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The Tools You Need

HAVING THE RIGHT TOOLS makes maintaining your PC easier and safer. Here are the tools we think every user should have—from screwdrivers to the software you ought to run every day—and the Web sites that can help you out when problems happen.

Online

McAfee FreeScan: You don't have to purchase and install antivirus software to see if anything harmful is lurking on your computer. McAfee's FreeScan works online and doesn't cost a dime. find.pcworld.com/39833

ShieldsUp: Steve Gibson's ShieldsUp will scan your system to see if any ports are open, and if they could be used by a hacker to get access to your personal data. find.pcworld.com/39836

BroadbandReports.com broadband tools: Check the speed of your connection and pin down problems with your ISP with this excellent collection of utilities for DSL and cable Internet users. find.pcworld.com/39839

PCPitstop: Worried that your hard drive is dying or that your floppy drive will fail? PC Pitstop (a *PC World* partner) offers a huge range of online tests for your hardware, software, and Internet connection. www.pcpitstop.com

Online backup: You don't have to use a rewritable DVD drive to back up your data. Services such as www.xdrive.com and www.ibackup.com provide secure online storage for a monthly fee. You can even access your data from another PC.

PCWorld.com Downloads: Don't forget to check out our list of the most popular utilities for testing and fixing your PC. find.pcworld.com/39842

HARDWARE: An antistatic wrist strap can help protect your PC from shocks.

SOFTWARE: ZoneAlarm warns you when programs try to access the Internet.

Hardware

Screwdrivers: A set of screwdrivers with Phillips, standard, and Torx heads will prepare you for every eventuality.

Pliers and tweezers: Needle-nose pliers and tweezers make getting to those hard-to-reach parts easy.

Compressed air: Your PC is a dust trap, but you can gently blow the dust away with a can of compressed air.

Handheld vacuum: Carefully remove the dust, hair, and gunk that collect inside.

Antistatic strap: Static electricity can kill the system's sensitive internal components, so never open the case without using a wrist strap.

Software

Antivirus: A comprehensive program such as Norton AntiVirus 2004 (find.pcworld.com/39875) can protect your PC; good free alternatives are available, as well. find.pcworld.com/39821

Utility suite: A good utility suite can help secure your machine and fix problems quickly and easily. See page 74 or find.pcworld.com/39863 for more.

Firewall: Lots of bad people lurk out there, but a firewall such as ZoneAlarm (find.pcworld.com/39878) can keep them at bay. Free firewalls are adequate for most users. find.pcworld.com/39818

Boot disks: Windows XP doesn't come with a boot floppy, but Microsoft does provide a program to create bootable floppy disks if you can't start from a CD. find.pcworld.com/39830 ■

—Richard Baguley

RESOURCES

Where to Go for More Help

IF YOU'VE GOT PC PROBLEMS, you're not alone. Thousands of other users, from knowledgeable amateurs to IT pros, are happy to lend assistance. Check these sites for a helping hand, and don't be afraid to ask if you can't dig up the answer.... The book publisher O'Reilly runs www.annoyances.org, offering thousands of fixes for Windows problems as well as discussion forums.... For those looking to get the most out of Windows XP, www.tweakxp.com offers help and advice.... The HardOCP forums at www.hardforum.com are home to a large assortment of helpful geeks who know lots of stuff about the insides of PCs.... At www.computing.net you can find a wide range of active forums on topics from PDAs to getting rid of spyware.... Browse to www.theeldergeek.com to discover a long alphabetical list of problems and fixes for Windows XP, plus a forum if you can't find your answer.... Finally, don't forget Microsoft's searchable Knowledge Base at support.microsoft.com.

PHOTOGRAPH: KEVIN CANDLAND

SEE PAGE 74 or find.pcworld.com/39863 for our review of must-have utilities.

PC WORLD

Instant Reference Guide to PC Maintenance

Spend some time taking care of your PC, and it will reward you with years of reliable service. These tips, tools, and resources can help keep any machine happy, healthy, and trouble-free.

Things to Do

LIKE YOUR CAR, your PC benefits from regular upkeep. But you don't need a mechanic to maintain your computer—you can easily do it yourself. Put it through this routine of simple checks and updates to keep it humming.

...Every Day

✔ **Update your virus definitions:** Viruses spread within hours, so keeping your antivirus software up-to-date is essential.

✔ **Do an incremental backup:** Making a copy of files that have changed since your last full backup is quick and easy. find.pcworld.com/39827

✔ **Reboot when programs crash:** Failed applications can cause other programs to falter. Restart your system after every crash to clear it out.

...Every Week

✔ **Perform a full virus scan:** Find anything nasty hiding on your system by regularly scheduling a total scan. find.pcworld.com/39860

✔ **Do a complete backup:** Better safe than sorry. A backup of all of your data will help you recover if your drive fails. find.pcworld.com/39827

✔ **Run Windows Update:** Get the latest patches from Microsoft to secure your system, by running this from the Start menu.

✔ **Run a spyware-and-adware removal program:** A tool like Spybot Search & Destroy can quickly find and remove sneaky spyware. find.pcworld.com/39854

...Every Month

✔ **Update your programs:** To make your apps more stable, check for vendors' software updates or visit a site such as VersionTracker (www.versiontracker.com).

✔ **Check for new drivers:** Installing the latest drivers for your devices can help speed up and stabilize your PC. find.pcworld.com/39812

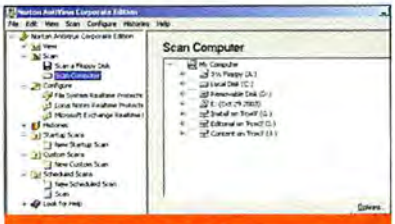
✔ **Use a one-click utility-suite checkup program:** A utility suite (like those reviewed on page 74) can give your system a thorough checkup. find.pcworld.com/39863

...Every Year

✔ **Clean out your PC case:** Use a vacuum cleaner to carefully clear out the dust that collects in a case and can clog up the fans. find.pcworld.com/39857

✔ **Spring-clean your programs:** If your PC seems sluggish and bloated, make a full backup and then use the restore CD to return the system to its original state. find.pcworld.com/39872

✔ **Conduct a full diagnostic check:** A hardware-diagnostic program can test your equipment and track down faulty components before they fail completely. find.pcworld.com/39815



EVERY DAY: Scan for viruses.

EVERY WEEK: Run Windows Update.

EVERY MONTH: Check for driver updates.

See other side for more tips and tools.

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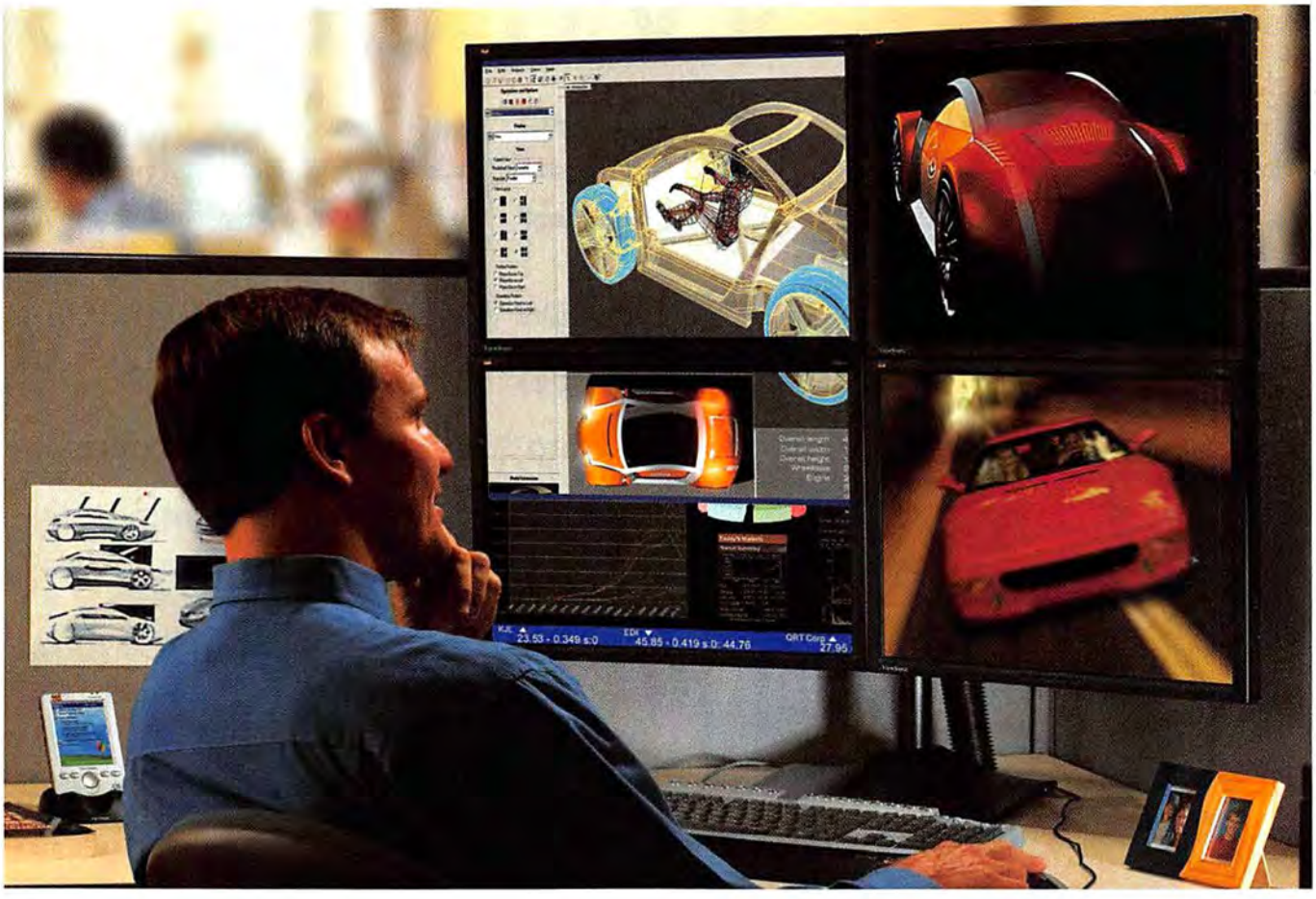

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Uptime

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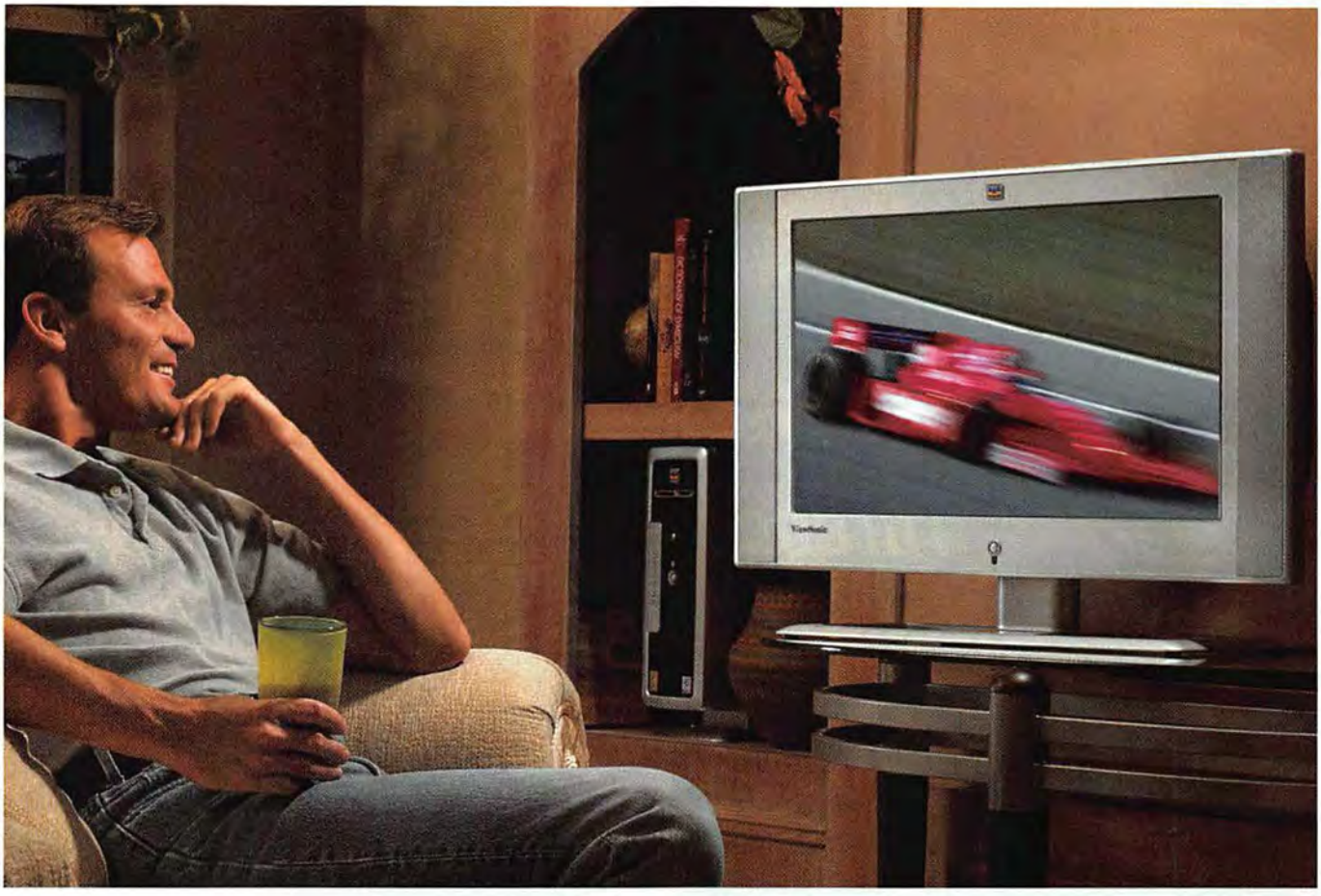

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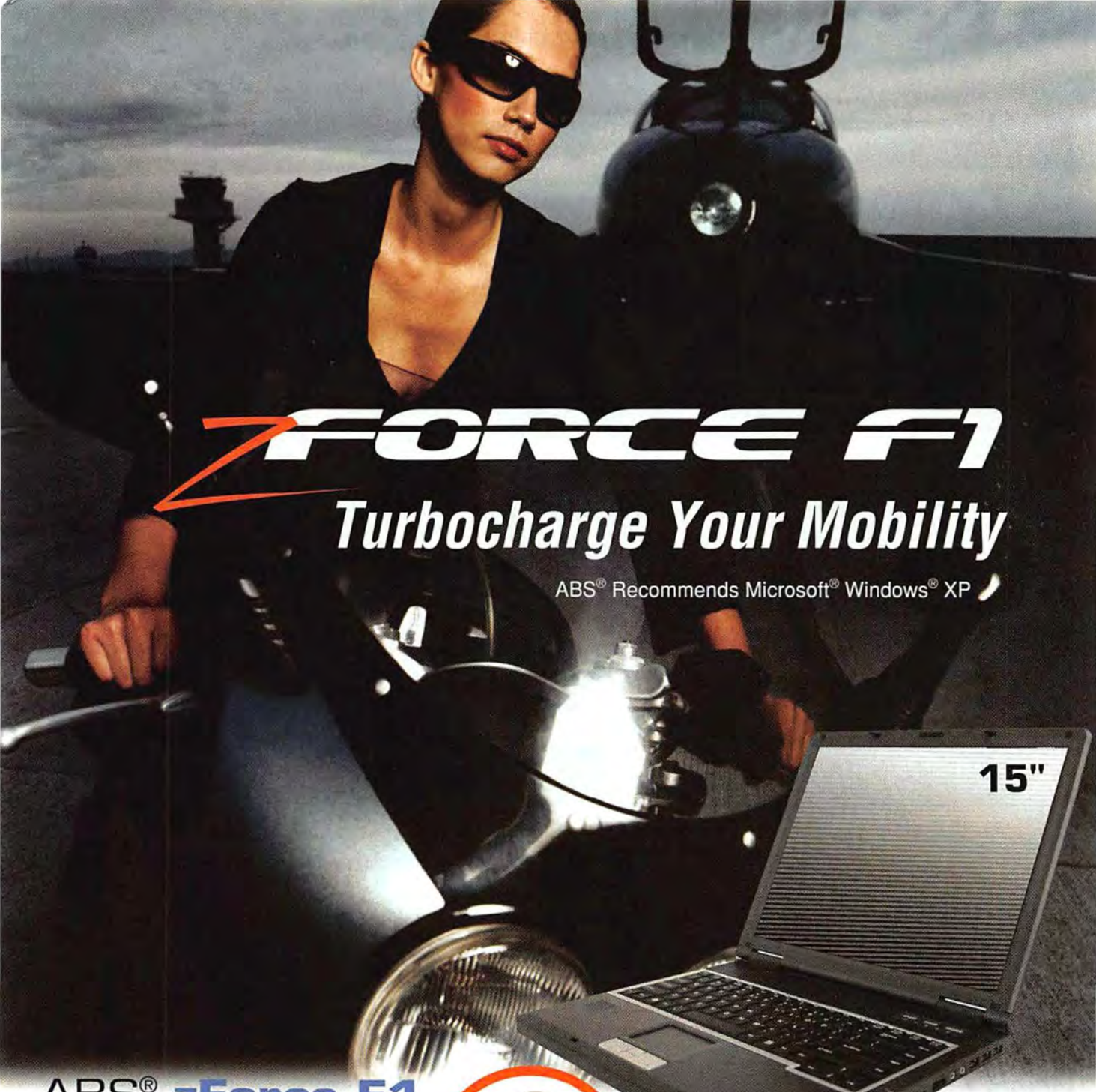
Downtime



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FEATURES

UTILITIES

74 The Trouble-Free PC

System utilities can prevent problems and help you recover your data when a PC accident or disaster—from misplaced files to a hard-drive crash—strikes. We looked at 4 suites and 12 other tools, including ones for backup and partition management, to find which do the best at which task. And yes, we found a Best Buy among the suites.

Cover photography by Kevin Candland

MOBILE COMPUTING

84 Road Tools

For commuters and business travelers alike, staying productive while on the go is a never-ending challenge. Our assortment of useful products, services, and words of advice will help you get work done wherever you roam.

BEST OF THE WEB

97 Web Stars

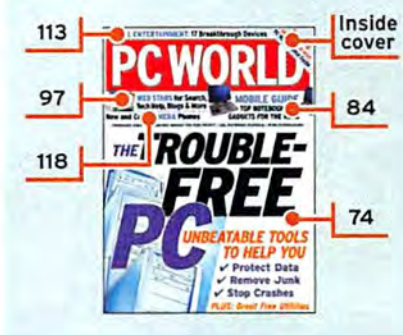
We find the top sites—big and small—for tech support and help, searches, software drivers and patches, travel, auctions, blogging, Web conferencing, browser toolbar plug-ins, maps, technology news, and more.

LIVING WITH LINUX

105 The Linux Experiment

Tired of fighting Windows? Thinking that maybe it's time to decamp to Linux-land? *PC World*'s Edward N. Albro spent a month working and playing there, and now he reports back on life in an open-source world.

ON THE COVER



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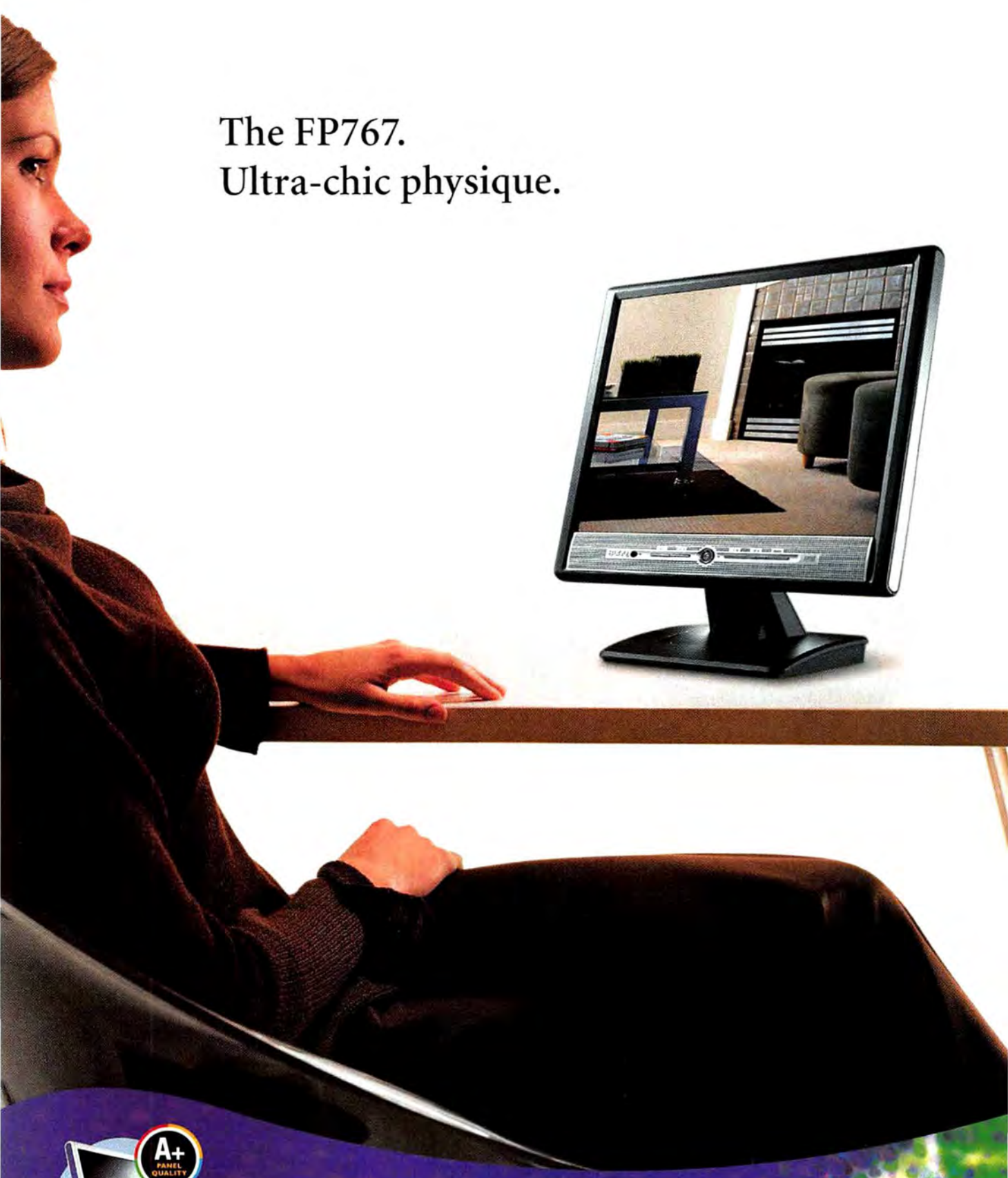

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TOP 100

122 **Spotlight: Audio**
We look at speaker sets and sound cards.
128 **Top 15 Desktop PCs**
133 **Top 5 CRT Monitors**
134 **Top 10 Ink Jet Printers**
135 **Top 10 PDAs**
136 **Top 10 Digital Cameras**
137 **More Reviews**

DEPARTMENTS

21 **Up Front**
37 **Letters**
43 **Plugged In**
Welcome to BlueJack City.
45 **Consumer Watch**
Social networking sites now make business connections.
49 **Home Office**
Nosy? Curious? Web tools get the goods on anyone.
51 **Bugs and Fixes**
The challenge of decoding Microsoft security bulletins.
160 **Full Disclosure**
Programs that load as soon as you start your PC.

RESOURCES

16 **How to Contact PC World**
149 **PC World Marketplace**
158 **Advertiser Index**

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Visit www.pcworld.com/pcwinput and rate this issue—you could win an HP Business Inkjet 1100d Color printer, which currently sells for approximately $199. You'll need the subscriber number from your mailing label to take this survey online. The site explains the official rules and also how to participate in the drawing if you're not a subscriber. You can enter from January 8 through February 6, 2004.

COMING UP IN MARCH

Essential Windows Tips: Quick and simple speed tweaks, security checks, and much more.
Hassle-Free E-Mail: We test how well some updated packages handle e-mail and battle spam.
Rebate Ride: Still waiting for that check in the mail? Find out how to negotiate the world of rebates.
Top LCDs: There's no question that your next monitor should be an LCD. We pick the best models.

NEWS & TRENDS

24 **Tokyo Tech Envy**
Many cool new devices, from 1.7-pound subnotebooks to Blu-ray DVRs, are sold only in Japan.
27 **E-Ballots: Will Your Vote Count?**
Millions of Americans will use electronic voting machines in 2004, but advance reviews are mixed.
28 **DVD Burners Spin to 8X**
Drives from HP, Plextor, and Sony show a wide range of improvement over their 4X antecedents.
30 **Time to Switch to a Net Phone?**
Sound quality no longer separates land-line and voice-over-IP services, but other issues remain.
32 **Cellular Nets Reach DSL Speed**
Data services for wireless devices get faster.

NEW PRODUCTS

56 **Digital Cameras**
Sony Cyber-shot DSC-T1, Casio Exilim EX-Z4U, Kyocera Finecam SL300R, Pentax Optio S4, Canon PowerShot SD-10
58 **Notebook PC**
Voodoo PC Envy M:855
60 **Desktop PC**
Gateway 610XL Media Center PC
62 **Remote-Access Software**
Pumatech Intellisync GoAnywhere
64 **MP3 Player**
IRiver IHP-120

See page 57 for a complete list of new products reviewed.

NEXT GEAR

113 **Innovations Awards**
We laud 17 ingenious, groundbreaking products.
118 **Picture-Perfect Camera Phones**
Which handset offers the best-quality photos?
120 **Gadget Freak**
The war over copyright invades the living room.

HERE'S HOW

138 **Hardware Tips**
Install, maintain, and secure a wireless network.
142 **Windows Tips**
Spot hazardous files by learning their extensions.
144 **Step-By-Step**
Install and customize spam-blocking software.
146 **Internet Tips**
Exorcise phantom e-mail addresses in Outlook.
147 **Answer Line**
Keep people off your PC—and out of your files.

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AUDIO AND VISUALS receive lots of attention this month, as we examine next-generation digital cameras, the best in PC sound cards and speaker sets, and a cornucopia of camera phones. In addition, our *Next Gear* section honors 17 visionary tech products with Next Gear Innovation Awards (see page 113 for the story). You'll find complete coverage of each product mentioned here on the pages listed below.

56 Small, Sleek Digital Cameras
The Kyocera Finecam SL300R (left) and the Sony Cyber-shot DSC-T1 are part of the new wave of lightweight, high-resolution minicams.

122 Living-Room Audio for Your PC
Creative's Sound Blaster Audigy 2 ZS audio card and Klipsch's ProMedia Ultra 5.1 speaker set (above) make beautiful music together.

118 Camera/Cell Phone Hybrids
Dual-purpose devices from (left to right) LG Electronics, Nokia, and Samsung invite you to talk or shoot as the occasion presents itself.

THIS MONTH'S CROP OF TOP PRODUCTS

DESKTOP PC
128 Dell Dimension 8300 ★★★★☆
128 NuTrend Kila 2 ★★★½☆

NOTEBOOK PCs
86 IBM ThinkPad X31 ★★★★½
58 Voodoo PC Envy M:855 ★★★★☆
86 WinBook C-120 ★★★★☆

INK JET PRINTER
134 Canon i560 Desktop Photo Printer ★★★★☆
134 HP Deskjet 5850 ★★★½☆

17-INCH LCD MONITOR
114 Dell W1700

22-INCH CRT MONITORS
133 Mitsubishi Diamond Pro 2070SB-BK With SpectraView ★★★★☆
133 NEC MultiSync FE2111SB ★★★½☆
133 ViewSonic P220f ★★★★☆

DIGITAL CAMERAS
136 Olympus C-5060 Wide Zoom ★★★★½
56 Sony Cyber-shot DSC-T1 ★★★★☆

NETWORK CAMERAS
60 Axis 205 ★★★★☆
60 Veo Wireless Observer ★★★★☆
60 Mobotix M1D ★★★★½

MINI-DV CAMCORDER
116 Panasonic D-snap SV-AV100

CAMERA/CELL PHONE HYBRIDS
118 Motorola V600 ★★★★☆
118 Nokia 3660 ★★★½☆

SOUND CARDS
115 Creative Sound Blaster Audigy 2 NX
122 Creative Sound Blaster Audigy 2 ZS Platinum ★★★★½

SPEAKER SYSTEM
126 Klipsch ProMedia Ultra 5.1 ★★★★☆

MP3 PLAYER
64 IRiver IHP-120 ★★★★☆

AUDIO RECORDER/MP3 PLAYER
116 PogoProducts Radio YourWay

NETWORKED MUSIC PLAYER
114 Omnifi DMS1 WiFi Home Digital Media Streamer

GRAPHICS CARD
62 ATI Radeon 9600 XT ★★★★☆

DIGITAL VIDEO RECORDER
114 Pioneer DVR-810H-S

HOME THEATER BOX & SPEAKERS
115 Pioneer HTD-630DV

HDTV SET-TOP BOX
114 Roku HD1000

REMOTE CONTROL
115 Harmony Remote SST-768

HANDHELD GAMING DEVICE
116 Tapwave Zodiac

GAME BOX WITH JOYSTICK
115 Namco TV Games

SYSTEM UTILITY
64 Raxco FirstDefense-ISR ★★★★☆

THE HIGHEST-RANKING new products reviewed in this issue of *PC World* are listed above, together with the page number where each product is reviewed and the star rating it received. See find.pcworld.com/10860 for more about *PC World*'s Star Ratings.

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The FAA is considering lifting its ban on passengers' using wireless devices during commercial airplane flights.

Ten Commandments of Security
find.pcworld.com/39896
Fight off the scourge of nasty viruses, worms, and Trojan horses by incorporating these simple preventive measures into your PC routine.

FEATURED COLUMN

Geek Tech
find.pcworld.com/39911
Columnist and inveterate PC tinkerer Tom Mainelli offers helpful do-it-yourself observations and advice on PC troubleshooting and operations.

E-MAIL NEWSLETTERS

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Best stories of the week.

Daily Product Review
Expert reviews, sneak previews.

Steve Bass's Home Office
Get the most from your gear.

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Award winners from our *Top 100*.

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HIGHLIGHTS

HotSpot Finder
find.pcworld.com/39935
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2.	**Norton AntiVirus 2004**	**85MB**
3.	**SpamCatcher**	**2260KB**
4.	**FreeRAM XP v1.40**	**540KB**
5.	**Fast Defrag Standard v2.02.71**	**496KB**

MOST POPULAR PRODUCTS

At press time, these were the top sellers, by category, at *PC World*'s Product Finder.

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  Canon PowerShot A70
  find.pcworld.com/36512
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  Sony DRU-510A
  find.pcworld.com/35495
- **Digital Voice Recorder**
  Sony ICD-MS515VTP
  find.pcworld.com/39890
- **LCD Monitor**
  BenQ FP557
  find.pcworld.com/39893

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UP FRONT

HARRY McCRACKEN

A Walk on the Linux Side

Got Windows fatigue? Maybe it's time to try another OS on for size.

CALL IT McCRACKEN'S First Law of Operating Systems: A platform's market share is inversely proportional to the passion of its users. Consider...oh, Microsoft Windows, which is the most-used, least-loved OS around. It's not that the typical Windows user *hates* the Operating System That Redmond Wrought—it's just that it isn't the sort of product that inspires folks to slap stickers on their cars or proselytize to friends.

Then there's Linux, the latest in a long line of underdog platforms that seem to be part product, part lifestyle. (Predecessors include IBM's OS/2 and the Amiga, of which I was a wild-eyed partisan myself circa 1987.) Linux users, though relatively few in number, are undeniably passionate about their operating system. And lately, they've been gloating as Windows types wrangle with viruses, Trojan horses, and other gremlins crafted to attack Microsoft products.

FRIENDS OF THE PENGUIN: Longtime Linux devotee Alexandra Krasne and intrigued newbie Edward Albro.

But do penguinheads really have more fun? To find out, we asked a Windows user to deep-six Microsoft for a month. His mission: Get stuff done—both professionally and personally—with Linux and Linux apps. Our report, "The Linux Experiment," starts on page 105.

We found our designated Linux newbie in *PC World*'s own offices, in the person of Executive Editor Edward N. Albro. Ed didn't see himself as a would-be Linux geek. But the month-long experiment has come and gone, and today he's still using Linux because—hey, Mikey!—he likes it.

Opting out of the vicious circle of Windows security glitches and patches is part of Linux's appeal, Ed reports. But it goes deeper than that. Windows and products tailored for Windows, tend to be highly automated. In some ways, that's good. But too often, that automation involves products taking liberties with your PC—whether by adding menus to Word without asking, installing extraneous and unwanted software, or mucking about with your system to prevent software piracy.

In contrast, Ed found, Linux and Linux applications are "do-it-yourself—so you only end up doing the things you want to do." In many ways, he relished that control. Still, mastering a do-it-yourself OS isn't without its challenges, especially since the ungeekly among us may find much Linux documentation to be either superficial or Byzantine. So Ed sought assistance from two of our resident Linux wizards, Editorial Applications Development Manager Matthew Newton and Associate Editor Alexandra Krasne.

Alex's experience shows that Linux fans are made, not born: Three years ago, we asked her to cover a Linux conference—and she asked a nearby editor, "What's Linux?" Today, she marvels at "the open-source community's collaboration effort."

"When there's a problem with Windows," she observes, "you're dependent on one company to fix it. Linux has security problems, too, but people jump in and solve them."

Ed, meanwhile, maintains he's just "the guy in the back of the church, still observing." We'll know he's a convert if he dons a penguin shirt—or puts Linux on his trusty ThinkPad.

As for *PC World* as a whole, it's true that we're focused primarily on Windows products. That emphasis isn't advocacy; it's a response to our reader surveys, which report an unceasing hunger for Windows articles. But lately, those survey results also tell us that readers want meatier Linux coverage. We hear you—and are increasing our attention to Linux, starting with Free Agent, a new online column on the open-source world by Matthew Newton (find.pcworld.com/39809).

FAREWELL TO A FRIEND

THIS ISSUE IS DEDICATED to Yvette B. Joplin, who passed away in December. As our prepress manager, Yvette was one of the invaluable people who turn our content into a useful, tangible magazine and site every month; if you're reading this, you benefited from her work. And we at *PC World* benefited from knowing her—as a colleague and friend—for the past seven years. We'll miss you, Yvette. ■

Harry McCracken is editor of PC World.

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PCW20198001 **$56.00**

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EG365P-VE 350 Watt Power Supply for AMD K7 & Pentium 4 - Retail

ENERMAX

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W0013 Silent Purepower 480 Watt w/ Silver Housing - Retail

PCW17153008 **$60.00**

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EPSON

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PCW28104263 **$300.00**

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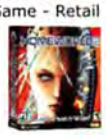

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PCW32133111 **$39.99**

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What's new and what's next in technology

NEWS & TRENDS

EDITED BY RAMON G. McLEOD

INSIDE

26 WHERE TO BUY COOL JAPANESE TECHNOLOGY

27 ELECTRONIC VOTING: IS IT A BOON OR A BUST?

28 DVD BURNERS MAKE THE JUMP TO 8X SPEEDS

30 CHEAPER INTERNET LONG-DISTANCE CALL OPTIONS

32 NOTEBOOKS GET HIGH-SPEED WIRELESS SERVICES

TOKYO TECH ENVY

TOPFLIGHT DESIGN, TINY SIZE, AND LONG BATTERY LIFE ALL SURFACE FIRST IN GEAR MARKETED IN JAPAN. WHY DON'T WE SEE THIS GREAT STUFF HERE?

BY MARTYN WILLIAMS AND ANNE B. McDONALD

ASIAN TECH TREATS (clockwise from left): Sony's razor-thin, light X505 notebook; Sharp's Zaurus SL-C750 PDA; Sony's HVP20 portable video player; and Samsung's Nexio S160 PDA with 5-inch color LCD.

PHOTOGRAPHS: MARC SIMON

YOU'VE GOT techno-lust. You want to be the first to have the hottest technology, the kind that makes coworkers "oooh" and "aahhh." To find the most desirable stuff, though, you need to look east—to the Far East. These days, innovative electronics that make people coo show up first in Japan.

We're talking technology like sexy notebooks so small that you could lose them in an overcrowded backpack, wireless PDAs with glittering 5-inch screens, and digital cameras the size of matchboxes.

Take Sony's newest only-in-Japan notebook, the VAIO PCG-X505, which may be the world's thinnest notebook. This 1.7-pound featherweight, introduced in Japan in December, is less than half an inch thick at the front, causing retailers to joke to customers, "Don't cut yourself!" It also has a 10.4-inch LCD screen and a specially designed 3-inch-square motherboard.

Other examples? Well, while we're working ourselves into a delighted frenzy here in the States about taking adequate photos with our cell phones, Casio is selling Asian buyers its 2-megapixel A5403CA mobile phone—with auto focus and a digital 10X zoom. Was your first digital camera that hot? And forget still photos. Both TV and FM radio features are starting to show up

in some cell phones in Japan.

And as for those DVD burners that Americans can't snap up fast enough, they're last week's sashimi compared to Sony's BDZ-S77 Blu-ray video recorder. This device's blue-violet laser technology lets you cram 23GB—five times the capacity of a DVD—onto a 12-centimeter disc so you can record and view high-definition television at full resolution. Now that's technology!

But it's not impossible for American connoisseurs to get their hands on these only-in-Japan products—and the truly possessed will go to extreme lengths to obtain them.

For instance, Ole J. Jacobsen, a Cisco Systems technical journal editor, often visits Tokyo's giant Akihabara electronics district to window-shop. "If anything is new, it's going to show up there first," he says.

A YEN FOR GADGETS

CAN'T TREK to Tokyo? You still can satisfy your jones for Japanese goodies.

San Francisco technology executive and self-described Japanese-gadget freak John Petrone cruises newsgroups for tips and frequents Web sites such as Dynamism.com, Japan-direct.com, and Kemplar.com looking for electronics and gadgets not released stateside (see sidebar on page 26).

"I just get a thrill from using the latest and greatest piece of hardware," Petrone explains. "However, it wears away, and then you need a new fix."

So what will wow us next? An American analyst who follows Asian technology has a few ideas: long, long battery life; teeny-tiny pocketable PCs; and really big displays.

Imagine your notebook staying fully powered for days, not hours, says Rob Enderle, principal analyst for the U.S. research firm Enderle Group. That's the promise of fuel-cell technology, expected on high-end business notebooks in Japan sometime during 2004. Fuel cells do not run down or need recharging as long as fuel is supplied.

Enderle also believes that truly modular consumer computers could hit Asia in 2004. These full-featured tiny PCs have a core component the size of U.S. hard drive–based MP3 players like Creative's Zen. Each portable rectangle will hold the user's software and data, plus a processor, memory, a hard drive, graphics and audio, and an operating system. Tote this pint-size PC around in your pocket, slip it into a handheld shell for use on the go, and then it plug into a docking station the size of a paperback book to use at your desk. Antelope Technologies, a U.S.-based firm, already sells one online, its $3970 Modular Computing Platform.

GADGETS GALORE (clockwise from upper left): Sony's red MSU-WR1 Wireless Optical Sphere mouse, Sony's MSV-A1 handheld portable TV/video recorder, and Snap's matchbox-size digital camera.

On the monitor front, Asian manufacturing fabrication plants will pump out more wide-aspect displays—including possibly a surround panel, although this may be prohibitively expensive, Enderle says. Look for an increase in the number of 40-plus-inch LCDs, too; prices will start high, but as they lower, big LCDs could crowd large plasma screens—now among the hottest of U.S. electronics—off the market.

And Douglas Krone, CEO of Dynamism.com, a Web site that sells hot Japanese technology, detects a few other trends: serious miniaturization, especially in notebooks; better casing materials such as nickel-reinforced carbon and carbon fiber; integrated 3D screens in notebooks, cell phones, and PDAs; and upgraded wireless capability.

WHO'S ON FIRST?

WHY DO SO MANY innovative products appear in Japan first?

"Japanese consumers are serious technophiles and like to buy gadgets," explains ▶

IN BRIEF

Product Pipeline

HOT ROD: Satisfy your inner Speed Racer with Acer's Ferrari 3000 notebook. This power system features four coats of Ferrari's classic red paint, and comes bundled with a matching red mouse. Under the hood, it has a Mobile AMD Athlon XP-M 2500+ processor, a built-in DVD±R/RW drive, 802.11g wireless connectivity, and four USB 2.0 ports. It has been selling like a hot rod in other countries and should be available in the United States by the time you read this. Pricing starts at $1899. find.pcworld.com/39710

PICTURE THIS: Canon was the first camera maker to offer a digital SLR (single-lens reflex) camera priced at less than $1000–the $899 EOS Digital Rebel. Now, Nikon is readying a budget competitor, the D70, for shipment this spring. Few details are available, but Nikon says that its new digital SLR camera, which is expected to cost $999, will accept interchangeable lenses. find.pcworld.com/39716

SLEEK: Fujitsu's RS18 PC with input devices (left); JVC's MP-XP7310 notebook (upper right), and NTT DoCoMo's Sigmarion III PDA phone.

Roger Kay, vice president of client computing for IDC, a market research firm. Also, Japanese consumers have an even more important trait, according to Kay: "They are far less price-sensitive than U.S. buyers." As a result, Asian manufacturers have more leeway to build well-designed or miniaturized products. "U.S. buyers are more no-nonsense. They want the best deal, the best product for the buck. That attitude tends to stifle innovation here. No one is interested in taking a risk on technology because there's [often] no payoff," Kay says.

Ultimately, this technology gap might mean that U.S. consumers end up with better products, notes Robert Haak, general manager of the Tokyo office of the Asian Technology Information Program.

"We argue the U.S. is getting the leftovers, but that may be good because they are getting second-generation technology after glitches have been removed and the products have been revised," Haak says.

But that's not good enough for Petrone, who says he will continue to browse Web sites and newsgroups to stay ahead of the game. He's already listed some of his current Japanese gear for sale on EBay—to make room for more. ■

SHOPPING GUIDE

SKIP THE FLIGHT: BUY IT HERE

A HANDFUL OF SITES specialize in supplying Asia-only electronics and gadgets to customers around the world. Make sure that you fully understand a site's warranty, shipping, and return policies before you buy.

Dynamism.com: One of the best-known sites for buying Japanese products, Dynamism will install English-language operating systems and keyboards. The site also offers unlimited toll-free phone tech support, e-mail tech support, and a Federal Express-based rescue system, under which a purchaser doesn't pay for returns. On average, buyers pay the Chicago company a 25 percent premium over the Japanese equipment price for these services.

ICube.us: This site will ship purchased products back to the country of origin for repair at the buyer's expense. The Los Angeles-based company provides free shipment for subnotebooks to and from its Japanese service center.

Japan-direct.com: This site, from Osaka, Japan, offers a one-year Japanese domestic warranty and, at a minimum, a basic manual in your language. You must ship a problem product back to Japan-direct for repair.

Kemplar.com: Colorado-based Kemplar warns buyers that product warranties may not be honored in foreign countries, but says it will assist a buyer in shipping a defective product back to the country of origin for repair or in finding a U.S. company that can repair the item.

TKNY.com: Located in New York and Tokyo, this company invites you to order from its online store or to visit its Manhattan storefront. TKNY.com also considers itself an idea lab and hosts periodic gatherings to exchange information on the latest in technology.

–Anne B. McDonald

IN BRIEF

Product Pipeline

CUT THE CORD: Electrovaya claims that its new, lightweight Scribbler Tablet PC SC 2000 can deliver 9 hours of battery life—that's potentially a remarkable amount of unplugged time. The convertible tablet device comes with a detachable keyboard/docking station and features a 1.2-GHz Intel Centrino CPU and a 12.1-inch display. Pricing for the unit starts at $2299. find.pcworld.com/39713

Tidbytes

SPAM Watch DO YOU NEED a virus to take a bite out of spam? We don't advocate using self-replicating code to combat unwanted e-mail, but antivirus vendor Sophos says that spammers were among the individuals most affected by the Sobig-F worm. Among the hardest-hitting viruses of 2003, it deluged e-mail gateways often used by spammers

PLEASE STAND BY: Cellular phone numbers are now portable, thanks to a recent Federal Communications Commission mandate. But consumers eager to retain a phone number when switching wireless carriers are experiencing several technical difficulties, including delays of several days. The FCC has asked AT&T Wireless to explain what is going on.

PHOTOGRAPH (LEFT): MARC SIMON

GOVERNMENT TECHNOLOGY

E-BALLOTS: WILL YOUR VOTE COUNT?

CONTROVERSY SURROUNDS NEW E-VOTING SYSTEMS SET FOR WIDE USE IN 2004 ELECTIONS.

THIS ELECTION YEAR, rather than punching holes or connecting dots on paper ballots, many of us will cast our votes on electronic touch screens.

Electronic voting systems are already in place in eight states and were used in last November's elections. Many more states will use them in this year's primaries and in the presidential election. Good news, right? After all, computers have to be more accurate and less subject to fraud than old chad-prone paper ballots—don't they?

Critics say no, claiming that there are numerous problems with oversight and monitoring of the electronic election process. But change is already under way, including several federal bills that would require some form of permanent and immediate ballot trail, and better security.

SEQUOIA VOTING SYSTEMS makes touch screen e-voting systems, which can use an attachment to allow on-the-spot ballot printing.

AT YOUR FINGERTIPS

THE ACTUAL e-voting process is simple. Before entering the booth, voters receive a unique identifier (a smart card programmed for single use, for example, or a randomly generated number) to activate the process and make sure only one ballot is cast. At the booth, voters typically see an ATM-like interactive screen with candidates' names; then they touch the screen to make a selection—the computer does not let them choose too many. When they're done, voters see a summary screen with their choices, accept it, and press an icon to end their session.

The machines store votes on removable PC cards, where they stay until the polling booth closes. Poll workers can then hand-deliver the cards to a designated place for tallying, or counties can set up secure, direct connections to move the data into a central repository. Companies are secretive about whether such transmissions would go over the Internet, but such a path seems likely in at least some cases.

Before the polls open, the machines provide a printout showing that there has been no voting activity; at day's end, a similar printout shows total activity with tallies. If required, machines can also then print each of the ballots cast that day—though they cannot be traced to an individual.

E-voting advocates point to the many safeguards already built in against fraud and failure, including standardized federal certification of both software code and e-voting hardware by independent testing agencies (ITA). States often do their own review, too.

PROS AND CONS

MOREOVER, THEY say, there are many benefits of e-voting. For example, computers aid disabled voters, by permiting them to magnify screen text or by reading the ballot aloud to them. Multilingual voters can see ballots in any of a dozen languages. Results can be tallied instantly. And military personnel and civilians overseas can vote online, confident that their ballots will count.

