrfanView 3.85** (free), which displays dozens of image formats and feels like the fastest program ever written. If viewing image files is your main concern, this is a sure win. (Irfan Skiljan, *www.irfanview.com.* ●●●●◐)

For quick viewing of text files, nothing is faster than **WnBrowse 4.8** (free). This app opens from a Windows Explorer right-click menu and allows instant searches on even the largest files, letting you quickly locate text strings hidden in documents and program files. (Nigel Thomas, *www.ngthomas.co.uk.* ●●●●○)



STARTUP CONTROL PANEL lists all the apps that launch when Windows starts, and provides check boxes to disable any.

NOTEPAD ALTERNATIVES

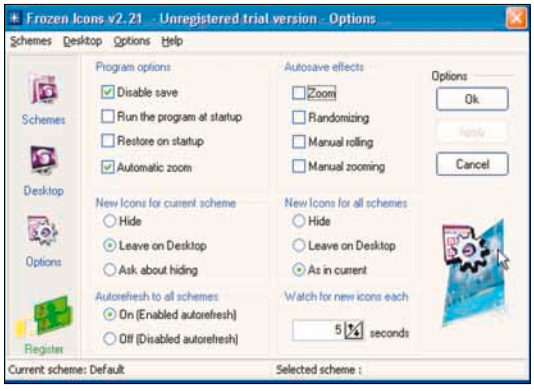
Windows XP's Notepad isn't bad, but there are more powerful text editors out there. Our favorite is **UltraEdit-32 10.0** ($35 direct). It has a highly customizable interface, handles huge files very quickly, remembers search strings in a drop-down list, and uses a built-in FTP client to open and save files on remote systems. (IDM Computer Solutions Inc., *www.ultraedit.com.* ●●●●◐)

PC MAGAZINE EDITORS' CHOICE

An easier-to-use but less powerful alternative is **EditPad Pro 5.3** ($39.95 direct). It lacks macros and a built-in FTP tool, but has plenty of features you won't find in Notepad. (JGSoft, *www.jgsoft.com.* ●●●◐○) Among other freeware text editors, the popular **Notepad++ 1.8** (free) is quick and flexible. (Don Ho, *http://notepad-plus.sourceforge.net.* ●●●○○) But the rising star is **CPad 0.14** (free). This app has a built-in FTP client and freeware plug-ins that export to PDF and PalmDoc files. (Matthias Wennergren, *www.zantii.net.* ●●●●○)

UNDELETERS

FileRestore ($39 direct), which resembles a cleaner version of Windows XP's file-search menu, can restore data that's been cleared from the Recycle Bin. The app lists deleted files that it has detected and gives an accurate prediction of how successful recovery will be. This is the only program that recovered all the test files we deleted before installing the undeleter. It can't run from the installation CD. So if you don't want to overwrite data on your hard drive by installing the program, you'll need to install FileRestore on another system, copy the program file to disk, then take the disk to the system with the files you want to recover. (Winternals Software LP, *www.winternals.com.* ●●●◐○)



FROZEN ICONS runs in your System Tray, letting you save and restore various layouts for your desktop icons.

Ontrack EasyRecovery Lite ($89 direct) will retrieve up to 25 files each time you run it. (If this is too annoying—say you're recovering a formatted hard drive—choose **EasyRecovery DataRecovery 6.0** ($199 direct) instead. EasyRecovery Lite indicates the probability of success for recovering a file, but uses obscure abbreviations. It also includes a file viewer that displays the actual content of the files you'll recover. EasyRecovery can be run from the installation CD. Our testing showed mixed results. (Kroll Ontrack Inc., *www.ontrack.com.* ●●◐○○)

Undelete 4.0 (Home Edition, $24.95 direct; Professional Edition, $39.95) takes an interesting approach: It replaces the Windows Recycle Bin. This works flawlessly, allowing you to restore all deleted files, provided the app is installed before you delete them. Unfortunately, when we tested the separate emergency undelete utility before installing the main program, it found none of our test files.(Executive Software International, *www.execsoft.com.* ●●●○○)

MICROSOFT OFFICE TOOLS

BY EDWARD MENDELSON

Nearly everyone relies on Microsoft Office for something; you probably write proposals in Word, give presentations in PowerPoint, or gather data in Excel. But for all the bells and whistles Office has to offer, there are hundreds of add-ins that provide even better tools and options, many of which will become indispensable once you start using them. Here are some of our favorite Microsoft Word, Excel, and PowerPoint add-ins. If you need some add-ins for Outlook, visit (*http://www.pcmag.com/emailutilities*) for a recent roundup of e-mail client utilities.

OFFICE

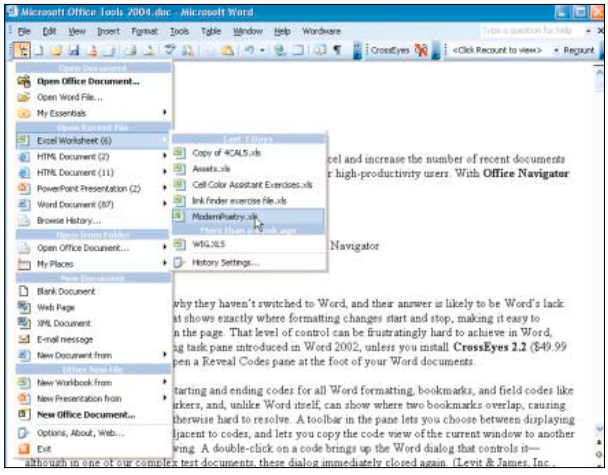
Quick access to recently used documents is a great convenience. You can go to the Tools | Options | General tab in Word or Excel and increase the number of recent documents on the File menu to nine, but that may not be high enough if you work on a large volume of files. **Office Navigator** ($24.95 direct) replaces the Open button on your standard toolbar with a more powerful one: It lists all documents you previously opened in any Office application, all folders from which you opened files, and other essential files and templates that you choose to add to the menu. The options let you add up to 255 folders to the Places bar at the left of Office's own Open and Save dialogs. The only thing missing is keyboard access to this button. (Afalina Co. Ltd., *www.office-addins.com.* ●●●●○)

WORD

One of Corel WordPerfect's best selling points is its Reveal Codes feature. This feature shows exactly where formatting changes start and stop, making it easy to control exactly how things appear on the page. That level of control is hard to achieve using Word's built-in tools; even the Reveal Formatting task pane, which was introduced in Word 2002, is insufficient.