So where is the problem? According to Electronic Frontier Foundation activist Ren Bucholz, it comes down to three major things. The federal testing standards date back to 1990, and were only superficially updated in 2000. Government agencies plan further updates to these standards, but that has not happened yet.

Moreover, the ITA reports are not open to the public. The public got its initial view of e-voting code only when an activist downloaded 40,000 pages of documents from an unprotected Diebold Elections Systems FTP server in 2003. That security breach led to reports by Johns Hopkins and Rice University computer researchers about the system's alleged vulnerabilities, which Diebold has challenged.

Lastly, though printing capabilities exist, they're used after polls close. Given that, like any computer, an e-voting machine can fail or be hacked, critics demand an immediate, permanent record of each ballot, reviewable by a voter prior to ballot submission.

Controversy doesn't stop at the mechanics of the process. Diebold chief executive Walden O'Dell said in a letter to Ohio Republicans that he was committed to delivering the state's electoral votes to Bush in 2004 (he also contributed to Bush's campaign). Such remarks raise doubt about the impartiality of e-voting system makers, according to critics. O'Dell has since told *The Plain Dealer*, a Cleveland news- ▶

PHOTOGRAPH: ROBERT CARDIN

paper, that he regrets the wording of the letter and insists that he has no daily involvement with Diebold's election systems division, which he maintains is a model of integrity.

REMEDIES

SOME CHANGE IS already underway. Nevada law now requires that all e-voting machines in the state provide receipts for this year's election. Likewise, California has mandated that all e-votes in the state be confirmed with a paper receipt by 2006. Four other states have established the same requirement—but unlike California, they have not demanded that vendors retrofit existing systems to provide print-outs. Also, a few federal bills have been introduced (namely S.1980, S.1986, HR.2239) that mandate this requirement nationwide.

Kevin Shelley, California's secretary of state, has instituted stricter requirements for testing and auditing voting machine software as well.

The nation's three largest voting machine makers—ES&S, Diebold, and Sequoia Voting Systems—plan to offer paper-audit equipment; Sequoia's systems are ready now.

And e-voting companies are taking security concerns seriously. Six of them, along with the Information Technology Association of America, formed the Election Technology Council. The ETC plans to write an ethical code for e-voting companies, and to review security procedures.

Even e-voting's most ardent critics acknowledge that election fraud is as least as old as the Republic. They are working not to block adoption, they say, but to ensure that e-voting systems are secure and reliable, and allow for independent recounts. The ETC and forthcoming paper receipts should help serve that goal.

—Janet Rae-Dupree ■

OPTICAL STORAGE

DVD BURNERS SPIN TO 8X

HEWLETT-PACKARD, PLEXTOR, AND SONY DEBUT NEW DRIVES.

THE NEVER-ENDING quest for truth, justice, and faster DVD speeds continues with new burners that can write at up to 8X. We tested three of the first 8X DVD+R drives—from Hewlett-Packard, Plextor, and Sony—and found that the speed improvements varied from super to so-so depending on the drive, the software we used, and the size of the file we tried to write.

At press time, 8X burning was limited to DVD+R; drives with DVD-R, the competing write-once format, will begin shipping as you read this. Pioneer's DVR-A07 should be the first of these out of the gate.

In our DVD burning tests, we saw a wide range of performance differences, from negligible to a 30 percent boost over the 4X iteration of the same vendor's drive (see the test report at left). Sony's $250 DRU-530A showed the least improvement over its 4X sibling, the DRU-510A. And neither of its write times approached those of the $200 HP DVD-Writer DVD400i or Plextor's $320 PX-708UF, a stylish, external USB 2.0 and FireWire burner (the internal model costs $220).

Each drive's specific mechanical design and firmware may help account for the performance gap. All three burners use constant linear velocity (CLV) to write to disc, starting at a slower speed before jumping to the maximum 8X write speed. Sony's drive doesn't jump to 8X (from 4X) until you have written more than 1.25GB of data; by contrast, Plextor's unit jumps at 700MB (from 6X), and HP's does so at 400MB (from 6X). According to Sony, however, if you burn a full 4.7GB disc, you'll see a greater performance boost in the DRU-530A over the older model; we saw about a 25 percent jump in our full-disc tests (not reported in the chart).

Distinctions such as those above underscore how companies are still fine-tuning DVD burning technology—and how an X-rating can be misleading. Don't expect vendors to stop using ratings: They are the main way that users currently make buying decisions, says Wolfgang Schlicting, director of research at IDC. But they sure aren't bulletproof.

—Melissa Perenson ■

PLEXTOR'S $320 external 8X DVD burner, the PX-708UF.

PHOTOGRAPH: MARC SIMON

TEST REPORT

THE 8X PERFORMANCE EDGE

RESULTS ARE VARIED, but Plextor is the clear winner: Its 8X model outperformed both its 4X predecessor and its 8X rivals.

DEVICE	Rated speed	TIME (IN MINUTES:SECONDS) REQUIRED TO: Write MPEG2 movie to DVD+R	Write 1.2GB of data to DVD+R
HP DVD Writer Dvd400i find.pcworld.com/39659	8X DVD+R	3:34	3:22
HP DVD Writer Dvd300i	*4X DVD+R*	*3:59*	*4:24*
Plextor PX-708UF find.pcworld.com/39662	8X DVD+R	**2:59**	**3:00**
Plextor PX-508UF	*4X DVD+R*	*4:03*	*4:16*
Sony DRU-530A find.pcworld.com/39665	8X DVD+R	5:04	4:58
Sony DRU-510A	*4X DVD+R*	*6:51*	*5:04*

TEST Center **CHART NOTES:** Items in italic are older comparison units. Best scores in bold. See find.pcworld.com/39659 for details on how we test.

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CONSUMER ALERT

TIME TO SWITCH TO A NET PHONE?

CUTTING YOUR LAND LINE MIGHT SAVE CASH WITHOUT COMPROMISING ON QUALITY.

TALK IS CHEAP—cheaper in some cases than with land-line or cell phone plans—if you opt for one of the many Internet phone services. Voice-over-IP services offer better quality, wider choices, and more-competitive prices than ever before (see chart). And now big players, including AT&T, are getting into the home market.

Our tests found VoIP call quality as good as a trustworthy phone line, thanks to new technology. But you may lose such benefits of a regular phone as quick access to 911. And for VoIP to be practical, you will need a broadband connection. (AT&T's recently announced home service was not available for us to test.)

VARIED METHODS

YOU'LL FIND different flavors of IP phones for home and small-business use. With software-based services like the ones Net2Phone and WebPhone offer, you talk into a microphone. Hardware-based options like Vonage's Phone Adapter and 8x8's Packet8 let you plug an adapter directly into your cable/DSL modem and then into your existing telephone handset. Or you can plug a gizmo into your PC's USB port and join a calling club, in which calls are free worldwide among customers.

In our limited tests, call quality was generally impressive, and the recipients of our calls couldn't tell that we were yakking over the Internet. Still, software-based VoIP occasionally made us sound as though we were talking on a juice-deprived cell phone.

NO PC NEEDED

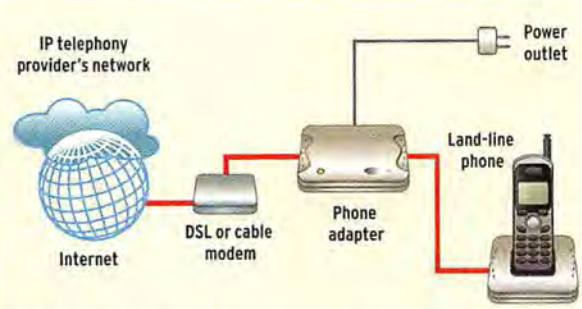
BASED ON our testing, the most convenient type of IP phone is the hardware adapter setup that companies like Vonage and 8x8 offer. You don't even have to boot your PC; simply reach out and touch the keys on a regular telephone.

Dr. Vijay K. Bhagavath, a Forrester Research telecom analyst, agrees that the hardware option is more robust. But he says he would like to see Internet phone companies take greater advantage of the Internet connection.

"These companies need to add unique features that are fully integrated with the Internet," Bhagavath says. He suggests offering online presence features, and enabling users to initiate calls by clicking an e-mail address.

That said, the adapter option appears to be the most viable replacement if you're contemplating deep-sixing your Baby Bell, or if you've gone cellular-only but regret having lost a fixed line. Hardware-based services handle data switching inside the box (see infographic), and are less susceptible to choppiness and dropped calls. Since software-only services rely on the Internet to dispatch the voice packets, they work best as a secondary alternative. Oh, and you might have to futz with your microphone or your PC headset. That part still isn't as simple as picking up the phone.

—Aoife M. McEvoy ■



HOW A TYPICAL INTERNET PHONE WORKS
The adapter's circuits convert your voice (analog signal) into digital voice packets and route these packets over the Internet on the IP telephony provider's private network. Packets must pass through another gateway if destined for a standard phone.

TELECOM TURMOIL: Visit find.pcworld.com/39614 for the latest details about the big debate over regulation of Internet telephony.

REPORT CARD

VOICE OVER IP SERVICES

CHECK CAREFULLY—different plans serve different customer needs.

INTERNET PHONE SERVICE	Required equipment	Price structure
8x8 Packet8 www.packet8.com	Adapter, phone	$20/month, unlimited domestic calls
Aico Systems TalkPro www.aicosystems.com	Phone set	$110 to $170 hardware; TalkPro-to-TalkPro calls free
Callserve www.callserve.com	Headset, microphone	$25/month for 600 minutes (approximately 4¢/minute); fees for overseas
Dialpad www.dialpad.com	Headset, microphone	$7.50/month for 300 minutes (2.5¢/minute); no international
Five Star Telecom Earthphone www.fivestartel.com	USB adapter	$110 to $220 hardware; Earthphone-to-Earthphone calls free
Net2Phone www.net2phone.com	Headset, microphone, adapter, phone	2¢/minute domestic; 4 cents (and up) international
Vonage Phone Adapter www.vonage.com	Adapter, phone	$15/month for 500 minutes (3¢/minute); 5¢/minute international
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PC Magazine 16th Annual Reader Survey — Service and Reliability: Rated "A"

1. Wireless connectivity and some features may require you to purchase additional software, services or external hardware. Availability of public wireless LAN access points limited. 2. Battery life may vary depending on product model, configuration, applications, power management settings and features utilized. Recharge time varies depending on usage. Battery may not charge while computer is consuming full power. After a period of time, the battery will lose its ability to perform at maximum capacity and will need to be replaced. This is normal for all batteries. To purchase a new battery pack, see the accessories information that shipped with your computer or visit the Toshiba web site at www.accessories.toshiba.com. The 10.8 hours were achieved via additional SelectBay® battery. Tecra and SelectBay are registered trademarks, and ConfigFree is a trademark of Toshiba America Information Systems, Inc. and/or Toshiba Corporation. Intel, Centrino, Intel Inside, the Intel Centrino logo, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries. Product specifications, configurations, prices, system/component/options availability are all subject to change without notice. Reseller pricing may vary. © 2003 Toshiba America Information Systems, Inc. All rights reserved.

3G UPDATE

CELLULAR NETS REACH DSL SPEED

AT&T AND VERIZON INTRODUCE HIGH-SPEED WIRELESS DATA SERVICES FOR LAPTOPS, PDAs.

WANT A VERY high-speed network that lets you use your notebook to go online practically anywhere you have cellular coverage? Done—at least for some of us.

Though new high-speed services from AT&T and Verizon Wireless don't quite fulfill the promise of so-called 3G (third-generation) cellular networks to combine DSL-grade speeds with the ubiquity of cell phone service, each constitutes a major move in that direction.

Do they spell doom for Wi-Fi hot spots? Not yet; They're too costly and slow. But 3G networks bear close watching.

SPEEDY BUT SPARSE

VERIZON WIRELESS offers its EVDO (Evolution Data Only) service only in Washington, D.C., and San Diego, but it has the fastest download speeds we've seen on a cell network.

Verizon pegs EVDO's typical download speeds at 300 to 500 kilobits per second, with bursts of up to 2 megabits per second. In my tests in San Diego, speeds ranged from 180 to 300 kbps, with bursts of 500 kpbs or more. That's considerably faster than the 10 to 50 kbps I saw outside EVDO coverage.

I used the Verizon Wireless PC 5220 EVDO modem card ($250 before a $100 mail-in rebate). A nice plus: The card is compatible with Verizon's nationwide NationalAccess network (using older CDMA 2000 1x technology) and, in the absence of EVDO, reverts seamlessly to it.

Verizon charges $80 per month for unlimited data-only services (voice not included), regardless of whether you're on the EVDO or the slower network. Verizon has not announced plans to expand its EVDO service, however.

PC CARDS from Verizon (left) and Sony Ericsson connect your laptop to fast cellular networks.

WIDESPREAD EDGE

AT&T'S EDGE (Enhanced Data for Global Evolution) data-only service is slower—AT&T touts average speeds of 100 to 130 kbps with bursts up to 200 kbps—but available throughout its GSM/GPRS network.

In my tests using a Sony Ericsson GC-82 EDGE PC Card modem in San Francisco, I generally saw speeds of 80 to 150 kbps. Performance was even faster with the included compression utility set to its highest level. The card is $250. You can get a $100 mail-in rebate if you sign up for a two-year unlimited-use plan at $80 a month; but you can pay as little as $30 a month for 10MB of traffic.

Other carriers will speed up, too (see chart). Sprint, which uses CDMA technology, will probably switch to EVDV (Evolution Data Voice) around 2006. Unlike Verizon's EVDO, EVDV improves voice and data networks.

Cingular's EDGE service launched in 2003; T-Mobile will debut its service later this year. The next step for GSM/GPRS is UMTS (Universal Mobile Telecommunications System). It will permit speeds of up to 2 mbps eventually. AT&T says it will launch UMTS service in several cities later in 2004.

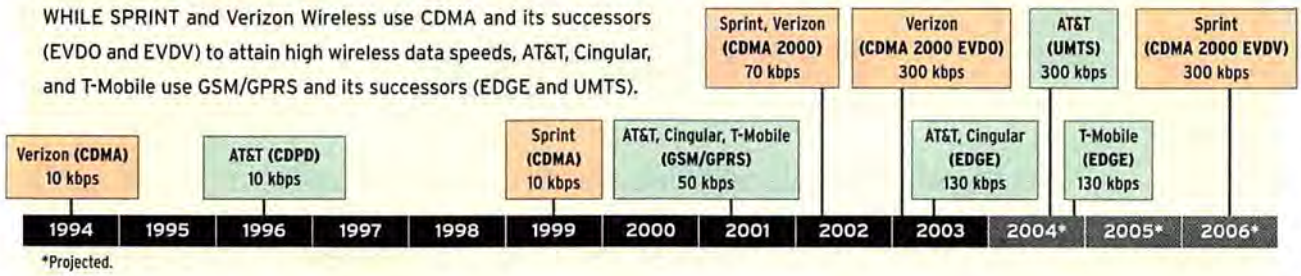
For the present, people who need wireless Internet access intermittently are better off using Wi-Fi hot spots, which are faster (up to 11 mbps for 802.11b, 54 mbps for 802.11a and .11g) and cost less than competing cellular services. As faster cellular services become more widely available, however, travelers who need ubiquitous Net access will find them increasingly attractive.

—*Yardena Arar* ■

TIME LINE

HIGH-SPEED CELLULAR: SLOUCHING TOWARD 3G

WHILE SPRINT and Verizon Wireless use CDMA and its successors (EVDO and EVDV) to attain high wireless data speeds, AT&T, Cingular, and T-Mobile use GSM/GPRS and its successors (EDGE and UMTS).



*Projected.

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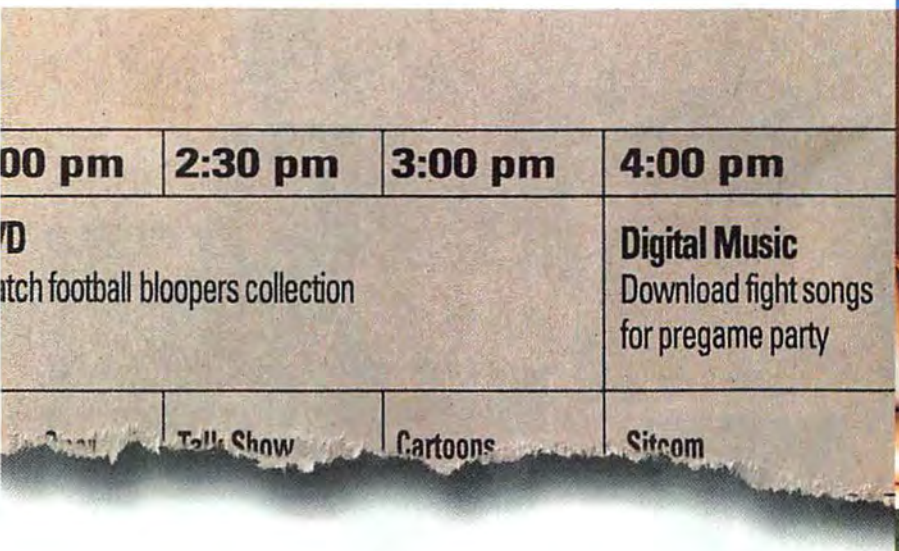

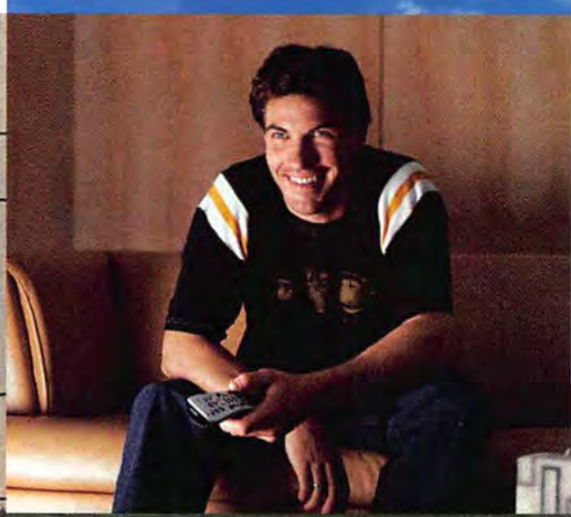

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LETTERS

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WHO'S TO BLAME FOR LOW QUALITY? | YOUR CONVERT-AND-COPY RIGHTS | AN ALTERNATIVE TO SIRIUS

RELIABILITY AND SERVICE

AFTER READING your "Reliability & Service Report Card" [December], I feel relieved that no one company has reached rock bottom in the desktop field, unlike in a few previous surveys. However, I blame consumers for the fact that service and reliability are mostly middling. Since most home users are not willing to pay extra for a PC that is backed with highly competent service and with excellent components, there is a tendency toward a race to the bottom among manufacturers. So before people start complaining, perhaps they ought to ask themselves whether they are willing to pay more for premium quality and for knowledgeable tech support. Right now, I think that the answer is no.

Dan Li, via the Internet

I CANNOT AGREE with you more about the poor tech support of HP and Compaq.

For several weeks, I have had an inoperable HP notebook because of serious problems I encountered with the restore CDs for Windows XP that I paid for.

I called and spoke with Chinese, with Indians, and intermittently with some Americans too, and by now I know many sales and tech support reps by name. I have spent hours on the phone giving over and over again my name and telephone number, my credit card's last four digits (sometimes the first four digits), my order number, the CDs' part numbers, and all other numbers possible.

A few days ago, support reps said they had "escalated" the issue and would call me back with a solution. I'm still waiting.

Tom Bessamra
Goose Creek, South Carolina

SATELLITE RADIO DEFENDED

REGARDING Dan Tynan's "Satellite Radio A-Go-Go" [*Gadget Freak*, December]: I don't understand his attitude. He states that Sirius radio is "bland and ultimately unsatisfying" and that its "heavily niche-oriented programming leaves no room for random weirdness—you'll never hear Alice Cooper, Alice in Chains, and Allison Krause in the same mix." But isn't that the point? If you feel like listening to Alice Cooper, you just press a button, and—ta-da!—you're listening to seventies music. Ready to hear eighties music? Press another preset, or spin that dial a few clicks, and there you are.

S. Gill, Clearwater, Florida

I HOPE TYNAN will try XM Satellite Radio before he makes a blanket statement about the medium. XM has spontaneity, DJ personality, and a much wider mix of music and choice than Sirius, with nine or ten more music stations than Sirius has. The nineties station, for example, has a very colorful cast of DJs with *live* people talking to live listeners.

Stephen Shorkey
Rio Rancho, New Mexico

HOT BUTTON

Many Answers to Big Blue Riddle

REGARDING THE Nagging Question "Why Is IBM Called Big Blue?" [*Plugged In*, December]: Well before the advent of the PC, IBM was called Big Blue—especially by the financial community—because it was a blue chip stock (stable and reliable) for a long time. In poker, blue chips are the highest-value denomination.

Richard Siegel, President, PS Magna

I WORKED FOR 30 years for an IBM rival. We often referred to IBM as Big Blue as far back as the early seventies. IBM computers were indeed "big" and "blue." You could spot one instantly by its blue color.

Jim Long, via the Internet

WHILE OTHER companies were going mostly business-casual in the eighties, IBM stuck to the suit-and-tie dress code—specifically, a navy blue suit, white shirt, and red tie. A meeting with IBM looked like a sea of blue, hence the nickname.

Mike Rarick, via the Internet

"BIG" COMES FROM market share and company size. "Blue" is the official color of the eight-bar IBM logo. At www-1.ibm.com/ibm/history, you can get some background on the 92-year-old company.

Dennis Gerson, via the Internet

Author's response: I've gotten more mail on this than on any previous *Plugged In* item. I did a good bit of research and went with the most frequently cited explanations (blue logo and blue computers), but a definitive answer may remain elusive.

–Steve Fox

PHOTOGRAPH: RICK RIZNER

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DO-IT-YOURSELF COPY RIGHTS

I MUST DISAGREE with a point in December's *Consumer Watch* ("To Copy or Not to Copy?"). Anne Kandra states, "If you want [music] in a different format, you have to pay. That's why owners of eight-track tapes couldn't go into stores and grab CDs of the same music for free."

But users can convert from one format to another without paying, as she notes in other examples; they just have to do it themselves. If owners of eight-tracks connect the player to a PC, they can legally digitize old tapes and burn them onto CDs.

Alan Zisman, via the Internet

TIPS, TIPS, AND MORE TIPS

A READER IN the December issue complained about the number of tips issues over the last 12 months. My feelings are exactly the opposite—I subscribe to *PC World* because of the operating and security tips! More tips, more often!

Bill Bryce, Ymir, British Columbia

PC World *welcomes letters to the editor. We reserve the right to edit for length and clarity. Send e-mail to letters@pcworld.com.* ■

CORRECTIONS

IN JANUARY'S "The Art of the Deal," the URL for tips on online auctions (in the box on page 112) should have been find.pcworld.com/39188.

In December's "Fun Tech," the item on the SnapStream Personal Video Station 3 should have listed the price as $180; the software alone (for buyers who already have a TV tuner) is $80.

A December *New Products* review should have stated that Surado Solutions' Smart Contact Manager Pro 4 does not include third-party report-customizing software.

December's *In Brief* (page 31) should have identified Sharp's 15-inch wireless LCD TV as the Aquos LC-15L1U-S.

November's *Top 100* Spotlight on graphics boards should have said that the ATI All-In-Wonder 9800 Pro card's features do not include an FM tuner.

PC World regrets the errors.

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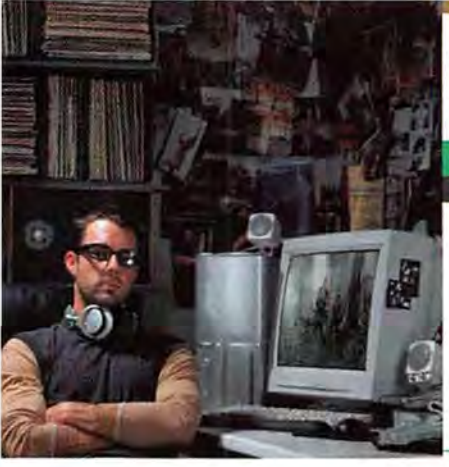

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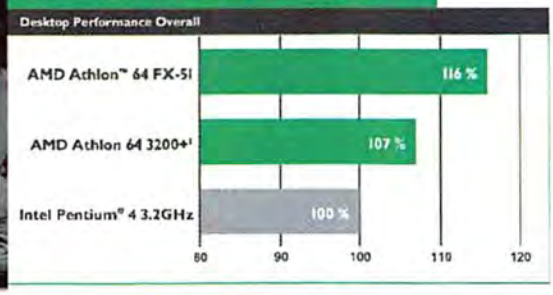

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PLUGGED IN

STEVE FOX

New and Nasty Ways to Get Spammed

Plus: Telephones tackle television, and Sun tackles Microsoft.

1 Resistance Is Futile

The Buzz: Brace yourself for spim, or unsolicited instant messages. Spim puts a new spin on spam: It pops up, uninvited, in your IM client. What a shame—one of the last preserves for friends, family, and coworkers is being overrun by hecklers, hustlers, and hawkers.

Potentially more troubling, SMS (short messaging service) spam is already epidemic in Europe, where text messaging is ubiquitous. As SMS prepares to jump the pond, so will SMS spam. And it threatens to cost you real money, since some carriers charge several cents per text message received—spam included.

But wait, there's more. Let's say you're sipping a double espresso at the local café when an anonymous message—maybe "Having a bad hair day?"—appears on your Bluetooth-enabled cell phone. You've just been BlueJacked. Here's how it works. The BlueJacker enters a crowded place, toting a Bluetooth-enabled gizmo (such as a phone), which identifies all other Bluetooth-enabled devices within a 30-foot radius. The jacker then chooses a victim, creates a snarky message, hits *Send*, and watches the recipient for a reaction. Technically, it may not be spam, but it sure is annoying.

Bottom Line: Kinda makes you long for the good old days of garden-variety spam.

2 Really Small-Screen TVs

The Buzz: The small screen is now a lot smaller, thanks to a $10-per-month service called MobiTV that streams television programming from ABC, MSNBC, and 13 other networks to select Sprint mobile phone models. Though the audio is continuous, the video maxes out at a choppy 2 frames per second.

NEC, Samsung, Sanyo, and others are simply building TV receivers—as well as rabbit-ear antennas—into phones. The devices will hit Asian markets first and should reach the U.S. sometime this year. When they do, expect frequent battery changes and lots of antenna twiddling.

Bottom Line: MobiTV is clearly a first-generation product. I recommend it only for limited use, such as reruns of that old sitcom *One Frame at a Time*.

3 Here Comes the Sun Desktop

The Buzz: The Java Desktop System, a new Linux-based operating system from Sun Microsystems, boasts the kind of whizzy interface effects that a Mac-head would envy, while still looking familiar to Windows users. Combined with the open-source StarOffice app suite, the Mozilla browser, and sundry Java-based goodies, the $100-per-year JDS offers a tempting alternative to Windows.

SUN'S LINUX-BASED Java Desktop System.

Bottom Line: Don't fool yourself: Windows will remain end users' OS of choice. But bottom-line–conscious corporate bigwigs looking to deploy desktops across large organizations could give Microsoft a case of the Java jitters. ■

Contributing Editor Steve Fox covers buzzworthy products, ideas, and trends. Contact him at steve_fox@pcworld.com. Visit find.pcworld.com/31643 for more Plugged In.

NAGGING QUESTION

When Is Most Spam Sent?

SUNDAY MAY BE a day of rest for legitimate e-mailers, but not for spammers. According to antispam giant Brightmail, e-mail volume builds throughout the workweek, with the greatest number of messages (both real e-mail and junk) sent on Thursday or Friday. Legit e-mail messages plummet on the weekend; sadly, spam doesn't drop as much. So although the largest amount of spam gets sent on Thursday or Friday, spam outnumbers legitimate messages by the greatest margin on Sunday. Now you know why your Monday morning mailbox crawl feels like a trip to Spam Central Station.

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Can You Profit From Online Networking?

Social networking sites are hot. And they can be useful business tools.

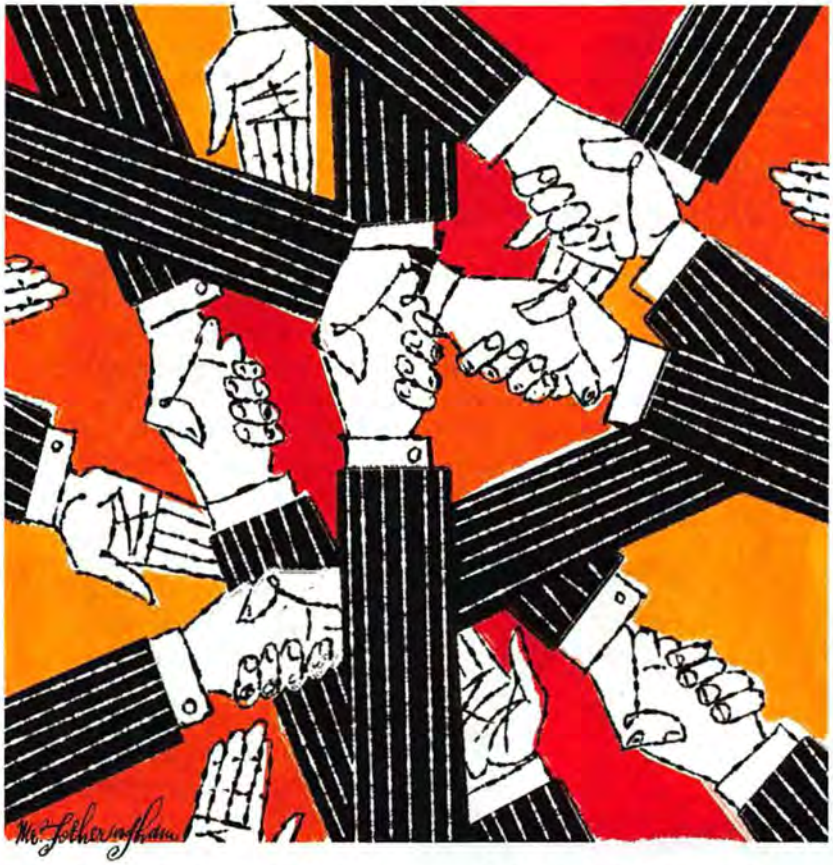

ILLUSTRATION: EDWIN FOTHERINGHAM

IT'S NOT WHAT YOU KNOW, but who you know. A cliché, sure, but it's true. Whether you're pounding the pavement for a new job or looking to hire a reliable contract employee, the wider your social circle, the better your chances of hooking up with someone who can help you out. But what if you've called, e-mailed, met, followed up with, and all but sent singing telegrams to everyone you know on the planet, and you're still coming up empty?

If the folks at Ryze, LinkedIn, and other social networking sites have anything to say about it, your next step—or better yet, your first—will be to fire up your browser and start schmoozing. Fueled by a stagnant job market, online social networking is an idea that's generating some buzz among job seekers as well as other users. At least a dozen new networking sites with names such as ZeroDegrees.com, Tribe.net, and Spoke.com have cropped up in the past year alone.

Like Friendster—the breakout hit in social networking—the sites are based on the "six degrees of separation" principle (that's right, the same one that places actor Kevin Bacon at the center of humanity). But unlike Friendster, which is dedicated mostly to finding a date, many of the latest sites have a business focus.

Here's how it works. You join a site by creating a personal profile that includes whatever information about yourself you want to share with untold numbers of strangers—er, fellow members of the site. (None of the sites I examined list your contact information directly on the site without your permission, so your privacy is somewhat protected.)

The next step is to e-mail your friends and associates, inviting them to set up their own profiles. Each person who accepts your invitation to join then becomes a member of your personal network, and thus is one degree away from you.

GROW YOUR NETWORK

AS THE MEMBERS of your network solicit their own friends and colleagues to join, your network grows exponentially. And according to the theory at least, so do your chances of finding someone who can help you land your dream job, recommend a perfect candidate for an opening at your company, or point you toward a useful business contact. Once you find the right person or people, you can communicate with them through the network.

The essential benefit of networking sites, say advocates, is that they provide an inherent filtering system, since the only people invited to join your network are your trusted friends, their trusted friends, and so on. "It lets people build an international network without flying all over the globe," explains Adrian Scott, founder of pioneer site Ryze.com.

While all the sites are based on the ▶

same basic concept, they differ—often widely—in focus and in operation. To take full advantage of some sites, such as the executive-oriented LinkedIn.com, you must be invited by a current member or commit time to building your own personal network. Other sites let you see all members as soon as you join.

Each of the sites I looked at offered free memberships, although a few were vague about their plans to charge for future service, and some already charge a small fee—typically, about $10 a month—for service including more-advanced search features or an expanded member list. LinkedIn is considering a plan that would charge a finder's fee based on connections or hires made through the service.

If you're a highly organized, targeted job seeker or employer and know what you're looking for, LinkedIn may be the place to start expanding your network. Described by a competitor as "the country club of networking sites," the service has a straightforward, no-nonsense feel and a clear respect for users' privacy. To contact another member, you must send a request via the personal connections you share with that person; those connections can decide whether to forward or reject the request (anonymously if they choose).

Ryze.com, which calls itself a "business networking" site, takes a far more open, discussion-oriented approach. Each site member builds a personal home page—effectively an online résumé that may include the member's employment history, company affiliations, educational background, and even photos and written references. Each member's home page also includes a "guest book," where visitors are encouraged to leave messages and initiate introductions and discussions.

Ryze lets members easily browse its entire membership by name, company affiliation, industry, or title. Ryze supplies dozens of message boards and forums, with themes ranging from parents working at home to EBay enthusiasts.

Keep in mind that online social networking is a relative newbie to the Web.

PRIVACY WATCH

Gain Extra Protection With Adware Scanner Secrets

MY TWO FAVORITE free adware scanning programs, Spybot Search & Destroy (find.pcworld.com/28403) and Ad-aware (find.pcworld.com/26561), do a great job of cleaning out adware, cookies, and other junk left behind by advertising sites. (*Adware* is software that generates pop-ups and sometimes tracks your Web browsing.) But they can do much more: Both offer some rarely discussed features to help you block a multitude of annoyances, defend the privacy of your data, and speed up Web browsing. Here are some of my favorite advanced features you may never have tried.

Turn off Windows Messenger Service: For some time, spammers have been using the Windows Messenger Service (an administrative feature not to be confused with instant messaging applications) to send little pop-up ads to computers running Windows XP or 2000. The Messenger Control plug-in for Ad-Aware allows you to disable this annoyance quickly. Go to find.pcworld.com/39062, click the *Download Now* button at the bottom of the page, and open the download in order to install the plug-in (you need to install Ad-aware first). Next, open Ad-aware and click the *Plug-ins* button, double-click *Messenger Control Plug-in*, then click *OK* in the dialog box that appears. In the Messenger Control Plug-in's dialog box, click the *Disable Messenger* button to turn off this service.

Find out whether your browser has been hijacked: If you're getting pop-up ads even when your browser isn't running and your system seems extremely unstable, an advertiser may have hijacked your browser. (Go to find.pcworld.com/39104 for more about this phenomenon.) To find out, run Spybot in Advanced Mode: Click *Start•Programs•Spybot Search & Destroy•Spybot S & D (advanced mode)*. Click the *Tools* button in the left pane to open the advanced utilities. Check to see what's listed when you click the *ActiveX* and then the *BHOs* buttons: Those categories of browser plug-ins or applets are where the programs involved in many browser hijackings reside, hidden from view. Any item with a large red *X* next to it signifies that the program is known spyware, and you can run a full Spybot scan to get rid of it.

Pull the plug on ad sites: Spybot can block your computer from contacting the servers run by ad companies. As a result you'll get fewer pop-up ads, and many of those you do get will be blank windows. This also makes it considerably less likely that an unscrupulous ad company could take over your browser. Your Web browsing will be quicker, too. Start Spybot in Advanced Mode, and click *Tools•Hosts file* in the left pane. At the top of the window, click the button labeled *Add Spybot S&D Hosts list*, and then be patient—it can take about 5 minutes for the program to complete this step.

Block adware from installing itself without your knowledge: In three mouse clicks, you can keep virtually all adware from installing itself in Internet Explorer. Once you've done a full system scan with Spybot, click the *Immunize* button in the left pane. In the window that opens, click the *Immunize* button, then the *Install* button just underneath it, and select the check box labeled '*Lock Hosts file read-only as protection against hijackers.*' Note: If you plan to use the preceding tip on blocking ad sites, make sure you've followed its steps first before using this one. *–Andrew Brandt*

ILLUSTRATION: EDWIN FOTHERINGHAM

Many—if not most—networking sites, including LinkedIn and Friendster, were still in beta testing at press time; and in some cases, they were still searching for a reliable way to make money. Before you send your personal stats anywhere, read the site's privacy statement and user agreement (or terms of service).

There's little doubt that the Internet is an ideal networking tool. If you're careful about the sites you use and thoughtful about the connections you make, you might find that in your next job search, your browser is your best friend. ■

Anne Kandra is a contributing editor and Grace Aquino and Andrew Brandt are senior associate editors for PC World. *You can e-mail them at consumerwatch@pcworld.com. If you'd like to read previously published* Consumer Watch, Privacy Watch, *or* On Your Side *columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.*

ON YOUR SIDE

Spill Voids Entire Laptop Warranty

I SHIPPED MY daughter's HP Presario 1800XL notebook to Hewlett-Packard for a variety of repairs—the hinges on the screen were broken, the arrow keys were malfunctioning, and there was a screeching noise during start-up. A couple of days later, a tech-support rep told me the arrow keys didn't work because a beverage had seeped inside the keyboard. He said that accidental damage wasn't covered in my extended warranty and that the repairs would cost $300. I asked him not to fix the keys but to repair the other problems (especially the hinges) that were covered. He said this couldn't be done unless I authorized and paid for the keyboard repairs first. This seems like a strange policy.

Dinesh Patel, San Diego

On Your Side responds: HP spokesperson Jim Kemp said that HP's policy is not to perform any repairs covered under the warranty if there is also accidental damage that is not covered. But after we contacted the company, HP made an exception and fixed Patel's Presario for free.

Warranties can be extremely complicated beasts. Before purchasing a product or an extended warranty, ask the salesperson to explain the policy and provide a written copy. Especially for notebooks, consider getting an insurance plan that covers accidental damage. Many insurance companies offer plans specifically for PCs. In addition, some credit card companies offer extra protection for purchases, though usually at a higher cost.

–Grace Aquino

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HOME OFFICE

STEVE BASS

Learn (Almost) Anything About Anybody

But protect details about yourself from others trying to dig up details about you.

HEY, DAVE! How's everything in Prairie du Sac, Wisconsin? Still playing the banjo when you're not working as a marketing manager or volunteering at the nature center? No, we've never met, but you sent me an e-mail a while back, and I did a little online snooping based on your e-mail address. I found out plenty about you, and about your wife.

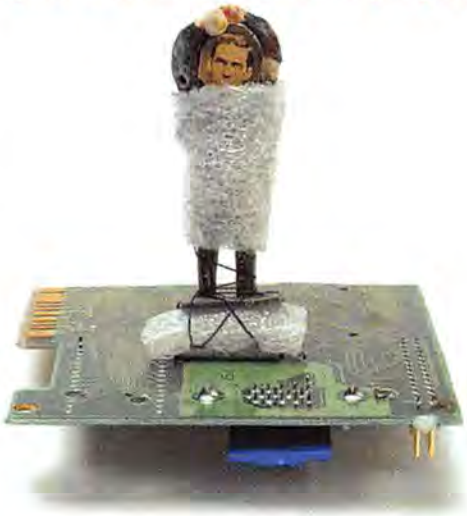
Frightening? You bet. If you use e-mail, anyone can profile you with nothing more than your e-mail address, the Internet, a browser, and a little detective work. But there are ways to protect yourself—and your identity—from online sleuths.

To avoid being slapped with a lawsuit while demonstrating how people-finding Web sites work, I got the goods on a real person but changed his name and modified the data so he couldn't be recognized. I chose "David" at random after he wrote to me asking about a watch I had for sale on EBay. By the time I finished, his dossier was a page long and loaded with juicy private details. You might want to use my snooping techniques to check up on a new client or business associate—or to see what they can dig up on you.

TELLING E-MAIL

DAVID'S ISP LOOKED like a regional company, so I plugged the domain name into www.samspade.org and learned that it is based in Merrimac, Wisconsin. **Privacy Tip Numero Uno:** Use an obscure, Web-based address, such as '209fos40@excite.com', to keep your location private.

With this Wisconsin lead, I searched Google for David's name. Remember the watch he wanted to buy? I added "watch" to the Google search, and I learned from a message forum that David collects old timepieces. I also found out that he's in a ragtime band, and that he's the marketing manager for a local publishing company.



Next I looked for David's street address at two free locator sites: ypng.infospace.com and www.411locate.com. Both offer reverse phone number lookup and e-mail address searching. Three other sites to try are www.anywho.com, www.search.com, and www.freeality.com/finde.htm.

Jackpot! David's address in Prairie du Sac, Wisconsin, was listed. I did another Google search on just his last name and city, and I learned that David's wife is a dermatologist who volunteers at a nature center with—guess who?—David, further confirming that I had the right guy.

You can't eradicate everything about yourself on the Internet. But here's **Privacy Tip Numero Duo:** Give Web sites e-mail aliases and fabricated personal information when possible. If you see your name on a Web site, ask to have it removed. Go to find.pcworld.com/38930 for more primo privacy tips from last November's "Great American Privacy Makeover."

But what if you're looking for a person who you think wants to be found? I tried to track down a high school buddy—call him "Sam." I was hoping to find his e-mail address and maybe a street address and phone number. My first stop was the Meta E-Mail Search Agent (find.pcworld.com/38936), a site for hunting down e-mail addresses. Finding such addresses that included Sam's name was easy; finding the right one from the ten that were listed in MESA's search results took some digging.

USE YOUR CLUES

ANY DETAILS YOU know about the person you're searching for are valuable. For instance, I knew that Sam was a jock in high school, and that he graduated in 1964. I searched for his name at Google and included each of the MESA e-mail addresses, one at a time. Only one of the Sams had a sports background (he's a volleyball coach). This Sam lives in Florida and sells insurance. I clicked the volleyball team's link in the search results, and the brief bio on the page showed that this guy was raised in the same city as me.

I really hit pay dirt when I found Sam's birth month and year, along with his business address, in a listing of Florida insurance agents at www.searchsystems.net. This site offers public records from every state, including court records.

I'll tell you about the paid find-anything sites I tested in my online newsletter. Go to find.pcworld.com/38942 to sign up. ■

Contributing Editor Steve Bass is the author of PC Annoyances, *published by O'Reilly (ISBN: 0-596-00593-8). Contact him at homeoffice@pcworld.com.*

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BUGS & FIXES

STUART J. JOHNSTON

Microsoft's Help System Needs Help

Microsoft's bulletins leave a lot to be desired. Here's how to find answers.

I'VE BEEN WRITING about PCs for more than 20 years. So you'd think I'd have this technical stuff down pat. But as I research Microsoft security flaws month after month, I often scratch my head trying to figure out what the company's bulletins really mean.

Microsoft offers you two ways to learn about each newly discovered security flaw through its bulletin summaries: You can read the end-user version or the technical version. (Microsoft recently reorganized the way that it presents patch information; see last month's *Bugs and Fixes* at find.pcworld.com/39431 for details.) Unfortunately, the consumer bulletins tend to be so dumbed-down that their explanations are virtually useless. Conversely, the technical bulletins are unduly complex in some places and intentionally vague in others. Microsoft says it doesn't want to reveal any information that will help the bad guys create trouble.

For an example of a Microsoft consumer bulletin, head to Microsoft TechNet (find.pcworld.com/39422), select one of the summary links, and click the *End User version* link. The insight that these bulletins provide amounts to: "Product Y has a flaw; click here to fix."

To plunge into the full technical spiel, click the *Get More Technical Details* link. On the separate page that appears, click the plus sign beside Technical Details for the nitty-gritty. These bulletins tend to use language that only a Microsoft programmer could love. Heck, even some of the titles are obscure: Just try getting your head around 'Heap Algorithm Update for Atypically Large Heap Requests' (find.pcworld.com/36266).

So how about it, Microsoft? We would like to hear about the major technical issues in language that we can understand, even though we don't write code for a living.

My advice to readers is to use Windows Update (find.pcworld.com/19081) to select the critical updates you need to install. Ignore the end-user bulletins, and scan the technical details to learn whether your machine is vulnerable.

For more helpful descriptions of the most serious Windows flaws, pay a visit to CERT (find.pcworld.com/39440), EEye Digital Security (find.pcworld.com/39443), Grey Magic Software (find.pcworld.com/37952), and the SANS Institute (find.pcworld.com/39500). And find out the latest on Windows and Office holes by consulting Woody's Watch (find.pcworld.com/39446). ■

Stuart J. Johnston is a contributing editor for PC World. *Visit find.pcworld.com/31580 to see more* Bugs and Fixes *columns.*

SHOOT THE MESSENGER SERVICE

MICROSOFT RECENTLY announced that it will disable the Messenger Service by default in Windows XP Service Pack 2, which is due out in the first half of 2004. Miscreants are using the Messenger Service, a feature in Windows XP and 2000, to cause spam ads to pop up on users' screens (your browser doesn't have to be running for this to happen). The vulnerability could also be used to spread viruses if you haven't installed a particular patch (numbered 828035). Visit find.pcworld.com/39797 for a link to this fix.

The Messenger Service isn't related to XP's Windows Messenger or to MSN Messenger, the popular IM client. It's typically used in corporate networking environments. Rather than waiting for SP2, if you're battling spam ads, go to find.pcworld.com/39449 for Microsoft's instructions on how to turn off the service.

IN BRIEF

Opera Update

THE NEWEST edition of Opera fixes a pair of security glitches. Visit find.pcworld.com/39503 to download version 7.23 of the browser.

New Fix for IE

MICROSOFT has released a cumulative patch for Internet Explorer. The new bundle fixes a couple of recently discovered critical holes. Go to find.pcworld.com/39455 to grab the fix labeled 824145.

Patch for Microsoft Office, Works

MICROSOFT has plugged a security hole present in Word and Excel 97 through 2002, and in Works 2001 through 2004. Visit find.pcworld.com/39467 for a link to the patch (numbered 831527).

BUGGED?

FOUND A hardware or software bug? Tell us about it via e-mail at bugs@pcworld.com.

ILLUSTRATION: CHRISTOPH NIEMAN

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With the best data protection available on a wireless notebook, you can work where you like. Knowing there's a power looking out for you.

It's easy to work wirelessly when you choose the exceptional performance of these IBM ThinkPad® notebooks with Intel® Centrino™ mobile technology. You'll also get the most secure PCs available. Because IBM builds in an extra layer of protection on select models for passwords and documents, making it extremely tough for the unauthorized to access your vital data. No one else offers this level of hacker-resistant hardware and software security as a standard feature. So feel free to go where the mood takes you. We'll be right there beside you. **think protection**

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IBM recommends Microsoft® Windows® XP Professional for Business.

NEW! IBM ThinkPad R40

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity
- IBM Embedded Security Subsystem 2.0[1] – Strongest security as a standard feature

System Features:

- Intel® Centrino™ mobile technology
  - Intel Pentium® M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Home Edition[4]
- 14.1" XGA TFT display (1024x768)
- 128MB DDR SDRAM
- 20GB[5] hard drive
- Ultrabay™ Plus CD-ROM
- IBM UltraNav™ – TrackPoint® and touch pad
- 1-yr system/battery limited warranty[7]

$1,179* NavCode 27229FU-M138

Recommended Option:

- ServicePac® Service Upgrade:[8] 3-yr Depot Repair #30L9192 $132

IBM ThinkPad T41

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity
- IBM Embedded Security Subsystem 2.0[1] – Strongest security as a standard feature

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 14.1" XGA TFT Display (1024x768)
- 256MB DDR SDRAM
- NEW! 40GB hard drive with IBM Hard Drive Active Protection System
- Ultrabay Slim CD-RW/DVD-ROM combo
- Only 1" thin[6] • 4.5-lb travel weight[6]
- 1-yr system/battery limited warranty[7]

$1,699* NavCode 2378DHU-M138

Recommended Option:

- ServicePac® Service Upgrade:[8] 3-yr Onsite Repair/9x5/Next Business Day Response #30L9195 $243

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Powerful. Wireless. Secure. Enlighten your workload.

IBM ThinkPad® R40

Distinctive IBM Innovations:

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

System Features:

- Intel® Centrino™ mobile technology
  - Intel Pentium® M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional[4]
- 15" XGA TFT Display (1024x768)
- 256MB DDR SDRAM[5] • 20GB[6] hard drive
- Integrated Ethernet and modem
- Ultrabay™ Plus CD-RW/DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength[17]
- 1-yr system/battery limited warranty[9A]

$1,299* NavCode 289783U-M138

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

IBM ThinkPad R40

Distinctive IBM Innovations:

- Embedded Security Subsystem 2.0 – 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[3]
- Microsoft Windows XP Professional
- 15" SXGA+ TFT Display (1400x1050)
- 256MB DDR SDRAM[5] • 60GB hard drive
- Integrated Ethernet and modem
- Ultrabay Plus CD-RW/DVD-ROM combo
- IBM UltraNav™ TrackPoint® and touch pad
- 1-yr system/battery limited warranty[9A]

$1,679 NavCode 2897GAU-M138

IBM ThinkPad T41

Distinctive IBM Innovations:

- Access IBM – IBM help at your fingertips

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 14.1" XGA TFT Display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM[5] • 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo drive
- IBM UltraConnect Antenna for increased signal strength
- Only 1" thin[4] • 4.5-lb travel weight[8]
- 1-yr system/battery limited warranty[9A]

$1,699 NavCode 2378DHU-M138

ServicePac® Service Upgrade:[10]
2-yr Onsite Repair/9x5/Next Business Day Response
#30L9189 **$197**

IBM ThinkPad T41

Distinctive IBM Innovations:

- Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.60GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 14.1" SXGA+ TFT Display (1400x1050)
- 32MB ATI Mobility RADEON 9000 graphics
- 256MB DDR SDRAM[5] • 40GB hard drive
- Ultrabay Slim CD-RW/DVD-ROM combo drive
- 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-M138

ServicePac® Service Upgrade:[10]
5-yr Onsite Repair/9x5/Next Business Day Response
#69P9200 **$449**

IBM ThinkPad X31

Distinctive IBM Innovations:

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

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility RADEON graphics
- 256MB DDR SDRAM[5] • 40GB hard drive
- Integrated Ethernet and modem
- Integrated IEEE 1394 FireWire
- 5.5-hr Li-Ion battery[7]
- 3.6-lb travel weight
- 1-yr system/battery limited warranty[9A]

$1,599 NavCode 2884CRU-M138

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

IBM ThinkPad X31

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.60GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility RADEON graphics
- 256MB DDR SDRAM[5]
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Integrated IEEE 1394 FireWire
- 5.5-hr Li-Ion battery
- 3.6-lb travel weight
- 1-yr system/battery limited warranty[9A]

$1,799 NavCode 2884NRU-M138

ServicePac® Service Upgrade:[10]
4-yr Depot Repair
#69P9195 **$249**

IBM ThinkPad X31 Solution Pack

Distinctive IBM Innovations:

- Access Connections – Easiest wired and wireless connectivity

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.40GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility RADEON graphics
- 256MB DDR SDRAM[5] • 20GB hard drive
- 5.5-hr Li-Ion battery
- 1-yr system/battery limited warranty[9A]

Accessories Included:

- UltraBase™ X3 media slice
- Ultrabay Plus CD-RW/DVD-ROM combo

$1,799 NavCode 28842WU-M138

ServicePac® Service Upgrade:[10]
3-yr Onsite Repair/9x5/Next Business Day Response
#30L9195 **$243**

IBM ThinkPad X31 Solution Pack

Distinctive IBM Innovations:

- Embedded Security Subsystem 2.0 – Strongest security as a standard feature

System Features:

- Intel Centrino mobile technology
  - Intel Pentium M processor 1.60GHz[2]
  - Intel PRO/Wireless Network Connection 802.11b[3]
- Microsoft Windows XP Professional
- 12.1" XGA TFT Display (1024x768)
- 16MB ATI Mobility RADEON graphics
- 256MB DDR SDRAM[5] • 40GB hard drive
- Integrated Gigabit Ethernet and modem
- 5.5-hr Li-Ion battery
- 3-yr system/1-yr battery limited warranty[9A]

Accessories Included:

- UltraBase X3 media slice
- Ultrabay Plus CD-RW/DVD-ROM combo

$1,999 NavCode 2885PWU-M138

ServicePac® Service Upgrade:[10]
4-yr Onsite Repair/9x5/Next Business Day Response
#69P9198 **$299**

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(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 Hyper-Threading Technology 2.60GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM[5]
- 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[9]

$839 NavCode 843294U-M138

ServicePac® Service Upgrade:[10]
3-yr Onsite Repair/9x5/Next Business Day Response
#30L9199 **$99**

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[5]
- 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[9]

$889 NavCode 843298U-M138

ServicePac® Service Upgrade:[10]
3-yr Onsite Repair/9x5/4-hr Response
#41L2732 **$229**

(Monitor not included)

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 2.60GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM[5]
- 40GB hard drive • CD-ROM
- Intel Extreme Graphics 2
- Gigabit Ethernet-integrated
- Norton AntiVirus 2003 OEM Edition
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9]

$1,049 NavCode 8187D9U-M138

ServicePac® Service Upgrade:[10]
4-yr Onsite Repair/9x5/Next Business Day
#69P9161 **$89**

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 2.80GHz
- Microsoft Windows XP Professional
- 512MB DDR SDRAM[5]
- 40GB hard drive • CD-ROM
- Intel Extreme Graphics 2
- Gigabit Ethernet-integrated
- Norton AntiVirus 2003 OEM Edition
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9]

$1,149 NavCode 8187EJU-M138

ServicePac® Service Upgrade:[10]
3-yr Onsite Repair/24x7/4-hr Response
#41L2740 **$159**

(Monitor not included)

IBM ThinkCentre S50

Distinctive IBM Innovations:

- The smallest IBM desktop without compromise: 62% smaller than a standard IBM desktop

System Features:

- Intel Pentium 4 Processor with HT Technology 2.60GHz
- Microsoft Windows XP Professional
- 256MB DDR SDRAM[5]
- 40GB hard drive • CD-ROM
- Intel Extreme Graphics 2
- Gigabit Ethernet-integrated
- Norton AntiVirus 2003 OEM Edition
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9]

$1,089 NavCode 818326U-M138

ServicePac® Service Upgrade:[10]
3-yr Onsite/9x5/4-hr Response
#41L2734 **$129**

IBM ThinkCentre S50

Distinctive IBM Innovations:

- The smallest IBM desktop without compromise: 62% smaller than a standard IBM desktop

System Features:

- Intel Pentium 4 Processor with HT Technology 2.80GHz
- Microsoft Windows XP Professional
- 512MB DDR SDRAM[5]
- 40GB hard drive • CD-ROM
- Intel Extreme Graphics 2
- Gigabit Ethernet-integrated
- Norton AntiVirus 2003 OEM Edition
- Lotus SmartSuite Millennium license
- 3-yr limited warranty with limited onsite service[9]

$1,189 NavCode 818336U-M138

ServicePac® Service Upgrade:[10]
4-yr Onsite/9x5/4-hr Response
#69P9162 **$250**

IBM®

IBM recommends Microsoft® Windows® XP Professional for Business.

IBM Think Express Program.
Select and purchase IBM Think Express products, designed and priced for small and medium businesses.

IBM Service Upgrades

Protect your notebook with IBM ThinkPad Protection service. It covers accidental damages like drops, spills or damage to your ThinkPad LCD display. (Not available in all states; ask your sales representative for details.)[12]

1-yr Depot to 3-yr Onsite + 3-yr ThinkPad Protection
#58P8772 **$389**

3-yr Depot to 3-yr Onsite + 3-yr ThinkPad Protection
#58P8774 **$299**

IBM ThinkPad Accessories

Tripp Lite Traveler portable surge suppressor #22P7141 **$12**

Gemplus GemPC400 Compact Smart Card Reader Writer from IBM
#31P8901 **$75**

Targus Value Mobile Essentials Kit
#22P8684 **$90**

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

IBM iLM300 MicroPortable Data/Video Projector #0037A03 **$2,299**

IBM ThinkCentre Accessories

IBM UPS 500 #33L3477 **$99**

Lexmark X6170 All-in-One
#22P9147 **$250**

15" IBM ThinkVision™ L150 Flat Panel Monitor with system purchase
#W9SPAB1 **$299**

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Save on shipping. Order online.[11]

issue may be subject to additional charges. [8]This machine is designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by IBM. IBM will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by IBM for onsite replacement. For a list of onsite replaceable parts, contact IBM. Support unrelated to a warranty issue may be subject to additional charges. [9]These services are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Service period begins with the equipment date of purchase. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. [11]Standard shipping included when you order online. U.S. only. [12]Requires compatible wireless-enabled options, sold separately. [13]ThinkPad Protection is not available in all states; contact your sales representative for details. ThinkPad Protection cannot be combinec with other warranty service upgrades. ThinkPad Protection #58P8774 is for purchase with 3-year warranty systems; #58P8772 is for purchase with 1-year warranty systems. [14]IBM does not manufacture, warrant or support this product; IBM logos and trademarks used under license. Contact IBM for details. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors. All IBM product names are registered trademarks or trademarks of International Business Machines Corporation in the U.S. and other countries. Lotus and SmartSuite are registered trademarks of Lotus Development Corporation, an IBM company. Intel, Intel Inside, the Intel Inside logo, Intel Celeron, Intel Centrino, the Intel Centrino logo and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation. Other company, product and service names may be trademarks or service marks of others. © 2004 IBM Corp. All rights reserved.

NEW PRODUCTS

EDITED BY TOM MAINELLI

Minicam Evolution

Small-fry digital cameras offer good photos, but still entail a few compromises.

CASIO EXILIM EX-Z4U: 4 megapixels • 3X optical zoom • SD media (not included)

PENTAX OPTIO S4: 4 megapixels • 3X optical zoom • SD media (not included)

CANON POWERSHOT SD-10: 4 megapixels • Fixed lens • SD media (32MB included)

DIGITAL CAMERAS TAKE ONE LOOK at the latest crop of ultrasleek digital cameras, and you'll be hooked. More than just pocket-friendly toys, these cameras offer enough power to satisfy intermediate-level photographers who demand features and high-resolution images.

Still, small size generally exacts a few compromises, and it certainly does with some of these cameras, as functions people have come to expect on full-size models are sometimes missing. To weigh the pros and cons of going small, I tested new, shipping models from Canon, Kyocera, and Sony, as well as second-generation shipping models from Casio and Pentax.

BETTER, FASTER, SMALLER

AT $550, SONY'S Cyber-shot DSC-T1 is the priciest camera of this bunch, but its impressive dossier belies its small size. Among its notable features are a large, 2.5-inch LCD, speedy start-up, on-camera photo resizing, an MPEG movie mode, and a generous 5-megapixel resolution.

At 2.2 inches thick, the T1 is the second-thinnest model here (after the Kyocera), and it sports a unique front design. The lens cover doubles as a power switch; sliding it down powers the camera on and reveals the 3X optical zoom lens and flash. On the back is a cluster of tiny control buttons, some of them a little too easy to press accidentally when you put your thumb on the ridged thumb rest (for a right-handed grip). Its stainless steel body gives the camera a solid feel, but also makes it heavier than the other cameras reviewed here.

Most of the T1's snapshots produced warm colors and good shadow detail. The unit's extralarge LCD is useful for framing shots or displaying pictures, but an optical viewfinder would have been a nice addition—particularly for taking photos on sunny days.

The T1 starts up quickly, but if you need a camera that is fast all around, check out the $400 Kyocera Finecam SL300R. It's the speediest camera I have used outside of expensive single-lens reflex units. It starts up in 1 second, and in its fastest nonflash mode I captured up to five shots (at 3.5 frames per second) before the camera paused to move them to a standard SD (Secure Digital) media card. If you use

PHOTOGRAPHS: MARC SIMON

Cyber-shot DSC-T1
Sony
★★★★☆
High-end features and good photos—for a premium.
Street: $550
find.pcworld.com/39557

Exilim EX-Z4U
Casio
★★★☆☆
Big LCD enhances this second-generation camera's fun factor.
Street: $400
find.pcworld.com/39548

56 DIGITAL CAMERAS
Canon PowerShot SD-10, Casio Exilim EX-Z4U, Kyocera Finecam SL300R, Pentax Optio S4, Sony Cyber-shot DSC-T1

58 NOTEBOOK
Voodoo PC Envy M:855

CONTACT MANAGEMENT
Now Up-To-Date & Contact

60 DESKTOP
Gateway 610XL Media Center PC

60 NETWORK CAMERAS
Axis 205, Mobotix M1D, Veo Wireless Observer

62 GRAPHICS CARDS
ATI Radeon 9600 XT, PNY Verto GeForce FX 5700 Ultra

REMOTE ACCESS
Pumatech Intellisync GoAnywhere

64 UTILITY
Raxco Software FirstDefense-ISR

DIGITAL AUDIO
IRiver IHP-120

64 ADAPTER
Xantrex XPower Micros Inverter 175

66 SMART PHONE
Motorola MPx200

67 COLOR LASER
Samsung CLP-500

64

KYOCERA FINECAM SL300R: 3.2 megapixels • 3X optical zoom • SD media (16MB included)

SONY CYBER-SHOT DSC-T1: 5 megapixels • 3X optical zoom • Memory Stick Duo (32MB included)

a more-expensive high-speed SD card, the SL300R can capture 3.5 fps continuously until the memory card fills up (or the battery dies). The indoor and outdoor shots I captured looked good, although some colors were flat.

At 0.6 inches thick, the SL300R is the skinniest model in this group and sports the only rotating lens. When the lens is rotated 180 degrees, the front of the camera looks elegantly streamlined. But because the LCD and the control buttons are packed together on the side opposite the lens, there's very little surface on the camera for gripping it, and that invites your fingers to inadvertently press the buttons. The SL300R lacks an optical viewfinder, too.

The Canon **PowerShot SD-10** lacks both an optical viewfinder and an optical zoom lens. Most cameras near its $349 price offer an optical zoom, but the SD-10 features a less-desirable 5.7X digital zoom. The Canon's strong point is its abundant fashion sense. The tiny, stainless steel unit comes in four colors—bronze, silver, black, and white, and includes a 1.5-inch LCD. The bronze-hued unit that I reviewed was easy to use, but I found the power and shutter buttons too close together and too similar in shape. The SD-10's modest selection of manual features includes limited aperture and shutter ranges. Still, the pictures I took appeared bright and possessed adequate shadow detail.

SECOND GEN

SEVERAL COMPANIES have already moved on to their second generation of ultrasmall digital cameras. The $400 Casio **Exilim EX-Z4U** offers many of the same features as its predecessors (see find.pcworld.com/39617), including a 3X optical zoom lens, the ability to resize images on-camera, and a roomy 2-inch LCD. Unfortunately, images on the LCD appeared grainy.

The EX-Z4U's biggest upgrade is its move from 3- to 4-megapixel resolution. This model, however, has lost one feature found on the older EX-Z3: It no longer offers a movie mode. The snapshots I captured looked good, although some colors were slightly off.

Meanwhile, the $400 Pentax **Optio S4** succeeds last year's S model (see find.pcworld.com/39620). The main improvement is in the resolution: The S4 supports 4 megapixels, up from 3 megapixels.

The S4 has well-laid-out controls, an intuitive menu, and an optical viewfinder. Unfortunately, in my tests, the S4 was more sluggish at start-up than the other cameras here. My test shots produced pleasing colors, though some areas tended to lose detail.

SMALL BUT MIGHTY

I FOUND THINGS to like about each of these mighty minicameras, as well as a few drawbacks inherent in their diminutive size. In the end, the Sony Cyber-shot DSC-T1's rich features and solid photos won me over, despite its higher price tag. If you need continuous-shooting capabilities, consider Kyocera's speedy Finecam SL300R.

—Grace Aquino

Finecam SL300R
Kyocera
★★★½☆
The fastest and skinniest model here, it also has a rotating lens.
Street: $400
find.pcworld.com/39551

Optio S4
Pentax
★★★☆☆
Intuitive controls make it a breeze to use, but it's a tad slow.
Street: $400
find.pcworld.com/39554

PowerShot SD-10
Canon
★★★☆☆
Limited features hinder this reasonably priced camera.
Street: $349
find.pcworld.com/39545

Snazzy Notebook, Powerful Chip

NOTEBOOK

SEARCHING FOR the fastest notebook on the block? Look no further than Voodoo PC's **Envy M:855**, which garnered the highest PC WorldBench 4 notebook score to date, thanks in large part to AMD's new mobile Athlon 64 3200+ chip.

The M:855's mark of 134 places it atop the performance heap, soundly beating all previously tested notebooks and landing well above the average score of 122 achieved by 11 notebooks with 1.6-GHz Pentium M CPUs and the 109 score of an Athlon XP 3200+ system. The M:855 had the advantage of twice as much memory as the others—1GB versus 512MB—but its performance is still impressive.

At $3345, the M:855 commands a premium, but you get everything you'll need. The goodies list includes a 15-inch, 1400-by-1050-resolution display powered by ATI's Radeon 9600 chip set (with 64MB of memory); a 60GB hard drive; and a 1X DVD-RW/2X DVD-R optical drive that also burns CDs. You get a full range of built-in connectivity, too, such as 802.11g wireless, 10/100 ethernet, and a 56-kbps modem.

The large display handled video well, though our preproduction unit experienced some minor hiccups with the graphics driver (Voodoo says that it is correcting the problem). The sound system wasn't quite up to par with the graphics; despite two large integrated speakers, audio sounded rather flat and the volume was too low (especially considering the omnipresent fan noise).

The M:855 is unmistakably a desktop replacement: Its travel weight is just under 9 pounds. Still, its battery did last a respectable 3 hours, 3 minutes in our test.

Primarily, however, the M:855 delivers what buyers want most from a system in its class: top performance.

—Anush Yegyazarian

VOODOO PC's Envy M:855 uses AMD's mobile Athlon 64 CPU.

Envy M:855
Voodoo PC
★★★★☆
Superb performance and smooth graphics; unexceptional sound.
Street: $3345
find.pcworld.com/39560

Now's Mixed Office PIM

CONTACT MANAGEMENT

FOR SMALL businesses with a mix of Macintosh and Windows PC users, Now Software has released a new group version of its **Now Up-To-Date & Contact** software. Long associated with the Mac, this personal information management program offers an alternative to Lotus Notes and Microsoft Outlook for group contacts and calendaring. It's a functional but not terribly exciting alternative, however.

Meant to be quick and easy, the Now software sports an old-fashioned–looking interface, and the learning curve is undaunting. The included server component makes it easy for Apple and Windows users to share contact address books, schedule meetings, track tasks, and check calendars over the network. But you won't find any unique group organizational features here, and the program lacks integrated e-mail client software.

NOW UP-TO-DATE & Contact's simple interface allows Windows and Macintosh users to share group contacts and calendars.

At $119 per seat (online) Now's product is the same price as Lotus Domino Collaboration Express, a competing program for small businesses with mixed Mac/PC environments. The Lotus interface has a more modern look and includes an integrated e-mail client, making the Now product seem a bit overpriced.

Meanwhile, Microsoft's $99 Entourage X (a version of Outlook for small offices with Mac OS X systems) offers some compatibility with PC users who run Outlook via an Exchange server, but Entourage fails to offer truly full-featured group-calendaring features for Mac users.

Now's products have long served the Mac-centric small-business audience, and this update enables such companies that have added Windows PCs share the same PIM system. These offices will get their money's worth here; otherwise, the product hardly seems remarkable.

—Laurianne McLaughlin ■

Now Up-To-Date & Contact
Now Software
★★½☆☆
Simple group contact manager and scheduler for mixed Mac-PC companies.
List: $129 per seat; $119 per seat via online download
find.pcworld.com/39578

PHOTOGRAPH: MARC SIMON

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BenQ
Enjoyment Matters

Lots of Style, Less Substance

GATEWAY
610XL Media Center PC.

DESKTOP

IN CREATING ITS stylish new **610XL Media Center PC**, Gateway assembled an attractive all-in-one PC with a host of goodies, including a TV tuner and Microsoft's Windows XP Media Center Edition 2004 operating system. But as is often the case, appearances don't tell the whole story.

The new version of the Media Center OS lets you use the compact 610XL for standard PC chores but wallow in digital entertainment the rest of the day. You can stuff its 200GB hard drive with recorded TV shows or with masses of images from your camera—easily uploaded via the built-in seven-in-one media card reader—and then view it all on the wide-aspect (16:9) 17-inch LCD (at its 1280 by 768 native resolution).

The $2000 shipping model I looked at supplemented these offerings with integrated 802.11g wireless connectivity, a remote control, an excellent wireless keyboard and mouse, a combination DVD and CD burner, and long list of useful ports and jacks. There's also a subwoofer that nicely boosted the quality of the LCD's built-in speakers.

On paper, it's a spectacular package. But my experience using it was somewhat disappointing. Despite its 512MB of memory and 3-GHz Pentium 4 CPU, the PC responded sluggishly at times, and juggling mouse, keyboard, and remote control got a bit confusing. Though it emphasizes music playback, there's no way to adjust bass or treble. And the OS's touted Display Calibration Wizard, which fine-tunes visual quality, was hidden away in the Display Properties control panel applet for the video card.

This good-looking PC does many things, most of them tolerably well. But if you desire all-around high quality, keep shopping.

—Anne B. McDonald

610XL Media Center PC
Gateway
★★★☆☆
A beautiful media-centric PC, but response times felt sluggish.
List: $2000
find.pcworld.com/39563

Network Cameras for All

SECURITY

NETWORK CAMERAS are shrinking in size and in price, making them feasible for more people interested in remote monitoring through a local network or the Internet.

I looked at shipping versions of three new network cameras—the **Axis 205**, the **Veo Wireless Observer**, and the **Mobotix M1D**—and appreciated each for different reasons.

Each unit delivered good streamed video over my local-area network at home, and streaming speeds were adequate through my broadband connection to the Internet.

About the size of an Altoids tin, the indoor-only Axis 205 was the smallest of the three test cameras. I connected it to my network via an ethernet cable, and the unit's 640-by-480-resolution video streamed at about 15 frames per second on my local network. While that's hardly TV quality, it is acceptable, given the camera's low $200 price.

For $100 more, you can move up to Veo's Wireless Observer camera—a larger, wireless indoor unit with pan and tilt functions. Built-in 802.11b wireless connectivity simplified the hookup, and the unit streamed 640-by-480 video at a smooth 30 fps on my local network while offering limited pan and tilt through its viewing page.

NETCAMS: Veo, Mobotix, and Axis.

Mobotix offers a range of high-end security cameras; I tested the $1325 outdoor-ready M1D, which came equipped with both infrared and standard lenses, built-in speakers and microphone, and an infrared motion sensor. On my local network, the camera's 640-by-480 video streamed at more than 30 fps, and the unit's infrared capabilities offered clear pictures, even in pitch-black conditions.

The Veo and Axis models will work well in a networked small business or home, while the Mobotix is suited to more-complex security needs.

—Andrew Brandt

Axis 205
Axis Communications
★★★★☆
Small with modest performance.
Street: $200
find.pcworld.com/39566

Mobotix M1D
Mobotix
★★★★½
Pricey, top-notch security device.
Street: $1325
find.pcworld.com/39572

Veo Wireless Observer
Veo
★★★★☆
Wireless unit with pan and tilt.
Street: $300
find.pcworld.com/39569

PHOTOGRAPHS: MARC SIMON

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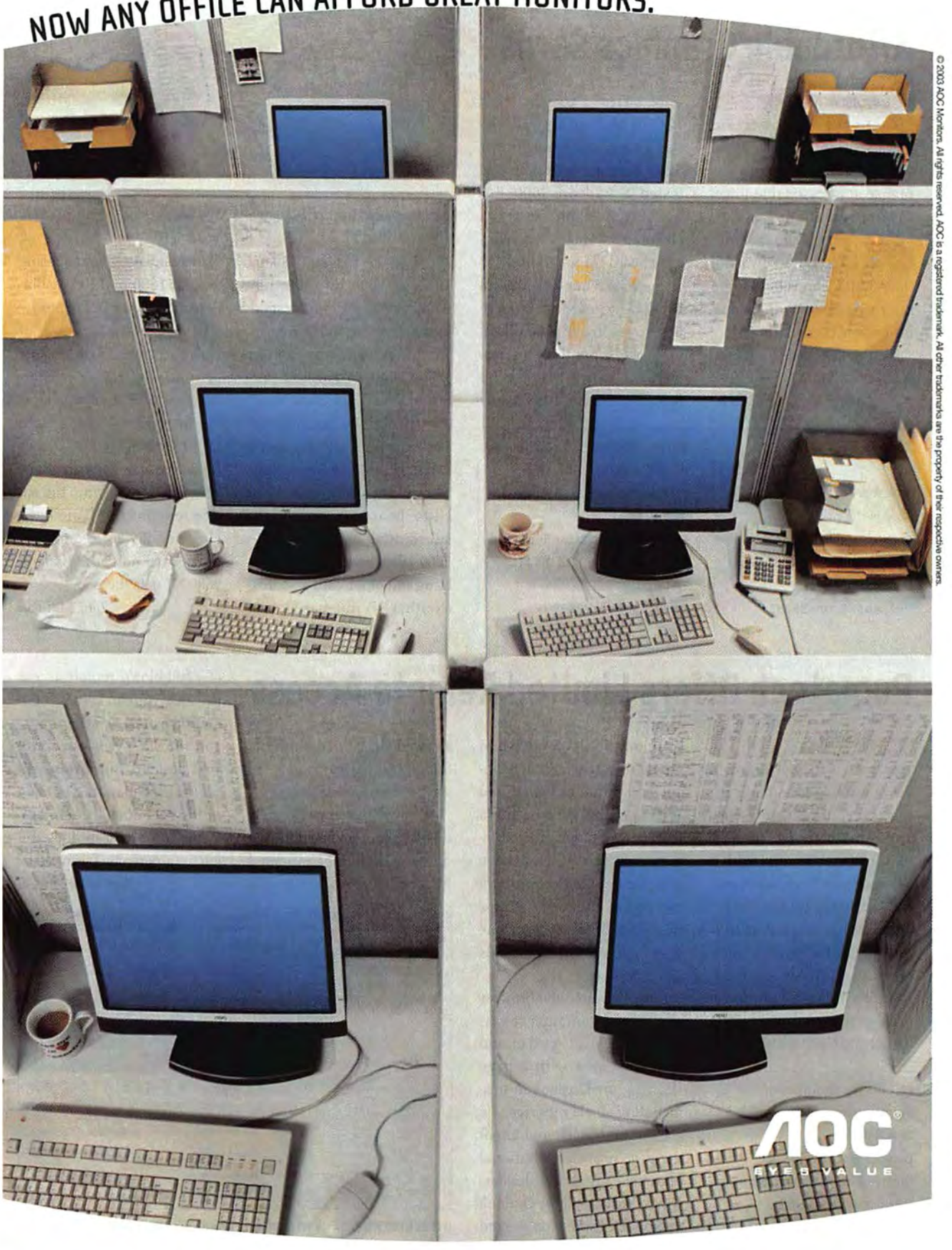

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GRAPHICS

THE LATEST mainstream graphics chips from ATI and NVidia offer solid performance at a reasonable price. In our small number of tests, boards using the NVidia GeForce FX 5700 Ultra and the ATI Radeon 9600 XT outran cards carrying the chips' immediate predecessors.

We tested a production-level ATI Radeon 9600 XT board and a PNY Verto GeForce FX 5700 Ultra board. Each included 128MB of memory and carried a suggested retail price of $200. For comparison we also tested a Radeon 9600 Pro board from Sapphire and a GeForce FX 5600 Ultra reference board from NVidia.

The 9600 XT and 5700 Ultra boards notched virtually identical scores in our Halo benchmark across our three test resolutions. Both reached 33 frames per second at 1024 by 768 and 22 fps at 1280 by 1024; at 1600 by 1200 they scored 16 and 15 fps, respectively. (For complete results see find.pcworld.com/39758.)

The 9600 XT card outperformed the 5700 Ultra board in our Tomb Raider: Angel of Darkness tests, offering frame rates from 30 to 37 percent faster. That said, the 5700 Ultra board showed some substantial gains over the 5600 Ultra board, nearly doubling the older card's scores. (Neither NVidia-based card completed our 4X antialiasing tests at 1600 by 1200 resolution and 32-bit color depth.)

In last month's review of high-end graphics chips (find.pcworld.com/39761), we recommended that gamers looking forward to Valve's Half-Life 2 or Id's Doom III wait for benchmarks with those games before buying; the advice remains the same here. However, if you need to get a new board now, the Radeon 9600 XT gets the nod.

—Tom Mainelli

Radeon 9600 XT
ATI
★★★★☆
Solid performer continues ATI's graphics winning streak by outpacing NVidia's latest chip.
List: $200
find.pcworld.com/39287

Verto GeForce FX 5700 Ultra
PNY Technologies
★★★½☆
More powerful than the 5600 Ultra, but it still trailed the ATI.
List: $200
find.pcworld.com/39290

Pumatech Offers Limited Remote Access

REMOTE ACCESS

WANT TO BE able to grab a file or an Outlook e-mail message off your office PC from any remote device (phone, PC, or PDA) with an Internet connection? Check out Pumatech's $100 Intellisync GoAnywhere. While it's not as full-featured as Expertcity's more expensive GoToMyPC, it easily fulfills its limited promises.

To get started, you must install the GoAnywhere software on the PC you wish to access remotely and then create an account at the related Web site. This took me only a few moments using my shipping copy, which includes two one-year service licenses (you can access either one PC for two years, or two PCs for one year each; one-year renewals go for $60 per PC).

Next, I pointed the browser of a second computer to my.intellisync.com, logged in, and was presented with a page showing my Outlook in-box, including all old messages.

Icons on the left and top of the page provided additional options: Contacts, Calendar, Notes, Tasks—all for Outlook or Outlook Express only—and Files. By default, clicking Files showed the My Documents folder, but you can choose to start with a different folder.

The application works only if you keep it up and running on your Internet-connected PC, and it doesn't do the work of a full-blown remote-access product. You can't access non-Outlook mail or other apps, and you can't view or control your desktop. But if you need access only to Outlook items or the occasional file, Intellisync GoAnywhere does the job for a perfectly fair price.

—Yardena Arar ■

Intellisync GoAnywhere
Pumatech
★★★½☆
Easy access to PC files and Outlook data; fewer features than pricier competition.
Street: $100
find.pcworld.com/39293

INTELLISYNC GOANYWHERE lets you access files and your Outlook in-box, contacts, and calendar from any Internet-connected PC.

PHOTOGRAPH: MARC SIMON

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Fix Broken Windows Fast

SYSTEM UTILITIES

IF VIRUSES, faulty patches, or botched software installations have ever crashed your Windows PC to the point of no return, you know that the road to recovery can be as long as it is frustrating. And if you have better things to do than reinstall your operating system and programs, consider Raxco Software's **FirstDefense-ISR**.

FIRSTDEFENSE-ISR shows a snapshot's size.

This utility is an industrial-strength alternative to Microsoft Windows' System Restore feature. While System Restore backs up only Registry settings and select system files (and saves them for a maximum of 90 days), FirstDefense-ISR takes a snapshot of your entire Windows XP, 2000, or Server 2003 system—including your personal application settings and data, e-mail, and bookmarks—and saves up to ten snapshots indefinitely. This requires substantially more hard disk space (my computer averaged about 5GB per snapshot versus 1.4GB for the same PC using XP's System Restore). But the trade-off is that I can resuscitate applications, data, and settings that System Restore simply can't revive.

To test a $45 shipping version, I installed the software and performed several system snapshots. Next, I vandalized my computer by deleting vital files including Boot.ini, Kernel.exe, and Ntdetect.com until Windows XP Pro would no longer launch. I then depressed the <F1> key during the next boot process, which took me to a FirstDefense-ISR screen where I picked a snapshot to roll back to. After that, my PC booted without a hitch.

FirstDefense-ISR shouldn't be confused with typical backup software: Its snapshots cannot be stored remotely. What the program can do, however, is save your bacon the next time you run into catastrophic system problems.

—Tom Spring

FirstDefense-ISR
Raxco Software
★★★★☆
An excellent rollback program—just be sure you have plenty of hard drive storage space.
Street: $45
find.pcworld.com/39299

QUICK TAKES

Power Driving

IT USED TO be that you needed expensive, device-specific adapters to use or to recharge portable devices from your auto's cigarette lighter jack. The XPower Micros Inverter 175 from Xantrex is an ingenious $45 adapter that converts the jack into a standard AC outlet so you can plug in any device via its regular cord.
find.pcworld.com/39575
–Michael S. Lasky

Small Player, Big Features

DIGITAL AUDIO

IRIVER'S **IHP-120** packs a lot into a small space. About the size of a deck of cards, the 20GB hard drive–based MP3 player is the most feature-rich I've ever seen. In addition to playing your MP3, Ogg Vorbis, .wma, and WAV files (but not the AAC format used by Apple's ITunes), the $400 unit also lets you record through its line input jack or a microphone (internal or external).

This is also the first player I've seen with both optical inputs and outputs so that you can connect it to your audio equipment. You also get a capable FM tuner and a handy cabled remote with an integrated mini LCD screen. And to cap it all off, the unit's rechargeable battery managed a solid 14 hours of play in my informal tests.

Given the IHP-120's large feature set, it's not surprising that the player's numerous controls can be a bit overwhelming. Each button on the device does something different depending on whether you press and release it or press and hold it. It took me several days to master all the controls of my shipping unit.

Strangely, IRiver forgoes any MP3-ripping software, and making transfers between your PC and the USB 2.0 device is strictly a drag-and-drop affair. You do get PC software that scans your transferred music files and builds a database for the player from the ID3 tags, which allows you to search for music by artist, album, genre, or title.

The IHP-120 has a few kinks, but its unmatched feature set, good battery life, and fairly reasonable price should make it a popular choice with savvy buyers looking for more than just a pretty face.

—Richard Baguley ■

IHP-120
IRiver
★★★★☆
Initially hard-to-use player rewards you with numerous excellent features.
Street: $400
find.pcworld.com/39296

IRIVER'S IHP-120 player.

PHOTOGRAPHS: RICK RIZNER (TOP); MARC SIMON (BOTTOM)

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Pricing, specifications, availability and terms of offer may change without notice. Taxes and shipping charges extra, and vary. U.S. new purchases only. Dell cannot be held responsible for errors in typography or photography. [3]Based on ANSI/NAPM IT7 .228-1997 tests of 73 units, September 2003, with average ANSI Lumens 1118. Bulb brightness degrades with usage. Dell recommends replacing your bulb after 2000 hours of usage. [5]Monthly payment based on pre-rebate price for 48-month 60 Days Same-as-Cash QuickLoan with 46 payments at 9.99% interest rate. Your interest rate and monthly payment may be same or higher, depending on your creditworthiness. If you do not pay the balance within 60 days of the QuickLoan Commencement Date (which is five days after product ships), interest will accrue during those first 60 days and a documentation fee may apply. OFFER VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY LENDER. Minimum transaction size of $500 required. Maximum aggregate financed amount for the paperless acceptance not to exceed $25,000. If your order exceeds $25K, a Dell Financial Services rep will contact you to process your documentation. Taxes, fees and shipping charges are extra and may vary. Not valid on past orders or financing. QuickLoan arranged by CIT Bank to Small Business customers with approved credit. [3]Based on ANSI/NAPM IT .228-1997 tests of 100 units, November 2002, with average ANSI Lumens 1221. Bulb brightness degrades with usage. Dell recommends replacing your bulb after 2000 hours of usage. [4]Replacement system or replacement part will be dispatched, if necessary, following phone-based troubleshooting, in advance of receipt of returned defective part or system. Replacements may be refurbished. Defective unit must be returned. Bulbs have a 90-day limited warranty. Availability varies. Other conditions apply. Dell, Dell 2200MP and Dell 3200MP Projectors are trademarks of Dell Inc. ©2004 Dell Inc. All rights reserved.

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New Phone Requires Smarts

CELL PHONE

MOTOROLA'S MPx200, the first Smartphone based on Windows Mobile to ship in North America, crams wireless service and limited PDA functions into a compact flip-style phone that requires a certain amount of smarts to operate.

While Microsoft's Pocket PC phones integrate phone features into a PDA-size device, Smartphones integrate most Pocket PC features (minus Pocket Word and Excel) into a phone-size unit. This requires some compromises, particularly when it comes to input. On my shipping unit, available through AT&T Wireless, I found that performing even simple tasks such as inputting data required referencing the 135-page guide (you must manually switch between letters and numbers on the keypad, and it lacks a touch screen).

That said, the screen on the $299 cell phone has a distinct Windows look and feel, and offers large icons for relatively easy access to your e-mail in-box, contact list, calendar, and Internet Explorer browser. Additional programs include ActiveSync for syncing the phone with your PC's Microsoft Outlook listings, and OfficeOnline for optional fee-based wireless access to the e-mail, calendar, contacts, and files on an Internet-connected PC.

THE MOTOROLA MPx200.

Beyond its PDA fundamentals—which proved to be solid once I learned how to access them—the MPx200 also offers some enjoyable multimedia extras such as MP3 and video playback. Using the included stereo earphones and Windows Media Player, I listened to remarkably good-sounding MP3 music and viewed smooth-running videos stored on a removable SD (Secure Digital) card.

Battery life was also good. After 30 minutes of music, numerous videos, and several calls, I hadn't put a dent in the battery indicator.

The MPx200 provides the conveniences of a feature-packed PDA and a slick phone in a tiny package. Be warned, though, that a steep learning curve stands between you and its powerful functionality.

—*Michael S. Lasky* ■

MPx200
Motorola/AT&T
★★★½☆
Windows Mobile–powered phone is versatile but tricky to operate.
Street: $299 (with service)
find.pcworld.com/39305

PHOTOGRAPH: MARC SIMON

Color Laser Comes Home

PRINTER

COLOR LASER printers have many advantages over ink jets for business use, including much faster print speeds, better-looking text, and lower long-term costs. Unfortunately, price has long kept the color laser out of reach for many small and home offices. Now Samsung's $699 **CLP-500** joins a short list of recent, low-cost printers that allow home- and small-office users to enjoy color laser capabilities.

CLP-500
Samsung
★★★½☆
A great price and impressive print speeds help to overcome uneven color reproduction.
Street: $699
find.pcworld.com/39323

For an entry-level laser, the CLP-500 posted impressive printing speeds: 12.9 pages per minute for text and 3.2 ppm for graphics, scores that were on a par with those of other color lasers we've tested, including many that cost significantly more. The CLP-500 also beat out a previously tested $700 color laser, Minolta-QMS's Magicolor 2300W (see find.pcworld.com/39320).

The CLP-500's print quality was mixed. Text was clean, dark, and straight, and overall color was good on simple graphics, but more-complex designs and photos fared less well, losing some detail.

The CLP-500 comes with an intuitive driver interface and a built-in automatic duplexer (for double-sided printing)—a nice touch at this price. It has a too-small 250-sheet main paper tray and a 100-sheet multipurpose tray (an optional 500-sheet tray is $299).

The CLP-500's price, speed, and text quality make it a solid option for small and home offices that need to print documents with sharp text and fairly simple color graphics.

—*Lisa Cekan* ■

SAMSUNG'S CLP-500 printer.

PHOTOGRAPH: MARC SIMON

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Technology has become a centerpoint of our lives.

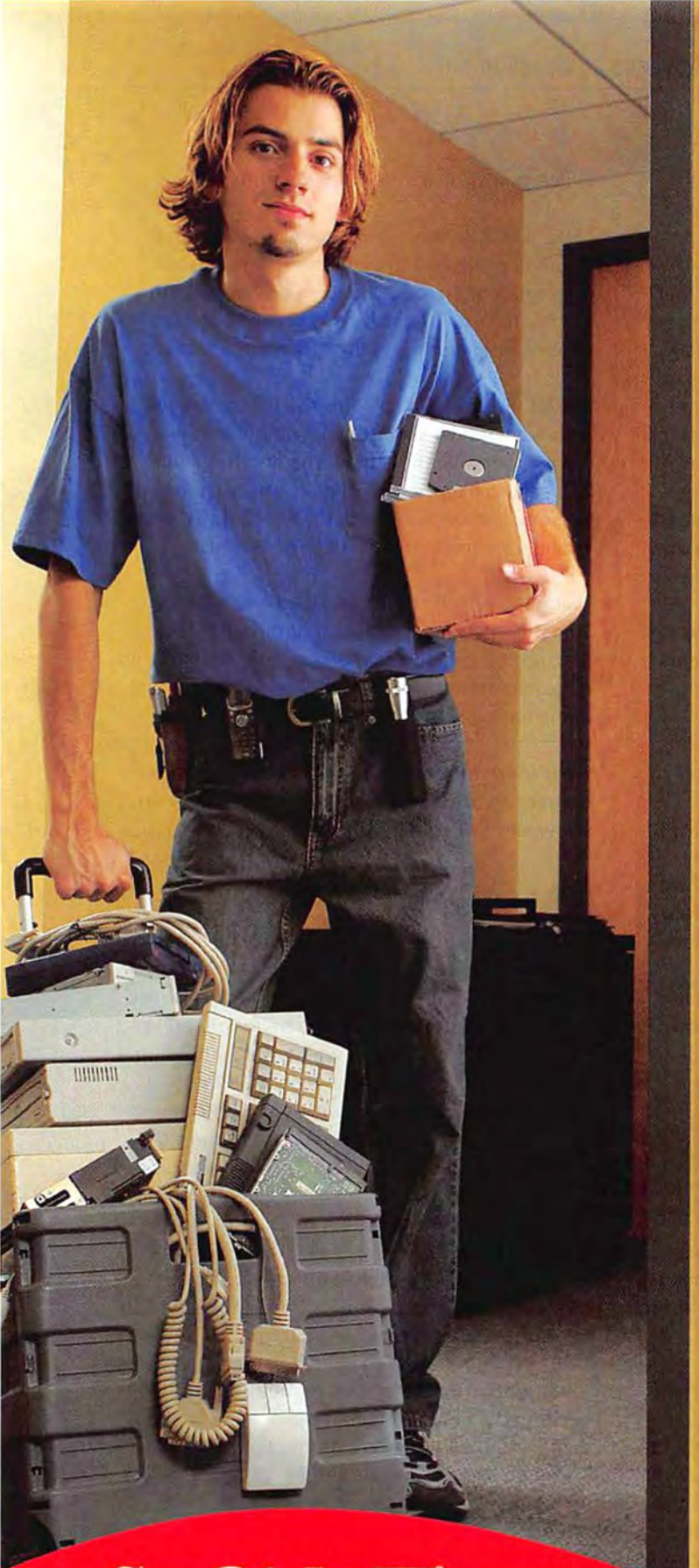
Living La Vida Digital

›› Joe Pelech, vice president of a New York-based heating contractor, never envisioned himself as wired. Sure, he used computers at the office, and he carried a cell phone and a PDA on field trips, but that was for business. Now, with his wife spending time at their second home in Coral Gables, FL, and his 22-year-old daughter working in Boston, Joe relies on technology to keep his far-flung family in touch with one another.

"Technology gives each of us an opportunity to pursue separate goals and interests while keeping us all connected," he says. "I'm not sure how comfortable we'd be without it." Joe, who recently bought the Florida house, will install a broadband link enabling him to share files and collaborate with his New York office while he's away. Using remote connectivity software, he can sign onto the company's network, and "....it's like I'm at my desk, except I'm looking out at the pool—not the parking lot."

Continued on page 3

SPONSORED BY: **SanDisk** *www.sandisk.com* **Verbatim Corporation** *www.verbatim.com* **Activision** *www.activision.com*



Lighten Up.

It wasn't so long ago that if you wanted to bring your data with you, your hardware had to come too. Well, that's all in the past now thanks to the new SanDisk Cruzer™ Mini. At under half an ounce, the Cruzer Mini goes anywhere, and with up to 256MB of flash memory, it takes a lot with it. Hi-speed USB 2.0 compliant, SanDisk's Cruzer Mini lets you transfer data faster than ever before. And at less than 8mm thick, all it needs is a single USB slot. Just drag, drop, and go. It's all about convenience – no extra hardware, no worries.

So whether you're installing utilities or updating print drivers for the umpteenth time, you can take your files with you wherever you go – and you won't even need your dolly.

For more information on SanDisk Cruzer Mini, visit www.sandisk.com/mini

SanDisk

HI-SPEED USB 2.0

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Continued from page 1

A 2003 RoperASW survey found that 35 percent of consumers planned to spend more on personal electronics technology to stay connected with family, friends, and colleagues—a statistically significant 6% increase from 2002. Indeed, according to San Francisco-based Forrester Research, among consumers with broadband connections e-mail is still the leading use, followed by exchanging photos and playing games.

Wireless and other portable technologies are a sort of magic thread that enables consumers to enjoy the comfort of familiar spaces and faces, no matter where they are.

More Power by the Hour

The sheer oomph built into even entry-level PCs today makes just about everyone a "power user." In no time, even neophytes are working not only with text but also with photos, video clips, music, and other files they want to store, move, and share. Now, there's no need to "hurry up and wait" while these large files are moving—thanks to SanDisk Cruzer Titanium.

SanDisk Cruzer™ Titanium USB Flash Drive stores and transports just about any kind of file, under just about any conditions. It's fast, tough, and stylish.