The **CrossEyes 2.2** ($49.99 direct) add-in provides a Reveal Codes pane at the foot of your Word documents, displaying starting and ending codes for all Word formatting, bookmarks, and field codes. And unlike Word, CrossEyes can show where two bookmarks overlap, causing formatting problems that are otherwise hard to resolve. Double-clicking on a code brings up the Word dialog that controls it—although in one of our complex test documents, this dialog immediately closed again. (Levit & James Inc., *www.levitjames.com.* ●●●●○)

Unix offers a fantastic and frequently used feature that lets you use a single command to replace text in multiple files. Windows doesn't offer this handy feature. But **WordPipe 3.9** ($199 direct) brings this functionality to Microsoft Word. It lets you specify multiple search-and-replace strings for any number of Word documents; then



OFFICE NAVIGATOR adds a powerful open button to your Office apps, providing faster access to Favorite and Recently Used files.

it automatically opens Word and makes the program perform the search-and-replace operations in each file. Options let you tell WordPipe whether or not to use Word's Find All Word Forms feature, to store the passwords to your protected files, and to search in headers, fields, and graphic shapes. WordPipe's only real drawback is its price. (Crystal Software, *www.crystalsoftware.com.au.* ●●●◐○)

EXCEL

Advanced Excel Find & Replace 2.1 ($19.95 direct) provides the search-and-replace options that Microsoft should have built into Excel. Unlike Excel's native approach, Find & Replace lets you search in multiple open workbooks, and only in user-determined sheets. You specify the where and what criteria in one tab, then view a list of search results in another tab. You can replace all of the found text, or select a subset of the results from the list and replace text only in the selected cells. (Afalina Co. Ltd., *www.ablebits.com.* ●●●●◐)

In the same way that WordPipe replaces text in Word files, **ExcelPipe 2.3** ($199 direct) can search for and replace text in multiple spreadsheets. It includes options to match case and search in formulas and shapes, as well as the ability to save and reuse search specifications. (Crystal Software, *www.crystalsoftware.com.au.* ●●●◐○)

Macro Systems develops a variety of useful add-ins for Excel. **Backup Assistant** ($24.95 direct) prompts you to let it back up spreadsheets as soon as you open them; it also adds a toolbar button that quickly backs up files. Your backups can have filenames that include the date and time when they were saved, and you can set the software to save each day's backups in separate subfolders. You can also specify that the program not back up spreadsheets opened from a scratch or temporary directory. It doesn't support scheduled backups or automatic backups during idle time. (Macro Systems, *www.add-ins.com.* ●●●●○)

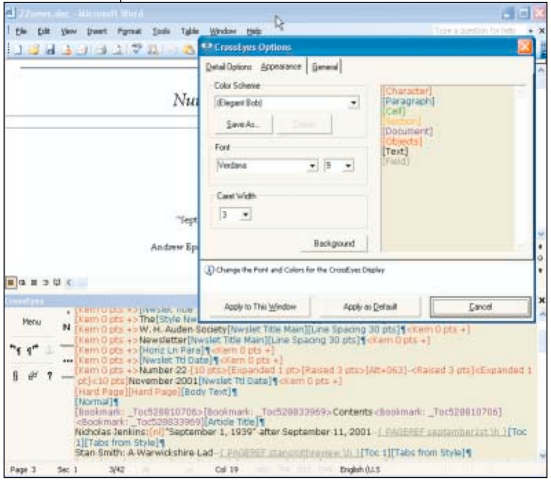
Using the cell- and text-color icons on Excel's toolbar can be tedious. **Cell Color Assistant** ($24.95 direct) provides a much easier way to apply colors to your cells. It lets you add up to 50 buttons to its toolbar that represent different combinations of background and foreground colors. In addition to coloring cells, these buttons can also insert text, format existing text, or clear an existing color. The central-control button on the toolbar lets you select all cells in a range that match the formatting of a specified cell. (Macro Systems, *www.add-ins.com.* ●●●●◐)

When you move a spreadsheet with links to other spreadsheets, you can expect the links to break even if you move the other spreadsheets at the same time. **Link Finder** ($49.95 direct) searches closed and open files for links or only for links between sheets. The program can list or delete all links found, automatically convert all links to their current values, or prompt you to decide what to do with each link individually. (Macro Systems, *www.add-ins.com.* ●●●◐○)

Macro Systems also offers a kitchen-sink add-in, **Spreadsheet Assistant** ($39.95 direct), which includes hundreds of time-saving commands accessible via Excel's menus or the app's own menu and toolbar. You can, for example, create a list of bookmarks for easy navigation in a large spreadsheet, save multiple files in a single action, copy an average or sum to the clipboard, freeze panes on multiple sheets, fill all cells down or to the right, insert rows every *n* rows, remove blank rows, perform the same math operation on multiple cells, and so on. And each task takes only two clicks. The only problem with this add-in is that it has so many features, you may spend more time exploring it than you'll save by using it. (Macro Systems, *www.add-ins.com.* ●●●●◐)

Excel Duplication Manager ($29.95 direct) lets you find duplications in your lists and spreadsheets, or display only unique items by clicking on a radio button. A dialog box lists available actions, such as comparing two lists or removing rows with duplicate data; and then a single click will perform the action and even create a new sheet with the results. Just be sure to rename the results sheet, because the next operation performed by Duplication Manager will overwrite it. (OzGrid Business Applications, *www.ozgrid.com/Services/ExcelAdd-insPage.htm.* ●●●○○)

Do you want a clear visual signal when entered data changes one or more cells in a spreadsheet? **Spheresoft Highlighter for Excel** ($49 direct) alerts you to changes by highlighting altered cells: Green indicates a cell value has increased and red means a number has decreased. This foolproof add-in lets you select part or all of a spreadsheet. It then highlights changes in the selected area. This app isn't a spectacular feat, but it can be helpful. (Sphere Software Engineering Inc., *www.spheresoft.com.* ●●●●○)



CROSSEYES details all the formatting applied to a Word document, offering great control over how your file looks.