Named for its speed, strength, and style, this world-class USB 512MB flash drive is an ideal solution for storing and transporting just about any kind of file, and under just about any conditions. The only USB flash drive to feature a titanium-coated metal casing for unprecedented durability, SanDisk Cruzer Titanium can withstand the inevitable bumps and jolts of a busy workday. It's crush-resistant to 5,000 pounds, which makes it virtually indestructible.

CRUZER TITANIUM is about speed in addition to durability—it's as much as three times faster than most of the USB 2.0 flash drives currently on the market. That means you can spend less time waiting and more time being productive.

CRUZER TITANIUM also comes with CruzerLock, an advanced file security application that encrypts your individual files, keeping them safe and secure from prying eyes. Simply choose a personal password, select the file that you want to encrypt, and let CruzerLock do the rest.

Using the **SANDISK CRUZER TITANIUM** is easy. Just plug it into any USB 2.0 port on a PC or Macintosh, and you're ready to start transferring data. No drivers are required, and Cruzer Titanium is backwards-compatible with USB 1.1.

■ **For more information on this exciting development in USB flash technology, click now on www.sandisk.com.**

DVD Devotees

Increasingly affordable and ubiquitous broadband and wireless nodes give us the freedom to roam. As long as we're near a telephone jack or a wireless node, distance is no longer an impediment. In fact, when a recent Gallup poll asked Americans about their favorite ways to spend an evening, seven in 10 preferred staying home to watch TV, videos, or DVDs.

When it comes to consumer technology, perhaps nothing has caught on as fast and furiously as DVD. In the blink of an eye, DVD has outmuscled videotape for home movies and is brushing aside CD for digital data storage, particularly video files. And Verbatim has been solidly behind this DVD revolution from the outset, pioneering new and exciting developments that maximize consumer value and the enjoyment of the digital life.

Yet another expression of Verbatim's leadership in the DVD field came recently with the announcement of its new 8X DVD+R and 8x DVD-R recordable media—aided by Verbatim's unique double-layer recordable technology.

Continued on page 5

IT'S SHOWTIME

Talk about box office hits. Verbatim's new DigitalMovie™ DVD recordable media is so hot you can almost smell the popcorn. Available as DVD-R or DVD+R, this 4X speed DVD media looks – even feels – like a Hollywood movie reel. But don't think you need a director's chair to use them. These mini-reels are perfect for home movies, business presentations, transferring files – anytime you want to add a little fun to the show. And of course, DigitalMovie DVD has the same unsurpassed performance and reliability you've come to expect from Verbatim. So make your next show a feature presentation. DigitalMovie DVD from Verbatim. It's the reel thing. For more information, contact us at 800-421-4188 or online at www.verbatim.com.

Verbatim.

PUT YOUR WORLD ON VERBATIM

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Continued from page 3

With advances such as these, it is small wonder that in recordable DVD, Verbatim holds the number-one position in worldwide market share, according to the Santa Clara Consulting Group.

With Verbatim's new Double-Layer DVD+R discs, consumers can store up to four hours of DVD-quality video or up to 16 hours of VHS video quality on a single disc. PC users will also benefit by being able to archive nearly 8.5GB of data without having to stop and turn the disc.

The Verbatim line includes DVD-R, DVD-RAM, DVD-W, DVD+R, and DVD+RW media, with capacities ranging from 3.95 GB to 9.4 GB.

Verbatim's DVD discs permit users to spend their time developing exciting DVD video content, not checking the compatibility of their DVD media. That's because the company has always considered compatibility its top priority in developing its double-layer technology.

■ For more information on Verbatim's innovative, leading-edge DVD products, click now on www.verbatim.com.

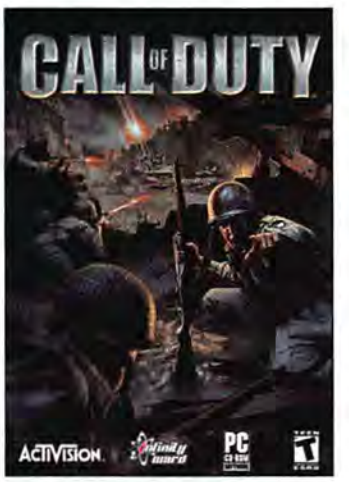
Technology With A Purpose

Who says computer games can't be highly instructional as well as fun? Now, Activision brings gamers a chance to learn the facts about the war that changed the world—a war in which no one fought alone.

Through the chaos of battle, ordinary soldiers fought and died alongside one another in World War II. An intense, first-person action game for the PC, Call of Duty allows players to experience the cinematic intensity of World War II's epic battles, including D-Day, the Russian charge at Stalingrad, and the Battle for Berlin—through the eyes of citizen-soldiers and unsung heroes from an alliance of countries that together helped shape the course of modern history.

Intense battlefield moments put you in the heat of the action, capturing the chaos of war like never before. Together with your squad, take on the Nazi war machine through 24 epic single-player missions across four interconnected campaigns, with one goal—Berlin. For the first time, experience war from multiple perspectives, battling enemy forces through the eyes of American, British, and Russian soldiers. Begin as an American paratrooper on D-Day, progress to a role in British Special Forces, and finally rise up the ranks to become a Russian tank commander.

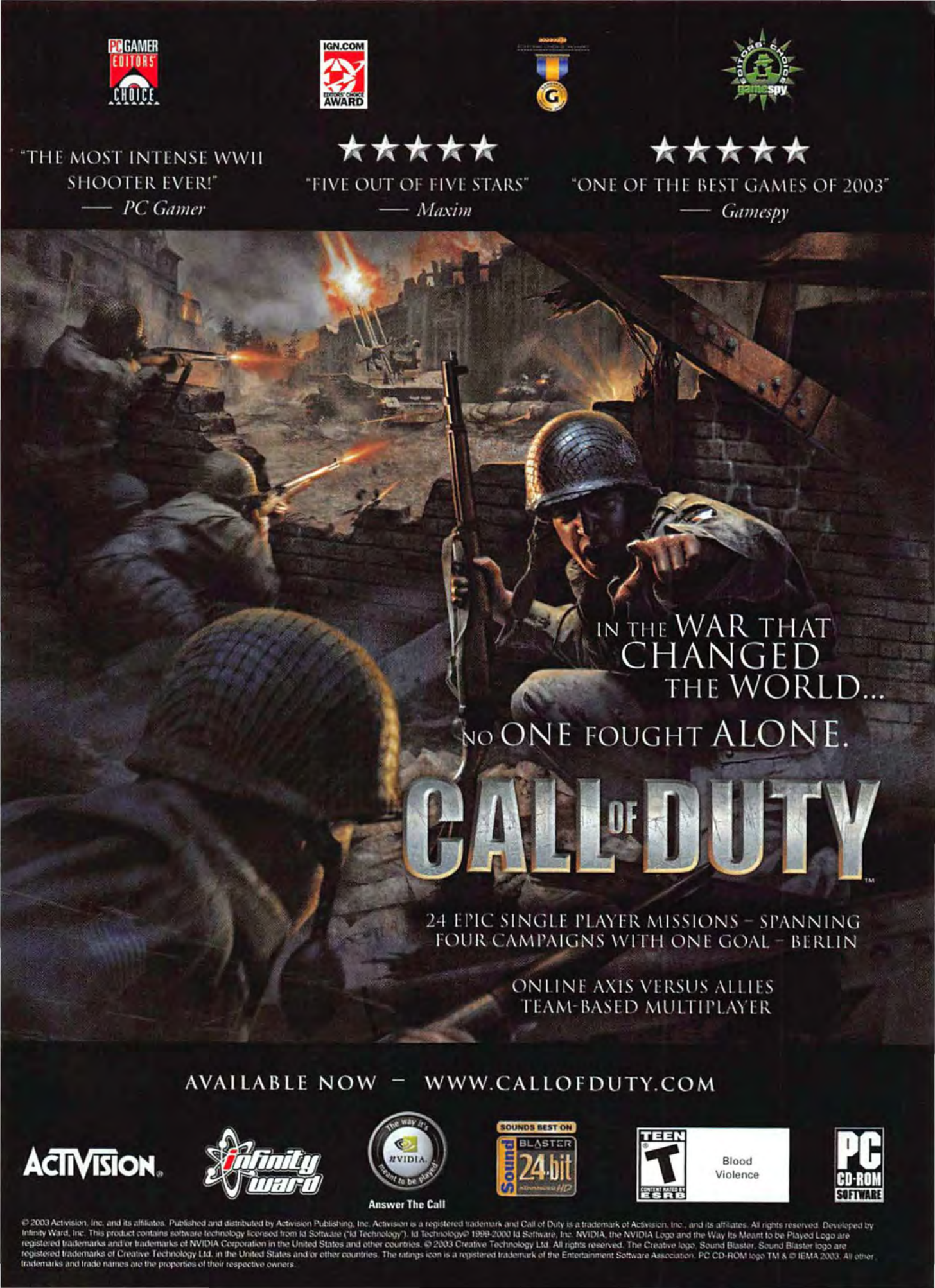
Players can also take *Call of Duty*'s action online for team-based multiplayer action.



<< Become a part of "the war to end all wars" with Activision's Call of Duty World War II game. It's an intense ans cinematic experience.

Discover why *Call of Duty* has won so many Editors' Choice awards from independent gaming magazines—in fact, PC Gamer called it "The Most Intense WWII Shooter Ever!" *Call of Duty* is available now in stores and online.

■ For a downloadable demo, point your browser to www.callofduty.com.


PC GAMER EDITORS' CHOICE
IGN.COM EDITORS' CHOICE AWARD
EDITORS' CHOICE gamespy
"THE MOST INTENSE WWII SHOOTER EVER!"
— PC Gamer
"FIVE OUT OF FIVE STARS"
— Maxim
"ONE OF THE BEST GAMES OF 2003"
— Gamespy
IN THE WAR THAT CHANGED THE WORLD...
NO ONE FOUGHT ALONE.
CALL OF DUTY™
24 EPIC SINGLE PLAYER MISSIONS – SPANNING FOUR CAMPAIGNS WITH ONE GOAL – BERLIN
ONLINE AXIS VERSUS ALLIES TEAM-BASED MULTIPLAYER
AVAILABLE NOW – WWW.CALLOFDUTY.COM
ACTIVISION
infinity ward
The way it's meant to be played NVIDIA
Answer The Call
SOUNDS BEST ON Sound BLASTER 24-bit ADVANCED HD
TEEN T CONTENT RATED BY ESRB
Blood
Violence
PC CD-ROM SOFTWARE
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THE TROUBLE-FREE PC

Tune it up. Back it up. Ramp it up.

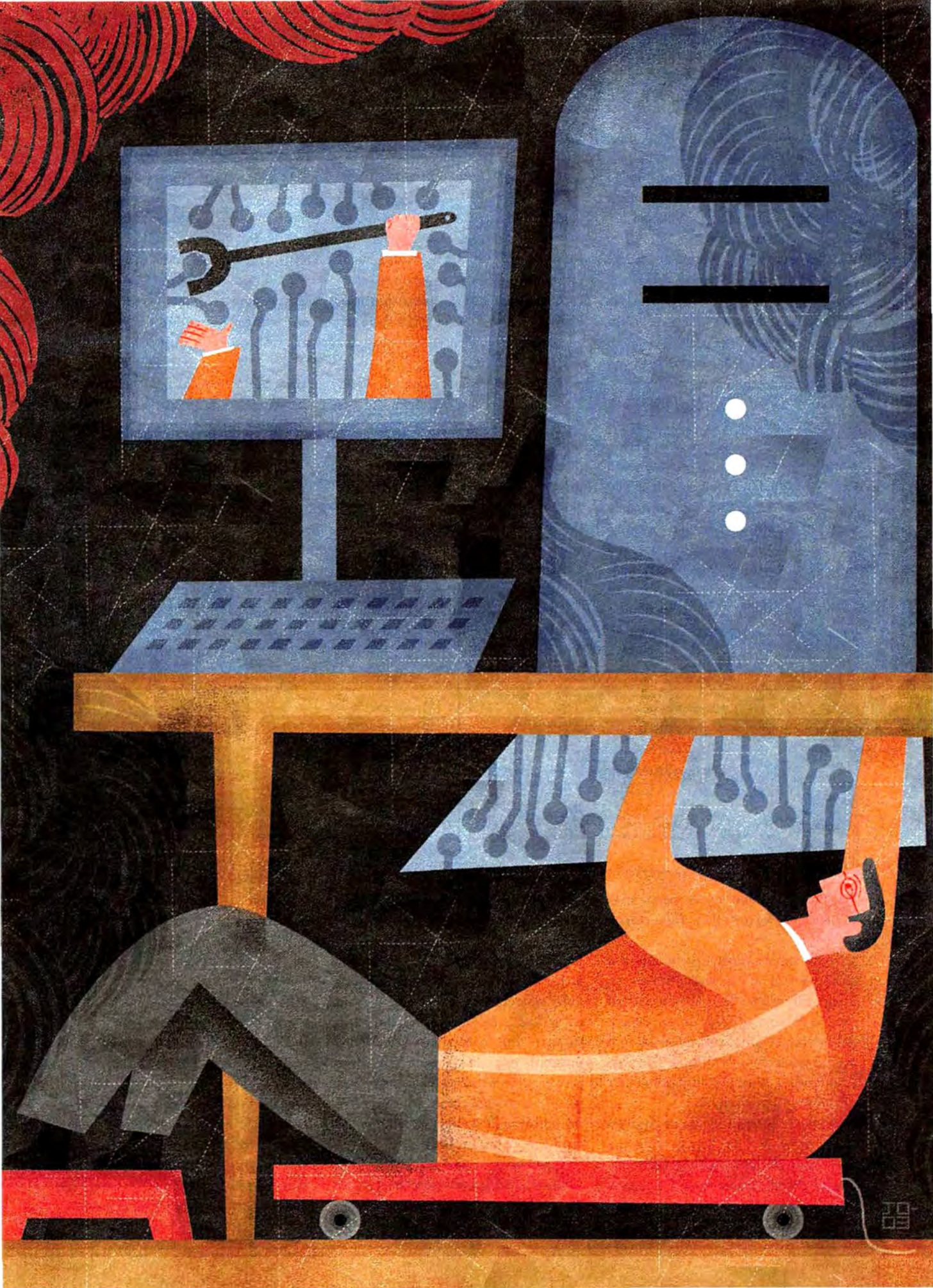
We test 16 utilities designed to keep your system running strong today and tomorrow.

By Lincoln Spector

ACCIDENTS—MANGLED DATA, crashed hard drives, misplaced files—happen. Fortunately, system utilities can help you prevent problems and recover when disaster strikes. Utilities can identify and correct problems on your computer before crashes occur, and sometimes they can repair the damage after a mishap. And if your PC suddenly refuses to boot, they can help you regain that vital business presentation or your records and photos.

A good suite contains most of the utilities you need on a single CD, with one price tag and one user interface. We say "most of the utilities" because we found that no single suite had every tool we look for; most notably, you'll need to supplement a suite with a backup utility (see "Backing Up to Happiness" on page 78) and possibly a partition management program (see "Wrangle Disks Like a Pro" on page 80)—and we aren't satisfied with any of the emergency boot tools available. For this article we looked at four packages: Business Logic's $50 Ultra WinCleaner Utility Suite 8, Iolo's $70 System Mechanic 4 Professional, Symantec's $65 Norton SystemWorks 2004, and V Communications' $60 SystemSuite 5.

ILLUSTRATIONS BY JAMES O'BRIEN



Each suite includes an antivirus program: SystemWorks comes with Norton AntiVirus 2003, System Mechanic offers Panda Antivirus Platinum, SystemSuite bundles VirusScanner Pro, and Ultra WinCleaner has QuickHeal. (For a recent review of antivirus programs, see find.pcworld.com/39326.) In this article, we concentrate on how the suites keep your Windows XP computer healthy, clean up an overcrowded hard drive, and get you back on your feet after a disaster.

Since Windows XP carries its own collection of utilities, we set a high bar for stand-alone utility suites: We think a worthwhile suite should provide more tools than Windows itself does; it should secure your system, test your hardware to warn you of impending trouble, fix havoc-causing flaws in Windows' Registry, and simplify basic maintenance. Because hard drives collect garbage faster than the floor of your car, a good utility suite should help you remove programs and files you no longer want. If you wish to retrieve an accidentally deleted file, your suite should come to the rescue; but when you'd like a file to stay deleted, your suite should make it unrecoverable. Finally, if an accident renders Windows unusable, your suite should save the day.

We chose V Communications' SystemSuite 5 as the Best Buy because it has the most extensive and usable set of tools. The big disappointment was Symantec's Norton SystemWorks 2004, which is in severe need of a major overhaul. We did like its one-pass checkup and its Registry cleanup, but many of its most important tools—such as the emergency boot—don't support the NTFS file system used in Windows XP. Aside from the excellent Norton AntiVirus component, there's little reason to purchase SystemWorks—and you can buy Norton AntiVirus on its own for $50, or as part of the more useful Norton Internet Security suite for $70.

Though both System Mechanic and Ultra WinCleaner are useful collections, they lack the scope of SystemSuite's tools. Still, System Mechanic has the best undelete tool of the bunch, and Ultra WinCleaner—true to its name—was the only program to remove more hard-drive garbage than Windows' own Disk Cleanup. But neither of these packages offers the full set of tools that you'll find in SystemSuite. To be fair, Ultra WinCleaner is designed to clean up a system, not to do all the diagnostic and maintenance tasks that the other suites claim to handle.

OUR PICK: SystemSuite 5

Best BUY

THE BEST BUY AWARD goes to SystemSuite 5, which V Communications acquired from Ontrack last year. SystemSuite offers a broad range of practical tools, including extensive hardware diagnostics and a workable uninstaller, all in a very easy-to-use package. And we found this suite to be the most helpful in the case of an XP-based system suddenly refusing to boot.

In past years, both Norton SystemWorks and SystemSuite had a reputation for slowing down Windows. New tests by the PC World Test Center reveal that the current editions (in their default configuration, but without their antivirus components loaded) have no measurable effect on performance. Previous versions of these two suites loaded background system monitoring automatically, which could cause noticeable slowdowns. The current versions do not load these monitors at start-up by default.

SECURE YOUR SYSTEM

BESIDES THEIR disk- and system-related utilities, all four suites offer at least some of the weapons you need to protect your computer from bad guys on the Internet. In addition to stopping viruses, all of the packages can wipe away the histories of your browsing habits and other personal data.

System Mechanic has the best selection of security tools. It comes with Panda Antivirus Platinum, which also works as a firewall and as a spyware finder and remover; in our recent antivirus tests, however, Panda was the least effective at capture and removal of viruses. Meanwhile, SystemSuite offers a firewall as well, and SystemWorks can handle spyware (through the included Norton AntiVirus 2004), but only System Mechanic blocks pop-up ads.

Norton SystemWorks offers a password manager—the only significant addition to last year's model—that encrypts passwords and other data to keep it all safe from prying eyes. SystemSuite comes bundled with the MailWasher spam filter and the GhostSurf anonymous-browsing

ALL OF THE PROGRAMS HERE include an all-in-one checkup that will scan your system, warn you of problematic items, and try to fix them. These checkups provide a simple way to regularly review your PC's health.

tool, but these are limited in functionality, and MailWasher has a truly irritating nag screen. You have to pay $20 more for the full, nonannoying version.

A SCAN A DAY KEEPS MISERY AWAY

PERIODIC MEDICAL checkups can help keep you healthy, and the same goes for your computer. You should regularly scan Windows and your hard drive for errors or problems that could get worse over time and could possibly lead to system failure. And when Windows isn't working well, you need an easy way to pin down the problem and fix it.

All four suites simplify the most basic maintenance tasks with an all-in-one checkup. Typically, this scans and defragments your drive, runs some diagnostics, deletes garbage files, scans for viruses, and erases your Internet tracks. It's a good idea to run this checkup weekly. All the suites also let you launch individual modules, and both SystemWorks' and System Mechanic's are easy to schedule for automatic launch. SystemSuite's scheduler supports the individual tasks but not the all-in-one checkup.

Every suite except Ultra WinCleaner has a defragger (see "Defraggers: No Longer Needed?" on page 81). SystemWorks and SystemSuite both have disk scanners that check for errors, and SystemSuite's offers something significant that Windows lacks: a removable-media scanner that can identify errors on your CDs and DVDs. It successfully spots problems but offers no solutions; Mitja Perko's free CDCheck (find.pcworld.com/39536), by comparison, will try to recover the damaged files.

All four suites simplify the most basic maintenance tasks.

SystemSuite's Fix-It component provides an extensive set of hardware diagnostics, more than any of the other suites here. It tests your PC's memory, motherboard, drives, and (with a set of loopback plugs that that you can buy for about $20) ports. The graphics and multimedia tests can, if you're in the mood, even do double duty as a psychedelic light show.

SystemSuite also has one cool tool for determining where all the free space on your hard drive has gone: a graphic view of all of your folders that shows you how much space they (and any subfolders) actually take. SystemWorks does something similar, but it shows you only the size of one folder at a time.

Windows diagnostics: You're more likely to suffer from a lack of system resources or an overloaded hard drive than from failing hardware components. To protect you from such everyday problems, both SystemWorks and SystemSuite include background Windows diagnostics programs that monitor your computer as you work, giving you much more information and warning than does Windows' own Task Manager. But a program running in the background, monitoring everything, is almost certain to have a bad effect on your system's performance. Indeed, with past versions of both suites users often complained that these programs slowed down systems and caused them to crash.

Start-up program controllers: Lots of applications invite themselves to load at start-up, and uninviting them can be ▶

FEATURES COMPARISON

UTILITY SUITES SCORECARD

ALL SUITES HAVE ANTIVIRUS tools, but beyond that they tend to specialize. V Communications' SystemSuite 5 covers the most bases.

SUITE	Street price (11/14/03)	System scan		Cleanup				Disaster recovery		Comments
		All-in-one checkup	Start-up program control	Registry cleanup	Program uninstall	Junk file removal	File shredding	Undelete	Nonbooting-system recovery	
Business Logic Ultra WinCleaner Utility Suite 8 ★★★☆☆ find.pcworld.com/39311	$50	Good	Good	Good	Average	Very good	Good	None	None	Has the best tools for system cleanup, and a zip utility. However, it omits defragging, undeleting, and disaster-recovery tools.
Iolo System Mechanic 4 Professional ★★★½☆ find.pcworld.com/39314	$70	Good	Good	Good	None	Average	Good	Very good	None	Good array of tools to secure your PC; best undelete, but other components are harder to use. No recovery tool.
Symantec Norton SystemWorks 2004 ★★☆☆☆ find.pcworld.com/39308	$65	Very good	Very good	Very good	Poor	Good	None	Poor	Average	Excellent antivirus program, but other components are showing their age. Its encrypting password manager is unique.
Best Buy V Communications SystemSuite 5 ★★★★½ find.pcworld.com/37922	$60	Very good	Very good	Very good	Average	Good	Very good	Good	Good	By far the most diverse and well-designed collection of maintenance utilities. Some of the tools are crippled versions, though.

tricky. Both Ultra WinCleaner and System Mechanic can help you choose which apps automatically run when Windows boots. Though Windows' own Msconfig does the same, the suites offer a significant improvement: profiles. You can save different sets of programs for different uses; for example, you could have one profile that loads several applications for general use and one that loads nothing for diagnostic purposes. System Mechanic's Startup Manager is by far the easier to use, while Ultra WinCleaner's WinStart Commander tends to make simple chores needlessly complicated.

THE REGISTRY FIXER component of SystemSuite 5 scans the Windows Registry for problems and tries to correct them.

TAKE OUT THE GARBAGE

YOUR HARD DRIVE is full of junk. Some of it is just wasting space, slowing down backups and other maintenance chores, but other pieces could threaten to destabilize your system. Fortunately, all of the suites we reviewed offer cleanup tools that will help sweep out the trash.

Registry cleaners: Garbage lurking in the Windows Registry is the worst kind of junk on your hard drive. A program that you've uninstalled may leave behind an unnecessary Registry key that can end up causing havoc. If your computer isn't behaving the way it's supposed to—for example, a program keeps crashing or the CD-R drive suddenly doesn't write—there's a good chance the problem is in the Registry.

All four suites provide Registry scanners that find, report, and fix potential problems. Just as important, all four of them are able to undo their work, since you can't be absolutely sure that a Registry change is for the better until you have tried it.

SystemSuite does the best job of guiding you through the cleaning process, color-coding the problems it finds. You're not likely to have difficulty instructing the program to correct the green problems, while the yellow ones may require some

BACKING UP TO HAPPINESS

MOST PC USERS avoid thinking about, let alone preparing for, computer disasters, so backing up isn't a high priority. As a result, when a hard disk fails, a laptop disappears, or a client's project gets zapped accidentally, few victims are ready.

However, backing up is no longer hard to do, thanks to the rewritable DVD drives that ship with the majority of new systems, as well as to the latest backup programs that work with them. For this article, we evaluated four such utilities: Dantz Retrospect Professional ($90, find.pcworld.com/39344), Iomega Automatic Backup ($40, find.pcworld.com/39347), NTI Backup Now Deluxe ($65, find.pcworld.com/39350), and Stomp BackUp MyPC 5 ($70 find.pcworld.com/39353).

All of them let you recover from the unthinkable when it becomes the inevitable, but Dantz Retrospect—although it's the priciest—earns our Best Buy award because it will back up every system on your network, while you sleep, faster than its competitors.

But wait, you say, doesn't Windows have a backup program already? Windows XP Professional's Backup program has many good features, including full, incremental (only files that have changed), and scheduled backups. Unfortunately, it lacks space-saving file compression and can't back up to rewritable DVDs. Windows XP Home Edition users get a limited version of XP Professional's backup; it's located on your Home Edition installation CD in the \valueadd\msft\ntbackup folder.

BACKED UP IN FULL

THE MOST COMMON backup technique is to make a full backup of all drives and partitions on your computer at regular intervals—weekly, for example—and incremental backups of just the files that have changed at shorter intervals (even daily isn't too often). All of the programs we reviewed except Iomega Automatic Backup allow you to perform both kinds of backups, and can schedule them to occur while you're snoozing. If you have a rewritable DVD drive or a second hard disk, this means you can create a full backup at regular intervals, leave a rewritable CD or

thought. However, you will have to consider each red problem carefully before acting on it. SystemSuite explains why each item is on the list. Norton SystemWorks offers even better explanations, including the potential consequences of leaving the keys alone. Neither program, though, explains what might happen if you remove them. The WinDoctor component of SystemWorks adds a nice touch: When you decide to restore a Registry key, WinDoctor tells you why it was deleted in the first place.

Uninstallers: When you install a program, you leave your hard drive at the mercy of software developers. The program's files could be scattered all over your drive, and much worse, Windows could get reconfigured to match someone else's idea of your needs. Three of the four utility suites come with universal uninstallers that can, theoretically, remove any program. Unfortunately, none did a particularly good job.

An unnecessary Registry key... can end up causing havoc.

Ostensibly, program-specific uninstallers should be all you need for the task. What, after all, could be better at removing DigTalonsIntoWindows than the uninstaller that came on the same CD-ROM? The sad reality is that many program-specific uninstallers remove the application's functionality, but not all of its scattered files, and they rarely remedy the alterations it made to Windows. Even sadder, however: The universal uninstallers that come with suites are usually worse, since they lack the inherent advantages of the built-in ones.

Both SystemSuite and Ultra WinCleaner have universal uninstallers that, where possible, use the unwanted program's own removal tool (since that generally does the better job). In our informal tests where the universal uninstallers had to use their own intelligence to remove a program, SystemSuite's EasyUninstall produced better results on our systems, removing more bits and pieces of the programs than did Ultra WinCleaner's WinUninstall Wizard. But, like all other uninstallers, it didn't get everything.

Norton SystemWorks' CleanSweep does not use an app's own uninstaller, but it can monitor installations in the background, recording what changes the installation makes to your system. It can then, in theory, undo these changes at a later date. But we found this monitor extremely fussy. It refused to operate on a PC running an Intel processor with ▶

DVD in the drive each night, and be sure (target drive or disc capacity permitting) that you have a current backup every day.

Iomega Automatic Backup takes a different approach: It creates backup copies of your choice of key data files on your system, as you modify them. The program can also store multiple copies of your files created over time, allowing you to revert to an earlier version. Rather than a full-strength backup tool, Iomega Automatic Backup is more of a digital safety net.

The PC World Test Center tested the backup speed of the programs and found that Dantz Retrospect Professional was noticeably faster than the others: It took just under 25 minutes to back up about 9GB of data to the Maxtor OneTouch USB 2.0 hard drive we used in our tests. A version of the Dantz program is bundled with the Maxtor OneTouch external hard drive, and it was nearly as fast as the retail version. The slowest program was Stomp BackUp MyPC, which took 42 minutes to back up the same amount of data. If you plan to schedule your backups to happen during the wee hours, this might not matter much; but if you schedule backups during your workday, speed becomes more important.

When backing up to a hard drive using the FAT32 file system, all of the programs we looked at had to break the data into multiple files to avoid the 4GB file size limit. All of the programs took care of the details automatically, except for Stomp BackUp MyPC, which asks you to confirm the name for each new file. Unfortunately, this approach makes unattended large backups impossible. So if you plan to do such backups, you should select one of the other backup programs or choose the NTFS or CDFS file system.

Dantz Retrospect also includes client software for remote computers that gives the clients some control over when backups occur. And if you have several different copies of the same file on your PC, Retrospect saves only one copy, speeding up incremental backups.

RECOVER FROM DISASTERS

ALL OF THE PROGRAMS let you restore either the entire backup or individual files. However, disaster recovery is where a backup program shows its true value. If your hard disk should fail catastrophically, you can always buy a new disk, reinstall Windows and the backup program, and then reinstall your full backup to re-create your system. Dantz Retrospect, NTI Backup Now, and Stomp BackUp MyPC simplify this by creating bootable disaster-recovery discs that restore your full backup directly to an empty drive.

There are some caveats. To create a set of disaster-recovery discs for Windows, you need a full Windows XP install CD—the disk-image restore CDs that accompany many computers won't work. NTI Backup Now's disaster-recovery feature is a little different: To use it, you must create a separate copy of your entire drive using the included DriveBackup disk-imaging program; you can't use the backup created by Backup Now itself. However, you can create and restore your DriveBackup image whether you have a Windows XP installation disc or not. *–Scott Spanbauer*

hyperthreading, and on another system it failed to notice when we installed QuickBooks. When it did catch an installation, it didn't do as thorough an uninstall as the application's built-in uninstaller. CleanSweep can also remove unmonitored programs, but here it did a worse job than SystemSuite's or Ultra WinCleaner's tools. As near as we can tell, it didn't change anything in the Registry.

System Mechanic has no uninstaller, but it does, in a way, have a monitor. You can take "snapshots" of your system before and after an install, and then save a report on the differences. You can then use the report to find the stuff that was installed and remove it manually.

Junk file removal: All four suites have basic cleanup tools for deleting the junk files that clog up your disks, such as old temp files, Web caches, and the like. But then again, so does Windows XP, and only Ultra WinCleaner did significantly better here than XP's own Disk Cleanup. On our test system, WinCleaner removed 44MB, whereas XP got only 35MB. SystemWorks' 36MB was a near photo finish with Windows, but System Mechanic managed only a paltry 1.4MB.

SystemSuite once again outdid the other packages, but in this case it wasn't an advantage: The utility deleted several gigabytes of data in a folder named 'temp' on a second hard drive that we didn't want it to check.

File shredders: Being able to restore deleted files is a good thing, but some files you don't want anyone to see ever again. All four of these suites include a secure file-deletion tool, and all except SystemWorks can wipe your entire hard drive—a wise precaution before selling or donating an old computer.

Only WinCleaner did significantly better than XP's own Disk Cleanup.

SystemSuite deals with file shredding through PowerDesk, a file manager that's an extra on the SystemSuite CD. The ▶

WRANGLE DISKS LIKE A PRO

NOW THAT BOTH hard drives and the files they contain can be huge, it's more important than ever to create and manage drive partitions. (Even though Windows 2000 and XP don't require it, partitioning a large hard drive makes backing up and restoring easier.) The disk-management tools that come with Windows XP are severely limited—you can delete and create partitions, or convert a FAT32 partition to NTFS, but that's it. Anything else requires backing up the partitions on your hard drive, creating a new partition, and then reinstalling and/or restoring the operating system, applications, and data.

If you want to delete, move, or resize partitions, or convert from one file system to another without the backup-and-reinstall hassle, you want a drive-partitioning utility. Using such a tool, you can manipulate partitions without destroying their contents, although backing up your data beforehand is always a wise precaution. PowerQuest's PartitionMagic 8 (find.pcworld.com/39329) is the tool to beat. It permits you to explore your existing partitions and make multiple changes, all from within Windows. When you're done with your modifications, PartitionMagic automatically restarts the system, makes the changes you want without further assistance from you, and then boots the computer back into Windows. Handy special-purpose wizards split, merge, and redistribute free space among your partitions. The program can create, move, and resize partitions formatted with common PC file systems, including Windows' FAT32 and NTFS, as well as Linux's EXT2, EXT3, and Swap types (but not the newer ReiserFS). It also includes PowerQuest's BootMagic multi-OS boot manager, which lets you install several OSs onto one machine and choose which to run.

THE ALTERNATIVE

THE PROBLEM WITH PartitionMagic is that $60 is lot to pay for a tool you may use only once or twice a year, no matter how good the program is. If the price galls you, V Communications' Partition Commander Version 8 (find.pcworld.com/39332) costs only $45, but it lacks some of PartitionMagic's automation and polish. Like PartitionMagic, Partition Commander allows you to create, delete, and resize partitions; however, it doesn't run within Windows, and it requires you to boot with the install CD in order to launch its Partition Wizard interface. Partition Commander defaults to creating FAT or FAT32 partitions, depending on the partition size. You can opt to create one of the other supported types, but the interface doesn't make figuring out how to do this easy: We had to resort to the online help. And regardless of the task you undertake in Partition Commander, you must wait until it's complete before attempting another one. If you expect to do a lot of partition wrangling, PartitionMagic's slightly slicker interface may be worth the extra $15. *–Scott Spanbauer*

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TEST Center

DEFRAGGERS: NO LONGER NEEDED?

WHEN WAS the last time you defragmented your hard disk? As your PC creates, modifies, and deletes files on the hard drive, files tend to get broken up into pieces that are physically scattered around the disk. Drives and file systems are built to keep track of these noncontiguous file parts, but if a significant portion of your hard drive has become fragmented, its performance might suffer.

Then again, it might not. When the PC World Test Center set out to determine the effectiveness of the defrag utilities in our set of suites, plus that of Diskeeper 8 from Executive Software (find.pcworld.com/39779), our analysts found no evidence that defragmentation enhanced performance. On a desktop system from the *PC World* office with a heavily used, never-defragmented hard drive, the lab conducted speed tests using a range of applications before and after defragmenting the drive with each utility. In the end, the Test Center saw no significant performance improvement after defragmenting with any program. This result flies in the face of the received wisdom that fragmentation hinders performance, though much older PCs (with slower and smaller hard drives) and heavily used servers may benefit more from defragging.

Fortunately, you don't have to buy a defragger to see if it will boost performance on your system: Every copy of Windows comes with a defragmentation tool. However, it is not particularly easy to use. Diskeeper 8 Professional Edition offers set-it-and-forget-it scheduling options, the ability to prioritize or skip defragmentation of specific files, and a display that predicts how much faster your system will be after defragmentation. Our tests didn't validate those predictions, though; again, we saw no performance gains after defragmenting.

The Disk Defragmentation module in Iolo's System Mechanic 4 Professional, SpeedDisk in Symantec's Norton SystemWorks 2004, and JET Defrag in V Communications' SystemSuite 5 not only defrag files but claim to cluster frequently used files together for faster access. A tool in SystemSuite 5, called IntelliCluster, watches how files are accessed as you use your PC, and then arranges files on the disk for optimal load speed. Only SpeedDisk lets you schedule defragmentation (say, for the middle of the night). *–Scott Spanbauer*

previous versions of the suite had the much stronger PowerDesk Pro, but SystemSuite 5 offers only the stripped-down version you can download for free. The no-cost PowerDesk is a nice tool, superior to Windows' own Explorer file manager, but it lacks the versatile file viewers and customization abilities of the $40 Pro.

SYSTEMSUITE 5 provides a good overview of which folders are taking up all of your disk space through the SizeManager tool.

DISASTER INSURANCE

WHAT DO YOU DO if you empty the Recycle Bin and then discover you accidentally deleted the wrong file? Or what if Windows doesn't boot? Though most of the suites can help you a bit in the former situation, in the latter, worst-case scenario, all of them disappoint—at least for users who are running Windows 2000 or XP with NTFS-formatted drives.

File undeleters: If you've inadvertently deleted a file, Windows' Recycle Bin is a good safety net, holding files until you choose to empty it. However, it's not a perfect solution. If the file was too big for the Bin, if you deleted the file in a way that bypassed the Bin, or if you just emptied the Bin, then you'll need another way to restore the file.

Norton SystemWorks offers a slightly improved Recycle Bin that catches files Windows misses, but it can't do much else on NTFS drives. Both SystemSuite and System Mechanic can often restore files that are not in the Recycle Bin, even under NTFS, though there's no guarantee. (Sometimes a deleted file is beyond rescue—if the space it was on has been written over, the programs can't do anything.) SystemSuite offers an extra layer of protection in the form of the Deleted Files Bin, where files go when you empty the Recycle Bin, or when you delete them in a way that the Recycle Bin can't catch. And System Mechanic can restore the file to a different drive—a useful precaution against further accidents. System Mechanic also provides another nice touch: It can restore deleted e-mail messages ▶

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FREE TOOLS: SOMETHING FOR NOTHING

THE UTILITY SUITES we review in this article smooth most of the rough edges of your PC, but they don't do it all. Luckily, dozens of handy, no-cost utilities can fill in the gaps. All of the programs listed below are free, and devoid of ads and spyware. In many cases the authors accept donations from grateful users, which in turn keeps revisions and new editions coming.

Capture (find.pcworld.com/39764): Sometimes, nothing tells a story like a picture—be it of a crashed application, an error dialog box, or evidence of a missing feature. The next time a support technician wants you to click a button that you can't see, use Capture to send them a shot of your screen.

FileMon (find.pcworld.com/39767): Just as the three bears wondered who had been sleeping in their beds, you may often wonder, "Who's been editing my files?" Sysinternals' FileMon tells you just that, along with a record of every other file that gets opened, closed, or otherwise accessed. Filemon generates a forest of data, but it also provides filters that allow you to focus on what you need, so you can check the history of a particular document or file.

SuperShredder (find.pcworld.com/39770): Hard disks are tricky. When you empty the Recycle Bin, it looks like your sensitive files are gone, but bosses, probation officers, and the Department of Homeland Security all know how to get them back. With SuperShredder, you can completely erase any files by using drag-and-drop or the 'Send to' menu.

WinKey (find.pcworld.com/39773): Few folks remember to use the <Windows> key, probably because it can perform only a limited number of tricks: <Windows>-E for opening Explorer, <Windows>-D for showing or hiding the desktop, and—yawn—a few others. WinKey lets you program the key to do the stuff you actually do every day—why not program <Windows>-P to launch PCWorld.com? The sky's the limit.

WinPatrol (find.pcworld.com/39776): Unless you know where to look, it's hard to keep tabs on the many programs, plug-ins, services, and scheduled tasks set to load and run automatically when you launch Windows. WinPatrol does the job, letting you view all of these items in a tabbed interface, disable unwanted activity, and manage cookies, too. *–Scott Spanbauer*

from four programs: Outlook, Outlook Express, Netscape Messenger, and Eudora.

Emergency boot: Few things are worse than having a PC that won't boot when you need it. And the situation is pretty tough to fix with Windows XP. Though a genuine Microsoft Windows XP CD-ROM contains a useful but difficult repair tool you can boot to, most systems today don't come with this CD, and some offer no option in times of disaster other than restoring your hard drive to its original condition—wiping out all of your data.

Windows XP has one recovery tool that doesn't require a Microsoft CD-ROM: System Restore, which backs up and restores your principal system files. Norton SystemWorks and SystemSuite provide similar backup tools that offer better disaster protection than System Restore. SystemWorks' GoBack Personal installs itself into the drive's master boot record, loading before Windows and giving you the option to restore the operating system to an earlier condition before Windows-based problems stop the boot. Of course, if the problem is in the master boot record itself, you're out of luck.

SystemSuite's Recovery Commander has a better solution. It gives you an option to create a bootable CD that will let you restore from any Recovery Commander backups on the hard drive (including NTFS drives). What's more, you can copy files from the hard drive to a CD-R or to a USB drive—very useful if you need to move your data to someplace safer.

However, none of the suites has the tool that all Windows 2000 and XP users need—a bootable, easy-to-use CD loaded with NTFS-aware repair tools. Such a tool exists in Winternals' ERD Commander 2003 (find.pcworld.com/39800), which creates a bootable CD with a special version of Windows XP (licensed from Microsoft). Once you boot your PC with that CD, you can run System Restore, scan your drive for errors, and copy files onto another computer on the same network.

If you have a very big network, ERD Commander is reasonably priced: $600 for 100 computers. For one computer, however, the emergency download price is $200. If you find yourself with a downed mission-critical computer, the tool might be worth it. But your bank account will hate you in the morning.

We think Windows should have these recovery tools itself, especially since ERD Commander uses a good deal of technology that is already built into Windows XP; and barring that, all of the suites we reviewed should have them. Until that happens, your best bet is to buy and use SystemSuite 5, back up regularly, and keep your fingers crossed. ■

Lincoln Spector and Scott Spanbauer are contributing editors for PC World. *Testing was done by Senior Performance Analyst Elliott Kirschling and Development Analyst Thomas Luong of the PC World Test Center.*

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ROAD TOOLS

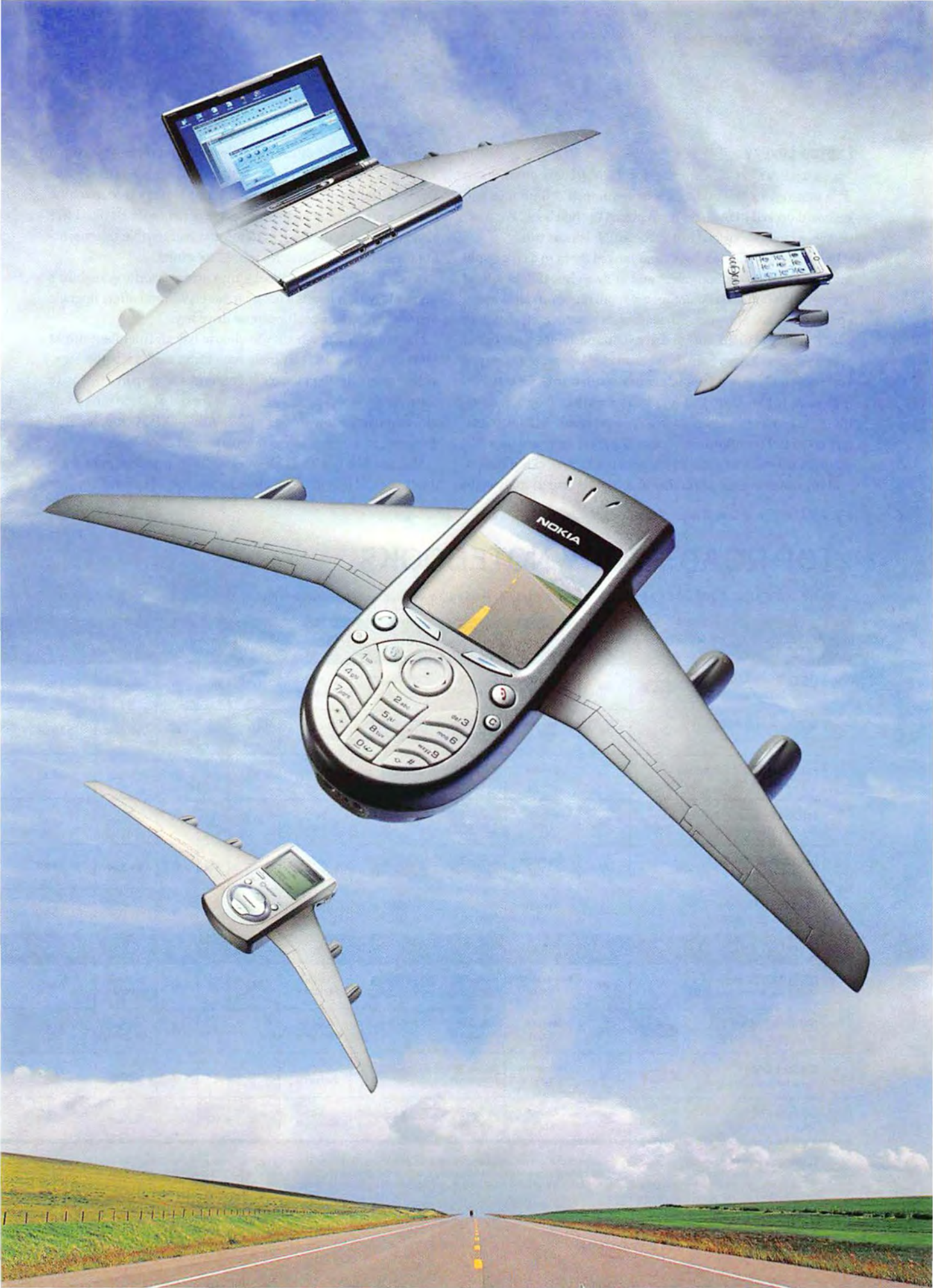
You need to keep in the loop when you're on the go. And these 30-plus travel-worthy products, accessories, services, and strategies can help. BY CARLA THORNTON

DOG SLEDDERS. Extreme backpackers. Sherpas. Now those are folks who know how to pack for a road trip. On your next out-of-towner, you may not have to worry about suffering frostbite, but road warriors do have to obey their own code of survival: staying productive.

According to research firm Gartner, 45 percent of today's U.S. workforce uses some type of mobile device. Add to this number the people who occasionally work at home or who squeeze in work during a long commute on the train or ferry. One result of this mass exodus from the office is a raft of mobile products and services clamoring for a spot in your travel survival kit.

To help you make the most of your time out of the office, here are more than 30 tools you can use. ▶

PHOTOGRAPHS BY MARC SIMON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Laptop Luxury

As the reviewer for the *Top 15 Notebooks* chart, I can assure you that address book–equipped cell phones and keyboard-decked PDAs have not replaced the notebook. For most people, a laptop is crucial to a successful business trip.

I looked at several notebooks and ranked them in a chart, split into two groups—ultraportables and midweights. If light weight is essential, you have two options: a small ultraportable with an optical drive built in, or one that attaches to a docking station to give you access to an optical drive. Ultraportables have better processors and bigger hard drives than ever before, but cramped keyboards and limited built-in drives remain causes for concern.

Though IBM's ThinkPad X31 lacks an internal optical drive, it's my choice for an ultraportable: You get nearly 5 hours of battery life, a full set of connections, and a great keyboard, in a 3.7-pound notebook that costs $1698 with the $199 docking station.

Many users like the versatility of a slightly larger, midweight notebook. "I got rid of my office desktop and replaced it with a 5.6-pound Dell Inspiron 600m with a 14.1-inch screen," says Joe Davis, a Dallas oil and gas consultant. Having one machine makes working remotely a seamless experience for Davis. "I was always leaving something at home and had terrible times syncing files when I got back. No more," he exults.

Among midweight notebooks, my current favorite is Toshiba's Tecra M1, which boasts a 6.7-hour battery life and offers upgrade options through its multipurpose drive bay.

Make sure the notebook you choose has an Intel Pentium M processor. This CPU routinely runs faster and is a better steward of battery life than the older Pentium 4-M chip in *PC World's* tests. As for AMD processors, we've looked at some ultraportables that use the low-voltage mobile Athlon XP-M chip, but they delivered merely average performance and battery life.

Also, get 802.11b Wi-Fi for wireless Internet access; even if you don't use the feature now, chances are you will eventually (see

FEATURES COMPARISON

TOP ROAD-READY NOTEBOOKS

MANY DIFFERENT TYPES OF LAPTOPS are ideal for travel. Those with smaller screens often are more lightweight, but may need a dock-

	ULTRAPORTABLE NOTEBOOK	Overall rating	Street price (11/14/03)	PC WorldBench 4 performance score [1] (Faster)	CPU [2]	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Minimum weight/ maximum weight (pounds) [3]
1	Best Buy IBM ThinkPad X31 find.pcworld.com/39512 NEW	88	Inexpensive $1698 [4]	Windows XP Professional: Good 116	1.3-GHz Pentium M	12.1	512	20	Eraserhead	3.7/6.4
2	Toshiba Portégé M100 find.pcworld.com/38870	86	Average $2099	Windows XP Professional: Good 115	1.2-GHz Pentium M	12.1	256	40	Eraserhead	3.9/5.3
3	Panasonic CF-W2 Toughbook find.pcworld.com/39515	84	Average $2250	Windows XP Professional: Average 105	900-MHz ULV Pentium M	12.1	256	40	Touchpad	2.9/3.7
4	Fujitsu LifeBook P5020 find.pcworld.com/39482 NEW	83	Average $1899	Windows XP Professional: Average 107	1-GHz Pentium M	10.6	256	60	Touchpad	3.9/4.7
5	Dell Latitude X300 find.pcworld.com/38531	81	Expensive $2366 [4]	Windows XP Professional: Good 116	1.2-GHz Pentium M	12.1	640	40	Touchpad	3.0/6.0
6	Sharp Actius MV14 find.pcworld.com/38534	78	Average $1999	Windows XP Professional: Average 104	1.2-GHz Pentium III-M	12.1	256	40	Touchpad	3.8/5.0
	MIDWEIGHT NOTEBOOK									
1	Best Buy Toshiba Tecra M1 find.pcworld.com/37022	89	Very expensive $3049	Windows XP Professional: Good 113	1.6-GHz Pentium M	14.1	512	40	Touchpad, eraserhead	5.6/7.1
2	IBM ThinkPad T41 find.pcworld.com/39476 NEW	89	Average $2039	Windows XP Professional: Very good 123	1.6-GHz Pentium M	14.1	512	40	Touchpad, eraserhead	5.1/5.9
3	WinBook C-120 find.pcworld.com/39479 NEW	86	Inexpensive $1499	Windows XP Professional: Very good 122	1.4-GHz Pentium M	14.1	512	40	Touchpad	6.0/6.9
4	Gateway 200XL find.pcworld.com/37655	82	Average $2200	Windows XP Professional: Outstanding 125	1.6-GHz Pentium M	14.1	512	60	Touchpad	4.3/5.9

FOOTNOTES: [1] Performance word scores reflect comparisons of PCs in the same category. For more details, see "Your Guide to the Top 100" at find.pcworld.com/15730. [2] All Intel CPUs are SpeedStep chips, which run at a slower speed on battery power. (We performance-test all notebooks plugged in.) [3] Minimum weight reflects the weight of the notebook with listed optical drive, if any. Maximum weight includes the weight of the computer, AC adapter, power cord, and docking station or port replicator, if included. [4] In order: width by depth by height.

BEST BUYS: Toshiba's Tecra M1 (left) and IBM's ThinkPad X31 (in its docking station).

"Which Way to the Internet?" on page 92).

Spring for a notebook that at least has a CD burner. You won't regret being able to back up large amounts of data or to burn a music CD. Rewritable drives often come as DVD-ROM/CD-RW combination models at little increase in price.

For extralong battery life, check to see if the vendor sells a high-capacity power pack. Your alternative is a battery add-on such as Valence Technology's N-Charge Power System (find.pcworld.com/39644). Weighing less than 2 pounds, the charger lies under the bottom of a notebook and (according to the vendor) provides from 5 ($199) to 10 ($299) extra hours.

If you need more ports than your laptop currently provides, consider getting a universal port replicator like Belkin's $125 Hi-Speed USB 2.0 DockStation (find.pcworld.com/39647). The device is 1 inch tall and weighs less than a pound, including its cables and power adapter. It has two USB 2.0 ports, a parallel port, a 10/100 ethernet port, a serial port, and a VGA port for monitors. And it will work with any notebook, unlike the device-specific docking stations that computer companies sell as options for their PCs. ▶

ing station to add extra features. Others with larger screens pack more features into a slightly bigger frame.

Dimensions (inches)[4]	Battery life (hours: min)[5]	Bays and optical drives	Other features	Overall design	Comments
10.8 by 8.9 by 1.3	**Outstanding/** 4:49	One multipurpose bay with 8X DVD-ROM and 24X/10X/24X CD-RW combo drive in docking station	CompactFlash slot, built-in 802.11b, FireWire port	**Very good**	This near-perfect small notebook's only flaw: The optical drive is located in a separate $199 docking station. (★★★★½)
10.7 by 9.8 by 1.5	**Very good/** 4:11	One multipurpose bay with 8X DVD-ROM and 24X/10X/24X CD-RW combo drive	FireWire port, built-in 802.11b	**Very good**	Sporty notebook almost does it all, with a good keyboard, solid performance, strong audio, and long battery life. (★★★★☆ Jan 04)
10.6 by 8.3 by 1.8	**Outstanding/** 7:00	Fixed 8X DVD-ROM and 16X/10X/24X CD-RW combo drive	SD slot, built-in 802.11b	**Fair**	This light laptop has a unique top-mounted optical drive. However, its keyboard feels cramped, and it has few legacy ports. (★★★☆☆ Jan 04)
10.3 by 6.8 by 1.5	**Very good/** 4:15	One multipurpose bay with 8X DVD-ROM and 24X/10X/24X CD-RW combo drive	SD and CompactFlash slots, FireWire port, built-in 802.11b	**Good**	Relatively compact for a portable with a modular bay; it has a small screen and is somewhat slow. (★★★☆☆)
10.9 by 9.3 by 1.1	**Fair/** 2:07	One multipurpose bay with 8X DVD-ROM and 24X/10X/24X CD-RW combo drive in docking station	SD slot, FireWire port, built-in 802.11b/g	**Very good**	On its own, this portable is just 3 pounds; its 1.9-pound media slice adds a full set of connections and great sound. (★★★☆☆ Dec 03)
11.1 by 9.4 by 1.2	**Good/** 3:05	Fixed 8X DVD-ROM and 24X/10X/24X CD-RW combo drive	FireWire port	**Fair**	This laptop lacks the bells and whistles of other ultraportables, but it would be useful for general computing tasks. (★★★☆☆ Dec 03)
12.3 by 10.8 by 1.6	**Outstanding/** 6:42[7]	One multipurpose bay with DVD-R/RW/RAM drive	SD slot, FireWire port, built-in 802.11b, gigabit ethernet	**Very good**	Stylish notebook boasts phenomenal battery life, powerful speakers, and many upgrade options via its multipurpose bay. (★★★★½ Oct 03)
12.3 by 10.2 by 1.3	**Very good/** 4:19	One multipurpose bay with 8X DVD-ROM and 16X/10X/24X CD-RW combo drive	Built-in 802.11b, Bluetooth, gigabit ethernet	**Good**	Eraserhead and mouse buttons feel a bit flimsy and the battery is awkward to remove, but the overall design is still pleasing. (★★★☆☆)
12.5 by 11.0 by 1.5	**Outstanding/** 4:46	One multipurpose bay with DVD-R/RW drive	SmartMedia, SD/MultiMediaCard, and Memory Stick slots; FireWire port; built-in 802.11b	**Good**	Lean budget model boasts a DVD burner, all the latest connections, and music controls—but only so-so sound. (★★★★☆)
12.4 by 10.2 by 1.3	**Limited/** 1:00	Fixed DVD-R/RW drive	FireWire port, Microsoft Works 2003	**Good**	This thin, elegant system is lightning-fast but strikes out on battery life. (★★½☆☆ Nov 03)

[5] Unless otherwise noted, all notebooks come with a lithium ion battery. [6] Price includes the extra-cost docking station. [7] We typically test at a notebook's highest power-conserving setting, but this model's "Super Long Life" and "Long Life" options resulted in an unacceptably dim screen. Instead, we tested at the default "Normal" power setting.

Road Safety

LEAVING YOUR notebook lying around unsecured is like waving a bottle of Gatorade at the finish line of the Boston Marathon—you can bet someone's going to grab it. Experts say that any sort of physical barrier is enough to thwart most thieves. For that you can't beat Belkin's $34 K100 Notebook Security Lock (find.pcworld.com/39650); it includes a 6-foot, galvanized cable and a set of two keys. You just loop the cable around the leg of an immovable object, such as a bolted-down hotel table, and then plug the hardware end into the security slot on the side or back of your notebook. You also get an anchor plate for screwing a cable eyelet onto a flat surface.

Accidents are inevitable if you travel a lot, so consider extending your notebook's warranty or upgrading to a plan that covers accidents. Check your homeowner's or renter's insurance policies, too, to see whether they cover accidental damage to computers. Having proper coverage could save your neck if you drop your notebook or if it falls victim to a fellow traveler's clumsiness.

ESSENTIAL TOOLS (clockwise from left): Belkin USB 2.0 DockStation, 01 Communique I'm InTouch, Forward Solutions Migo.

"I've lost two machines due to accidents on airplanes," says consultant Joe Davis. "One person sitting next to me spilled their drink. The person in front reclined and torqued the screen. For my latest notebook, I upgraded to a three-year warranty that covers accidents."

Desktop in a Key Chain

I LOVE MY DESKTOP. It has my files, e-mail, and Internet settings arranged just the way I like. That's why I hate to leave it when I travel. What I really want is an easier way to set up my laptop to operate like my desktop while I'm on the road.

Forward Solutions' Migo (find.pcworld.com/38648) is a USB flash drive ($150 for 128MB, $200 for 256MB) that makes parting with your desktop easier—at least for Outlook and IE users. The Migo has data management and synchronization software on board. When you plug it into a USB port on your office computer, it can copy the desktop (and some interface settings), Outlook in-box, favorites, and selected files. Plug it into another PC, type in your password, and you'll see a copy of your office PC.

THE MIGO CAN COPY YOUR DESKTOP, OUTLOOK IN-BOX, AND FILES SO YOU CAN WORK FROM ANY PC.

Plugged back into my office machine, the Migo syncs my e-mail and any new favorites I've saved on the other PC; then it updates files, including folder structures. Even with the convenience of the Migo, however, I hesitate to abandon my notebook altogether. A destination PC that has a corrupted in-box, as one of my test machines did, may reject the Migo.

M-Systems takes a similar approach: Its $60 (64MB) to $290 (512MB) DiskOnKey Classic 2.0 USB flash drive (find.pcworld.com/36032) allows you to copy your files. Once you install the company's free, downloadable MyKey applet on the drive, the program creates a hidden partition where you can password-protect files and hide them from other users' view. Alas, it's more trouble than it's worth. You have to launch the on-board applet every time you want to see your password-protected files. And to reallocate space, you have to wipe the entire key. Argh.

Remote Control

TICKETS? CHECK. Carry-on? Check. The presentation that could elevate you from office nobody to company hero? Oops. Still sitting on the PC in your cubicle.

The problem with taking a subset of your desktop on a trip is that you still might forget a file. One solution is remote-control software, which lets you view your desktop over the Internet from another PC so you can work as if you'd never left your office chair.

The latest user-friendly packages—01 Communique's I'm InTouch (find.pcworld.com/39674), Expertcity's GoToMyPC 4 (find.pcworld.com/33143), and Laplink Software's LapLink Everywhere 2 (find.pcworld.com/39899)—make setting up a remote connection a breeze. Install the software on the machine you want to control (the host). Then, on the controlling PC (the client), go to the vendor's Web site, enter a password, and wait a few moments for a temporary Java applet to download and display the host's screen. And while I enjoy hanging out at www.whatsmyip.com as much as the next person, here's the best part about these three apps: You don't have to supply your host's IP address or reset any of its ports, as you do with some earlier packages; a central server handles the peer-to-peer connection for you. All three programs even hurdled my firewall with ease.

Because you don't have to install any client software, you ▶

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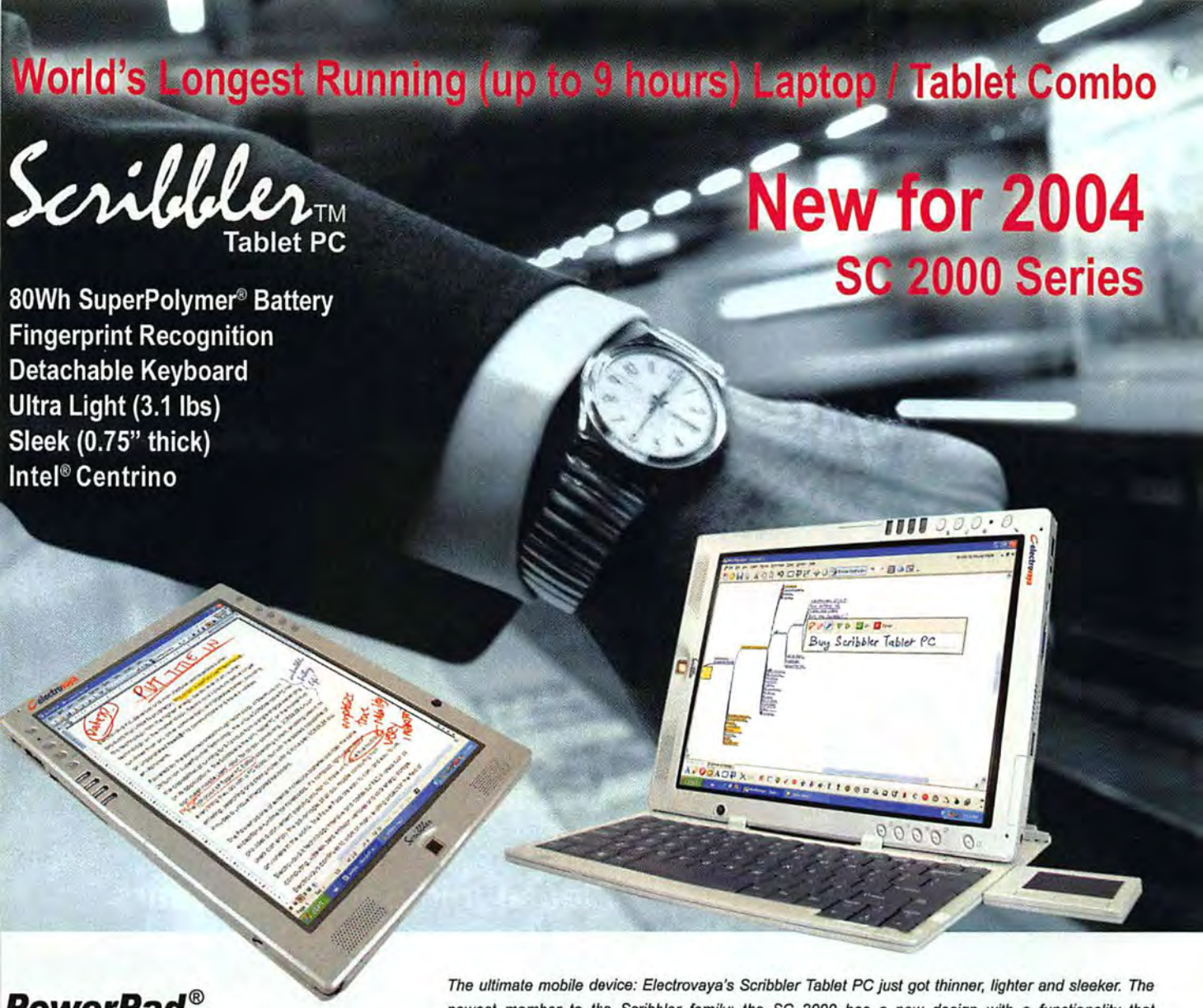

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PC WORLD — One of the busiest booths here at Comdex features a new, lightweight, Tablet PC with a claimed battery life of nine hours. That's an unprecedented amount of unplugged time that.....blows away what's available today.

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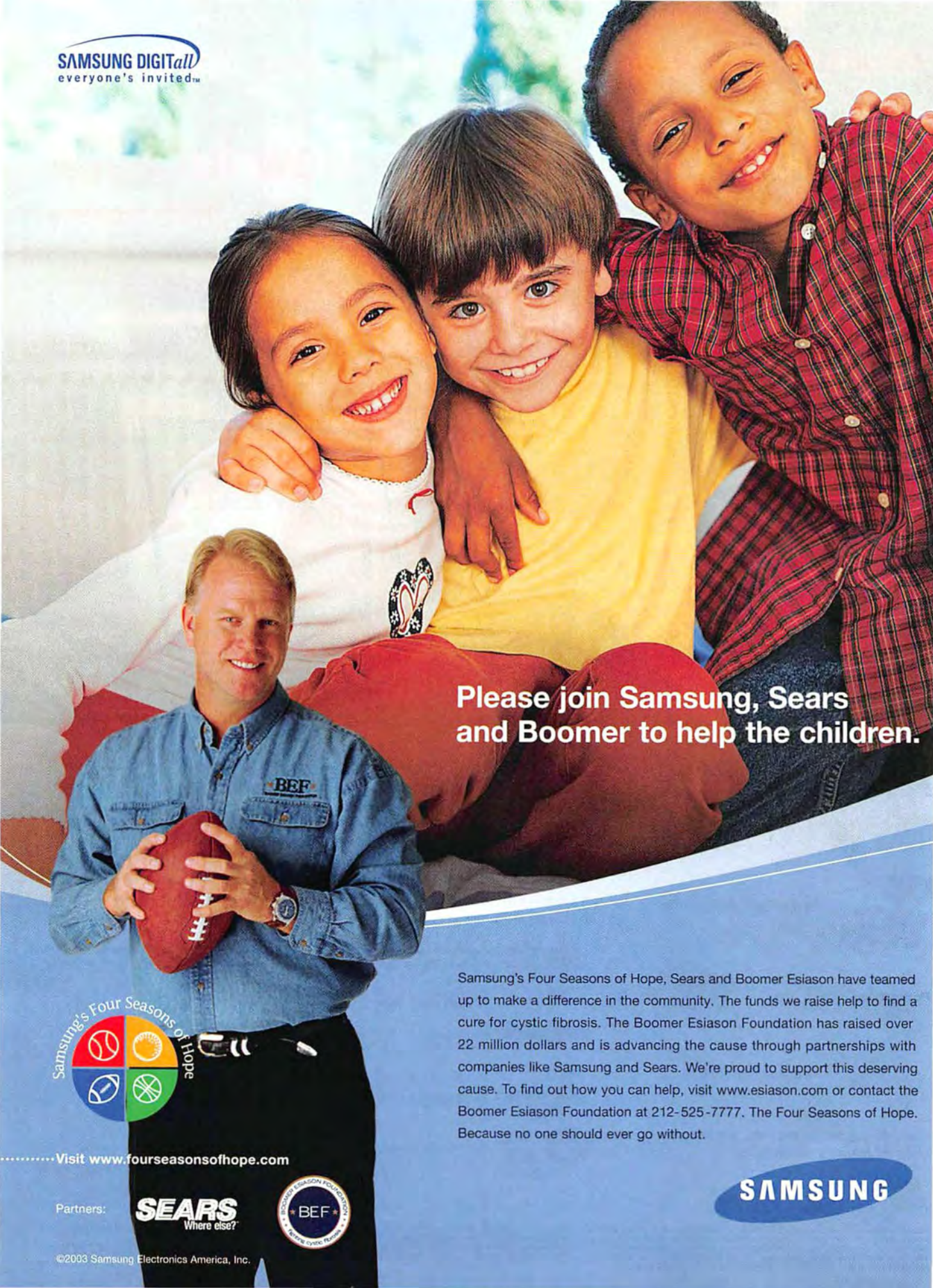
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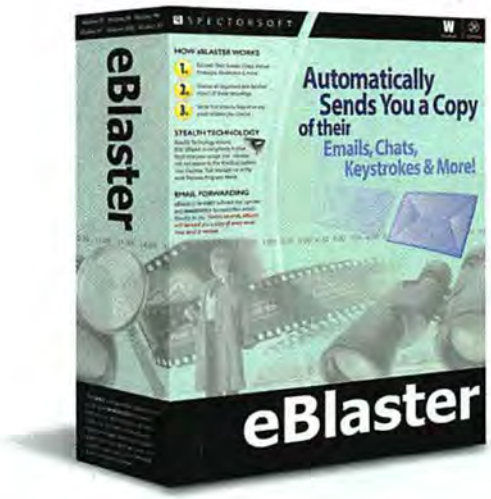

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can work from any device capable of browsing—laptops, cell phones, and Internet terminals at airports and in coffee shops.

I'll opt for the $99 I'm InTouch the next time I go out of town and want to be able to access anything on my office PC. Screen refreshes were a bit sluggish over my 56-kbps dial-up connection when I switched applications, but overall response was brisk: I never had to wait for the screen to catch up to my keystrokes. Transferring files—useful for working on documents locally and then sending them back to the host—was awkward but functional. Security is the only issue. As with all remote-control packages, you must leave your host PC running, and I'm InTouch has no safeguards such as blanking the screen of the host PC.

Expertcity's GoToMyPC 4 works similarly but also offers a download-on-demand viewer for maximizing the control window to nearly full screen, and it lets you set up a local printer to print directly from the host. You can even mark the screen for editing or illustration purposes. Unfortunately, as a small-business person I can't afford GoToMyPC's $180 annual fee. Bigger companies may want to check out the program's corporate versions.

I also tried LapLink Everywhere 2, a Web-based remote-control service; unfortunately, it exhausted my patience with sluggish performance. On top of that, it costs $120 per year for unlimited remote access. For more-complicated needs, such as controlling multiple machines and customizing a full range of security options (including blocking certain files or users), I recommend the $100 LapLink Gold 11 (find.pcworld.com/33158). Like ▶

PROFILE

MORE IS MORE: Light Notebooks Don't Fit All

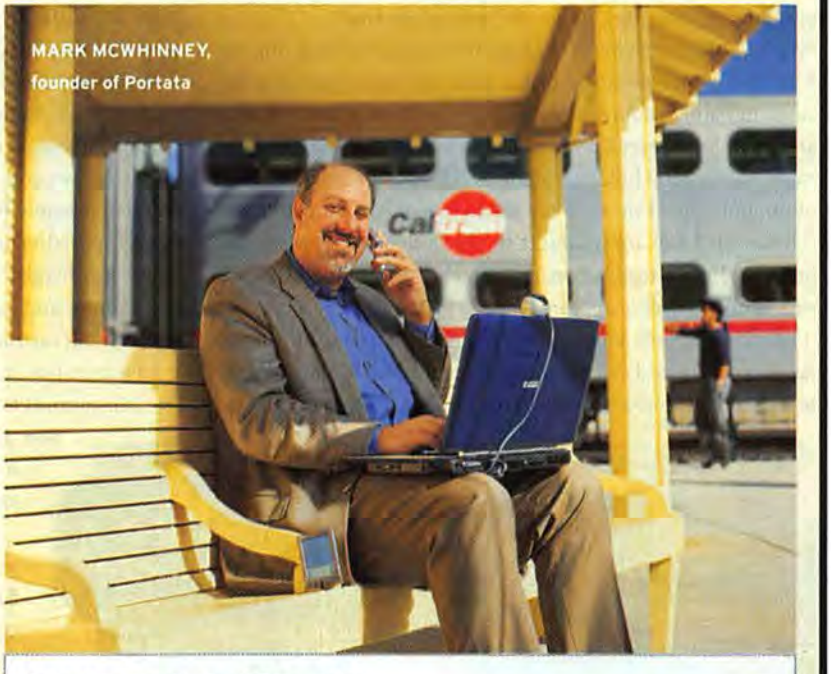
A 4-POUND NOTEBOOK with a 12-inch screen doesn't interest Mark McWhinney, the founder of Portata, a software load-testing company in Mountain View, California. He bought a 9.9-pound Toshiba Satellite P25-S609 for business trips.

"I've never really understood the need for light weight," says McWhinney. "If you're a road warrior, you need to take the office with you."

The Satellite P25-S609 carries a 3-GHz Pentium 4 processor, a DVD-RAM burner, an 80GB hard drive, and 1GB of memory. But McWhinney's favorite feature is the unit's built-in TV tuner, which he uses to record the news before leaving his hotel room. At lunch, he replays it on his notebook's 17-inch screen.

The Toshiba accounts for over a third of the 25 pounds of gadgets McWhinney totes—but that's okay. "I just throw the bag over my shoulder," he says. The 2-hour battery life doesn't matter because the notebook is usually plugged in.

When working at home, he stays in touch with the office via Yahoo Messenger IM, WebEx conferencing software, and his company's Cisco VPN, which he finds is faster than his personal copy of PCAnywhere. "[From my home office, Cisco's VPN] lets me work on PCs in San Diego, and it saves my client, 24 Hour Fitness, $1000 in travel expenses."



MARK MCWHINNEY, founder of Portata

Business Travel Dossier

Miles per Year: 20,000, on weekly flights between Northern and Southern California.

Favorite Way to Connect: Sprint PCS Vision Sanyo 5300 camera phone with built-in flash and 144-kbps Internet connection. (This also provides a fast wireless connection for the laptop.)

Favorite Gadget: Logitech QuickCam Pro 3000 Webcam, which McWhinney uses to do video chats with his 3- and 5-year-old daughters.

Least Favorite but Necessary Item: Power adapters.

Most Useless Gadget: Palm V, whose Graffiti handwriting recognition software proved too hard to use.

Next Gadget Purchase: "Probably something wireless."

PHOTOGRAPH: ERIC MILLETTE

other professional-level packages aimed at help desks, it must be installed on both host and client systems.

LapLink Gold and its rival, Symantec's PCAnywhere 11 (find.pcworld.com/39677), offer excellent file transfer capabilities for working on files locally and synchronizing them with the host. PCAnywhere is expensive ($200), and for me it performed at glacial speed over dial-up. But that was probably because it transmits files in up to 32-bit color, which would allow me to crank out hi-res graphics over a remote connection.

If you like to tweak programs, try VNC (www.realvnc.com) for remote control. It's free, speedy, and customizable—but its interface is spartan, and it can't transfer files.

Versatile Handhelds and Cell Phones

MOST MOBILE WORKERS say they can't live without their cell phones. No doubt you've seen these folks with phone pods glued to their ears the second their plane lands.

Mark McWhinney, founder of a software load–testing company in Mountain View, California, says that his camera phone comes in handy when he least expects it. "Now when I'm at a party, I don't say, 'Heck, I wish I had a camera.'" His Sprint PCS Vision Sanyo 5300 holds 18 pictures. "Every so often, I push a button and upload them to my photo journal on Sprint PCS's Web site. Or I look up Grandma in my Outlook contacts on the phone, push the e-mail button, and send her pictures of the kids." (McWhinney's profile appears on page 89.)

I like the Motorola V600 camera phone best; it can store more than 100 photos and can play downloaded videos. To read about the latest models, see "Picture-Perfect Phones" on page 118.

TAKE CHARGE: Valence Technology N-Charge Power System (left) and Instant Power 3in1 Charger Kit.

If you find that cell phones have too few features to keep your schedule organized, or that the dialpad is too cumbersome for e-mailing, consider a PDA/phone hybrid. PalmOne's Treo 600 (find.pcworld.com/38543) wraps three functions into one 5.9-ounce device, working as a Palm handheld, a phone, and a camera. It costs between $500 and $700, depending on the carrier.

THE DELL AXIM X3i POCKET PC HANDHELD HAS 64MB OF RAM, A BRIGHT SCREEN, AND WI-FI.

If you want an affordable, Web-enabled PDA that has no phone capabilities, Dell's $379 Axim X3i (find.pcworld.com/39005) is a good buy. This 5-ounce Pocket PC unit has 64MB of RAM, a bright screen, and an easy-to-set-up Wi-Fi connection. (For more on PDAs, see *Top 10 PDAs* on page 135.)

Staying Juiced

NOTHING BUMS ME OUT like grabbing my Casio PDA on the way out the door and discovering that it's as dead as roadkill. How many times can I forget to charge the little devil?

Often enough to make me stock up on Instant Power's (www.instant-power.com) $20 3in1 Charger Kit. It includes a small, nonrechargeable box carrying zinc-based fuel cells that work when exposed to air. With the appropriate adapter, the Instant Power kit charges the batteries of such small devices as PDAs, cell phones, and cameras when you're away from an outlet. A replacement cartridge costs $10.

An alternative is Keyspan's $30 retractable USB cable (www.keyspan.com). It lets you charge your cell phone or PDA when you plug it into your notebook, so you don't need to hunt down a power outlet (at least not for the smaller devices).

Armed with all this gear, you'll need an all-purpose bag. American Power Conversion's $120 TravelPower Backpack (find.pcworld.com/39656) is a versatile, 3-pound bag with a padded compartment to hold a notebook, as well as pockets for a cell phone, a PDA, and a bundled universal adapter. Equipped with two USB ports (cables are $20 extra apiece) and a laptop cable, the 1.8-pound adapter allows you to charge three devices simultaneously from one power source (car, plane, or wall outlet). A roller-bag version of the TravelPower is available for the same price.

Tuned In

MUSIC MAKES THE MILES fly by for many a business traveler, including systems engineer Jim Anderson of upstate New York. Every week he loads up his Compaq IPaq PA-2 MP3 player ▶

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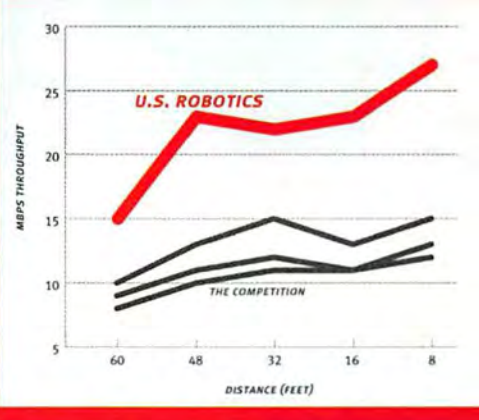

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with about 20 different songs—everything from Avril Lavigne to Mike and the Mechanics, most of which are borrowed from his kids. Anderson loves the $99 Shure E2c no-battery-needed earphones he bought to go with the IPaq. "They cost two-thirds less than powered ones and still offer fantastic sound quality and noise reduction—they double as earplugs."

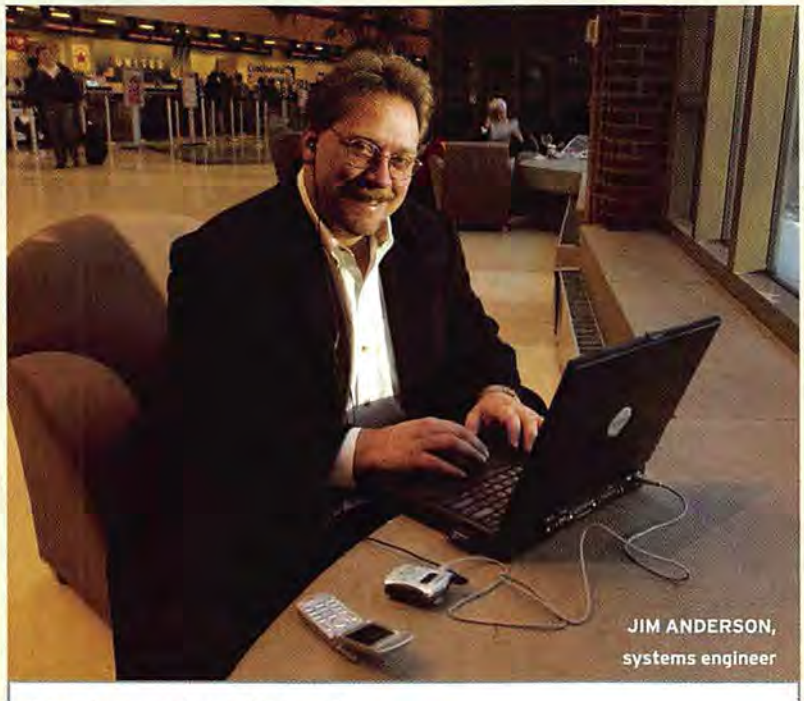
For higher-quality headphones, step up to the $300 Bose Quiet Comfort II (see "Tech Visionaries" on page 113), the first headphones to work without an external power box. They cut out the drone of airplane engines and the wails of crying children. Of course, they also prevent you from hearing the flight attendant ask you what you want to drink.

Don't care for the selection of music on the plane? Invest in an MP3 player such as Samsung's $399 YP-910GS (find.pcworld.com/38918). You'll get a 20GB hard drive, an FM radio, and an FM transmitter for playing music through car stereo speakers. The YP-910GS works with the Napster music service and can record from the radio or a line-in input.

If I'm not lugging too much other stuff, I'll bring Creative's $60 Sound Blaster MP3+ (find.pcworld.com/39671), a first-aid kit for audio-impaired notebooks (in other words, most notebooks). The black-and-silver box weighs only 4 ounces and comes with a generous combination of audio ports: two lines in, two lines out, as well as optical-in and optical-out connections. This would let me record from someone's MiniDisc player, for instance, or add a set of analog or digital speakers.

PROFILE

HIGH ON WI-FI: Internet Access to Go



JIM ANDERSON, systems engineer

Business Travel Dossier

Miles per Year: 100,000, around the northeastern United States.

Favorite Way to Connect: Free broadband at Marriott hotels and in meeting rooms with ethernet jacks; Wi-Fi everywhere else.

Favorite Gadget: Compaq's IPaq PA-2 MP3 player with Shure's E2c earphones.

Least Favorite but Necessary Item: The 10-pound-plus company notebook, a Dell Latitude C840, whose 15-inch screen eliminates the need for a projector.

Most Useless Gadget: Palm III. "Now I keep everything on my Web-enabled Motorola T720 cell phone with service from Verizon, which includes e-mail."

Next Gadget Purchase: 40GB Apple IPod.

IF YOU LOOK HARD ENOUGH, you can usually find a hot spot, says Jim Anderson, self-styled Wi-Fi junkie. "I've become something of a hot spot sleuth." Anderson, a systems engineer for Bakbone, a storage backup and restore software company, uses Wi-Fi to stay on top of his e-mail in transit. "I try to be as available to my customers as humanly possible."

He relies on Web sites like WiFinder (www.wifinder.com), word of mouth, and "just looking around" to find his next hit of Wi-Fi. Subscribing to a single service is too limiting, so Anderson plays the field, paying $10 at the airport for Wayport one day and surfing for free at a spot such as New York City's Bryant Park the next. He won't settle down with one Wi-Fi service until providers come up with a better billing system. "They need to get their act together as far as allowing people to roam."

Back home in rural upstate New York, where broadband is not yet available, Anderson gets only a 28.8-kbps dial-up connection. Some days, he packs up his laptop and drives to a Starbucks in nearby Albany to take advantage of the T-Mobile Wi-Fi connection in the café.

Anderson's final tip: When traveling on business, consider renting a car with GPS installed, as it will "come in handy [for] getting to hard-to-find locales."

PHOTOGRAPH: JOHN ABBOTT

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CISCO SYSTEMS

PACK IT UP: APC TravelPower case (top), Belkin K100 lock, Keyspan retractable USB cable.

Which Way to the Internet?

RICHARD BILANCIA, an IT cost management consultant in Littleton, Colorado, longs for a better way to access e-mail on the road. He uses Bluetooth to give his Compaq Tablet PC TC1000 a Web connection via a Nokia 3650 phone with T-Mobile service. But the speed seldom exceeds 28.8 kbps. Bilancia says a fast, wireless network "would be exciting."

One option for speedier Web access is public hot spots. To take advantage of these, you'll need an 802.11b Wi-Fi–equipped laptop, PDA, or other device. Today, most notebooks have embedded antennas and a receiver on a Mini-PCI card located in a bottom compartment. You can add 802.11b capability to your existing notebook with a PC Card adapter for about $40. Or you can use newer 802.11g equipment, which works with 802.11b systems. In any case, the faster access won't do you any good when you browse the Web, because the broadband connections that public hot spots use are relatively slower than the transfer speed of even an 11b network.

When you pass within 200 to 300 feet of a hot spot, your device will announce that it has found an access point to the Internet. By the time the wireless signal passes through walls, furniture, and other objects, 802.11b speed slows to about half the ballyhooed 11 mbps.

Regrettably, there are few hot spots available, and no single billing plan permits you to roam from one area to another. For instance, you can't go online in a Starbucks (served by T-Mobile) and continue surfing as you walk next door into a Marriott Hotel (served by Boingo). Instead, you must disconnect from the first service and reconnect to the second—and pay for both, $30 and $22 per month, respectively.

Just over 71,000 public-access hot spots are available worldwide now, but Gartner expects that number to mushroom to over 150,000 in 2005. For a list of hot spots, go to find.pcworld.com/39935 (a new PCWorld.com service powered by Jiwire). Most hot spots are in cafés such as Starbucks. Airports, the dream hot spot for many users because of the built-in downtime, continue to resist Wi-Fi because it's costly to implement, according to IDC analyst Keith Waryas.

"Now [airports] have the expense of beefing up security to deal with, so services like Wi-Fi are not high on the list," Waryas says. For widespread acceptance, fast wireless will need to be more heavily pushed by the cellular carriers.

AT&T, Sprint PCS, Verizon, and other carriers already offer their customers extra-cost services that can sustain transfer rates of 20 to 90 kbps—equal to or a little better than dial-up. That's an improvement on the 14.4-kbps modems that older phones carry, but it's not a killer app in Waryas's view.

"Cell phones work everywhere, unlike 802.11b, but the networks aren't ready for prime time: You won't hit even the 56-kbps dial-up experience every time. Sometimes you can't get the signal; sometimes it's slow. Is the extra [bandwidth] really worth the extra $60 you might pay every month?" Waryas asks.

The picture could change when Verizon Wireless rolls out a nationwide third-generation service capable of speeds up to 300 kbps. (For more information on 3G, turn to "Cellular Nets Reach DSL Speed" on page 32.)

The new broadband-class speed could set the stage for faster development of all-in-one devices capable of communication, information, and entertainment, experts believe. "When you get over 100 kilobits, that changes everything," says Waryas.

ONLINE

More Tools

READ UP on Web services that let you print from any e-mail-capable device, plus GPS units that can point you in the right direction, at find.pcworld.com/39866.

One for the Road

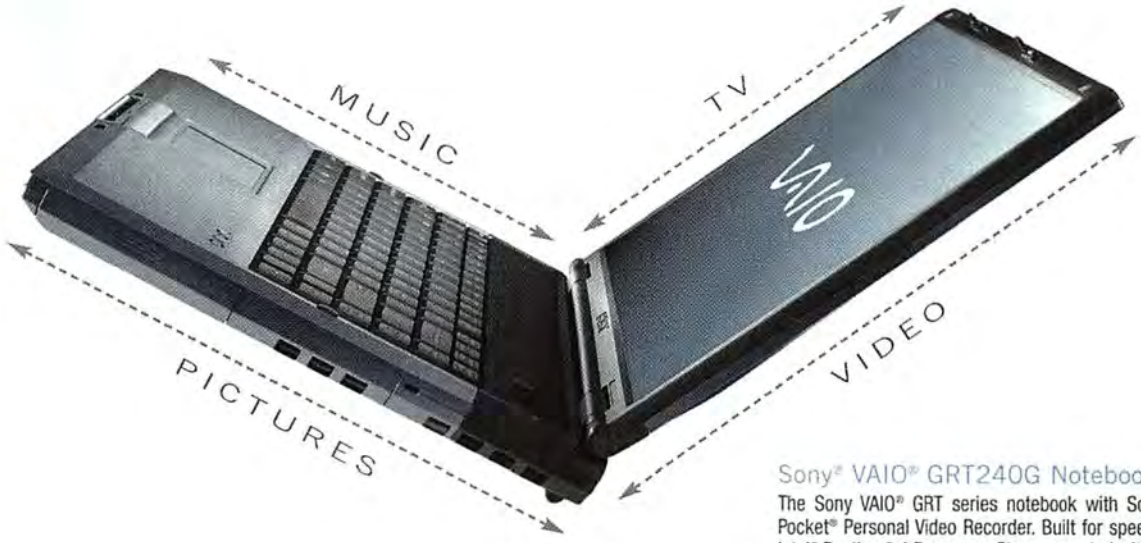
SOMEDAY WE'LL ALL ENJOY blazing Internet access anywhere, power outlets wherever we need them, and maybe even video conferencing so good we won't need to travel.

But until that fabulous time arrives, I'd like to offer this toast to every traveler who pounds the pavement or dents a seat cushion to serve a business: May your laptop be light, your files zipped up tight, and all your batteries long-lived. ■

Carla Thornton is a contributing editor for PC World.

SONY

Sony recommends Microsoft® Windows® XP Professional for Mobile Computing.



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Sony recommends Microsoft® Windows® XP Professional for Mobile Computing.

A style all your own.

You're unique. Shouldn't your PC reflect your individuality, as well as your interests? **Sony VAIO® Notebook PCs with Intel® Processors** have wireless capability and interconnectivity wrapped in sleek designs that proclaim your independence. And, we can help you build your very own to your exact needs and specifications. So whether your passion is music, pictures, spreadsheets, video, games or graphics, you can combine your own style with the substance that's Sony.

Z1 Series

Elegance and Mobility

- Featuring Intel® Centrino™ mobile technology
  - Intel® Pentium® M Processor 1.60GHz[1]
  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[16]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 60GB Hard Drive[2]
- 14" SXGA+ TFT display
- 512MB DDR SDRAM
- Integrated CD-RW/DVD Combo Drive[4]
- Amazing battery life up to 6.5 hours[6]
- Integrated Bluetooth™ Wireless Technology[10]
- USB 2.0
- Stylish and sophisticated design in a 4.7-lb.-light[6] and 0.9–1.5"-thin body
- Included software: PictureGear Studio,™ SonicStage,™ DVgate Plus™
- 1-Year Limited Warranty[3]

$100 mail-in rebate[14]

~~$2,299.99~~

$2,199.99 After $100 mail-in rebate.[14] As low as $58 per month for qualified customers.[13]

UPGRADES
- Sony VAIO® Port Replicator for $199.99
- Sony VAIO® Double-Capacity Lithium Ion Battery[6] for $499.99

V505 Series

Powerful. Mobile. Slim Design.

- Featuring Intel® Centrino™ mobile technology
  - Intel® Pentium® M Processor 1.40GHz[1]
  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[16]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 40GB Hard Drive[2]
- 12.1" XGA TFT display
- 256MB RAM
- Integrated CD-RW/DVD Combo Drive[4]
- Sony VAIO® Creation Suite Standard software package
- 1-Year Limited Warranty[3]

$1,729.99 As low as $44 per month for qualified customers.[13]

UPGRADES
- Upgrade to a 60GB Hard Drive[2] for $50
- Sony VAIO® Double-Capacity Lithium Ion Battery[6] for $200

TR Series

Sony's Smallest PC. Packed with Features.

PCG-TR2A
- Intel® Centrino™ mobile technology
  - Intel® Pentium® M Processor 1GHz[1]
  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[16]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 40GB Hard Drive[2]
- 10.6" widescreen XBRITE™ LCD display
- 512MB RAM
- Integrated CD-RW/DVD Combo Drive[4]
- Amazing battery life up to 7.0 hours[6]
- Integrated swivel camera
- Sony VAIO® Creation Suite Standard software package
- 1-Year Limited Warranty[3]

$2,199.99 As low as $55 per month for qualified customers.[13]

UPGRADES
- Privacy Screen for $79.99
- Sony VAIO® Standard Lithium Ion Battery[6] for $299.99
- Sony VAIO® Double-Capacity Lithium Ion Battery[6] for $349.99

GRT Series

Transportable TV Entertainment Center

PCG-GRT280ZG
- Intel® Pentium® 4 Processor with HT Technology at 3.06GHz[1]
- Microsoft® Windows® XP Home Edition
- 80GB Hard Drive[2]
- 16.1" UXGA (1600x1200) with XBRITE™ technology
- 1024MB RAM
- DVD±RW/CD-RW drive[4]
- Record and watch your favorite TV programs with Sony's Giga Pocket® Personal Video Recorder and remote control
- Convert your old analog videos to digital and record to DVD
- Integrated 802.11g wireless LAN[17]
- 1-Year Limited Warranty[3]

$2,999.99 As low as $75 per month for qualified customers.[13]

UPGRADES
- Sony VAIO® Port Replicator for $199.99
- Sony VAIO® Standard Lithium Ion Battery[6] for $249.99

Memory Stick® Media: From Peripheral to PC, Now Your Memory Goes Where You Do.

Memory Stick PRO Duo™ Media[11]

Offering MagicGate™ copyright protection, high-capacity storage and a maximum data transfer capability of up to 20MB per second, this 256MB[15] Memory Stick PRO Duo™ media is ideal for mobile applications (convenient adapter included).

MSX-M256A Memory Stick PRO Duo™ Media

$124.99

intel inside centrino™ MOBILE TECHNOLOGY

Call or visit us online at www.sonystyle.com to find out about going mobile—and wireless—in style.

VAIO

A world of entertainment possibilities.

SONY VAIO® DESKTOPS

Sony recommends Microsoft® Windows® XP Media Center Edition.

Sony VAIO® Desktop PCs with Intel® Processors are designed to fulfill all of your entertainment passions. With all the features you crave – and nothing you don't. From the sleek V Series to the ultra-functional RS and RZ Series. Whatever you're into – DVD burning, downloading music, even recording TV content – Sony can help you do it all.

Display sold separately.