Excel's Help file leaves something to be desired. Fortunately, there are sites and add-ins to offer some advice. When you install the **ExcelTip.com Excel Add-In** (free) template, Excel gets a new T icon in its toolbar. Enter the search terms for which you want advice in any spreadsheet cell, click on the icon or press Ctrl-T, and a list of related tips from ExcelTip.com appears

in your browser. (ExcelTip.com. ●●●●○)

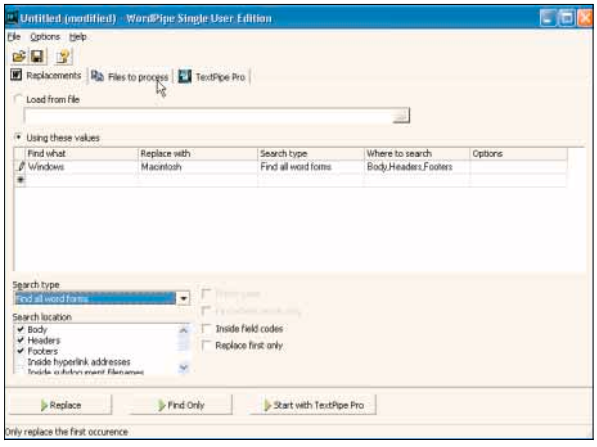
POWERPOINT

You don't need to know VBA programming to add real-time information, like stock prices, to your presentations. Shyam Pillai's **LiveWeb 1.5** (free) lets you insert a frame in your slide that displays the current contents of a Web page. The wizard-based interface asks you to type in the URLs you want to display and specify a percentage of a slide's area to fill. It then creates new slides, each containing a frame for one Web page. And you can link to individual Web graphics, not just full pages. (Shyam Pillai, *www.mvps.org/skp.* ●●●●○)

PowerPlugs: Screensaver Creator 1.0 ($49 direct) is a simple dialog box that creates a screen saver from any presentation, complete with transitions, animations, and other effects. If you haven't set the presentation to move to the next slide automatically after a number of seconds, the screen saver automatically switches slides every five seconds. The program can also create a standalone program to install the screen saver. Combine this app with LiveWeb, and in a few seconds you can make a screen saver that cycles through Web pages and other live content. (CrystalGraphics Inc., *www.crystalgraphics.com* ●●●●○)

Another add-in by Shyam Pillai, **Secure Pack 2.0** ($49.95 direct) lets you distribute a presentation that recipients can run effortlessly on their own machines. They won't, however, be able to extract or modify slides for their own use. Unlike PowerPoint's built-in Pack & Go feature, Secure Pack creates single files with complete presentations, can pack multiple presentations into one file, and can be set to uninstall itself after any specified number of runs. Packaged presentations can be password-protected and set to refuse to play after a specified date. (Shyam Pillai, *www.mvps.org/skp.* ●●●●◐)

Yet another goodie from Shyam Pillai, **Sequential Save** (free) adds a toolbar button that backs up your presentation—not in its current form, but in the most recently saved version, which is normally overwritten when you perform a normal File | Save. Even if you've just done something that messes up your presentation, the earlier version is available. (Shyam Pillai, *www.mvps.org/skp.* ●●●●○)



WORDPIPE lets you search for phrases and even replace text in multiple Word files at once.

DIGITAL PHOTO TOOLS

BY GALEN FOTT

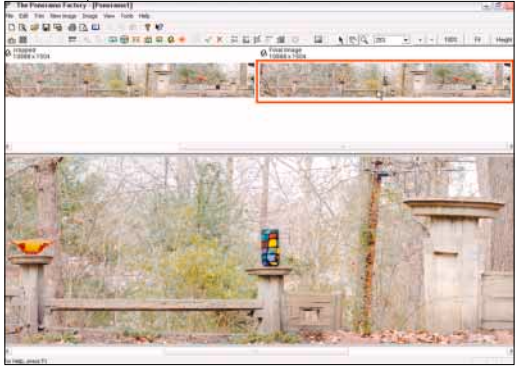
There's more to the world of digital photography than Adobe Photoshop. Whether you desire jazzier special effects or an easier way to correct colors, or you need to recover an image you accidentally deleted, a tool exists to help you get the job done. Here are some useful apps and plug-ins for working with digital images. And in case you're using a product like Jasc Paint Shop Pro, you should know that many non-Photoshop programs support Photoshop plug-ins.

EDITING

Cutting a car out of an image is one thing, but if you've ever tried to separate a person's wind-blown hair from a complex background so you could composite her in a different setting, you know what an ugly chore masking can be. **Corel KnockOut 2** ($99.99 direct) and **Extensis Mask Pro 3** ($199.95 direct) are Photoshop plug-ins that significantly ease this task. With KnockOut, you outline the definite foreground and background areas, then let the plug-in worry about the transition between the two. Mask Pro's technique is color-based: You define which colors to keep and which to exclude, and Mask Pro separates the areas.

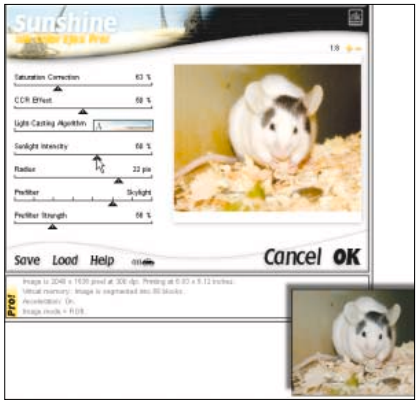
KnockOut is easier to master, has better documentation, and works in Jasc Paint Shop Pro. Mask Pro, on the other hand, is more sophisticated and flexible. But although Mask Pro is twice as expensive as KnockOut, it is only slightly better. Which one you choose should depend on your needs and your budget. Either way, you'll find yourself with a welcome alternative to Photoshop's Background Eraser and Extract commands. (Corel KnockOut 2: Corel Corp., *www.corel.com.* ●●●◐○ Extensis Mask Pro 3: Extensis Inc., *www.extensis.com.* ●●●●○)

From its humble freeware beginnings, **The Panorama Factory 3.0** ($59.95 direct) has grown into a powerful program for combining multiple photos into panoramic images. The New Project Wizard walks you through every step, including an option to



THE PANORAMA FACTORY is the most powerful tool we've seen for combining multiple images into one.

specify your digital camera so the software can automatically adjust for focal length and distortion problems. The program really shines at correcting for exposure differences; the blend between images is almost always seamless, and you can adjust for any problems. You can save your final panorama in standard image formats like TIFF and JPEG, or as a QTVR virtual reality movie. (Smoky City Design LLC, *www.panoramafactory.com.* ●●●●◐)



NIK COLOR EFEX PRO is a vast and extremely impressive set of effects that replicate lens filters.

ArcSoft PhotoMontage Video Edition ($39.99 direct) is a fun yet powerful tool for creating mosaics in which a single large image comprises thousands of small pictures that are, in effect, like pixels. The smaller images can be your own digital photos or any of the 20,000 tiny images included on the installer CD. Afraid your personal photo collection isn't large enough? PhotoMontage can also create still-image libraries from captured video clips. (ArcSoft Inc., *www.arcsoft.com.* ●●●●○)

Photoshop's Trim command can automatically crop a solid background color from the edges of an image, which is fine—if you have Photoshop. If you use a different image editor, try **InstaCropper 3.1** ($30 direct). This program is invaluable if, for instance, you have a Web graphic with the same background color as your Web page and you want to crop the graphic down to the smallest possible size. Even if you do have Photoshop, InstaCropper adds a useful tolerance slider to Photoshop's automatic cropping capabilities. It can also operate in manual mode and supports batch processing. (UtahSoft Inc., *www.utah3d.com.* ●●●●○)

EFFECTS

Photographers have long used filters on their cameras to enhance colors and create lighting effects. **nik Color Efex Pro** ($69.95 to $299.95 direct), a set of 55 plug-ins for Photoshop and compatible programs, offers convincing digital replicas of real-world photographic filters. These effects can work wonders on your images, bringing out the blue of the sky or adding a dash of sunshine on a cloudy day. At $300, the complete set might be a bit much for casual enthusiasts, but nik multimedia has several subsets available. You'll probably find the Photo Classic Set ($110) or the Photo Design Set ($100) the most useful—and you can get the two bundled together for $200. (nik multimedia Inc., *www.nikmultimedia.com.* ●●●●◐)

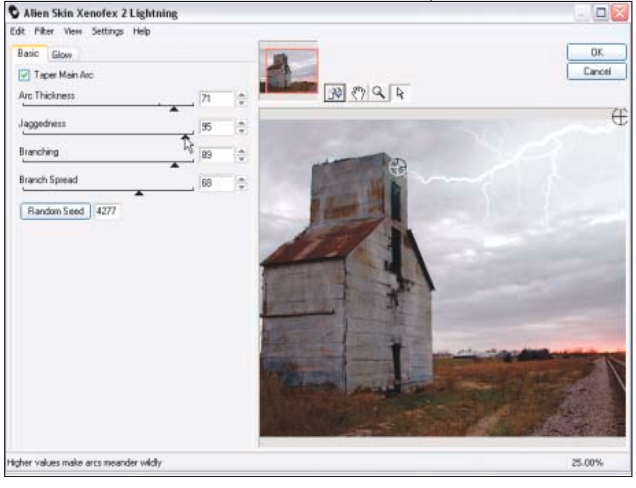
Alien Skin's **Xenofex 2** ($129 direct) contains 14 image filters for Photoshop and compatible image editors. These professional-quality plug-ins simulate very realistic effects, such as burnt edges, crumples, and stains. Some are more dramatic: Shatter, for example, extrudes your image into the third dimension, then explodes it into jagged fragments; and Rip Open blasts the image through a simulated paper surface. (Alien Skin Software LLC, *www.alienskin.com.* ●●●●○)

NIK SHARPENER PRO's simple interface makes it easy to succesfully sharpen digital images you want to print.

If the Xenofex 2 plug-ins are too practical for your taste, check out **Corel KPT Collection** ($99.99 direct). From Fluid's aquatic distortions to Noize's colorful abstractions, these 24 inspirational plug-ins offer the kind of creative, mind-expanding effects that you can get lost playing with. We only wish the interface didn't consume the entire screen. (Corel Corp., *www.corel.com.* ●●●●○)

TWEAKING

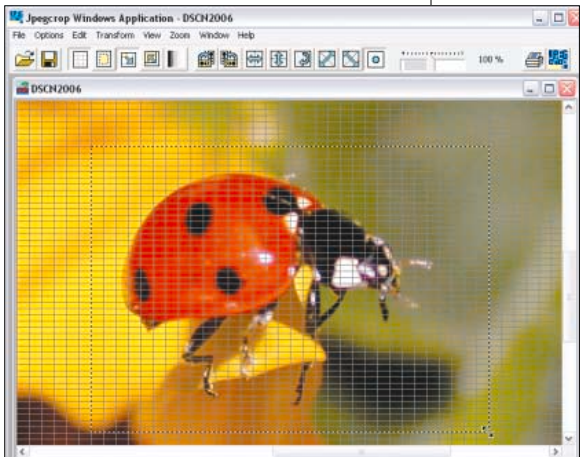
Shortcut PhotoZoom ($49 direct) is a standalone application that increases the resolution of images (a process known as *upsampling*), so that you can make large, attractive prints from low-resolution files. While almost any image editor can upsample, the basic version of PhotoZoom



XENOFEX lets you add very realistic effects, such as lightning, burnt edges, and stains to your digital images.