RS Series

The Affordable Entertainment PC

PCV-RS400C—Display sold separately

- Intel® Celeron® Processor 2.20GHz[1]
- Microsoft® Windows® XP Home Edition
- 80GB Hard Drive[2] (7200 rpm)
- 256MB DDR at 266MHz
- DVD±RW Drive[4]
- 64MB Intel® 845GV Integrated Graphics
- Stereo speakers
- Sony VAIO® Creation Suite Standard software package
- 1-Year Limited Warranty[3]

$699.99 As low as $18 per month for qualified customers.[13]

UPGRADES

- Upgrade to a 120GB Hard Drive for $40
- 3-Year Limited Warranty[3] for $199

V Series

Ultimate TV & PC Solution

PCV-V100G

- Intel® Pentium® 4 Processor 2.40BGHz[1]
- Microsoft® Windows® XP Home Edition
- 80GB Hard Drive[2]
- 512MB DDR at 333MHz
- CD-RW/DVD-ROM Combo Drive[4]
- 15" LCD display
- Wireless keyboard, wireless mouse & remote control
- Built-in stereo speakers
- Giga Pocket® Personal Video Recorder
- 1-Year Limited Warranty[3]
- Free wireless LAN PC card[17] when purchased from www.sonystyle.com[21] While supplies last.

$1,499.99 As low as $38 per month for qualified customers.[13]

SONY CLIÉ® HANDHELD

Transfer data from your desktop and take it on the road with you.

PEG-UX50

Features dual wireless integration in a compact and lightweight design. Powered by Palm OS® 5 software,[12] the UX50 is powerful, portable and easy to use!

Integrated Wireless LAN (802.11b)[17]
Integrated Bluetooth™ Wireless Technology[18]
310,000 pixel digital camera
Video playback (MPEG-4, 30 fps)
Built-in MP3/ATRAC3™ player
Built-in voice recorder
Built-in QWERTY-layout keyboard
480x320 high-resolution TFT color SwivelScreen™ display
Palm OS® v5.2 software[12]
FREE shipping[23]

$649.99 As low as $17 per month for qualified customers.[13]

Display sold separately.

RZ Series

The Ultimate Entertainment PC

PCV-RZ40CG—Display sold separately

- Intel® Pentium® 4 Processor with HT Technology at 2.60CGHz[1]
- Microsoft® Windows® XP Media Center Edition
- 160GB Hard Drive[2] (7200 rpm)
- 1GB DDR at 400MHz
- DVD±RW/DVD-ROM Drives[4]
- 128MB nVIDIA® GeForce™ FX5600 Graphics Card
- Creative® Inspire™ 5.1 5200 Speaker System with Sound Blaster™ Sound Card
- Multi-Media Card Reader
- Personal Video Recorder powered by Giga Pocket® Engine
- 1-Year Limited Warranty[3]

$1,789.99 As low as $45 per month for qualified customers.[13]

UPGRADES

- Upgrade to a 200GB Hard Drive[2] for $80
- 3-Year Limited Warranty[3] for $199

Enhance your VAIO® PC experience with these other great Sony products. After all, they're made to work seamlessly together so you can easily create and share your music, photos and video.

VIDEO

It's never been easier to share your digital video with your family, friends or the world. When you record your memories direct to DVD, they're easy to share and easy to play back. It's that simple.

DCR-DVD200
DVD Handycam® Camcorder

- 1/4.7" 1.0 Megapixel Advanced HAD™ CCD Imager
- 2.5" SwivelScreen™ LCD display
- Digital Still Memory Mode
- Carl Zeiss® Vario-Sonnar® lens
- Super NightShot® Infrared System and Color Slow Shutter
- Super SteadyShot® Picture Stabilization System
- Free shipping[23]

FREE carrying case*

$999.99 As low as $25 per month for qualified customers.[13]

MUSIC

Sony's MDR-NC11 Noise Canceling Fontopia® Ear-Bud Headphones offer you peace and quiet wherever you go.

SRS-MDR-NC11
Noise Canceling Headphones

- Reduces noise by 70% (10dB) when noise canceling circuit is switched on
- Volume control
- Miniature connection box for AAA battery
- Noise Canceler on/off switch
- Battery DC1.5V, 1 size AAA battery
- Frequency response 10–22,000Hz

$149.99

PICTURE

Get unmatched imaging capabilities, incredible creative flexibility, and both automatic and manual controls including focus, aperture and exposure with Sony's Pro lineup of digital cameras.

DSC-F828
Digital Still Camera

- 2/3" 8.0 Megapixel Super HAD™ CCD
- Unique 4-color system
- 7X optical/2X digital/14X total zoom
- Carl Zeiss® Vario-Sonnar® T* lens
- Memory Stick® Media and CompactFlash compatible
- MPEG Movie VX fine modes
- FREE shipping[23]

100 FREE prints*

$999.95 As low as $25 per month for qualified customers.[13]

FREE SHIPPING/FREE PRINTER

GET FREE SHIPPING[7] AND A FREE EPSON® PRINTER[8] (AFTER EPSON® MAIL-IN REBATE) WHEN YOU BUY AN ELIGIBLE PC DIRECT FROM SONY.

CALL 1-888-912-SONY [7669]

VISIT www.sonystyle.com/pcworld6

sony style

Sony recommends Microsoft® Windows® XP Professional for Business.

"*PC Magazine* readers give Sony VAIO® desktops an 'A' for Overall Desktop Satisfaction."
PC Magazine *16th Annual Service and Reliability Readers' Survey*—August 5, 2003

Sony VAIO® RZ Series Desktop

The Sony VAIO® RZ Series Desktop PC is the ultimate multimedia performer. Rip through the most demanding applications, such as video editing and digital imaging, with ease. The raw processing power, combined with exclusive Sony software, opens up endless possibilities.

Display sold separately.

Get exactly what you want. Exactly how you want it.

The universe of **Sony VAIO®** PC products and software solutions is ready and waiting. Whether you shop at the Sony Style online store or by phone, it's your source for information, insights and inspiration, plus special savings and exclusive offers. For the latest products and innovations, expert advice and secure purchasing, go to the source: www.sonystyle.com or call us today. **Sony VAIO® RZ Series Desktop with Intel® Pentium® 4 Processor with HT Technology.**

easy financing
- Same-as-cash financing[13]
- Quick credit decision
- Low monthly payments

unsurpassed selection
- Audio, video, handhelds, plus much more
- Easy browsing with Accessories Finder
- The best place to find peripherals for your Sony VAIO® PC

expert help
- Instant answers on our solution database
- Chat live with a Sony Style online buying assistant

exclusive offers
- Special memberships—Musiclub, ImageStation® online service and Screenblast® entertainment service
- Accessory items
- Much more!

FREE SHIPPING/FREE PRINTER

GET FREE SHIPPING[7] AND A FREE EPSON® PRINTER[8] (AFTER EPSON® MAIL-IN REBATE) WHEN YOU BUY AN ELIGIBLE PC DIRECT FROM SONY.

CALL **1-888-912-SONY [7669]**

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Call or visit us online at www.sonystyle.com and create the perfect PC to meet your needs.

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Palm OS is a registered trademark, and Palm Powered and the Palm Powered logo are trademarks of Palm, Inc. or its subsidiaries. All other trademarks are trademarks of their respective owners. Features, prices, specifications, availability and promotions are valid only in the U.S. and are subject to change without notice. Prices and promotions apply to purchases from www.sonystyle.com and do not include applicable sales tax or shipping and handling. Retailer prices and offers may vary. Purchases from www.sonystyle.com are subject to the Terms and Conditions of www.sonystyle.com, shipping options, return policies and other www.sonystyle.com policies. You can review these by clicking on the appropriate links in the Info Center section of the shopping cart section of www.sonystyle.com. For product warranty information, click on the Product Warranty link contained on the applicable product page of www.sonystyle.com. Sony is not responsible for typographical or other errors in this ad. Screen images simulated. 1 GHz denotes microprocessor internal clock speed; other factors may affect application performance. 2 GB means one billion bytes when referring to hard drive capacity. Accessible capacity may vary. A portion of hard drive space is reserved as a recovery partition. 3 From date of purchase with registration. Certain restrictions apply. 4 DVD compatibility is not universal. 5 With supplied battery. 7 Free ground shipping with purchase of eligible PC. Offer expires 3/31/04. 8 After $49 mail-in rebate. Printer model may vary. Offer valid only when purchased from www.sonystyle.com. Offer expires 3/31/04. For rebate mail-in coupon and Terms and Conditions, please visit www.sonystyle.com. 9 Actual battery life may vary upon usage. 10 Requires compatible 802.11b wireless access point, some of which require a fee. Use of this Bluetooth-enabled device may vary as not all Bluetooth devices are compatible. † used with a Bluetooth-enabled mobile phone, ISP service fees apply. 11 Memory Stick PRO Duo media features vary and are dependant on the host hardware. 12 Some third-party software and devices may currently have limited functionality or not be compatible with this model. Please confirm with third-party vendor or manufacturer for compatibility. 13 On your Sony Financial Services Card, subject to credit approval. A minimum purchase of $299.99 is required. This is a same as cash promotion. If balance on these purchases is paid in full before the expiration of the promotional period indicated on your billing statement and your Account is kept current, accrued Finance Charges will not be imposed on these purchases. If balance on these purchases is not paid in full, Finance Charges will be assessed from the purchase date at the Standard Rate APR of 21.99%. For Accounts not kept current, the Default Rate of 24.99% APR will be applied to all balances on your Account. Minimum monthly payments are required. The minimum monthly payment presented is based on the product and purchase price shown. The minimum monthly payment is 2.5% of the "New Balance" or $10, whichever is greater. The number of months you will pay and the amount of your total minimum monthly payment will depend on additional purchases and your Account balances. Minimum Finance Charge, $2.00. Certain rules apply to the allocation of payments and Finance Charges on your promotional purchase if you make more than one purchase on your Sony Card. Call 1-888-357-4310 or review your cardholder agreement for information. 14 Purchase must be made by 3/31/04. For rebate mail-in coupon and Terms and Conditions, please visit www.sonystyle.com. 15 After purchase of eligible Sony digital camera, receive a coupon for 100 4"x6" prints from Sony's ImageStation online service. Customer must provide valid e-mail address to receive this offer. Coupon valid for 100 days after issuance. Shipping charges may apply. Please visit www.sonystyle.com for details. 16 220MB of actual usable capacity. 17 Requires compatible 802.11b or 802.11g wireless access point, some of which may require a fee and/or ISP. 18 Requires compatible 802.11b wireless access point, some of which may require a fee and/or ISP. 19 Offer valid with purchase of DCR-DVD200 direct from www.sonystyle.com. While supplies last. 20 Standard ground shipping. Offer expires 3/31/04. 21 Offer valid with purchase of PCV-V100G direct from www.sonystyle.com. While supplies last.

WEB Stars

WHERE SHOULD YOU GO FOR NEWS, RESEARCH, SHOPPING, AND MORE?

We compare Goliaths of the Web to lesser-known upstarts—and discover some surprising results.

BY JOSH TAYLOR

THE WEB has been around long enough that even the most adventuresome surfer might end up in a rut, always using the same sites to get work done. So we put up the periscope to scan for the best newcomers and compared them to the Net's stalwarts. In each category, one site emerged as the Best Bet—but that shouldn't dissuade you from exploring the other contenders, all of which offer innovative and useful features you won't find anywhere else.

ILLUSTRATIONS BY CHRIS GALL

Search Engines

GOOGLE www.google.com Google remains the default choice for fast, accurate searches of the Web, reaching deeper into the corners of the free Internet, fighting the good fight for relevant results with no muss or fuss. Behind the seemingly simple facade of its home page, Google abounds with ever-improving Web-based tools, browser add-ons, and international variations. Expect better blog searching soon, thanks to the company's purchase of Web-log phenom Blogger and to geographic searches that tie the physical location of a Web server to the results. Learning how to use Google better can yield a richer payoff than switching search engines.

Best BET

DOGPILE www.dogpile.com It's a long drop from No. 1 to No. 2, but Dogpile can work its canine charms even on users who are happy with Google. Every search on Dogpile combines results from several engines and Web directories, including Google, Teoma, Overture, About.com, and many more. Unfortunately, the output is not markedly superior to single-source results. Dogpile's main benefits are the smart 'Refine your results' links, which let you winnow your results using additional search terms that the site guesses (often correctly) in an effort to help you find what you're looking for. Convenient White and Yellow Pages tabs let you use the same search window to track down people and businesses.

ALLTHEWEB www.alltheweb.com AllTheWeb delivers a minimalist, Googlesque user interface and an intuitive advanced search that makes honing results easy. The site's indexes compete head-on with Google's and Yahoo's for both relevance and speed. Looking for a hard-to-find download? Give AllTheWeb's FTP Files search a try. Parents and everyone else sick of Net porn will appreciate the default 'filter out content likely to offend' setting. English-only speakers will like the default filtering of non-English-language Web pages from searches.

Media PLAYERS

QUINTESSENTIAL PLAYER www.quinnware.com The ultimate customizable, universal, ad-free media player, this one can play (and record) Real, Shoutcast, and Windows Media streams, as well as almost every audio or video file format. Just download the right plug-in for the task.

Best BET

JETAUDIO www.jetaudio.com Aside from being able to rip and play MP3, OGG, and WMA files, JetAudio delivers built-in CD burning, streamed audio broadcasting, and a timer to start or stop playback or recording.

Tech Support & Help Sites

AVS FORUM www.avsforum.com A support site for anything related to home theater or consumer electronics, AVS Forum has exactly what a tech community needs most: smart, loyal users who offer outstanding advice to novices and enthusiasts alike. Before you call a repairperson for any home theater device, check with the folks here. We won't buy a product without seeing what the AVS Forum users have to say about it. The site receives more than 3000 posts a day on topics ranging from hacking your TiVo to optimizing the picture on your new plasma TV.

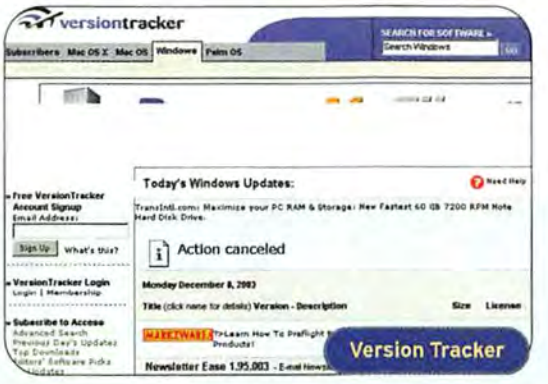
Best BET

ANNOYANCES.ORG www.annoyances.org If you are fed up with pesky Windows behavior and you're not going to take it anymore, turn to the online component of O'Reilly's Annoyances series of books. With good humor and clever tips, the site explains how to eliminate (or at least deal with) the frustrating, the repetitive, and the unnecessary in your computer's operating system and applications. A discussion forum lets users of specific Windows versions ask other users, as well as the authors of the Annoyances books and O'Reilly editors, how to fix new problems as they arise.

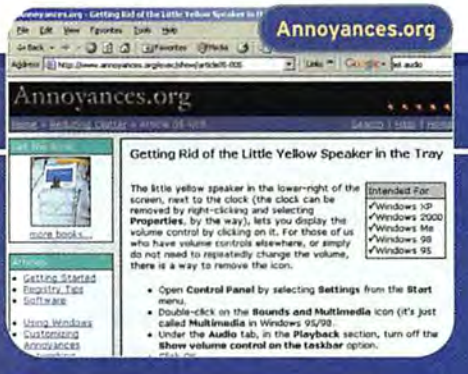
Driver & Patch Sites

Windows Update windowsupdate.microsoft.com Let's face it: Windows is full of bugs, and it's no fun having to keep up with the myriad Windows patches that sprout like briars. If you must perpetually patch your OS, Windows Update makes the experience as painless as possible. The site scans your local copy of Windows—without divulging your computer's contents—to tell you what patches you need; then, at your command, it downloads and installs them. A companion site for Microsoft Office—officeupdates.microsoft.com—does the same thing for the ubiquitous application suite.

Version Tracker www.versiontracker.com Downloading patches is a necessary evil for just about anyone who uses a PC. VersionTracker assembles announcements and downloads of patches for thousands of applications. The focus here is on what's new, particularly in shareware, rather than just on what will fix your program's ills. The site covers apps for the Mac OS and Palm as well.



The Driver Guide www.driverguide.com Whether you're looking for a hard-to-find driver for a discontinued product or just want to explore the strangely compelling back alleys of unsigned, performance-enhancing driver updates, this is the place to go. A free database of driver files, company information, and links is fed by a community of enthusiastic Driver Guide members. The site's sensible–though slightly ramshackle–approach gives it the feel of a volunteer project, but the meat and potatoes are there.



HOAXBUSTERS hoaxbusters.ciac.org Most hoax e-mail is blatantly phony (got any from the son of a retired general in Zimbabwe lately?), but some messages are harder to spot. HoaxBbusters' running tally of dire warnings (and other late-breaking, full-of-hot-air bulletins) also makes a great reply to correspondents who forward e-mail you can't believe they took seriously: Respond with a link to this site.

TECH SUPPORT GUY www.helponthe.net Michael J. Cermak, Jr., may have the most thankless job on the Internet. As self-appointed Tech Support Guy, he helps answer the thousands of computer-related questions in his Web archive. Cermak and a legion of volunteers help countless flummoxed PC users through the thorniest computer woes. We're just glad he's on the job.

Tech ENTHUSIAST

TOM'S HARDWARE GUIDE www.tomshardware.com In many ways, Tom's Hardware has evolved with the needs of its PC-using audience. Initially a site dedicated to news about the latest processors, Tom's has expanded its scope in recent years to include mobile devices, tech business news, and even gaming. Factor in its excellent tutorials and forums, and Tom's remains one of the best tech resources on the Web for novices and experts.

SLASHDOT www.slashdot.org Once you know what's going on, come here to find out what the self-appointed arbiters of good tech think about the issues du jour. Members of this extended community post items linking to news of the day (it's free to join, and anyone can submit a story), and others comment on their posts. Some messages border on hysteria: To see some real fireworks, post anything critical of Linux.

ANANDTECH www.anandtech.com Best known for its news and analysis of the latest processors, chip sets, and motherboards (and for its founder, Anand Lal Shimpi, who–though it's hard to believe–is still in college), AnandTech's forums are a boon for users of any proficiency level seeking advice before cracking open the case on their PC.

Browser Toolbar Plug-Ins

Dogpile Search Toolbar www.dogpile.com/info.dogpl/tbar Dogpile's toolbar has almost everything a searcher could ask for, wrapped in cutesy canine metaphors (like the search button labeled 'Fetch'). Run Web searches, White and Yellow Pages queries, and Merriam-Webster's dictionary, thesaurus, and antonym finder lookups from your toolbar. The built-in pop-up blocker works well, and we like being able to highlight search terms on the page we're visiting. News headlines, which scroll across the toolbar by default, can be distracting, but turning off this feature from the Toolbar Settings menu is easy.

Best BET

AltaVista Toolbar www.altavista.com/toolbar/default AltaVista's Web search engine may not be as popular as Google's, but AltaVista's translation service, Babelfish, is second to none. If you need to know what's on some German message board, or if you're trying to decipher a love note from your Mediterranean sweetheart, you can instantly translate words, phrases, or the currently open Web page from any of eight languages into English, using AltaVista's browser plug-in. The toolbar also lets you search AltaVista; highlights search terms in results pages; calculates currency and metric-to-U.S.-unit conversions; looks up area codes, zip codes, and weather reports; and blocks pop-up ads.

Google Deskbar toolbar.google.com/deskbar Google's newest search tool, which plugs right into the Windows desktop, allows you to search Google's directories without opening a browser. Search results appear in a Deskbar-controlled pop-up window that you can quickly slide out of the way when you don't need it. Though the Deskbar lacks some features of the standard Google toolbar (it doesn't include a pop-up blocker, for instance), the convenience of browserless searching makes this latest addition to the Google pantheon well worth trying.

Travel SERVICES

EXPEDIA www.expedia.com Far easier to navigate than most airport security lines, Expedia is the best travel-booking site on the Web. Besides being easy to use, Expedia simplifies building a package combining airfare, hotel, and car rentals. The site offers a terrific range of discount hotels, with Web-shopper-friendly cancellation policies; Priceline and Hotwire don't let you cancel at all. Even though Expedia charges a $5 booking fee for plane tickets, you're still ahead of the game.

Best BET

ORBITZ www.orbitz.com Finding flights is what Orbitz does best. When you look for a flight, Orbitz lists the most likely candidates in an easy-to-read table that's organized by carrier. If you check a box on the search page, Orbitz will point you to flights into or out of alternative airports within a 70-mile radius of your starting point or destination. Overall, we found the site slightly sluggish compared to Expedia and the design not quite as welcoming.

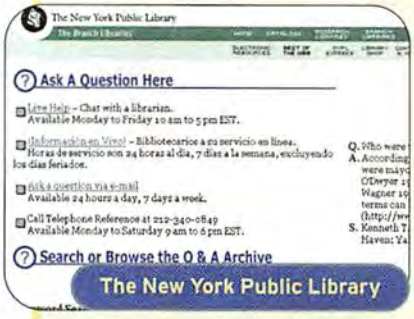
TRAVELOCITY www.travelocity.com Travelocity's Last Minute Deals tab at the top of its crowded home page is the first thing you should click when you visit this comprehensive site. You can almost always find a combination package of airfare and hotel or airfare and car rental that's as good as, if not better than, the price of each purchased separately. In addition, the Guides & Advice tab, packed with information from travel guide publisher Frommer's, provides good general guidance about traveling to cities throughout the world.

TRIPADVISOR www.tripadvisor.com It's not designed for booking a hotel room, but we find TripAdvisor indispensable for researching hotels, especially when we don't have a guidebook handy. The site offers links to reviews from myriad publications, including the New York Times, Fodors, and Frommer's, as well as posts by TripAdvisor users. You'll also find links to major travel-booking sites, though occasionally the links won't return any results—especially if you're looking at smaller inns. The only risk with TripAdvisor: The profusion of information can induce planning paralysis.

Reference Desk Sites

YOUR LIBRARY'S WEB SITE Frustrated by the growing number of pay-per-view Web archives? Your local library's Web site might be able to help, though you may need a library card to enjoy full access. For example, New York Public Library (www.nypl.org) cardholders can read issues of The New York Times online for the past year, and anyone in the world can ask the librarian any question. You'll find encyclopedias, community information, and more than enough reasons to ensure that your library card is up-to-date.

Best BET



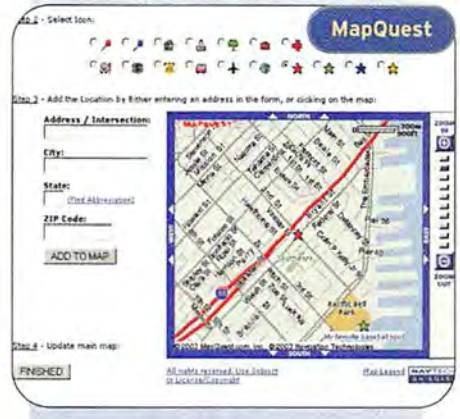
ACRONYM FINDER www.acronymfinder.com When you need an acronym PDQ, check Acronym Finder. If you're caught in a snafu over instant-messaging jargon like ROTFL (rolling on the floor laughing) or technical specifications like kbps (kilobits per second), Acronym Finder can track it down, ASAP. While we respect the site's owners' desire to generate revenue, the automated links to Amazon.com don't make a whole lot of sense. Just because we might wonder what SCUBA stands for doesn't mean we want to buy Jacques Cousteau's memoirs.

ONELOOK www.onelook.com One word describes OneLook: comprehensive, as in covering completely. This site collects definitions from more than 100 dictionaries, ranging from garden-variety Merriam-Webster's to the (who knew?) Yiddish-Hebrew-English-German-Russian Picture Dictionary. We love being able to see definitions from such a variety of sources (and it frees up a lot of bookshelf space).

Maps AND TRAFFIC

MAPQUEST www.mapquest.com A bit more intuitive than most map sites, MapQuest remembers recently entered addresses, so you can select them from a drop-down menu. You can also copy directions over to a Palm or Pocket PC device, though you must install AvantGo (a free download) to take advantage of that service.

Best BET



MSN MAPS AND DIRECTIONS mappoint.msn.com Though we admire the clean design of MSN's site, it does not remember addresses used in previous searches. The Microsoft connection does have its advantages, however: Pocket PC users can copy a map to their PDA without additional software (sorry Palm users, you're out of luck).

ACCUTRAFFIC www.accutraffic.com Need to know whether an accident or heavy snow threatens to turn your road trip into a road trap? This handy portal links you to local and state traffic agencies' sites from around the country. The one downside isn't Accutraffic's fault: The quality of information varies dramatically from state to state.

Auction Sites

EBay www.ebay.com EBay is by far the largest auction site out there, and its search engine remains a strength—which is fortunate since the sheer volume of results can overwhelm just about anyone. High volume and reputable sellers make an auction site great, and EBay has them both.

Best BET

AuctionSniper www.auctionsniper.com If you are frustrated about losing too many online auctions, AuctionSniper (which monitors bidding, then tops the high bid in the final seconds) can level the playing field and help you win that coveted laptop (or signed *Harry Potter* book). Your first three auctions are free; after that, you pay AuctionSniper a fee ranging from 25 cents to $5 for each auction you win, based on the final price.

Bidz.com www.bidz.com Trying to squeeze into the world of Internet auction houses is only slightly easier than making your own operating system and taking on Microsoft, but Bidz gamely gives it a shot. The site's promise of "satisfaction guaranteed" simply means that you have some protection from shady sellers—but you won't be able to squirm off the hook just because you suffer a case of buyer's remorse.

Web CONFERENCING

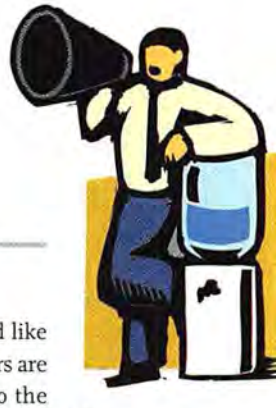
WEBEX www.webex.com If you've used Web conferencing, chances are you've heard of WebEx. The site allows Best BET you to share an application—usually a PowerPoint presentation and a whiteboard—on the computer screens of participants across the Internet. The cost savings had better come out of the travel budget, however, because WebEx ain't free: Charges range from 45 cents per minute per person to $200 per user per month.

CENTRA www.centra.com Centra adds integrated voice-over-IP to standard meeting features at no extra cost. In addition, it integrates with Lotus Notes and Outlook, and your conference's audience needs only to download a slim browser plug-in.

LIVE MEETING www.placeware.com After acquiring PlaceWare in 2003, Microsoft rebranded the Web conferenc-

ing service as an alternative to WebEx and tied it in with the Office application suite. The site covers the essentials: shared screens and whiteboards, and live chat. Better pricing than WebEx, integration with Office, and Microsoft's backing make Live Meeting formidable.

Blog Sites & Aggregator Tools

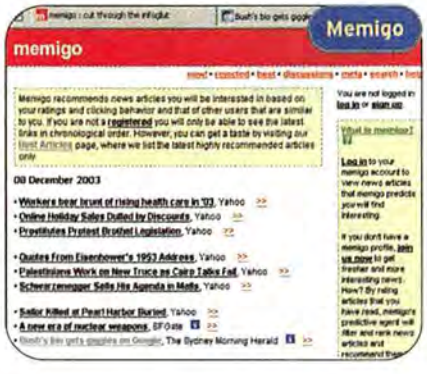


FEEDSTER

www.feedster.com If you'd like to sample what the bloggers are writing about, step up to the Feedster trough. With a simplicity that's visually evocative of Google, Feedster allows you to search blog postings for a phrase, then see who's writing about that topic (and of Best BET course, what they have to say). Results vary dramatically from hour to hour, but a Feedster search is the fastest route to instant zeitgeist. Feedster's nearest competitor, **Daypop.com**, searches thousands of Weblogs, too, and it serves up user-friendly lists of the top news and blogs being linked to, or of the most popular words appearing in the blogosphere. But Daypop's performance problems—it gets unbearably slow at times—boost Feedster's lo-fi appeal. Coolest Feedster feature: If you're a true news junkie using an RSS aggregator (see SharpReader below), you can turn any Feedster search into a feed itself, which means that you get the latest results automagically.

MEMIGO

www.memigo.com Memigo ranks the quality of individual news items according to the clicks and recommendations of registered Memigo users (as well as to your own clicks as you surf through the site). A fascinating and constantly changing compilation of news stories from an eclectic range of sites and feeds around the Web, the site delivers its content enjoyably fast. Memigo holds a lot of promise as a news aggregation service, but it's still an experiment, so expect a few rough edges. It aims to "cut through the infoglut" by delivering high-quality content through group consensus, but a few out-of-place stories occasionally float into positions that give them top billing.



SHARPREADER

www.sharpreader.net Among the many small free applications summarizing the latest news or blog postings from any site that offers news feeds (abbreviated links and descriptions of new content on a given site), SharpReader earns our nod because it's simple to install and straightforward to operate (it integrates into Internet Explorer). You can pop in the URL of a new RSS feed (the home pages of many sites already have the telltale orange XML icon that denotes a feed), view the results, and subscribe in one click. If you don't like using a tool that's been fused into Internet Explorer, take a look at **FeedDemon** (find.pcworld.com/39509); this stand-alone equivalent program is still in beta testing, but it has a lot going for it. ■

Josh Taylor is a freelance magazine and Web writer based in Brooklyn, New York.

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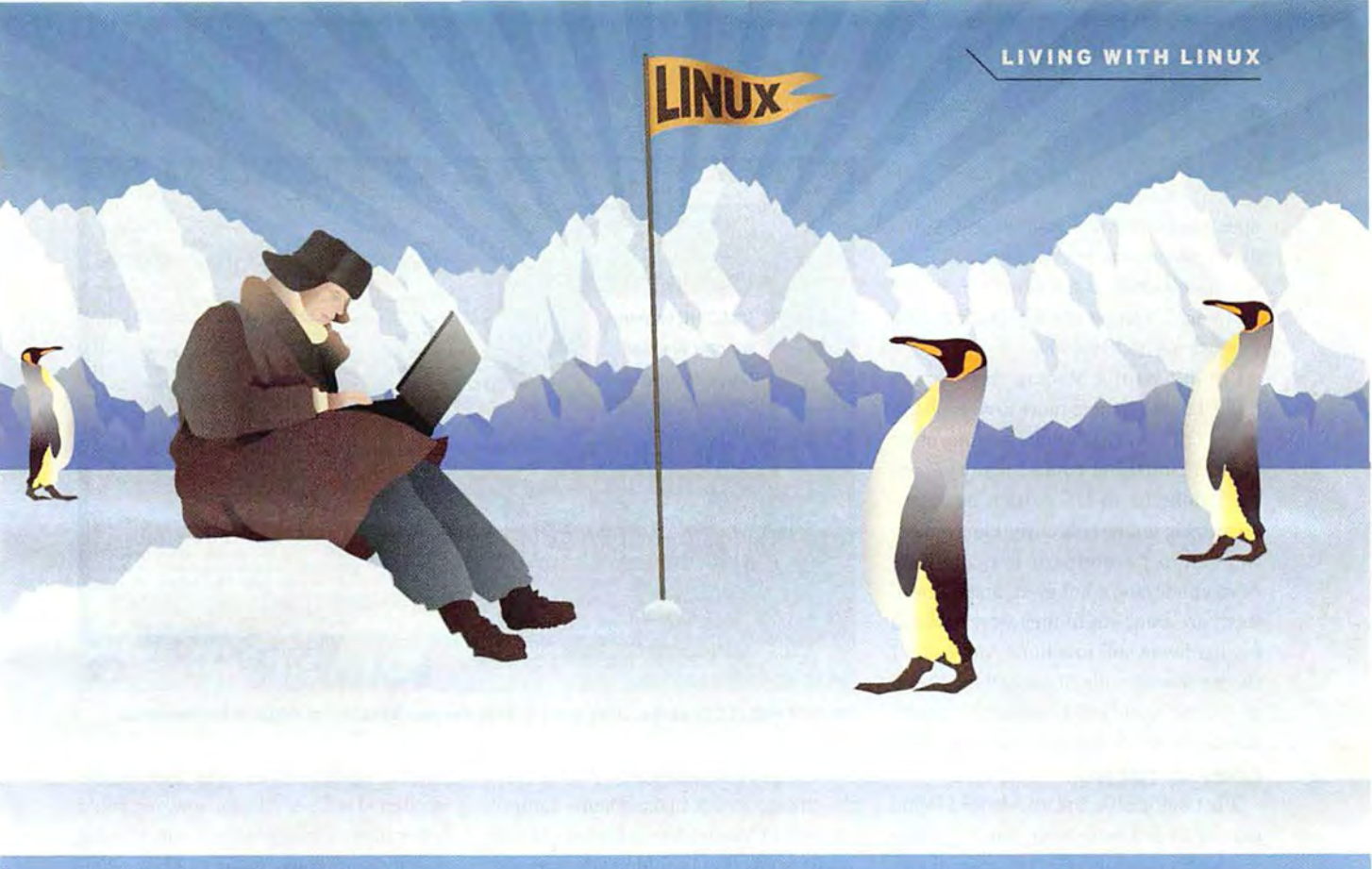


THE LINUX EXPERIMENT

BY EDWARD N. ALBRO

Our intrepid editor was fed up with Windows hassles—so he went on a Microsoft-free diet for four weeks. Here's what happened.

ILLUSTRATION: JEFF BERLIN

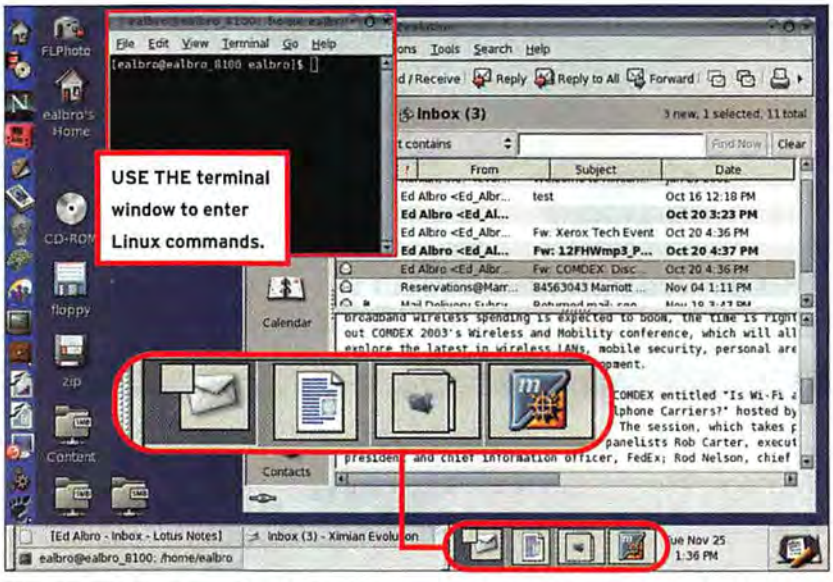
I KNEW I'D HAD IT WITH Windows when I had a nightmare filled with those little yellow balloons from the system tray, telling me that I had 3617 critical updates waiting to be installed. What's more, Trojan horses were prancing across my desktop and worms were crawling out of my in-box.

I woke up and thought, "There must be a better ▶

operating system." I wanted an OS that didn't need me to constantly install fixes, that didn't crash at the worst times, and that wasn't a target of every punk itching to prove his hacker skills.

I didn't want a Macintosh—for one thing, I didn't want to move to a new hardware platform. That left me just one other choice: Linux. But could I really get my work done in an OS written by a self-organizing online collective? I knew there were Linux counterparts to many Windows applications, but given that many of them are free, would they work? Would my hardware still function? And could I share my work with the more than 90 percent of the world still living in Microsoft's domain? I decided to give Linux a try for a month and find out.

What was life like in Linux-land? I found that, as its devotees swear, Linux is stable and highly customizable. I discovered a lot of solid and free—if sometimes pretty basic—apps, as well. But I also learned that Linux can be demanding for Windows users accustomed to having jobs (like installing new software) done for them almost automatically. And making the change meant making some compromises and leaving behind some old software friends that I couldn't take with me.



SWITCH PROJECTS easily: Linux lets you organize your work into multiple virtual desktops.

GET A GEEK

IF YOU'RE GOING to San Francisco for the first time, all you need is a good travel book and some comfortable shoes. If you're making your first trip to the uncharted wilds of Alaska, however, you'd better have an experienced guide. Moving over to Linux is like going to Alaska: You need a geek to show you the way.

I was fortunate enough to have two geek-guides, *PC World* Editorial Applications Development Manager Matthew Newton and Associate Editor Alexandra

HANDS-ON

PROGRAMS IN LINUX: HOW WELL DO THEY BEHAVE?

SWITCHING TO LINUX MEANT using a slew of native Linux apps and finding out whether Windows apps would cooperate. In our experiment, Windows apps didn't fare too well, but most of the free Linux alternatives got the job done. Here's what our editor encountered.

SOFTWARE	Linux program	Verdict	Comments
Office suite	OpenOffice.org	👍	A great alternative to Microsoft Office, with all the tools you expect from a robust suite. However, some tasks took extra clicks, and some features (such as tracking changes) were a little cumbersome.
Office suite	Microsoft Office via Wine	👎	Of all Office apps running in Linux, Word was the shakiest, and cutting and pasting in Excel wasn't always smooth. On the other hand, PowerPoint behaved reliably—revising slides was straightforward.
E-mail client	Ximian Evolution	👍	The program looked and behaved uncannily like Microsoft Outlook, and it worked like a charm.
Browser	Mozilla	👍	No contest here: Mozilla in Linux ran perfectly and felt the same as Mozilla in Windows.
Instant messaging	GAIM	👍	This all-purpose program worked seamlessly with AIM, Yahoo Messenger, and others. Unlike some Windows clients, it won't do video or voice chats.
MP3 player	Totem	👎	Basic app required a lot of manual work to find music files or reorder the tracks. On the bright side, though, there were no annoying pop-up ad windows.
Simple image editor	Flphoto	👍	Allowed easy, basic improvements to images; it also arranges photos into albums and creates slide shows. Offered far fewer options than do Photoshop Elements and Paint Shop Pro.
Personal finance	GnuCash	👍	A very intuitive program with a clean interface, it provides all the essential tools to manage your money.

Krasne. (If you don't know any Linux fanatics [yet], check out "Get the Linux Help You Need" below.) Matthew and Alexandra helped me install Mandrake Linux 9.2 in a new partition alongside Windows 2000 on my work PC, a Dell Dimension 8100. Mandrake is free to download; a shrink-wrapped copy costs $39 or more. (For more information on different distributions, see "Choose Your Flavor of Linux" on page 108.)

MOVING OVER TO LINUX IS LIKE GOING TO ALASKA: YOU NEED A GUIDE TO SHOW YOU THE WAY.

I probably didn't need a geek to get through the installation itself. Putting Mandrake Linux on my PC was no harder than installing Windows, and it took only about 25 minutes, a fair amount quicker than most Windows installs. Matthew handled my connection to our office's Windows servers through the Samba utility, but getting it to work was an adventure. The problem, it turned out, lay with the configuration of our servers.

Though I had my machine up and running, I still needed some assistance. I was suddenly facing a computer with a very different vocabulary and organization. On the surface, working in the Gnome desktop environment wasn't significantly different from working in Windows, and in a lot of ways it was better—I had much more flexibility in changing my desktop.

But beyond the interface, things got confusing. In Linux, programs aren't .exe files; in fact, they have no extensions. Programs don't live in the Program Files folder—they live in various "bin" directories. Having all my landmarks abruptly disappear left me frustrated initially.

My Linux machine acted as I expected it to—almost. The DVD-ROM/CD-ROM drive worked, I could read and write to my floppy drive, my Internet connection was fine, and I could print on our network printers after a little tweaking. But I encountered a few glitches. For instance, though my Zip drive was (we thought) successfully mounted, when I tried to access the drive it would spin incessantly—I couldn't access it. The only way to make it stop was to shut down the PC. And I couldn't spread my desktop across two monitors, as I did in Windows.

Whenever I came across such problems, Matthew would tell me he was sure there was a way to fix them; it would just take some more research and fiddling. And I believe him. However, the question for any potential Linux adopter is, how much time and patience do you have?

THE STICKING POINT

I SET UP XIMIAN EVOLUTION, a Linux e-mail client, to fetch mail from my personal account. If it weren't for the different icons, I would have sworn I was in Microsoft Outlook. The two programs look and operate so similarly, it's eerie.

But at work we use Lotus Notes, not Outlook, and that presented a snag. Most people who switch from Windows to Linux will probably discover that there is at least one Windows program they ▶

GET THE LINUX HELP YOU NEED

READY TO TAKE the plunge and install Linux? If you don't know a friendly Linux enthusiast to show you the ropes, the next best thing is to head to the Web.

Google Groups find.pcworld.com/35732
Search the newsgroup archives, hang out at a specific forum, plug in a search term, or post your questions.

LinuxQuestions.org linuxquestions.org
The site pairs users who have questions with other users willing to answer them. The site's forums are a great place to lurk.

RPMfind.net rpmfind.net
Browse through the exhaustive list of free RPM downloads. An RPM is the closest thing Linux has to an executable file. The packages work with many Linux distributions, including Mandrake and SuSE.

Linux Documentation Project tldp.org
An *Oxford English Dictionary* for Linux. LDP volunteers have spent the last ten years compiling how-to information and FAQs.

Mandrake Linux find.pcworld.com/39158
Get free access to forums, a hardware configurator, and documentation. Pay a monthly or yearly membership fee ($6 or $60, and up) for the Mandrake Club, and you'll receive added benefits, such as early access to new software. Post specific questions to Mandrake experts at find.pcworld.com/39161.

GET SOUND advice on a variety of topics from the die-hard fans at LinuxQuestions.org.

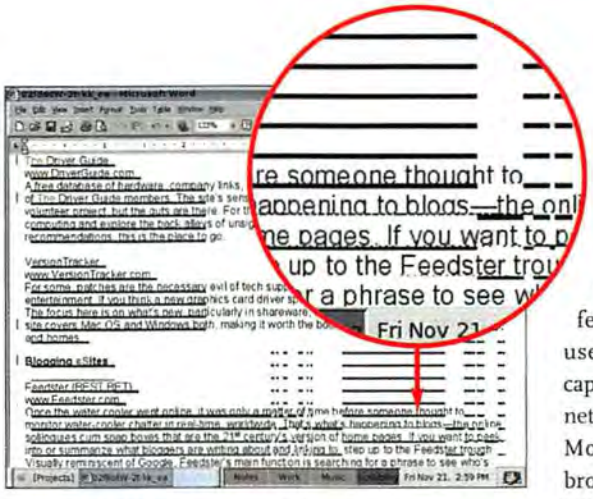
Lindows.com support.lindows.com
Check out this site's searchable knowledge base and community forum for free. A $99 lifetime membership gives you access to interim releases of new LindowsOS versions, the private "Insider's Forum," and more.

SuSE find.pcworld.com/39164
Take advantage of this site's free support knowledge base, its installation advice, and its hardware database, which covers processors, graphics cards, peripherals, and more, organized by manufacturer.

–Alexandra Krasne

need that no Linux alternative will successfully replace. In my case, that application was Notes.

Fortunately, there is Wine, a system for running Windows programs in Linux, and I found that Notes is one of the apps that runs fairly well over Wine. I used CrossOver Office, a $60 downloadable version of Wine whose creators, CodeWeavers, work on making various apps behave. When Notes crashed, I did a "simulated Windows reboot," which takes 20 seconds and does not affect any other Linux programs.



WACKY WORD: Running Microsoft Word on Linux can result in weird line spacing and random underlining in the text.

I decided to try Microsoft Office 2000 in CrossOver Office as well. It didn't take long to realize that this was a mistake. Working in Word was a bit like watching television in the 1950s. The window would flicker, and strange artifacts would appear. If I scrolled through a document, the appearance would sometimes break down, with lines repeated over and over.

The solution was easy and free: OpenOffice.org, a suite with word processing, spreadsheet, presentation, and drawing programs. The OpenOffice apps were rock-solid, easy to use, and filled with a wide variety of features. OpenOffice allowed me to save files as Word, Excel, and PowerPoint documents, so my colleagues using Microsoft Office had no problem opening and editing them.

The only features from Microsoft Office I couldn't find in OpenOffice were the ones I could never see much need for anyway. I couldn't use a Smart Tag to get a stock quote about a company whose name I'd just typed into a file, as I could in Word. But really, does *anyone* do that?

SMOOTH SURFING

I CAN'T SAY that my experience of the Web was much different in Linux. In Windows I used Mozilla because I liked its capabilities much more than Internet Explorer's. In Linux I also used Mozilla, and this edition of the browser worked identically to the Windows version, as far as I could tell. (I installed Internet Explorer through CrossOver Office but found that it was even shakier than Word.)

In some parts of the Web, though, Linux users are not invited. I'm a fan of RealNetworks' Rhapsody, a subscription music service. But the required Rhapsody player works only on a Windows PC running IE. Real has no plans for a version for Linux users, and I can't blame them. A group with a hostility toward paying big companies for computing resources doesn't seem like the most fertile market.

So I was back to playing the MP3 ▶

CHOOSE YOUR FLAVOR OF LINUX

LINUX IS AVAILABLE from various organizations that add their own configuration tools and installers to the OS's basic core (or *kernel*). A couple hundred of these Linux *distributions* are available to be downloaded for free (see find.pcworld.com/39167 for a long list). If you want a boxed copy, you'll have to pay for the privilege. Here are some of the most popular distributions.

LindowsOS find.pcworld.com/39176
This operating system is geared toward newbies with its simple one-click $50 software download service. The boxed copy costs $60 (no free version is available).

SuSE find.pcworld.com/39185
Acquired by Novell, SuSE is one of the most popular European distributions. You can opt for an $80 Professional version or a $30 Personal version (among others). SuSE offers lots of easy-to-use configuration tools.

Mandrake www.mandrake.com
Promising to be the Linux distribution for everybody, Mandrake is easy to install and has a slew of configuration tools. The popular Discovery version costs $39.

Lycoris find.pcworld.com/39179
Aimed at Linux newcomers, the Lycoris distribution ($40) also comes loaded on Toshiba Portégé Tablet PCs, starting at $1059 (visit find.pcworld.com/39803) and on Element Computer's sub-$1000 Helium 2100 Tablet (see find.pcworld.com/39806).

Knoppix find.pcworld.com/39173
The whole distribution fits on one CD: Simply run it from the $4 disc; when you reboot, you're back to your existing OS.

Xandros www.xandros.com
Formerly Corel Linux, Xandros balances the core developed by Debian (debian.org) with tools for new users. It includes CrossOver Office. The boxed version costs $39.