KPT COLLECTION offers a lot of options for producing mind-expanding psychedelic effects.

gives you greater control than you'd get from Photoshop CS's bicubic interpolation choices or from competing (and more expensive) plug-ins. The Pro version ($129) offers finer controls to balance sharpness with smoothness, as well as batch processing. Although the results are never spectacularly better than bicubic upsampling, you'll appreciate the added control PhotoZoom gives you. And you'll see the difference. (Shortcut, *www.trulyphotomagic.com.* Basic: ●●●○○ Pro: ●●●●○)



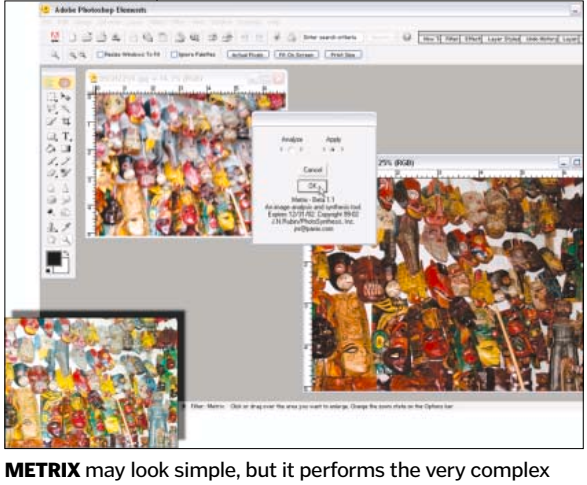
JPEGCROP restricts you to the same aspect ratio of the original image so that the image won't have to be re-compressed.

The Unsharp Mask command, which is built into Photoshop and other similar image-editing applications, is usually a powerful but complex feature. **nik Sharpener Pro Home Edition,** ($79.95 direct) is a blissfully easy alternative for sharpening images. You simply tell Sharpener Pro what size print you want and specify a couple specs about your printer, and the plug-in automatically analyzes your image and sharpens it. The Home Edition works up to only 8.5- by 11-inch ink jet print sizes; serious users will want the more robust—though confusingly named—**nik Sharpener Pro Inkjet Edition** ($169.95 direct), which offers larger ink jet output and additional controls. (nik multimedia Inc., *www.nikmultimedia.com.* Home Edition: ●●●◐○ Inkjet Edition: ●●●●○.)

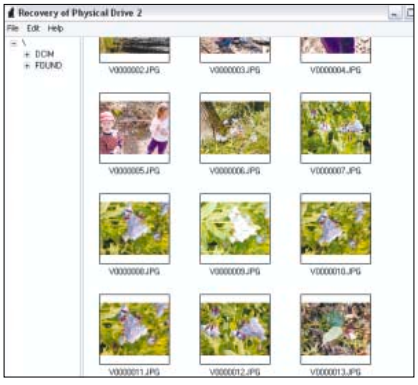
Noise Ninja ($29 direct) does an excellent job of removing unwanted noise from digital images. Precise luminance and color controls let you eliminate digital noise without damaging details. As a final touch, you can use the Noise Brush to restore noise selectively. The **Noise Ninja Professional** ($69 direct) adds 16-bit output and batch processing. By the time you read this, a free upgrade to version 2 should be available, offering improved profiling tools and more filtering options. (PictureCode LLC, *www.picturecode.com.* Basic: ●●●◐○ Professional: ●●●●○)

Matching color casts among images is an important but sometimes difficult task when you need to bring one image in line with a group. **Metrix** (free) takes all the work out of this process. The spartan interface has only two radio buttons: Analyze and Apply. To use Metrix, simply analyze the image with the best color cast, then apply that color cast to the images you want to change. Photoshop CS users have the new Match Color command, but Metrix provides users of other image editors with a simple solution for color matching. (PhotoSynthesis Inc., *www.panix.com/~jnr.* ●●●●○)

Each time you crop a JPEG image and save the file, the image is recompressed. Even at the highest quality setting, you degrade the image slightly. Not so with **JPEGcrop** (free). By limiting your crops to fixed aspect ratios, JPEGcrop maintains the JPEG compression that already exists with no need to recompress. Lossless JPEG cropping is a feature that even the $649 Photoshop CS lacks. (JPEGclub.org. ●●●●◐)



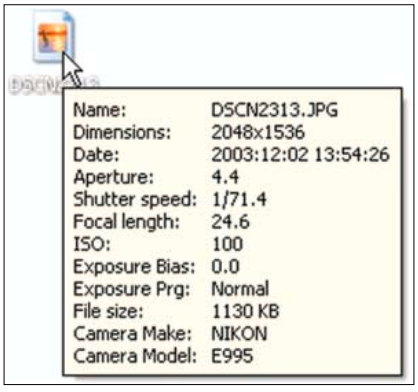
METRIX may look simple, but it performs the very complex task of matching color casts among multiple images.



PHOTORESCUE can recover photos you lost by deleting images from your camera or formatting your flash media.

MISCELLANEOUS

Have you ever accidentally deleted photos from your camera? They may not be gone forever. **PhotoRescue 2.0** ($29 direct) is a fantastic application that can recover images you've deleted, as long as new data hasn't been written over the old. On our tests, the program was totally successful at recovering deleted images. The interface is a little rough, but that's easy to overlook, since the app is so good at what it does. DataRescue also offers Card Wiper, a free-



EXIF INFOTIP exposes the useful EXIF data stored in your image files.

ware utility that erases camera memory so that it can't be read again. (DataRescue sa/nv, *www.datarescue.com.* ●●●●◐)

Your image files contain a lot of handy information, stored as EXIF data. But this data isn't exactly easy to view. **EXIF InfoTip** (free) is a shell extension that offers quick access to EXIF data. Just move your cursor over a photo icon anywhere in your system and up pops a balloon packed with EXIF info, including the filename, pixel dimensions, date modified, ISO, and camera make and model. (Michal Kowalski, *http://home.pacbell.net/michal_k/exif_v.html.* ●●●●○)

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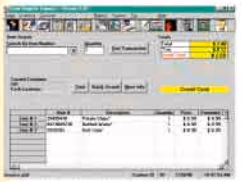

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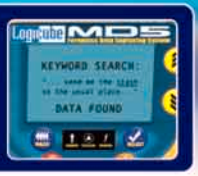

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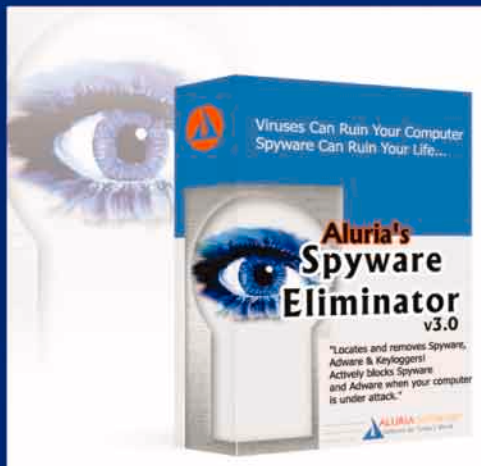

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Think Outside The Frame

BY ALAN COHEN

Before you play that wedding video for the fiftieth time or order yet another T-shirt with the family portrait on it, stop! We're not just saying that because we may be the ones who have to sit through the video or wear the T-shirt (although that is a concern). We're saying it because you can do a lot of cool stuff with the same photos and videos if you know the right Web sites: You can transform your digital pics into Warhol-like pop art, convert videos into DVDs, manipulate photos without mastering complicated software, and put your mug on something other than a mug.

Bagettes

This isn't an edible gift: a Bagette is a small satin handbag, handy for carrying cosmetics and credit cards (if you're looking for gifts for the boys at the hunting lodge, you'll want to go with something else). Your color photo goes on the bag.

Bagettes is a mom-and-pop business, as evidenced by the no-frills Yahoo! Store and the personalized note that comes with each order—and the work is quite good. We submitted two photos and ordered a Bagette with one photo on each side for $23; you can also have a single photo printed on both sides for $20. The photos were sharp and vivid for something printed on satin—far better than the images Personal Creations turned out.

WHAT THE RATINGS MEAN

- ●●●●● EXCELLENT
- ●●●●○ VERY GOOD
- ●●●○○ GOOD
- ●●○○○ FAIR
- ●○○○○ POOR

That's not to say we were entirely happy with the product. First, it doesn't look or feel very substantial. Nor were we crazy about the satin zipper pull. You can pay an extra $1.50 to personalize the Bagette, but if you don't, the company uses the space for its own advertising.

The site has no upload tool, so you have to send your photos via e-mail. And the shipping costs were inflated: We paid $3.50 only to have our Bagette arrive in a manila envelope bearing 73 cents' worth of postage. Last, we had to wait almost four weeks, which is okay if you're expecting a Porsche but less cool for a handbag.

$20 direct and up, plus shipping. Bagettes, www.bagettes.com. ●●●○○

onlinephotofix.com

Special effects don't have to be limited to the likes—and the budget—of Peter Jackson. Thanks to some talented artists in Miami, you can take advantage of photo manipulation technology.

Call on onlinephotofix.com to remove scratches from old photos, tinker with colors, and switch backgrounds; the site can even remove people you don't want to remember and replace them with people you do. Just scan your original pictures (or send digital files), jot down some instructions, and pay the bill. Prices start at $19.95 and go as high as $59.95, depending on the complexity of the fixes; you'll get a price quote before the work takes place.

Although the restoration and coloring work is handy for retouching fading photos, the real fun is in letting onlinephotofix.com manipulate photographs. We sent in a photo of a group of people standing on a ferry and another of a young girl playing dress-up at home. We asked onlinephotofix.com to replace the folks in the skyline shot with the girl. The work was excellent—and speedy. Within two days, we received a JPEG preview for our approval.

The site lets you request changes, which was handy, as we thought the girl was too small. Later that day onlinephotofix.com sent us back a revised image.

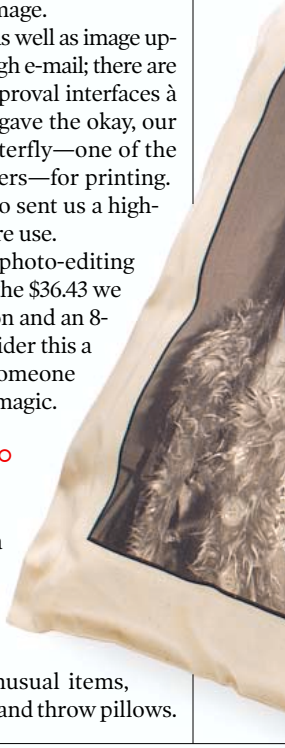
All communications, as well as image uploading, take place through e-mail; there are no slick preview and approval interfaces à la photowow. Once we gave the okay, our image was sent to Shutterfly—one of the best online photofinishers—for printing. Onlinephotofix.com also sent us a high-resolution JPEG for future use.

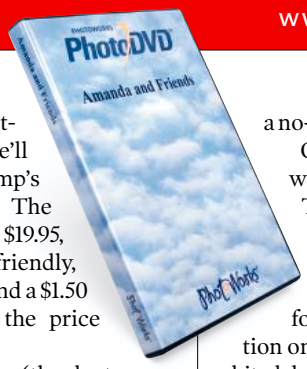
If you're handy with photo-editing software, you'll scoff at the $36.43 we paid for the manipulation and an 8-by-10 print. But we consider this a small price for letting someone else do first-rate photo magic.

$19.95 direct and up. onlinephotofix.com Co. ●●●●○

Personal Creations

Putting a photo on a deck of cards used to be hip and trendy; Personal Creations raises the ante by sticking photos on more unusual items, such as Victorian quilts and throw pillows.





The quilt was tempting, but at $149.99 we'll leave it for Donald Trump's interior decorator. The Photo Accent Pillow, at $19.95, was far more budget-friendly, though with shipping and a $1.50 "personalization fee," the price came to just over $29.

The photo was sharp (thanks to our 5-megapixel image) but printed in black and white and rather dark. Don't expect any retouching: The service is simply print-and-ship. So any flaws in your photo will be readily apparent, as the flash burns on our subject's face were.