–Alexandra Krasne

PHOTOGRAPH: RICK RIZNER

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files stored on my hard drive. But at least I could get to them. One nifty thing about Linux is the ability to access files on your Windows partition. I used Totem, a video player with audio playback that—along with thousands of other applications—came free with Mandrake. Using Totem after using a Windows player such as RealOne is a bit like camping after staying at a hotel: You have to do a lot more things for yourself.

FLPHOTO, a basic Linux image editing program, allows you to automatically correct contrast or focus problems.

RealOne will scan your hard drive for music files and arrange them in a library. To play them, you don't have to know the files' location—you just click the album name you want. And, using ID3 tags, RealOne knows what order the tracks were in on the original CD. But Totem has no library. To hear anything, you have to find the files in their folders. And if the folder has scrambled the order of the tracks, you need to drag them one at a time to hear a symphony, say, in order.

One other critical difference separates Totem and RealOne: Totem didn't pop up messages on my desktop every time I logged on to my PC. It never urged me to listen to the latest hit by 50 Cent. And it never harangued me about upgrading to the paid version (because there isn't one).

UPGRADE UPHEAVAL

I WAS FORTUNATE TO HAVE help setting up my Linux system. But sometimes you want to change your setup, by adding either new hardware or new software. My results doing so were mixed. When I plugged in a USB flash drive carrying MP3 files, I was allowed to transfer the files easily. When I connected an Olympus C-750 Ultra Zoom camera, the system not only mounted the camera but also popped an icon onto my desktop for Flphoto, an image editor I never knew I had. But when I plugged in a Gateway DC-T20 camera, Linux failed to recognize that anything was attached to the PC.

I also wanted to find a Linux substitute for FileMaker Pro 6, a database program. I couldn't find anything among the software packages included with Mandrake. So I searched on the Internet and found Gaby, which sounded like it might be a Linux alternative. Then I found out how different installing software in Linux can be as opposed to doing so in Windows.

WHY AREN'T I RUSHING BACK [FROM LINUX] TO WINDOWS? IT BOILS DOWN TO THIS: PEACE.

Windows programs generally have everything they need to run, or they know where to find the required resources on your system. But Linux programs are more reliant on other programs that—you hope—are already on your machine. If those other helper programs aren't on your PC, you end up in what Linux veterans call "dependency hell."

In my case, Gaby squawked that I didn't have a certain necessary component. Once I found the file on the Internet, I saw the list of programs it needed and began to despair. I didn't know whether I had this stuff or not, or how to check.

I asked Matthew for help. He went to RPMfind.net (rpmfind.net) and found a version of Gaby that was built to automatically install in my configuration of Linux. If he hadn't unearthed it, I don't know whether sorting through all the dependencies manually would have been worth all the trouble.

THE BIG QUESTION

I INSTALLED LINUX a month ago wondering if I could get my work done. The answer is certainly yes. Not only that, but in some ways I prefer working in Linux. It boots up quicker than Windows, opens folders swiftly, and allows me to personalize my desktop easily—much more so than I could in Windows.

But the bigger question is whether moving to Linux is worth the hassle. If you are simply disgruntled about Windows, its lax security, and its occasional instability, migrating to Linux probably wouldn't be the best move. You'd have much to learn, and you'd end up scrapping lots of software you paid for. And Linux is not completely free of security holes, either.

But if you rankle at the limited customization options Windows often gives you, if you want near-total control over your PC, and if you can avoid the temptation of the latest software and hardware, the journey to Linux-land may be just the ticket (try running Windows and Linux on one PC, a typical dual-boot setup).

Four weeks after my experiment began, I'm still running Linux on my work desktop PC. But I have a Windows XP laptop for running the Windows apps I just can't let go of, and for trying out new software.

Why aren't I rushing back to Windows on my desktop PC? It boils down to this: peace. Working in Linux seems quieter; I don't feel under attack, my programs are not trying to sell me something, and they don't try to do things for me that I don't want done. Computing in Linux sometimes requires more work, but it also imposes fewer annoyances. And so far, that's a trade-off I'm willing to make. ■

Edward N. Albro is an executive editor at PC World. *Associate Editor Alexandra Krasne and Editorial Applications Development Manager Matthew Newton also contributed to this article.*

113 BRIGHT IDEAS: 17 INNOVATORS | 118 CALL OR SHOOT: CAMERA PHONES | 120 GADGET FREAK: DMCA AND DVDs

THAT'S ENTERTAINMENT (from top): Dell's W1700 with Intrigue Technologies' Harmony Remote SST-768, Pioneer's DVR-801H-S, and Pioneer's HTD-630DV with front- and rear-channel speakers, plus subwoofer.

The new world of personal tech—for the living room and beyond

NEXT GEAR

EDITED BY ALAN STAFFORD

PC WORLD NEXT GEAR INNOVATIONS 2004

TECH VISIONARIES

WE GIVE AWARDS TO 17 HARDWARE PRODUCTS SETTING THE STANDARD FOR INGENUITY WITH UNIQUE QUALITIES THAT DISTINGUISH THEM FROM THE HO-HUM. BY THE EDITORS OF PC WORLD

THE WORLDS OF the PC and of consumer electronics have met head-on, and their interchange has created a flood of fresh, interesting products. As these hybrids grow more numerous, we've found ourselves admiring products that apply good old-fashioned computing power in innovative ways. Many of these entertainment-driven devices have PC-like functions, but they push the limits of technology.

Inspired by this, we recently scoured the Net, cruised the aisles of electronics stores, and looked at cool stuff we've reviewed over the year to identify the most ingenious and most inventive products. Of course, *PC World* never takes any product at face value, no matter how neat-looking the device, so we subjected the products to intensive hands-on evaluations. Our aim was to discover trendsetting devices and reward them for their progressive design and function.

After a careful search, we narrowed the field to 17 standouts, and bestowed on them our Next Gear Innovations Awards. Whether the selections are benchmark products that other companies copy or breakthrough products that have yet to be imitated, all of them are winners. ▶

PHOTOGRAPHS: KEVIN CANDLAND

Tapwave Zodiac

Creative Sound Blaster
Audigy 2 NX

Rockford
Omnifi DMS1 WiFi
Home Digital Media Streamer

NICER NETWORKED MUSIC PLAYER

LOTS OF GADGETS let you stream music from a PC to your stereo system via a home network—usually in a clumsy fashion. But the audio experts at Rockford did the job right: The $299 **Omnifi DMS1 WiFi Home Digital Media Streamer** is an intuitive stereo component, not a kludge. It not only plays MP3 and WMA tracks but also taps into online music services, including RealNetworks' Rhapsody (a *PC World* Best Buy; for more information, see find.pcworld.com/39734). And listen up, car-stereo buffs: The $599 Omnifi DMP1 mobile audio player and a $70 adapter let you download music to your car via Wi-Fi, providing up to 275 hours of entertainment for your next road trip. $299, find.pcworld.com/39605

APPEALING LCD TV

DELL'S 17-INCH flat-panel monitor, the **W1700**, has a built-in TV tuner and two distinctive features that separate it from other displays: First, the monitor uses advanced Faroudja video-processing technology, which helps it deliver a clean, smooth image in DVD movies and in broadcast TV. Second, it carries a $699 price, and for a wide-screen, HDTV-ready LCD, that's pretty darned inexpensive. Furthermore, the W1700's inputs for VGA, component, composite, and S-Video permit you to connect a PC, VCR, or digital video recorder. $699, find.pcworld.com/38546

VIDEO ARCHIVER, AND TIVO, TO BOOT

THE FIRST digital video recorder to incorporate a DVD burner, the **Pioneer DVR-810H-S** allows you to archive your rapidly accumulating recorded shows in a matter of minutes. The DVR-810H-S is also the first DVR to include TiVo's basic service; its easy-to-use on-screen programming guide displays three days' worth of shows at a time (pay the monthly $13 fee, and you get the full-blown TiVo Plus service). The recorder automatically creates a menu on the DVD that resembles what you would see on TiVo, right down to the date of the recording, the series name, the episode title, and a description of the episode. $1000, find.pcworld.com/38987

HDTV GETS FUN

WITH ROKU'S **HD1000** digital media player, high-definition television is not exclusively

TV TO GO: Toshiba's Satellite P25-S609 notebook has a built-in TV tuner.

PORTABLE ENTERTAINMENT CENTER

WHILE Windows XP Media Center was originally intended for desktop PCs, Toshiba integrated it into the handsome, 17-inch wide-screen **Satellite P25-S609** notebook, loaded with a 3-GHz Intel Pentium 4 desktop processor and 1GB of RAM. Other vendors, such as HP, have released similar notebooks, but none of them have integrated the Media Center features quite as well as Toshiba has. Using the included remote, you can switch to more leisurely pursuits, such as watching TV. A truly portable entertainment center—now that's a movable feast. $2800, find.pcworld.com/38345

Roku HD1000

PoGoProducts
Radio YourWay

Sony
Cyber-shot
DSC-T1

about sports broadcasts so crisp you can read the players' tattoos from the sofa. A set-top box for HDTV display owners, the sleek HD1000 shows photos in high-res glory and plays music; through built-in slots and ethernet, you can feed it content from standard-format memory cards or via a home network. Other ways to get the job done are much cheaper, but this box's HDTV support is unique—and a preview of the highly defined entertainment world to come. $500, find.pcworld.com/39608

HOME THEATER IN A BOX, WITH WIRELESS

CONSISTING OF an all-in-one receiver/CD and DVD player/changer and six speakers, the **Pioneer HTD-630DV** provides a complete surround-sound setup that doesn't take over your living room. The most interesting part: The system feeds the two rear channels via a 2.4-GHz wireless connection, which is particularly nice if you don't want wires crisscrossing your floor. It has plenty of power, and it sounds great, especially when playing DVD-Audio discs or Super Audio CDs in surround sound. You do have to settle for particle-board speaker enclosures, and controlling the system via a connection to a television is much easier than doing so with the on-board LED interface; even so, for the price it's a real bargain. $800, find.pcworld.com/39518

SMART REMOTE CONTROL

THE **Harmony Remote SST-768** from Intrigue Technologies brings the PC's flexibility and intelligence to the home theater. Instead of punching in cryptic button codes or enduring a protracted learning process, as you must with many other remote controls, you use an Internet browser–based wizard to program the SST-768. Once you've synced your configuration by attaching the remote to your PC with a USB cable, the remote learns all about your setup. An example of its exceptional smarts: Unlike other remotes, it can switch to your DVD player with the press of a single button, no matter which video input you're on. $299, find.pcworld.com/38576

NOTEBOOK SURROUND SOUND

CREATIVE'S **Sound Blaster Audigy 2 NX** external outboard sound card comes to the rescue of almost any notebook PC that suffers from weak audio by offering a unique, 24-bit, high-definition audio system that easily connects to the laptop via a USB port. Offering built-in support for up to 7.1-channel speaker systems, enhanced clarity for DVD-Audio discs, DirectSound 3D for games, and optical and coaxial outputs for digital sound, the Sound Blaster Audigy 2 NX also stands out thanks to included software that facilitates advanced sound mixing and audio boosting. $130, find.pcworld.com/39539 ▶

GAMES OF YESTERYEAR, AVAILABLE NOW

UNTIL RECENTLY Pac-Man and other classic arcade games appeared doomed to languish in dusty warehouses or antique collectors' garages. But Jakks Pacific has licensed a number of fondly remembered games and has released inexpensive, battery-operated joysticks with built-in games that you just plug into your television. Our favorite model, the **Namco TV Games**, plays five hugely entertaining former quarter-eaters dating from the late 1970s to the mid-1980s, including Pac-Man and Dig Dug. The **Atari TV Games** model, whose look mimics that of Atari's black joystick, lets you play ten games from the famous, chunky, 1970s-era Atari 2600 game console. Both will entertain you for hours. $25, find.pcworld.com/39596

FLASHBACK: Jakks Pacific's Atari TV Games joystick (right) includes Asteroids and Centipede. The Namco TV Games joystick (below) includes Pac-Man.

WAFER-THIN CAMERA WITH EVERYTHING

PACKED inside the 0.8-inch-thick **Sony Cyber-shot DSC-T1** are giant features we've never seen in a camera this thin and sleek: an extra-large 2.5-inch LCD, hefty 5-megapixel resolution, a 30-fps MPEG movie mode, speedy and smooth performance, and basic on-camera photo editing functions like image resizing and rotating. The brushed-metal DSC-T1 sports a sliding lens cover and a 3X optical zoom lens (38mm to 114mm in 35mm film equivalent). On top of that, Sony adds a 32MB Memory Stick Duo card and a rechargeable InfoLithium battery. The camera does have one main drawback, however: It lacks an optical viewfinder. (See our longer review in *New Products* on page 56.) $550, find.pcworld.com/39611

TINIER THAN A MINI-DV CAMCORDER

THIS CAMCORDER scoffs at comparatively bloated mini-DV camcorders: The Panasonic **D-snap SV-AV100** is about the size of a petite filet mignon and weighs a mere 6.5 ounces. The output quality is better than that of clips recorded on a digital still camera; but even at its top setting, the video it captures to an SD (Secure Digital) memory card doesn't look as good as what you'd get from a mini-DV camcorder. The included 512MB SD card holds only 11 minutes at its best setting, but that doesn't seem as important when you can carry the D-snap in a back jeans pocket. $799, find.pcworld.com/39521

SMALL BUT PROUD: The Panasonic D-snap SV-AV100.

RECORD RADIO NOW, LISTEN LATER

TV WATCHERS have the ability to choose TiVo or ReplayTV to record shows for later viewing, but radio listeners haven't had many options for recording programs to listen to at another time. Enter the **Pogo-Products Radio YourWay**, a combination voice recorder, MP3 player, and programmable AM/FM recorder. About the size of a pack of cigarettes, this device holds 128MB of memory, capable of capturing up to 16 hours of radio or 2 hours of MP3 music. And its SD (Secure Digital) slot accepts up to 256MB more memory. For its remarkable versatility alone, the Radio YourWay is a one-of-a-kind product. $200, find.pcworld.com/39542

HANDHELD GAMES AND A PDA, TOO

A HIGH-RESOLUTION LCD screen with a high refresh rate and the included Palm OS distinguish the **Tapwave Zodiac** as an enjoyable and versatile handheld gaming device that can also function handily as a PDA. Its top-notch graphics are the best of any currently available handheld game console, and it comes with a few fun, addictive games. The unit fits in the hand ergonomically; and all its controls, including a simple-to-use directional pad, are easily accessible. Topping that are Bluetooth and infrared connectivity, as well as a built-in soft cover that protects the screen. $350, find.pcworld.com/39593 ■

TRENDSETTERS

INNOVATORS THAT KEEP GOING AND GOING

TRAILBLAZERS (from top): Bose's QuietComfort 2 headphones, Apple's IPod, PalmOne's Treo 600, and Cambridge SoundWorks' Radio CD 740.

RATHER THAN resting on their laurels, the manufacturers of the following products continue to make improvements to them.

ELEGANT MP3 PLAYER Improved software and a sleek design, as well as the now Windows-friendly ITunes music service, help **Apple's IPod** blaze a trail that other MP3 players follow. $399, find.pcworld.com/39587

HEADPHONES THAT PREVENT NOISE While noise-cancellation headphones have been around for years, **Bose's QuietComfort 2** model is the only one to integrate its battery box into the headset. $300, find.pcworld.com/39581

MULTIFORMAT TABLETOP RADIO With the **Cambridge SoundWorks Radio CD 740**, you get a versatile AM/FM radio that plays audio CDs and MP3-filled CD-R and CD-RW discs, as well. There is another plus, too: Artists and song titles scroll across the front panel's backlit 32-character display. $400, find.pcworld.com/39584

HANDY PDA/PHONE HYBRID The first cell phone based on the Palm 5 operating system, PalmOne's svelte **Treo 600** capably balances the often conflicting functions of a communications device and a personal digital assistant. $499, find.pcworld.com/39590

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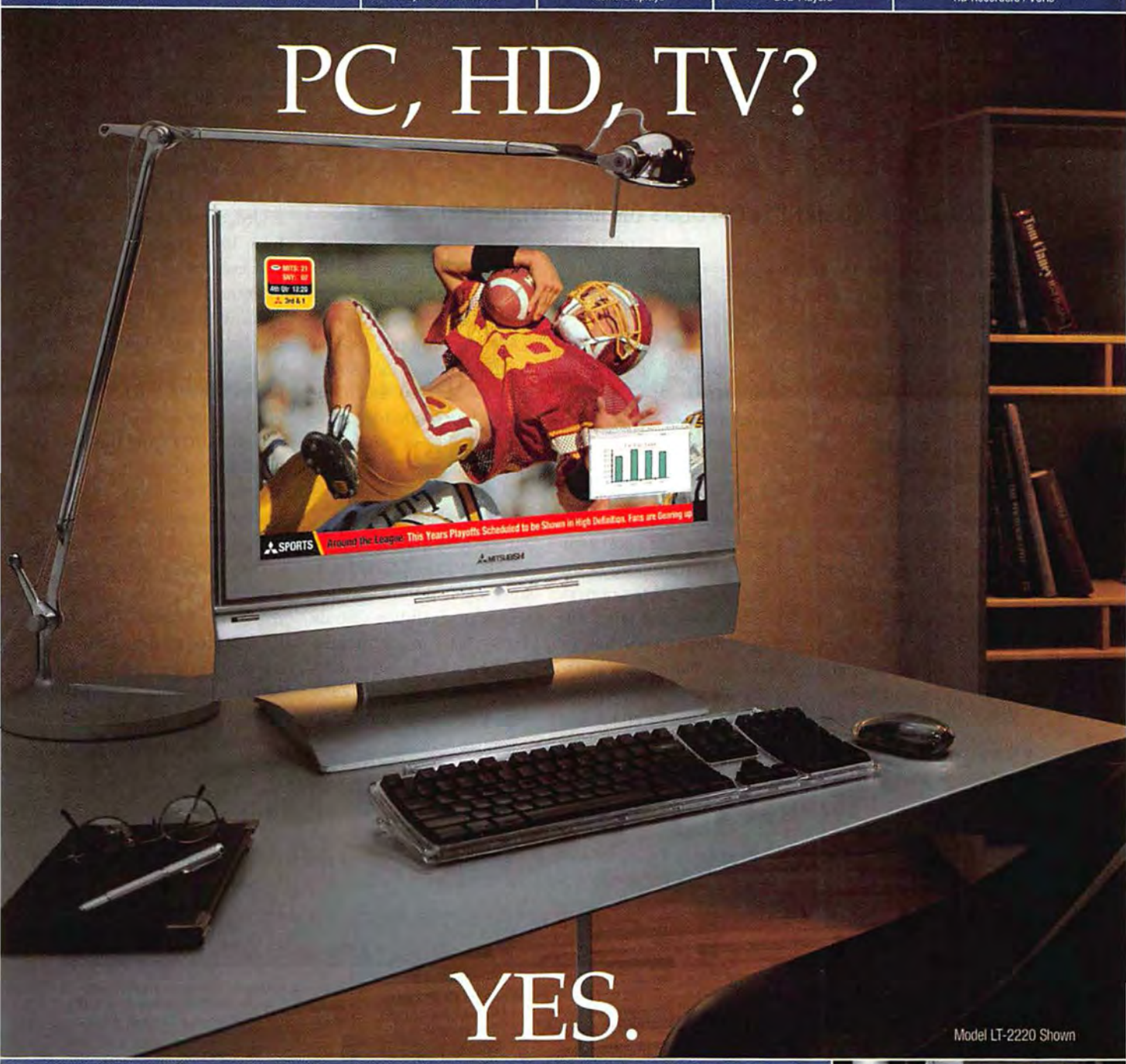

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Model LT-2220 Shown

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MOBILE PHONES

PICTURE-PERFECT PHONES

CAMERA-EQUIPPED HANDSETS FOCUS ON IMPROVING THEIR IMAGE.

EMBARRASSING moment, car accident, UFO sighting: Wish you had a camera? Chances are you'll have a cell phone on you. Marry the ideas together, and voilà—camera phones.

Mobile phones with integrated digital cameras are improving. On top of their now-common organizer features and e-mailing abilities, many of the new models have higher image resolution and such camera features as exposure adjustment, digital zoom, self-timers, and even the ability to apply effects like black-and-white, negative, and sepia.

The photos from the camera phones we evaluated look fine for sharing among family and friends—but don't post your regular digital camera on EBay just yet. At the camera phones' highest quality setting, Motorola's V600, Nokia's 3660, and Samsung's SGH-E715 captured the most pleasing images in the group. But all three still had flaws—a little noise, blocky colors, overexposed areas, and fuzziness.

DUAL VISION: NEC's 525 has a second display on the outside.

Like the Motorola, Nokia, and Samsung, LG's VX6000 takes 640-by-480-resolution shots, but it produced the grainiest photos of the group. To its credit, the VX6000 is the easiest to use of the devices here: Its menus are intuitive, and the screen is well lit.

NEC's 525 and Sony Ericsson's Z600 capture a wallet-size max resolution of only 352 by 288. Images from the 525 looked bright but oversaturated. Shots from the Z600 were pixelated and blurry.

Snapping a picture is easy with any of these phones. The hard part comes when you try to send an image. On each device, with e-mail addresses loaded, e-mailing a photo took from 10 to 13 clicks—and it took even more when we had to enter the destination address. We'd like to see the task take half as much effort.

The V600, 3660, and Z600 let you beam photos to another Bluetooth-enabled device. The SGH-E715 and the 525 have an IR port that transfers addresses—the first to an IR-enabled PC only, the second to other devices.

The number of images you can store depends on how many other items (such as downloaded games or saved messages) are on the phone. So purge often and snap sparingly. —*Grace Aquino* ■

FEATURES COMPARISON

PICTURES WORTH A THOUSAND MINUTES

SOME OF THE LATEST DEVICES tout higher resolution, digital zoom, photo effects, and exposure adjustments. Our top choice is Motorola's V600 for its useful photographic features. Consider Nokia's 3660 if you want to record short video clips.

CAMERA PHONE	Features	Performance and extras	Comments
LG VX6000 ★★★½☆ find.pcworld.com/39626	• $150 (Verizon) • 640 by 480 max resolution • Stores 20 hi-res images • 3-hour talk time, 4.6-day standby	• Image quality: Fair • Ease of use: Very good • 6 white-balance settings • 4 photo effects	Bright LCD, well-laid-out controls, and easy-to-follow menu system make the VX6000 a pleasure to use. But its photos looked extremely grainy and had a lot of noise.
Editor's Pick Motorola V600 ★★★★☆ find.pcworld.com/39629	• $300 (AT&T) • 640 by 480 max resolution • Stores 114 hi-res images • 7.5-hour talk time, 9-day standby	• Image quality: Very good • Ease of use: Good • 4X digital zoom • Screen brightness setting	The 4.4-ounce V600 plays downloaded video clips and lets you adjust the camera's exposure and lighting condition, but the settings are buried deep in menus.
NEC 525 ★★★☆☆ find.pcworld.com/39632	• $300 (AT&T) • 352 by 288 max resolution • Stores 68 hi-res images • 5.4-hour talk time, 6.3-day standby	• Image quality: Good • Ease of use: Good • 2X digital zoom • Screen brightness setting	A second LCD on the outside surface of the phone can be used for picture-taking; it also can show a picture of your choice, plus network status, battery life, date, and time.
Nokia 3660 ★★★½☆ find.pcworld.com/39635	• $300 (T-Mobile) • 640 by 480 max resolution • Stores 140 hi-res images • 4-hour talk time, 8-day standby	• Image quality: Very good • Ease of use: Good • 16MB MultiMedia Card • Records and plays video	Impressive pictures and extra storage make up for the phone's large size. The 2-inch LCD is roomy but could be brighter. AT&T and Cingular sell this model as the 3620.
Samsung SGH-E715 ★★★☆☆ find.pcworld.com/39638	• $300 (T-Mobile) • 640 by 480 max resolution • Stores 34 hi-res images • 4-hour talk time, 7-day standby	• Image quality: Very good • Ease of use: Fair • 4X digital zoom • 5 photo effects	In its Multi-shot mode, you can take up to 15 continuous shots in 128 by 122 resolution. Annoyingly, the center navigation button doesn't also function as an <Enter> key.
Sony Ericsson Z600 ★★½☆☆ find.pcworld.com/39641	• $399 (stand-alone) • 352 by 288 max resolution • Stores 102 hi-res images • 6-hour talk time, 8-day standby	• Image quality: Fair • Ease of use: Fair • Night mode • 3 photo effects	A vibrant screen and comfy keypad don't make up for the Z600's laborious photo-sending process: E-mailing a picture requires at least 13 clicks, more than other models.

PHOTOGRAPHS: RICK RIZNER

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GADGET FREAK

DAN TYNAN

The Perils of DVD Streaming

I WAS FIDDLING with the Gateway Connected DVD Player, a $200 gizmo that lets you stream music, videos, and photos from your PC to your TV using a wireless network. I have to admit it was pretty slick, once I got the player and my 802.11b router close enough to talk to each other.

Then I started wondering: Could I stick a movie into my PC and stream it to my plasma TV? Could I excerpt my favorite bits from *The Simpsons*, store them on my hard drive, and watch them when I felt like it? That's when I ran headfirst into the Digital Millennium Copyright Act.

Today you can insert a disc into your DVD player and watch it on your TV. You can put the same disc into your system's DVD-ROM drive and display it on your monitor. But you can't legally put the DVD in your PC and stream it to your TV over a network. Why? Because the movie industry worries that if you can stream media files to other devices, there's nothing to stop you from swapping them over the Big Bad Internet.

DMCA BLUES

BEFORE manufacturers can build DVD players, they must obtain a license from the DVD Copy Control Association. The DVDCCA license requires drive makers to implement the Content Scrambling System, which prevents consumers from storing digital movies on their hard drives or streaming them across a network. The DMCA, passed in 1998, prohibits tampering with copy-protection schemes like CSS. So if you try to hack CSS—by, say, using DeCSS software off the Net—a coven of copyright attorneys will swoop down and start gnawing on your entrails.

Hollywood never intended to forbid streaming legally purchased movies over a home network, says attorney Bruce Turnbull, a partner with Weil, Gotshal, & Manges, which represents major players in the DVD hardware arena. "The issue is making sure that you stream the content across the network in a way that preserves the protections of CSS," he says.

In fact, Turnbull says, in 2003 the DVDCCA began the process to approve a technology called Digital Transmission Content Protection, which will let protected content pass from a PC to other devices on a network. Gear using DTCP may show up later this year.

The DMCA is "about putting content owners in position to dictate what kinds of new equipment you're allowed to have," says Fred von Lohman, senior staff attorney for the Electronic Frontier Foundation, which has spent five years fighting the DMCA.

In other words, just as Hollywood tried (and failed) to kill off tape recorders and VCRs, it's now trying to control how you play DVDs—and it has a federal law to back it up.

The DMCA is also about fear of the Net. Now, I've swapped files online. Every time the RIAA sues more college students, I download another batch of MP3s, laughing maniacally the whole time. But I don't do it instead of buying music; I do it to sample new artists or grab songs I'd never dream of purchasing. Does that make me an evil person? I think not. Will it get me sued? I hope not.

Instead of harassing file swappers, I wish content creators would figure out how to use the Internet to deliver their content intelligently. But that's me—and I'm just another Internet scofflaw. ■

Contributing Editor Dan Tynan is referring all questions to his attorney.

NEXT UP

MP3 Audio in a Flash

Aiwa—a subsidiary of Sony Electronics, not the farm belt state—will soon introduce new MP3 devices for your home and person. The Pavit Series (pronounced "pah-vee"; no, it's not French, Aiwa insists) will include two portable MP3 players, headphones, and a water-resistant FM tuner/MP3 player designed for use in the bathroom or poolside. The unique angle: Each device has a USB port into which you can plug a Pavit removable flash drive. You can transfer music from your PC onto the drive via USB and then plug the drive into any of the devices. Aiwa says it has a tabletop radio/MP3 player with the flash drive, but hasn't yet decided to produce it. *C'est la vie,* tabletop Pavit. find.pcworld.com/39737

ILLUSTRATION: DYNAMIC DUO

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Lab-tested rankings of the best in PCs, peripherals, and upgrade components

TOP 100

EDITED BY THE REVIEWS STAFF

INSIDE

122 SOUND CARDS AND SPEAKERS
128 DESKTOP PCs
133 22-INCH CRT MONITORS
134 INK JET PRINTERS
135 PDAs
136 DIGITAL CAMERAS
137 MORE REVIEWS

Spot LIGHT Klipsch's ProMedia Ultra 5.1 speaker system (left) delivered full-bodied sound when paired with Creative's Sound Blaster Audigy 2 ZS Platinum sound card and input/output module.

SPOTLIGHT: PC AUDIO

Audio Nirvana: Cards to Speakers

The right speakers and sound card can turn your PC into an audio tour de force for games, DVDs, and music. Great sound can pump up a dull movie, as well as notch up your adrenaline when you battle bad guys.

We took an acoustical tour of five speaker sets and four sound cards, from the modestly priced to the top-of-the-line. And because many computers now come with integrated 5.1-channel audio (capable of driving five satellite speakers and a separate subwoofer), we added in an Amax AMD Max 3200+ system that has integrated NVidia NForce2 audio, to see how it stacked up against our four sound cards.

We piped an eclectic selection of music, and the audio from a DVD movie, from the sound cards and the integrated NForce2 through a 5.1-channel Altec Lansing speaker set; for our speaker-set tests, ▶

PHOTOGRAPHS: MARC SIMON

Digital Cameras

Top 10 CHART Here's a pop-up window we don't have a problem with: The Olympus C-5060's LCD panel swivels into different orientations so you can see your subject when you're shooting from the hip.

PDAs

Top 10 CHART The BlackBerry 7210/7230 phone/PDA has a blueberry-colored shell. Like all BlackBerry devices, it has a tiny but usable keyboard; the unit also has a color screen.

136

135

Ink Jet Printers

Top 10 CHART Canon's i350 Color Bubble Jet Printer creates high-quality text and photos—impressive for a $60 printer. Unlike most inexpensive ink jets, the i350 doesn't soak you on ink costs, either: A black cartridge costs $7; the single color cartridge, $18.50.

134

INSIDE THE TOP 100

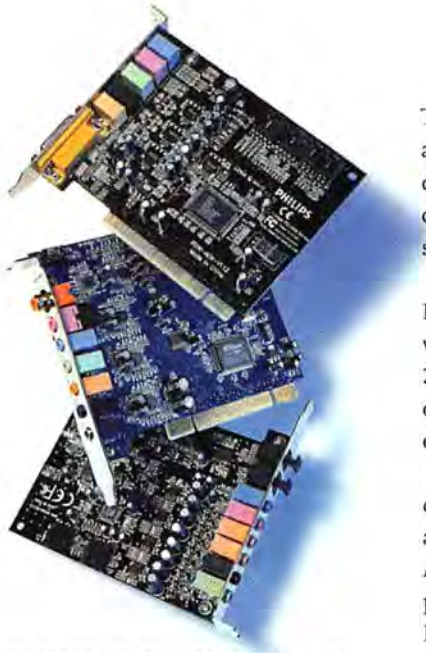
See find.pcworld.com/15720 for details on how we compile charts for the Top 100. *Freelance writers Dan Littman, Mick Lockey, and Carla Thornton and* PC World *editors Eric Butterfield, Tracey Capen, Seán Captain, Rebecca Freed, Kalpana Ettenson, Alexandra Krasne, Melissa J. Perenson, and Alan Stafford contributed to the* Top 100 *section this month. Ulrike Diehlmann, Julio Giannobile, Elliott Kirschling, Jeff Kuta, Tony K. Leung, and Thomas Luong of the PC World Test Center performed testing on the products reviewed in this section, with logistical support provided by Julian Weatherby.*

a Creative Sound Blaster Audigy 2 ZS Platinum card (a standard in many high-end desktops) drove all of the sets.

Our conclusion: The combo of Creative's $200 Sound Blaster and Klipsch's $400 ProMedia Ultra 5.1 speaker set was the best by far. Together they created astounding audio that rivaled some home theater systems we've heard. The pairing delivered well-balanced bass and treble tones, with the bass distinct and solid.

We heard some surprises, too, such as unexpectedly well-rounded audio from the tiny, ultracheap, two-channel JBL Duet and great sound from Altec Lansing's inexpensive 5.1-channel 251.

As for the NVidia-based integrated audio, we thought it sounded pretty good—until we heard the sound boards.



GIVE YOUR AUDIO A BOOST with a multi-channel sound card (from top to bottom, Philips, M-Audio, Mad Dog Multimedia).

MUSIC STARTS ON THE INSIDE

IF YOUR PC came with integrated audio or an older card, upgrading to a new card is probably your best first step to better audio (though integrated audio that supports 5.1-channel surround sound comes in many current systems—via the NForce2 chip, for example—many older PCs with integrated audio may lack this capability).

To get satisfying sound out of games and DVD movies, you'll want a card that can handle at least 5.1 audio (also known as six-channel surround sound, where satellite speakers provide center, front-left, front-right, rear-left, and rear-right channels, plus a subwoofer—the ".1" in 5.1).

Midrange and high-end cards increase the number of speakers supported to 7.1 (adding two side speakers to the mix). They also have more powerful digital-to-analog converters (DACs), which take the digital format your audio is stored in and change it into an analog signal that the speakers can understand.

Lower-end cards like the $40 Philips PSC605 Sonic Edge 5.1 use 16-bit DACs, while higher-end models like the Audigy 2 ZS Platinum and M-Audio's $100 Revolution 7.1 use 24-bit DACs, which generate a broader spectrum of sound.

To our ears, however, a 24-bit DAC does not guarantee better sound. Playing a Beatles track in our tests, the 24-bit Audigy 2 ZS Platinum and Revolution 7.1 produced superb vocal tones. But Mad Dog Multimedia's midrange $60 Entertainer 7.1 DSP sounded flatter than the Philips card, despite its 24-bit DAC.

Better cards also have built-in support for true surround sound. To replicate at home the lifelike effects you're used to hearing in the theater, you'll need two elements in place: A 5.1 or 7.1 speaker set whose speakers are appropriately spaced around the room to achieve a sense of fullness, and a surround-sound decoder such as Dolby Digital EX—which both the Audigy 2 ZS Platinum and Revolution 7.1 support. Sound cards like Mad Dog's Entertainer and Philips's Sonic Edge lack a Dolby Digital decoder, which means you'll need speakers that have a decoder built in (as the Klipsch and the Creative GigaWorks S750 we reviewed do).

All of the cards we tested came with software that lets you fine-tune your audio—adjusting bass and treble, for example, or optimizing your sound for stereo, 5.1, 7.1, or headphone setups. Philips's software makes it especially easy to test that you've hooked up your speakers correctly, while M-Audio's has helpful presets for configuring popular speaker systems.

Our pick, Creative's Audigy 2, has a few unique features that account for its relatively high price tag. Its input/output hub mounts in an open 5.25-inch drive bay on the front of your computer and adds FireWire and MIDI ports, a handy volume control, and the infrared receiver for the included audio and video playback remote control. (You can buy the Audigy 2 ZS without the hub for about $100.) ▶

PHOTOGRAPH: MARC SIMON

FEATURES COMPARISON

Audio Cards Add Punch

THOUGH TODAY'S INTEGRATED audio is fine, we found room for improvement. Of these four cards, we liked the richness of Creative's Sound Blaster Audigy 2 ZS Platinum best.

SOUND CARD	Features	Comments
Editor's Pick Creative Sound Blaster Audigy 2 ZS Platinum find.pcworld.com/39275	• $200 • 7.1 channels, 24-bit DAC • Drive-bay module with I/O ports • Dolby Digital EX, DTS-ES, DVD-Audio	Installing the card and front-panel I/O module took a while, but the results were worth the effort. Every note was distinct, and the bass and treble were well balanced. (★★★★½)
Mad Dog Multimedia Entertainer 7.1 DSP find.pcworld.com/39281	• $60 • 7.1 channels, 24-bit DAC • EAX, DirectSound3D, A3D • Dual S/PDIF	Solid features for the price, but the sound was flat, with weak midrange tones. Includes a basic software utility. (★★★☆☆)
M-Audio Revolution 7.1 find.pcworld.com/39278	• $100 • 7.1 channels, 24-bit DAC • Dolby Digital EX, DTS • Bundled games	This 7.1-channel card produced fairly well-balanced sound with pleasant vocals. Software includes handy presets for configuring popular speaker systems. (★★★½☆)
Philips PSC605 Sonic Edge 5.1 find.pcworld.com/39284	• $40 • 5.1 channels, 16-bit DAC • EAX 2.0, DTS, DirectSound3D, AC3 • Dual S/PDIF	A fine, low-cost upgrade from integrated audio—the card produced decent sound, though the bass was a bit muddy. (★★★½☆)

CHART NOTE: We tested all sound cards using Altec Lansing's 251 5.1-speaker set.

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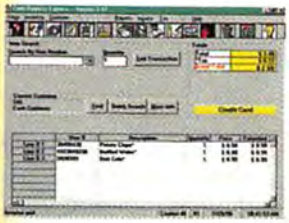

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ALTEC LANSING'S 251 puts audio controls on the front-right satellite, a possible inconvenience.

A MULTIPLICITY OF SPEAKERS

HOME THEATER PC setups have gone from two to six or eight speakers. But more doesn't always mean better—even if you can find the room to properly space out all of those speakers.

The number of units that's right for you depends on what you mostly listen to: Games and movies—whose audio follows the action playing out on screen—sound best with 5.1 or 7.1 systems. Music, on the other hand, can be very pleasing with a simple 2.1 setup consisting of two speakers and a subwoofer. (4.1 and 6.1 speaker systems are sold, but we recommend either 5.1 or 7.1, as surround sound seems to work best when you have a center speaker to enhance the other satellites.)

Based on the speakers we tested, you can't always use price as your guide to sound quality. Playing music, the $100 Altec Lansing 251 analog 5.1 speakers produced bass and treble tones that sounded almost as good as those of the $500 Creative GigaWorks S750 7.1 speakers. However, the Creative set did a superior job with our DVD of *The Matrix Reloaded*—not surprising given that the GigaWorks speakers have built-in support for Dolby Digital decoding. The $100, 2.1-channel Logitech Z-3 left the well-defined vocals on an acoustic track disappointingly flat, even when compared with Harman Multimedia's $60 2-channel JBL Duet speakers.

Nothing approached the audio quality of our pick, Klipsch's $400 ProMedia Ultra 5.1. This 5.1-channel system produced round, rich sound on all of our test tracks, and even made low-fi guitar on one instrumental track sound full-bodied.

Too bad that setting up the Klipsch was not as pleasing as listening to it. The Altec Lansing and Creative speakers had intuitive, color-coded wiring, and we pieced those systems together in a few minutes. But the ProMedia Ultra 5.1 took longer because the wires weren't clearly labeled.

The ProMedia Ultra 5.1 and the GigaWorks S750 come with external control modules for adjusting volume and fine-tuning the speaker alignment, along with jacks for headphones and a microphone (the Z-3's external control has only volume adjustment and a headphones connection). But we found these external modules more of a hassle than a convenience, since their additional wires further complicated the spaghetti-like mess of cables we already had around our PC.

—Michael Gowan ■

FEATURES COMPARISON

Speakers Yield Big Sound

OF THESE FIVE speaker systems, we most liked the full-bodied, crisp audio that we heard from the six-speaker Klipsch ProMedia Ultra 5.1.

SPEAKER SYSTEM	Features	Comments
Altec Lansing 251 find.pcworld.com/39266	• $100 • Six-speaker set • 60 total watts • Integrated controls with headphone jack	Well-balanced bass and treble tones, but the middle range sounded a bit heavy. With fine sound and a relatively low price, it's an attractive value. (★★★½☆)
Creative GigaWorks S750 find.pcworld.com/39263	• $500 • Eight-speaker set • 700 total watts • Separate control module, wireless remote	Easy to set up, despite its eight speakers and separate control module. Very nice sound with clean vocal tracks and booming bass. (★★★½☆)
Harman Multimedia JBL Duet find.pcworld.com/39269	• $60 • Two-speaker set (no subwoofer) • 12 watts • Integrated volume control	Stylized duo produced surprisingly good trebles and vocals, but you might miss the satisfying bottom end that would come from a subwoofer. (★★★☆☆)
Editor's PICK Klipsch ProMedia Ultra 5.1 find.pcworld.com/39272	• $400 • Six-speaker set • 500 total watts • Separate control module with mini-jack	Astoundingly fine sound, with full, bright trebles and crisp bass. But the system is a bear to set up. (★★★★½)
Logitech Z-3 find.pcworld.com/39428	• $100 • Three-speaker set • 40 total watts • Separate control module	Heavy bass and light treble tones left songs sounding somewhat flat. Seems a little pricey for a three-speaker set. (★★★☆☆)

CHART NOTE: We tested all speakers using a Creative Sound Blaster Audigy 2 ZS Platinum sound card.

EXTERNAL OPTIONS

Sound to Go

SOUND FOR YOUR computer doesn't have to come from the inside. External audio processors that connect via USB can do the same duty as PCI sound cards. Such a product is especially useful if you want better sound for your notebook or if your desktop PC is out of PCI slots.

You don't have to give up features, either. The $100 Philips PSC805 Aurilium and the $129 Creative Audigy 2 NX both feature a 24-bit DAC, just like the best PCI sound cards. While the Aurilium supports 5.1 speaker sets, the Audigy 2 NX can handle a 7.1 speaker set. The Audigy 2 NX also can read the six-channel DVD-Audio music format, a boon for audiophiles.

PHOTOGRAPH: MARC SIMON

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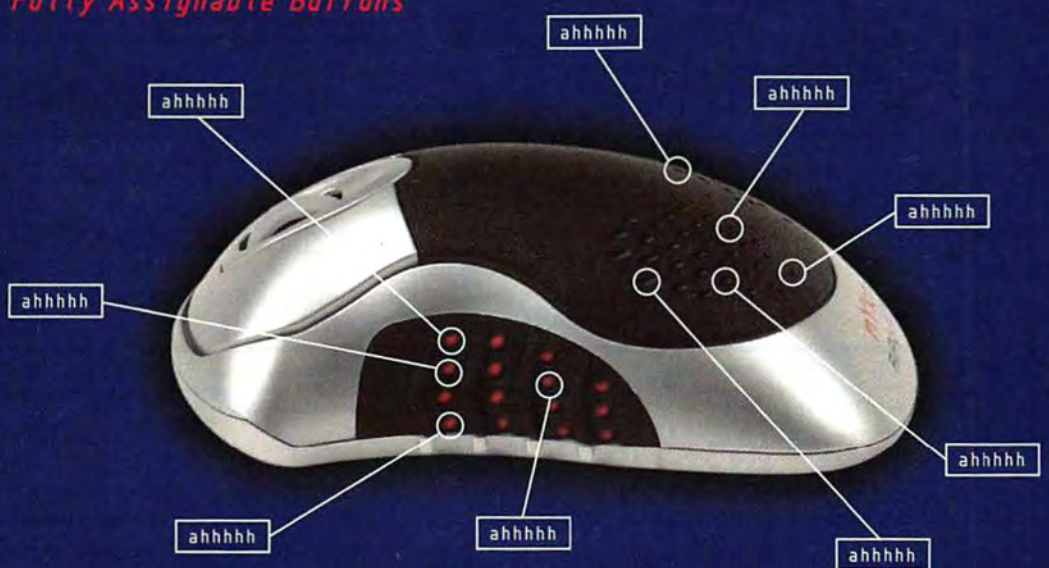

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TEST Center

TOP 15 DESKTOP PCs

	POWER SYSTEM	Overall rating	Street price (11/22/03)	PC WorldBench 4 performance score [1] (Faster)	Comments
1	Best Buy ABS Awesome 6300 find.pcworld.com/39152	91	Expensive $3172	Windows XP Professional: Outstanding 142	The Awesome 6300 is one of the fastest systems we've tested with business applications and games. Price drops $428. (★★★★½ Jan 04)
2	MPC Millennia 920i Professional find.pcworld.com/37835	89	Average $2592	Windows XP Home: Good 127	The Millennia 920i has a roomy interior and a dual-format DVD burner. Price sheds $239 this month. (★★★★½ Nov 03)
3	Gateway 710XL find.pcworld.com/38516	89	Expensive $3600	Windows XP Home: Good 126	Tons of storage space, solid performance, and FireWire ports make this a good choice for video editing. (★★★★☆ Dec 03)
4	Dell Dimension 8300 NEW find.pcworld.com/39452	88	Average $2699	Windows XP Home: Good 128	Business-oriented system bundles Office XP. We liked the clean text on Dell's 17-inch LCD and the speakers' great-sounding audio. (★★★★☆)
5	Micro Express MicroFlex 64 KB NEW find.pcworld.com/39365	88	Inexpensive $2514	Windows XP Home: Outstanding 141	Least-expensive 64-bit PC this month sped through PC WorldBench 4; top components include a 19-inch LCD and a fast graphics card. (★★★½☆)
6	Polywell Poly 900NF3-FX1 find.pcworld.com/39149	87	Expensive $3279	Windows XP Professional: Outstanding 142	Acing our gaming tests with sky-high frame rates in Unreal Tournament 2003, this PC ties for fastest model. (★★★★☆ Jan 04)
7	Amax Max64 3200+ NEW find.pcworld.com/39458	85	Average $2799	Windows XP Professional: Outstanding 138	Speedy model offers similar performance to our other 64-bit Athlon systems. Also includes gigabit ethernet network support. (★★★½☆)

	VALUE SYSTEM	Overall rating	Street price (11/22/03)	PC WorldBench 4 performance score [1] (Faster)	Comments
1	Best Buy Dell Dimension 4600 find.pcworld.com/38510	84	Average $1250	Windows XP Home: Very good 123	This system produced solid frame rates in our tests, making it ideal for gaming. Price drops $425 this month. (★★★½☆ Dec 03)
2	NuTrend Kila 2 NEW find.pcworld.com/39461	84	Inexpensive $929	Windows XP Home: Very good 125	Light on the extras, this sub-$1000 budget PC is an excellent choice for the casual gamer and multimedia dabbler. (★★★½☆)
3	Micro Express MicroFlex 32A find.pcworld.com/37331	83	Average $1399	Windows XP Professional: Outstanding 130	A strong performer, the 32A blazed through our 3D graphics tests, pumping out high frame rates at 1280 by 1024 resolution. (★★★½☆ Oct 03)
4	Polywell Poly 880NF2-2800 find.pcworld.com/37334	82	Inexpensive $990	Windows XP Home: Very good 127	This model has good speed and room for additional storage. A window on the side of the case lets you see the interior. (★★★½☆ Oct 03)
5	HP Business Desktop D330 NEW find.pcworld.com/39464	82	Expensive $1667	Windows XP Home: Very good 123	Business system is easy to set up, and its DVD playback and sound system performed well in our tests. (★★★½☆)
6	HP Business Desktop D325 find.pcworld.com/37829	82	Very inexpensive $828	Windows XP Professional: Very good 122	Bare-bones business system has room for expansion and dual VGA inputs, but it lacks a CD-RW drive. (★★★★☆ Nov 03)
7	Sys Technology Performance 2800+ find.pcworld.com/39470	78	Average $1276	Windows XP Home: Outstanding 131	One of the fastest models we've tested for our value chart, this Sys easily handles basic computing tasks. (★★★½☆ Dec 03)
8	ABS Awesome 4500 NEW find.pcworld.com/39473	77	Average $1499	Windows XP Home: Fair 109	ABS's Awesome 4500 is geared toward multimedia, but you might want to consider buying it with a higher-resolution monitor. (★★★½☆)

Go to find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

Go to find.pcworld.com/39209 for a breakdown of the weightings we give to the various factors that contribute to a desktop PC's overall rating in each of the two categories.