Turnaround time was extremely fast, just a week from order to delivery (much faster than with Bagettes or photowow), and uploading images was quick and simple. You won't ooh and ah for long, but Personal Creations offers some new and offbeat options for displaying your photos.

Prices vary. Personal Creations, www.personalcreations.com. ●●○○○

PhotoWorks PhotoDVD

Putting photos on a CD is old news, so it's no surprise that you can now put them on a DVD. The PhotoWorks service is simple: Upload your images, select a theme (we chose Dream Sky), and choose some music. Then add a title, a description of the album, and credits. You can't select specific musical selections, just categories such as classical. And you can't link captions or notes to the images—something that seems like a no-brainer, given DVD technology.

Out of the envelope, our DVD wasn't particularly impressive. The front of the case showed clouds along with the album's title, printed in no-frills black type. The same type was used for the credits and album description on the back. The DVD's black-and-white label looked as if it had been run off a low-end ink jet printer.

Happily, the production values improved when we ran the DVD. Photos aren't simply displayed on the screen; as the music plays, there are well-executed dissolves and subtle zooms that seem to animate the images. The Dream Sky theme meant that an image of clouds was displayed after every few photos.

What's missing is any control over the pacing and the ability to skip to selected images. We also found that the DVD is a more satisfying product if you load it up with images beyond the 50 photos included in the $24.95 base price (additional images run 10 cents each). With 24 images on our DVD, the presentation was over in a couple of minutes, leaving us wanting more.

$24.95 direct and up. PhotoWorks Inc., www.photoworks.com. ●●●○○

photowow.com

Send photowow your photos, and the site will will turn them into a modern-art masterpiece. It won't take much effort, but it will take some bucks. You can choose styles such as Warhol-like pop art, slick collages, vintage hand tintings, and faux watercolors.

The site is very easy to use; it walks you through every step of the process, and you can approve the work and ask for changes before the design is finalized. You can even submit detailed diagrams of what you'd like done.

Of course, there's a hefty design charge; we paid $90 for one piece of four-panel pop art. Then you have to pay for whatever you want the design printed on—semigloss paper, canvas, a hand purse, or other options. We chose a 12- by 12-inch canvas (the smallest size), which ran us another $48.

The final product was very cool: a psychedelic recreation of a standard family snapshot, expertly capturing the look of a hip painting. Yes, the $138 we paid still haunts us. But art lessons would have cost us ten times as much.

Prices vary. photowow.com. ●●●●○

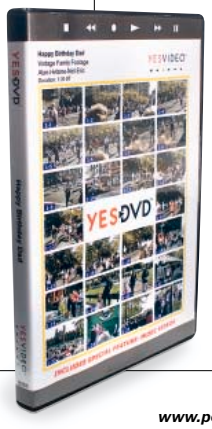
YesDVD

Videotape is a fragile medium—bad news if you were expecting to pass down all those tapes of the kids' feedings (good news if you're expecting to inherit them). DVD is a more durable format. So to keep your memories alive, you'll want to convert your tapes to discs.

YesVideo's YesDVD service can take any 2 hours of video footage (in VHS, MiniDV, Hi-8, or half a dozen other formats), break it into chapters, and put it on a disc. Just stick your tape in a mailer (available at Circuit City and Fry's Electronics), jot down a title and description—you're limited to a skimpy 23 characters per field—and put your footage in the mail. Our turnaround time was two and a half weeks.

What we received was worth the wait. Unlike PhotoWorks' lackluster DVD case, a YesDVD case looks like something we would actually want to give as a gift. The front and back are covered with thumbnail images from your footage. Play the DVD and you'll see a standard chapter display using the same thumbnails as the case. You can play the disc from start to finish or jump around from chapter to chapter.

YesVideo does a reasonable job with chapter breaks: Footage that starts outdoors will get a chapter break when the action moves indoors. But breaks can seem rather arbitrary when your footage consists of long scenes in the same location. The music videos included on each disc are a quirky feature: A minute or so of video highlights accompanied by three different soundtracks. Watching Dad's marathon footage to the sound of "Ave Maria" was a disconcerting experience. Suffice it to say that you won't be seeing it on MTV any time soon.



$29.99 direct, plus shipping. YesVideo Inc., www.yesdvd.com. ●●●●○

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GEAR & GAMES

Playing Your Song

The **Creative Prodikeys DM** is a nifty device that doesn't require much space—or money. It's a full-size computer keyboard with extra assignable buttons *and* a musical keyboard with 37 touch-sensitive keys (smaller than full-size). It attaches through the standard keyboard port and operates as a MIDI keyboard. Although it won't replace a more elaborate keyboard, it is functional enough for pecking out tunes and teaching kids. The included software offers very basic lessons, MIDI-recording features, and tools for mixing canned loops.—*Matthew P. Graven*

$99.99 direct. Creative Technology Ltd., www.prodikeys.com. ●●●●○

When you're learning to play music, there's no substitute for a live instructor, who can listen to you, answer questions, and give advice. But **eMedia Piano & Keyboard Method** comes close. It provides over 300 lessons, from basic topics, such as how to read music, to more advanced ones, such as chords and arpeggios. QuickTime videos demonstrate lessons, and an animated keyboard illustrates what you should be playing.

eMedia also offers a bundle that includes a 49-key MIDI keyboard, which unfortunately isn't as polished as the software; it has a stiff touch, lag issues, and no assignable buttons. You can find better keyboards for about the same price.—*MPG*

Software only, $59.95 list. ●●●●◐; software and keyboard, $169.95. ●●●○○ eMedia Music Corp., www.emediamusic.com.

Sync Tunes Wirelessly

The **SoniqCast Aireo** is a digital music player that syncs music wirelessly over 802.11b networks without leaving your car, your bag, or your pocket. That's a neat trick, and the Aireo is loaded with other useful features, such as dual headphone jacks, an FM transmitter, and an FM radio. But the Aireo is way too bulky and costly for a 1.5GB player.

SoniqCast includes software that rotates music on and off the unit automatically, but this just underscores how slow 802.11b can be. We're waiting for Version 2.
—*Sascha Segan*

$299.99 list. SoniqCast LLC, www.soniqcast.com. ●●●○○

Adaptation

Whether you need a spare power adapter for your notebook or just want to lighten the load in your laptop case, the **Belkin MP0003 Universal 120-Watt AC/DC Power Adapter** could be just what you're looking for. It weighs a trim 13 ounces, including the cord that connects to your notebook and tucks nicely into any notebook case. A DC input cord with auto and airplane connectors is also included. The adapter is supplied with five Intelli-Tips, which work with most notebooks on the market.—*Craig Ellison*

$129.99 list. Belkin Corp., www.belkin.com. ●●●○○

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PC Tour of Duty

BY PETER SUCIU

The Vietnam War is the setting for several recent PC games; perhaps they'll spur interest among players to learn more about this complex conflict. Additional titles on the horizon include Men of Valor (Vivendi) and Shellshock: NAM '67 (Eidos).

Battlefield Vietnam

PC MAGAZINE EDITORS' CHOICE

This follow-up to Battlefield 1942 offers cinematically inspired moments and vivid first-person shooter action. You can captain a PT boat through dangerous river passages, sneak through thick and lushly detailed jungle terrain with an M16 assault rifle, and pilot a Huey helicopter gunship in an assault on an enemy-controlled village.

BATTLEFIELD VIETNAM

This online and LAN multiplayer game, which can also be played in single-player or cooperative-team mode, lets you head out of the DMZ and into spots including the jungles along the Ho Chi Minh trail and the dense urban streets of devastated Hue. Up to 64 players can take part, playing as American soldiers or marines, South Vietnamese Republican forces, North Vietnamese Army men, or Viet Cong irregulars. The soundtrack includes songs by Deep Purple and Jefferson Airplane, so you can rock out while you lock and load.

$39.99 list. Electronic Arts Inc., www.ea.com.
●●●●◐

Platoon

This lackluster title (based on the Oliver Stone film) was among the first Vietnam-era games. It now languishes in bargain bins, and rightfully so. The interface is confusing, and the squad-based missions are hopelessly unrealistic and poorly balanced. The unconvincing animations and clunky controls make for utterly dull game play that is tougher to take than basic training.

PLATOON

$9.99 street. Strategy First Inc., www.strategyfirst.com.
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Squad Battles: Vietnam

A turn-based game, Squad Battles: Vietnam uses small-unit, board-game–style mechanics, complete with a hexagonal map grid and stackable counters that represent your soldiers in the field. Unlike traditional tabletop war games—or even those recreated for the PC—this one doesn't get bogged down in the rules. But game play is slow-paced and requires patience.

Scenarios range from single-unit ambushes to full 27-turn battalion-level melees. Key combat zones, including Tet, Hu, and Hamburger Hill, are represented in fine detail. Although it's near-perfect as a multiplayer game, Squad Battles is a bit lacking in its single-player action: The computer AI really doesn't do the enemy justice.

$49.99 list. HPS Simulations, www.hpssims.com.
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Vietcong: Purple Haze

Vietcong: Purple Haze offers 28 missions through Southeast Asia, beginning in 1967, where you can play as American Special Forces or as Viet Cong guerrillas. Although you can't control any vehicles—as you can with Battlefield Vietnam—you can call in air strikes and direct artillery. The interface and graphics aren't as refined as those of Battlefield Vietnam, but the single-player story is compelling and well structured.

Thanks to the detailed settings and missions and a variety of challenges and objectives, you'll feel immersed in the game's jungle locations. And a soundtrack of classic 1960s tunes serves as the perfect backdrop for 64-player game play, which is supported for LANs or online.

$29.99 list. Gathering, www.gathering.com.
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QUICK CLIPS

3D Home Architect Design Suite Deluxe 6

3D Home Architect has always seemed magical in its ability to create realistic rooms and houses. Version 6 makes the magic—and the reality—better than ever. The full suite includes new wizards for building houses and decks, landscaping, and designing kitchens, with control over materials, textures, and colors. Render your plans in 2D plan views or photorealistic 3D views.—*Bill Machrone*

$69.99 list. Riverdeep Inc., www.broderbund.com.
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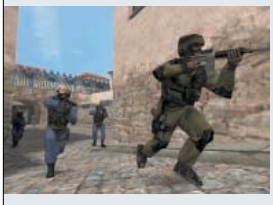
Counter-Strike: Condition Zero

Adding a single-player component to the multiplayer counterinsurgency game Condition Zero allows you to play through a series of missions where you have to rescue hostages, defuse bombs, and stop the bad guys by any and all means. Unfortunately, the linear campaign has few new missions, and the AI-controlled bots are underwhelming. This game is a good introduction to the world of Counter-Strike, but seasoned vets might want to abort this mission.—*Peter Suciu*



$39.99 list. Vivendi Universal Games, www.vugames.com. ●●○○○

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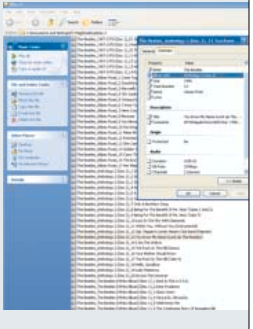

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BACKSPACE

PAY THE MORTGAGE OR BUY AN INK JET CARTRIDGE? IT'S ONE OR THE OTHER.

Edited by Don Willmott

>>The best man, perhaps?
(Windows Media site)

<< Backspace on the Road: Clearwater Beach, Florida.

>>That's how we like our hard drives: full of holes.
(OfficeMax ad)

Unable to find account. Please make sure you entered the correct University ID number and birthdate. The system may not be able to find your account if your ID or birthdate have changed recently.

<<Anyone whose birth date has changed recently, raise your hand!
(Texas A&M site)

>>What's wrong with these pictures?
(Microsoft ad)

<<Why not? Adult entertainment is a growth industry!
(*www.homeauto.com*)

>>Geez, what an attitude!
(*www.chinaview.cn*)

China still a safe place to travel, says WHO

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