[1] Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. For more details, see find.pcworld.com/15720.

[2] Total capacity in gigabytes (may represent multiple drives).

TEST Center

AMD CONTINUES ITS 64-BIT ROLL, as its Athlon 64 3200+ CPU shows up on two new power PCs on our chart this month. Aimed at consumers—rather than at the server market, where 64-bit processors were previously found—the company's newest chip has 1MB of L2 cache (double that of the Athlon XP) and a 1.6-GHz system bus that's four times faster than the XP's. The key difference between the Athlon 64 3200+ and the earlier 64 FX-51 (AMD's faster, pricier 64-bit desktop processor) is in memory bandwidth: The Athlon 64 3200+ uses single-channel DDR and tops out at 3.2 GBps, whereas the Athlon 64 FX-51 has a memory bandwidth of up to 6.4 GBps on dual-channel DDR. The chips' move to 64-bit has seemingly paid off: Two Athlon 64 FX-51–based systems share the record for best PC WorldBench 4 score at 142, and the two Athlon 64

PHOTOGRAPH: RICK RIZNER

Visit find.pcworld.com/39317 for reviews of all products tested this month and ranked in this chart.

BASE CONFIGURATION						Extra features [4]	Graphics quality	Setup and ease of use	Vendor's reliability/ service
CPU	RAM (MB/type)	Hard drive [2]	Monitor	Graphics	Case type [3]				
2.2-GHz Athlon 64 FX-51	1024/ DDR400 SDRAM	240 (RAID)	19-inch LCD	256MB ATI Radeon 9800 Pro	Midsize tower	**Very good:** DVD-R/RW/+R/RW drive, 16X DVD-ROM drive, flash media reader (CFI/II, MS, SD/MMC, SM),[5] Microsoft Works Suite 2003, McAfee VirusScan 7	Very good	Good	Good/[6]
3.2-GHz Pentium 4	1024/ DDR400 SDRAM	250	19-inch CRT	128MB ATI Radeon 9800 Pro	Midsize tower	**Outstanding:** DVD-R/RW/+R/RW drive, 48X/24X/48X CD-RW/DVD-ROM combination drive, Norton AntiVirus 2003, Pinnacle Studio 8.5	Very good	Good	Good/[6]
3.2-GHz Pentium 4	1024/ DDR400 SDRAM	500 (RAID)	18-inch LCD	256MB NVidia GeForce FX 5900G Ultra	Tower	**Outstanding:** DVD-R/RW/+R/RW drive, 48X/16X/40X CD-RW drive, flash media reader (CFI/II, MS, SD/MMC, SM),[5] Microsoft Works Suite 2004	Outstanding	Very good	Good/Fair
3.2-GHz Pentium 4	1024/ DDR400 SDRAM	120	17-inch LCD	128MB ATI Radeon 9800 Pro	Midsize tower	**Very good:** 16X DVD-ROM drive, 48X/24X/48X CD-RW drive, Microsoft Office XP Small Business, Money 2002	Very good	Very good	Good/Fair
2-GHz Athlon 64 3200+	1024/ DDR400 SDRAM	120	19-inch LCD	128MB ATI Radeon 9800 Pro	Midsize tower	**Good:** DVD-R/RW drive, 52X/24X/52X CD-RW drive, flash media reader (CFI/II, MS, SD/MMC, SM) [5]	Very good	Very good	[6]/[6]
2.2-GHz Athlon 64 FX-51	1024/ DDR400 SDRAM	322 (RAID)	19-inch CRT	256MB NVidia GeForce FX 5900 Ultra	Midsize tower	**Very good:** DVD-R/RW/+R/RW drive, 52X/24X/52X CD-RW drive, Veritas RecordNow DX, DLA, Simple Backup; Sonic MyDVD, Musicmatch, PowerDVD	Very good	Fair	[6]/[6]
2-GHz Athlon 64 3200+	1024/ DDR400 SDRAM	240 (RAID)	19-inch LCD	128MB ATI Radeon 9800 Pro	Midsize tower	**Very good:** 4X DVD-R/RW drive, 16X DVD-ROM drive, flash media reader (CFI/II, MS, SD/MMC, SM) [5]	Good	Good	[6]/[6]

BASE CONFIGURATION						Extra features [4]	Graphics quality	Setup and ease of use	Vendor's reliability/ service
CPU	RAM (MB/type)	Hard drive [2]	Monitor	Graphics	Case type [3]				
2.8-GHz Pentium 4	512/ DDR400 SDRAM	80	17-inch LCD	128MB NVidia GeForce FX 5200	Minitower	**Good:** 16X DVD-ROM drive, 48X/24X/48X CD-RW drive, Dell Enhanced Multimedia Keyboard, Corel WordPerfect Productivity Pack	Good	Good	Good/Fair
1.83-GHz Athlon XP 2500+	512/ DDR333 SDRAM	80	17-inch CRT	128MB NVidia GeForce FX 5200	Midsize tower	**Good:** 16X DVD-ROM drive, 52X/32X/52X CD-RW drive	Good	Good	[6]/[6]
2.2-GHz Athlon XP 3200+	512/ DDR433 SDRAM	120	19-inch CRT	128MB ATI Radeon All-In-Wonder 9700 Pro	Midsize tower	**Good:** 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, flash media reader (CFI/II, MS, SD/MMC, SM) [5]	Very good	Good	[6]/[6]
2.08-GHz Athlon XP 2800+	512/ DDR333 SDRAM	80	17-inch CRT	Integrated NVidia NForce2 graphics using main memory	Midsize tower	**Good:** 16X DVD-ROM drive, 52X/24X/52X CD-RW drive, Lotus SmartSuite 9.7, Norton AntiVirus 2003	Fair	Good	[6]/[6]
3-GHz Pentium 4	512/ DDR400 SDRAM	80	15-inch LCD	128MB NVidia GeForce FX 5200	Minitower	**Very good:** 16X DVD-ROM drive, 48X/24X/48X CD-RW/DVD-ROM combination drive	Fair	Very good	Fair/Fair
2.13-GHz Athlon XP 2600+	256/ DDR333 SDRAM	40	15-inch LCD	Integrated NVidia NForce2 graphics using main memory	Minitower	**Fair:** 24X-48X CD-ROM drive, no modem, Microsoft Works 7	Good	Very good	Fair/Fair
2.08-GHz Athlon XP 2800+	512/ DDR400 SDRAM	80	17-inch CRT	ATI Radeon 9200	Midsize tower	**Very good:** 16X DVD-ROM drive, 52X/32X/52X CD-RW drive, flash media reader (CFI/II, MS, SD/MMC, SM), Corel WordPerfect Productivity Pack	Poor	Poor	[6]/[6]
2.6-GHz Pentium 4	512/ DDR400 SDRAM	120	15-inch LCD	128MB NVidia GeForce FX 5600	Tower	**Good:** 16X DVD-ROM drive, 52X/32X/52X CD-RW drive, flash media reader (CFI/II, MS, SD/MMC, SM),[5] PC Works Suite Deluxe 2003	Fair	Very good	Good/[6]

[3] Vertical cases are towers (over 20 inches), midsize towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Horizontal cases are desktops (5 inches or taller) or compacts (under 5 inches).

[4] Unless otherwise stated, systems come with a modem and a network adapter.

[5] CF = CompactFlash, MMC = MultiMediaCard, MS = Memory Stick, SD = SD memory card, SM = SmartMedia.

[6] Insufficient data to give a rating.

3200+–based newcomers came within a couple of points of the leaders—though they could not push their way into any of the top three positions on the power list.

Besides being the least-expensive system on our power list this month, the new Micro Express MicroFlex 64 KB was one of the fastest. This stylish, coal-black model arrived with a 2-GHz Athlon 64 3200+ CPU and a gigabyte of DDR400 memory, which helped it post a brisk score of 141 on our benchmark suite. The system's notable niceties include a six-in-one storage card reader and a 19-inch ViewSonic VP191b LCD monitor that rendered sharp text and colorful graphics; the display can rotate from landscape to portrait mode, as well.

Dell's newest Dimension 8300 finishes just ahead of the Micro Express on ▶

HP'S BUSINESS DESKTOP D330 is a workplace-ready minitower with plenty of expansion room.

COMPUTER SCREEN GRAPHICS: JOHN GODDARD

our list. Debuting in fourth place, it combines swift performance and a strong set of features, including a stellar 17-inch LCD, at a price lower than that of previous Dimension 8300 systems we've tested. Its score of 128 on PC WorldBench 4 slightly edges out the scores we've seen from several other similarly configured desktops, including other 8300 models we've tested. Its well-designed case won't require tools to open, and the handsome, five-channel, THX-certified Altech Lansing ADA-995 speaker set produced wonderful sound quality in our tests.

Rounding out the power list is the Amax Max64 3200+, which, like the Micro Express, uses an Athlon 64 3200+ CPU and a gigabyte of memory. Its PC WorldBench 4 score of 138 was just a few points below that of other AMD 64-bit systems (an imperceptible performance difference). Like most power desktops, the Max64 3200+ provides ample storage and backup options via a 4X rewritable DVD drive, and 240GB on a pair of hard drives in a RAID 0 configuration. More unusual, the case boasts a whopping eleven USB 2.0 ports, more than you're likely ever to need. But we didn't think much of the inconsistent performance from the 19-inch Impression 9LSP LCD: Colors looked rather garish on a photo test screen, but better in a DVD movie.

Three entries debut on the value chart. The NuTrend Kila 2 arrives in second place behind the top-scoring Dell Dimension 4600. Equipped with a 1.83-GHz Athlon XP 2500+ CPU and 512MB of DDR333 memory, and priced at an appealing $929, the NuTrend system earned a score of 125 on PC WorldBench 4, putting it in the same ballpark as other value systems. An unusual feature is a metal rail that spans the height of the case and has a tunnel-like perpendicular opening to help direct external airflow to the CPU. The rail also has levers to lock expansion cards into their PCI slots.

Intended for businesses, the fifth-place HP Business Desktop D330—much like its sibling, the sixth-place D325—features a front panel you can easily remove by pressing tabs to gain frontal access to the hard drive. As you'd expect, the $1667 D330 carries a beefier set of fixings than the $828 D325, including a 48X/24X/48X CD-RW/DVD-ROM combination drive and twice as much memory and hard-drive space. The bundled Klipsch ProMedia 2.1 speaker set, consisting of two satellites and a subwoofer, pairs up well with the system's integrated sound.

Snatching the final spot on the chart is the ABS Awesome 4500, a trimmed-down version of the much faster Awesome 6300, currently our top power system. The Awesome 4500's PC WorldBench 4 score of 109 isn't exactly awesome, but the system provides easy setup, ample storage, a media card reader, and a great (albeit small) LCD monitor.

—Mick Lockey ■

TECH TREND

Get a High-Octane Network Boost With Gigabit Ethernet

THE COST OF UPGRADING a network to gigabit ethernet speeds used to make sense only for big companies for which network time is money. But prices for gigabit equipment have plummeted, and several vendors now offer desktops and notebooks with gigabit network cards as standard components.

Theoretically, gigabit ethernet can transfer data at 1000 megabits per second, 10 times faster than typical networks running at 100 mbps. Products that use it are backward-compatible with 100-mbps networks (albeit at 100-mbps transfer speeds) and use existing CAT5 cables. But to reap the full power of gigabit ethernet, you'll need to upgrade your switches, hubs, and routers.

A surprisingly large number of new desktop and notebook computers have gigabit ethernet integrated into their motherboards: IBM ThinkCentre business desktops (M and S series), IBM ThinkPad notebooks (R, T, and X series), Dell OptiPlex business desktops (several models), Dell Latitude notebooks (some units), and Dell Dimension XPS gamer PCs. HP's Compaq D330 and D530 systems; ABS's X5 and Awesome 5100, 5300, and 5500; and all Apple Macintosh machines (except the IMac) offer gigabit ethernet cards as standard equipment.

For office users who can take advantage of the extra bandwidth, the price is coming down. "A year ago [gigabit ethernet] cost on the client level was four [times that of] 100 megabits," says Howard Locker, chief architect for desktop and mobile development in IBM's Personal Computing Division. Today, he says, that cost is down to two times the price you'd pay for a 100-mbps network.

For the average home user, few applications take advantage of high-speed network gear. "There's not yet a pressing need for that extra bandwidth," says Dell company representative Lionel Menchaca. Dell doesn't yet offer it as standard equipment on its consumer desktops, he says. However, you can upgrade the network adapter on some Dell systems for about $40. If your system doesn't include a gigabit adapter, you can get one for about $50.

At Falcon Northwest, customers are asking for the technology in hopes of future-proofing their networks, according to company representative Bradd Berdelman. He states that gigabit ethernet comes standard on all of the company's PCs because they use Intel's 875 chip set, which supports gigabit ethernet. (Intel's 865 chip set also supports it.)

–Alexandra Krasne

ILLUSTRATION: GORDON STUDER

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TOP 5 MONITORS

Visit find.pcworld.com/39368 for additional reviews.

	22-INCH CRT MONITOR	Street price (11/18/03)	Overall rating	Quality of text/ graphics	Comments[1]
1	Best BUY ViewSonic P220f NEW find.pcworld.com/39233	$550	92	Good/ Very good	**FEATURES:** Diamondtron NF aperture grille tube, .25-.27mm variable stripe pitch[2], up to 87-Hz refresh rate, 2048 by 1536 maximum resolution at 70 Hz, TCO'03 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** The P220f delivers the best mixture of text and graphics quality—and is the least expensive—of the models we reviewed. A zoom button on the bezel toggles the screen to a user-defined magnification setting. (★★★★☆)
2	NEC MultiSync FE2111SB NEW find.pcworld.com/39242	$600	90	Very good/ Good	**FEATURES:** SuperBright Diamondtron aperture grille tube, .24mm stripe pitch, up to 92-Hz refresh rate, 1920 by 1440 maximum resolution at 70 Hz, TCO'95 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** The FE2111SB managed clean text but undistinguished graphics quality. It has extensive on-screen controls and supports NEC-Mitsubishi's NaviSet software for adjusting the monitor from a PC. It also offers enhanced brightness modes for viewing photos and movies. (★★★½☆)
3	HP P1230 NEW find.pcworld.com/39245	$600	87	Good/ Good	**FEATURES:** Diamondtron U3 aperture grille tube, .24mm stripe pitch, up to 109-Hz refresh rate, 2048 by 1536 maximum resolution at 70 Hz, TCO'03 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Though it uses the same core components as the NEC MultiSync FE2111SB, HP's monitor did not perform as well on our text tests. Like the NEC, it provides two "SuperBright" modes for displaying photos or movies, though we preferred photos viewed in standard mode. (★★★☆☆)
4	Cornerstone P1750 NEW find.pcworld.com/39236	$750	85	Very good/ Good	**FEATURES:** Diamondtron U2 aperture grille tube, .24mm stripe pitch, up to 112-Hz refresh rate, 2048 by 1536 maximum resolution at 70 Hz, TCO'99 compliant, five-year warranty, 8-hour weekday toll-free support. **SUMMARY:** Another variation on the NEC-Mitsubishi FE2111SB's core design (including enhanced brightness modes), the P1750 turned in performance similar to that of the NEC and HP on graphics, but it was the undisputed champ for text quality among all tested monitors. (★★★½☆)
5	Mitsubishi Diamond Pro 2070SB-BK With SpectraView NEW find.pcworld.com/39239	$1250	84	Fair/ Outstanding	**FEATURES:** SuperBright Diamondtron aperture grille tube, .24mm stripe pitch, up to 112-Hz refresh rate, 2048 by 1536 maximum resolution at 70 Hz, TCO'95 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Using the bundled SpectraView color-calibration software and colorimeter, the 2070SB displayed rich, nuanced colors that impressed our judges, but text was a bit hard to distinguish. Users can make manual screen adjustments only through the company's NaviSet software. (★★★★☆)

FOOTNOTES: [1] All monitors on this chart have a viewable area with a 20-inch diagonal. Refresh rate is the maximum at 1600 by 1200 resolution (the tested resolution for this size monitor). [2] The aperture grille's parallel wires are farther apart at the sides of the screen than at the middle. **HOW WE TEST:** Judges rate how well each monitor displays 11 text and graphics images. Some screens are from the DisplayMate for Windows utilities (www.displaymate.com). See find.pcworld.com/34613 for testing details. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Overall rating is based on text and graphics quality (25 percent each), price (25 percent), features and ease of use (20 percent), and service and support (5 percent); best possible rating is 100. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

TEST Center LCD MONITORS MAY GRAB all the attention, but many discriminating eyes still gaze fondly at monster CRTs. They remain the standard for the graphics and video industries (though LCDs are gaining), and their speedy image-response times guarantee smooth motion on video and games. CRTs also continue to be a great bargain.

Prices of 19-inch LCDs rival those of 22-inch CRTs, but the CRTs have an extra diagonal inch of viewable area and support multiple resolutions. LCDs look sharp only at their native resolution—1280 by 1024 for nearly all 19-inchers.

High resolution and plentiful screen area mitigate a major weakness of some CRTs: text quality. The NEC MultiSync FE2111SB and the Cornerstone Peripherals P1750 did well in our text tests, and the Cornerstone displayed especially sharp fonts (though not as good as those on typical LCDs). For graphics, the ViewSonic P220f and especially the Mitsubishi Diamond Pro 2070SB-BK stand out. Designed for graphics professionals, the Diamond Pro comes with SpectraView software and a USB-connected colorimeter for color calibration. Its text quality was disappointing, however, and that could be an issue even for graphics designers if they work on page layouts. Thanks to still-impressive graphics, better text, and a far lower price than the Diamond Pro, ViewSonic's P220f wins the Best Buy honor.

WHITHER SONY?

NEC-MITSUBISHI IS a winner nevertheless: Every CRT we tested (including the Iiyama Vision Master Pro 514, which missed the chart) uses the company's Diamondtron picture tubes. Its rival, Sony, failed to send a monitor for this review. And monitor maker Eizo Nanao, which has used Sony Trinitron tubes in the past, said it plans to focus on LCDs from now on. Industry insiders we spoke to believe that Sony may be following the same route and preparing to exit the CRT business. A Sony representative said such an assertion is "strictly a rumor." ■

VIEWSONIC'S P220f takes top honors for combining solid text and graphics quality with the lowest price on the chart.

PHOTOGRAPH: RICK RIZNER; COMPUTER SCREEN GRAPHICS: JOHN GODDARD

TEST Center

TOP 10 PRINTERS

Visit find.pcworld.com/39425 for reviews of all products tested this month and ranked in this chart.

THE CANON I350 COLOR BUBBLE JET PRINTER costs only $60, but you wouldn't guess its price from its attractive printouts. Of the new printers that we tested, the i350 yielded the sharpest text and the best overall image quality, though the two new HP Deskjets printed superior glossy color photos.

Our other Best Buy comes with an auto duplexer and is geared for high-volume output: Ink cartridges for the $199 HP Business Inkjet 1100d last an estimated 1750 pages each. But if you want speed, you'll like Canon's i560 Desktop Photo Printer, the quickest printer for both text and color graphics.

	INK JET PRINTER	Street price (11/14/03)	Overall rating	Speed for plain text/color photos (ppm)	Print quality for text/color graphics	Color cartridge cost/yield[1]	Comments
1	Best Buy Canon i350 Color Bubble Jet Printer NEW find.pcworld.com/39191	$60	94	5.5/0.7	Very good/ Good	$18.50/170	**FEATURES:** Rated 16 ppm monochrome/11 ppm color, 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Impressive prints, with deep black text, sharp line art, and detailed photos. Slow to print graphics. (★★★☆☆)
2	Best Buy HP Business Inkjet 1100d find.pcworld.com/38177	$199	94	4.3/1.7	Good/ Good	$34/1750	**FEATURES:** Rated 7.5 ppm monochrome/7 ppm color, 4800-by-1200-dpi maximum resolution, 150 sheets input, 80 output; black cartridge and three color cartridges. **SUMMARY:** Duplexer included. Created sharp text, crisp line art, and attractive color photos. (★★★½☆ Dec 03)
3	Canon i560 Desktop Photo Printer NEW find.pcworld.com/39194	$130	93	7.6/2	Good/ Fair	$12/463	**FEATURES:** Rated 22 ppm monochrome/15 ppm color, 4800-by-1200-dpi maximum resolution, 150 sheets input, 50 output; black cartridge and three color cartridges. **SUMMARY:** Fastest printer here. Photos showed smooth textures, but colors looked yellowish; inks tended to smear. (★★★★☆)
4	HP Deskjet 5150 NEW find.pcworld.com/39197	$100	92	5.4/1.4	Good/ Good	$35/391[2]	**FEATURES:** Rated 6.8 ppm monochrome/4.6 ppm color, 4800-by-1200-dpi maximum resolution, 150 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Produced sharp text, well-defined line art, and detailed color photos. Optional duplexer available. (★★★½☆)
5	Epson Stylus C84 find.pcworld.com/38171	$99	90	6.3/1.7	Good/ Good	$13/450	**FEATURES:** Rated 22 ppm monochrome/12 ppm color, 5760-by-1440-dpi maximum resolution, 120 sheets input, 50 output; black cartridge and three color cartridges. **SUMMARY:** Printed sharp text quickly and produced attractive color photos, but line art showed banding. (★★★½☆ Dec 03)
6	HP Deskjet 5850 NEW find.pcworld.com/39200	$250	88	5.6/1.4	Good/ Good	$35/391[2]	**FEATURES:** Rated 7.7 ppm monochrome/5 ppm color, 4800-by-1200-dpi maximum resolution, 150 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Print quality and speed were on a par with the Deskjet 5150's, but this model offers Wi-Fi and ethernet. (★★★½☆)
7	Lexmark Z605 find.pcworld.com/35342	$50	87	4.8/0.6	Good/ Good	$32/275	**FEATURES:** Rated 14 ppm monochrome/8 ppm color, 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Gray-scale pics showed fine detail. Photo prints had a blue cast; skin tones looked a bit ashen. (★★★☆☆ July 03)
8	Canon i475D Desktop Photo Printer find.pcworld.com/38174	$130	86	5.5/0.9	Very good/ Good	$18.50/580	**FEATURES:** Rated 18 ppm monochrome/12 ppm color, 4800-by-1200-dpi maximum resolution, 100 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Includes flash memory slots. Printed crisp text and attractive gray-scale images. (★★★½☆ Dec 03)
9	Epson Stylus C64 NEW find.pcworld.com/39362	$59	83	3.4/0.7	Fair/ Fair	$13/400	**FEATURES:** Rated 17 ppm monochrome/9 ppm color, 5760-by-1440-dpi maximum resolution, 120 sheets input, 30 output; black cartridge and three color cartridges. **SUMMARY:** A relatively slow but inexpensive printer. Glossy photos lost subtle details, and text had rough edges. (★★½☆☆)
10	HP Deskjet 6122 find.pcworld.com/32903	$180	83	5.4/1.4	Fair/ Poor	$35/450[3]	**FEATURES:** Rated 5 ppm monochrome/0.9 ppm color, 4800-by-1200-dpi maximum resolution, 150 sheets input, 50 output; black cartridge and one tricolor cartridge. **SUMMARY:** Detects paper type and adjusts settings. Glossy photos were slightly grainy. Built-in duplexer. (★★★☆☆ Jan 03)

FOOTNOTES: [1] Vendor-estimated yield in number of pages per color cartridge; average yield given for printers with multiple cartridges. [2] Optional photo ink cartridge costs $25. [3] Optional $55 color cartridge yields an estimated 970 pages. **HOW WE TEST:** We run time tests for text, line-art, and color and gray-scale photo samples; judges rate image quality. Tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. **CHART NOTES:** Each overall rating is based on price (25 percent), print quality (20 percent), ease of use (15 percent), features (15 percent), speed (10 percent), support (10 percent), and cost of consumables (5 percent). For all ratings, higher is better. Text speed is the average time required to print a text document and spreadsheet in different quality modes; graphics speed is the average for printing from various applications in color and gray scale.

TOP 10 PDAs

Visit find.pcworld.com/39653 for reviews of all products tested this month and ranked in this chart.

WHEN YOU'RE BUYING a PDA, the toughest decision is: Should you get one with a phone? The perfect design melding a PDA and a mobile phone remains elusive, but the latest models are getting closer. The first-place Treo 600 from PalmOne, for example, has clear sound (with or without the included headset) and a small but easy-to-read screen. Our three top standard PDAs have built-in Wi-Fi, and the number one Dell Axim X3i includes great software that eases connections.

	PHONE/PDA HYBRID	Street price (12/03/03)	Overall rating	Features/ ease of use	Comments
1	Best Buy PalmOne Treo 600 find.pcworld.com/38543	$600	78	Very good/ Very good	**FEATURES:** Palm 5.2.1H OS, 24MB RAM, 160-by-160-pixel screen, stylus and thumb keyboard, SD slot, fixed lithium ion battery, built-in camera, 5.9 ounces; phone service by AT&T and Cingular (GSM), and by Sprint (CDMA). **SUMMARY:** High price is offset by benefits such as a brilliant screen and handy features, including a speakerphone. The device also offers fine phone sound quality. (★★★★☆ Oct 03)
2	T-Mobile Sidekick find.pcworld.com/36884	$250	78	Good/ Good	**FEATURES:** Danger OS, 32MB RAM, 240-by-460-pixel screen, thumb keyboard, fixed lithium ion battery, detachable camera, 6.2 ounces; phone service by T-Mobile (GSM). **SUMMARY:** A great screen, a large thumb keyboard, and optimized software make this the best device for carrying the Internet in your pocket. It can't sync with common desktop information managers, though. (★★★★☆ Sept 03)
3	BlackBerry 7210/7230 find.pcworld.com/38036	$400	77	Good/ Very good	**FEATURES:** BlackBerry OS, 16MB RAM, 240-by-160-pixel screen, thumb keyboard, removable lithium ion battery, 4.9 ounces; sold as the 7210 by AT&T and as the 7230 by T-Mobile (both GSM). **SUMMARY:** Telephone sound quality is fine and thumb keyboard is well designed. Has a sharp color screen, but feeble backlight. The 7230 also supports European and Asian GSM services. (★★★★☆ Nov 03)
4	Sony Ericsson P800 find.pcworld.com/36878	$550	77	Very good/ Average	**FEATURES:** Symbian OS 7.0, 16MB RAM, 208-by-320-pixel screen, stylus, detachable dialpad, Memory Stick Duo slot with 16MB card, removable lithium ion battery, built-in camera and Bluetooth, 5.5 ounces; phone service by AT&T (GSM). **SUMMARY:** An excellent mobile phone and a workable PDA. The P800's successor, the P900, will be out soon. (★★★★☆ Sept 03)
5	Samsung SPH-i700 find.pcworld.com/36875	$600	76	Outstanding/ Average	**FEATURES:** Pocket PC Phone Edition OS, 64MB RAM, 240-by-320-pixel screen, stylus, SD slot, removable lithium ion battery, built-in camera, 6.9 ounces; phone service by Verizon (CDMA). **SUMMARY:** Though a bit large, this hybrid unit has well-integrated phone and PDA functions. It provides great headset sound quality, and the swiveling camera lets you snap self-portraits. (★★★½☆ Sept 03)

	STANDARD PDA	Street price (12/03/03)	Overall rating	Features/ ease of use	Comments
1	Best Buy Dell Axim X3i find.pcworld.com/39005	$379	83	Very good/ Very good	**FEATURES:** Microsoft Windows Mobile 2003 OS, 64MB RAM, 320-by-240-pixel screen, stylus, SD/SDIO slot, removable lithium ion battery, built-in Wi-Fi, 5 ounces. **SUMMARY:** Dell's bargain-priced handheld has a basic but very intuitive design. We especially liked the bright, sharp screen and the handy added utility for managing Wi-Fi connections. (★★★★½ Jan 04)
2	HP IPaq Pocket PC H4350 find.pcworld.com/39008	$449	80	Very good/ Good	**FEATURES:** Microsoft Windows Mobile 2003 OS, 64MB RAM, 240-by-320-pixel screen, stylus and thumb keyboard, SD/SDIO slot, removable lithium ion battery, built-in Wi-Fi and Bluetooth, 5.8 ounces. **SUMMARY:** The H4350 nearly matches the Dell in screen quality. The thumb keyboard, a first for the IPaq line, works well but adds some bulk. (★★★★☆ Jan 04)
3	Sony Clié PEG-UX50 find.pcworld.com/36902	$650	79	Outstanding/ Good	**FEATURES:** Palm 5.2.1 OS; 45MB RAM; 480-by-320-pixel screen; stylus and thumb keyboard; Memory Stick Pro slot; fixed lithium ion battery; built-in camera, Wi-Fi, and Bluetooth; 6.2 ounces. **SUMMARY:** This model slips nearly every feature you'd expect in a PDA into a surprisingly tiny package. The swiveling screen looks great; but at 1.8 by 2.7 inches, it's a bit small for such high resolution. (★★★★½ Oct 03)
4	PalmOne Tungsten T3 find.pcworld.com/38030	$399	77	Good/ Very good	**FEATURES:** Palm 5.2.1 OS, 64MB RAM, 320-by-480-pixel screen, stylus, SD slot, fixed lithium ion battery, built-in Bluetooth, 5.5 ounces. **SUMMARY:** Slide-open design stretches the beautiful screen to over 2 by 3 inches. A programmable quick-launch button on the side and a toolbar icon let you toggle between portrait and landscape views. (★★★★½ Nov 03)
5	ViewSonic Pocket PC V36 NEW find.pcworld.com/39419	$299	77	Good/ Average	**FEATURES:** Microsoft Windows Mobile 2003 OS, 64MB RAM, 320-by-240-pixel screen, stylus, SD/SDIO slot, removable lithium ion battery, built-in camera, 4.8 ounces. **SUMMARY:** This basic Pocket PC comes at a very appealing price. Though the device lacks built-in wireless, ViewSonic offers a Wi-Fi SD card for an additional $129. (★★★½☆)

CHART NOTES: For phone/PDA hybrids, listed price is the typical purchase cost with a new mobile phone service plan, excluding limited-term special offers. All screens are color, unless noted. For each category, ratings are based on price (30 percent), features (40 percent), ease of use (20 percent), and support policies (10 percent).

TEST Center

TOP 10 DIGITAL CAMERAS

Visit find.pcworld.com/39623 for reviews of all products tested this month and ranked in this chart.

OUR ADVANCED DIGITAL CAMERAS chart covers a lot of territory, from relatively inexpensive models such as Kodak's EasyShare DX6490 to powerful "prosumer" models like Canon's single-lens reflex EOS 10D, suitable for professional shooters and serious hobbyists alike. All ten cameras share an array of creative controls not typically found in point-and-shoot models. Excellent imaging earned the modestly priced, feature-rich Olympus C-5060 Wide Zoom a Best Buy. But if you want an SLR camera that can accept interchangeable lenses, Canon's EOS Digital Rebel is a great value, too.

	ADVANCED CAMERA	Street price (12/01/03)	Overall rating	Image quality	Ease of use	Battery life/ shots	Comments[1]
1	Best Buy Olympus C-5060 Wide Zoom NEW find.pcworld.com/39527	$700	86	Outstanding	Very good	Outstanding/ over 500[2]	**FEATURES:** 5.1-megapixel resolution, 32MB XD-Picture Card and CompactFlash slot, 27mm to 110mm focal range, 640 by 480 video with audio, 17.9 ounces. **SUMMARY:** Successor to the C-5050, this bulky model has a 4X zoom in place of the older model's 3X. Has intuitive controls and earned top image-quality scores. (★★★★½)
2	Best Buy Canon EOS Digital Rebel find.pcworld.com/38810	$1000	85	Very good	Very good	Outstanding/ over 500[2]	**FEATURES:** 6.3-megapixel resolution, CompactFlash slot (media not included), 28mm to 90mm focal range, no video or audio recording, 29.5 ounces. **SUMMARY:** A bargain for an SLR digital camera with interchangeable lenses; priced as a kit with midrange zoom lens, but is also sold body only. (★★★★½ Jan 04)
3	Olympus C-750 Ultra Zoom find.pcworld.com/37364	$550	83	Very good	Good	Outstanding/ over 500[2]	**FEATURES:** 4-megapixel resolution, 16MB XD-Picture Card, 38mm to 380mm focal range, 320 by 240 video with audio, 13.9 ounces. **SUMMARY:** Priciest 10X zoom camera on the chart has more-powerful controls than the Kodak and more megapixels than the Fujifilm. It got higher imaging scores than both, too. (★★★★☆ Oct 03)
4	Canon PowerShot G5 find.pcworld.com/37358	$700	82	Very good	Good	Very good/ 438	**FEATURES:** 5-megapixel resolution, 32MB CompactFlash, 35mm to 140mm focal range, 320 by 240 video with audio, 18 ounces. **SUMMARY:** Big and boxy, but for an advanced camera, it's easy to use; earned high marks for image exposure accuracy and sharpness. Lens casts a shadow in wide-angle flash shots. (★★★★½ Oct 03)
5	Nikon Coolpix 5400 find.pcworld.com/37370	$700	80	Good	Fair	Good/ 330	**FEATURES:** 5.1-megapixel resolution, 16MB CompactFlash, 28mm to 116mm focal range, 640 by 480 video with audio, 13.7 ounces. **SUMMARY:** Has a wealth of features, but they're dauntingly presented. The unit is relatively compact and boasts 4X optical zoom, but the LCD is small for this class of camera. (★★★★☆ Oct 03)
6	Olympus C-5000 Zoom NEW find.pcworld.com/39530	$450	80	Very good	Very good	Fair/ 227	**FEATURES:** 5-megapixel resolution, 32MB XD-Picture Card, 38mm to 114mm focal range, 320 by 240 video without audio, 9.7 ounces. **SUMMARY:** Low-priced and relatively small for an advanced, 5-megapixel camera with a hot shoe; it produced slightly better-than-average image quality in our tests. (★★★½☆)
7	Nikon Coolpix 5700 find.pcworld.com/31118	$900	77	Good	Fair	Good/ 336	**FEATURES:** 5-megapixel resolution, 16MB CompactFlash, 35mm to 280mm focal range, 320 by 240 video with audio, 19 ounces. **SUMMARY:** The complex and powerful Coolpix 5700 takes fine images. Its long, 8X zoom is useful for photographing sports events and wildlife. (★★★★☆ Jan 03)
8	Kodak EasyShare DX6490 NEW find.pcworld.com/39524	$499	77	Good	Very good	Outstanding/ over 500[2]	**FEATURES:** 4-megapixel resolution, 16MB internal memory and SD card slot, 38mm to 380mm focal range, 320 by 240 video with audio, 13.8 ounces. **SUMMARY:** A 10X zoom and a big LCD highlight Kodak's top-of-the-line consumer camera. It's easy to use but has few of the high-end controls found in most advanced models. (★★★½☆)
9	Canon EOS 10D find.pcworld.com/34847	$1500	76	Very good	Very good	Outstanding/ over 500[2]	**FEATURES:** 6.3-megapixel resolution, CompactFlash slot (media not included), interchangeable lenses, no video or audio, 31 ounces. **SUMMARY:** Bristling with features, this SLR camera takes beautiful pictures and can use most Canon EF mount lenses. Listed price is for the body only; lenses start at around $150. (★★★★☆ June 03)
10	Fujifilm FinePix S5000 NEW find.pcworld.com/39533	$400	76	Fair	Fair	Outstanding/ over 500[2]	**FEATURES:** 3.1-megapixel resolution, 16MB XD-Picture Card, 37mm to 370mm focal range, 320 by 240 video with audio, 11.9 ounces. **SUMMARY:** Like the Olympus C-750 and Kodak DX6490, the S5000 has a 10X zoom; it's not as easy to use as the Kodak, but it accepts optional telephoto and wide-angle add-on lenses. (★★★½☆)

FOOTNOTES: [1] Resolutions are expressed in effective pixels, focal range is identified as 35mm equivalent, and camera weights include batteries. [2] We cut off testing at 500 shots, or approximately 4.5 hours of testing. **HOW WE TEST:** We take a series of shots, with and without flash, at the camera's highest resolution and at its default, automatic settings. We photograph a complex still life and a mannequin to see how well each camera captures details and subtle colorings such as skin tones. A panel of judges reviews the on-screen and printed photos and assigns image-quality scores; we then average those scores. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Each camera's overall rating is based on price (20 percent), picture quality (30 percent), ease of use (10 percent), features (20 percent), battery life (10 percent), and support (10 percent). For all ratings, higher is better.

MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of other *Top 100* topics from previous issues. To read reviews of the products ranked on these Top 10 charts, go online and type in the *PC World* Find-It URL at the top of each chart. Next month, we'll review wireless networking gear, color laser printers, and point-and-shoot digital cameras. Got a little geek in you? Our spotlight review will cover the latest motherboards.

WESTERN DIGITAL'S Raptor WD360GD is the first 10,000-rpm Serial ATA hard drive. It's fast, but (at 36GB) too small for our chart.

OOH, SHINY: Kodak's EasyShare DX6440 has a silvery case and a 4X optical zoom—generous for a digital point-and-shoot. The included docking station simplifies picture transfers and recharges the batteries.

	15-INCH LCD MONITORS find.pcworld.com/38906	POINT-AND-SHOOT DIGITAL CAMERAS find.pcworld.com/39146	REWRITABLE DVD DRIVES find.pcworld.com/39113	HARD DRIVES find.pcworld.com/39077
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3	IBM ThinkVision L150p find.pcworld.com/38717	Canon PowerShot SD100 Digital Elph find.pcworld.com/38789	LG Electronics GSA-4040B find.pcworld.com/38399	Maxtor 250GB SATA UltraSeries Kit find.pcworld.com/39059
4	Philips 150P4 find.pcworld.com/38723	Kodak EasyShare DX6440 find.pcworld.com/38795	TDK External Indi DVD 4X Multiformat find.pcworld.com/39029	Seagate Barracuda 7200.7 ST3200822A find.pcworld.com/39065
5	Compaq TFT 1520 find.pcworld.com/32921	Pentax Optio 555 find.pcworld.com/38798	Plextor PX-708A find.pcworld.com/38396	Maxtor DiamondMax Plus 9 6Y160M0 find.pcworld.com/36125
6	Sharp LL-T15G3 find.pcworld.com/36389	Sony Cyber-shot DSC-P10 find.pcworld.com/38468	Sony DRU-510A find.pcworld.com/35495	Western Digital WD Caviar SE SATA WD2500JD find.pcworld.com/39068
7	Samsung SyncMaster 153T find.pcworld.com/38726	Kyocera Finecam L3v find.pcworld.com/38057	Hewlett-Packard DVD Writer Dvd300i find.pcworld.com/34454	Maxtor DiamondMax Plus 9 6Y080L0 find.pcworld.com/36107
8	Cornea MP503 find.pcworld.com/34694	Minolta DiMage G500 find.pcworld.com/38786	Pacific Digital Dual Format 4X DVD find.pcworld.com/39032	Hitachi Global Storage Technologies Deskstar 120GXP 120GB find.pcworld.com/36101
9	BenQ America FP591 find.pcworld.com/38711	Fujifilm FinePix F700 find.pcworld.com/38792	Plextor PX-504UF find.pcworld.com/37448	Western Digital WD Caviar SE WD1200JB find.pcworld.com/36152
10	Eizo Nanao FlexScan L367 find.pcworld.com/36386	Minolta DiMage Xt find.pcworld.com/36530	Pioneer DVR-A06 find.pcworld.com/36692	Hitachi Global Storage Technologies Deskstar 7K250 (SATA) find.pcworld.com/39074
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HERE'S HOW

EDITED BY MICHAEL S. LASKY, DENNIS O'REILLY, AND ERIC DAHL

HARDWARE TIPS

KIRK STEERS

No-Hassle Wireless Networking Superguide

DON'T BE SURPRISED if you turn on the television and hear Martha Stewart say, "Wireless networking—it's a good thing." Wireless networks are definitely ready for prime time: They're affordable, reliable, and relatively easy to install.

Now wireless offers more than mobility and the ability to share a high-speed Internet connection. You can connect your PC to your stereo and TV via such gadgets as the $150 Wireless-B Media Adapter from Linksys. And D-Link's $340 DCS 2100+ Wireless Internet Camera has a microphone, motion detection, and e-mail for do-it-yourself security (see **FIGURE 1**).

Most wireless networking hardware conforms to one (or two) of three standards created by the nonprofit IEEE and certified by the nonprofit Wi-Fi Alliance: 802.11a, 802.11b, or 802.11g (see chart on opposite page). The first is intended for business (and is priced accordingly).

While the 802.11a and 802.11g specs top out at a speedy 54 mbps (compared to 802.11b's max of 11 mbps), not everyone needs the faster rate. Wireless gear supporting 802.11b runs up to 10 times faster than most broadband Internet links, and that's plenty fast for standard e-mail and Internet tasks. Adapters and access points for 802.11b networks cost much less than those supporting .11a and .11g; and most cafés, hotels, airports, and other wireless hot spots currently use .11b products.

If you have a large network with lots of traffic, or if you transfer large graphics, video, or other files, you may want to spend more for products that support the newer 802.11g spec. These devices run at the same frequency (2.4 GHz) as 802.11b, and they're backward-compatible with 802.11b hardware (at slower .11b speeds). If you're buying with an eye to the future, 802.11g is probably worth the extra cost—currently around 30 percent higher.

Products for 802.11a networks run at 5 GHz, so they aren't compatible with networks based on .11b or .11g. The higher frequency reduces 802.11a's broadcast range. The biggest advantages of .11a over its sibling standards are its support for more channels (which improves security) and its immunity to radio interference by phones, Bluetooth products, and other wireless devices that run at 2.4 GHz.

WIRELESS BUYING BASICS

YOU CAN ADD a wireless adapter to a desktop PC as an internal PCI card or as an external USB device. Obviously, the USB adapter is much easier to install, and it keeps the transceiver away from the electrical noise emanating from the rear of your system. USB 1.0 ports have a maximum bandwidth of 12 mbps—enough for 802.11b, but too slow for 802.11g. Wireless USB adapters cost about $60, and wireless PCI adapters cost a bit less.

Many new notebooks come with built-

ILLUSTRATION: RICHARD DOWNS

INSIDE

138 HARDWARE TIPS
Everything you need to know to install, maintain, and secure a wireless network; pros and cons of Wi-Fi standards.

142 WINDOWS TIPS
Identify dangerous files by knowing their extension; lose XP Home's Setup boot option; a free FAT 32 encrypter.

144 STEP-BY-STEP
Stop spam in its tracks by making the most of the latest blocking tools and techniques for any e-mail software.

146 INTERNET TIPS
Inside the mystery of out-of-date addresses in Outlook 2002 and 2003; give AOL's .art images the boot.

147 ANSWER LINE
Keep unwanted guests off your PC, no matter what version of Windows you use; customize Windows XP's Start menu.

140

FIGURE 1: THE D-LINK DCS 2100+ Wireless Camera is your wireless eye and ear.

in wireless capability. If your laptop does not, you can use a PC Card adapter, which usually is priced at about $60.

To share files among a handful of PCs, you can run a wireless network in ad hoc mode (the equivalent of a peer-to-peer network). All you need is a wireless network adapter in each system. To connect to the Internet—either directly or via an existing wired network—run the wireless network in infrastructure mode (the equivalent of a client-server network). This requires a wireless access point to link to a preexisting wired network, or a wireless gateway to connect via cable or DSL modem. Wireless gateways combine a wireless access point with a gateway and cost about $100 or less. Browse to find.pcworld.com/38957 to read our November 2003 review of wireless networking kits.

An ethernet router with built-in gateway and wireless access point lets you connect PCs to it via network cables as well as wirelessly. Only slightly more expensive than a wireless gateway, it provides a handy "wired window" into your router, which can be extremely useful for troubleshooting wireless connections.

PUTTING IT TOGETHER

YOU SHOULD be able to install a router and several wireless client adapters in less than an hour. If you run into problems, don't spend a lot of time and energy troubleshooting by yourself. Check the manufacturers' Web site for the latest updates for your adapter's driver and your router's firmware. The vendors may recommend installing Windows XP Service Pack 1. Don't call tech support until you've verified that your software is up-to-date.

Most 802.11b access points claim to be capable of reaching a PC up to 150 feet away indoors and up to 300 feet away outdoors, but your range will likely be about half that. Thick walls and other obstacles can significantly deflect or weaken your access point's wireless signal. In addition, the farther your PC is situated from the access point, the slower the connection speed will be. Your 802.11b network's data transmission rate automatically decreases in discrete steps as your signal gets weaker, from 11 mbps to 5.5 mbps to 2 mbps to 1 mbps. Most wireless adapters have a driver utility that monitors signal strength and, hence, speed (see **FIGURE 2**).

Place your wireless access point as high as possible and away from obstructions. Shiny metal surfaces, walls with lots of pipes or wires, and leafy plants can significantly degrade your signal. Shifting an access point a foot or two can sometimes make a big difference in signal reception. Always place antennas in a vertical position, and avoid putting 802.11b and .11g products near microwaves, portable telephones, Bluetooth devices, or other equipment that runs at or near 2.4 GHz.

If your access point lacks the signal strength to cover the requisite area, consider buying a repeater. Priced at about $75, wireless extenders can increase the range of your network by up to 50 percent by boosting signal strength. Visit find.pcworld.com/38951 for our review of two wireless range extenders.

Here are the settings that you'll need to know to complete your wireless setup.

Static or dynamic IP address: Every ▶

COMPARISON

THE A-B-G'S OF WIRELESS NETWORKING

THE WI-FI ALLIANCE'S three most popular standards vary in speed, frequency, and compatibility.

STANDARD	Rated maximum range (feet)	Frequency	Maximum speed	Pros	Cons
802.11a	25 to 75	5 GHz	54 mbps	Fast; won't interfere with Bluetooth devices or cell phones.	Incompatible with 802.11b and .11g wireless networks; has a short range.
802.11b	100 to 150 indoors 300 outdoors	2.4 GHz	11 mbps	Low-cost; compatible with 802.11g.[1]	Slow for sharing big files or broadband; may interfere with Bluetooth devices or cell phones.
802.11g	100 to 150 indoors 300 outdoors	2.4 GHz	54 mbps	Fast; high availability of products; compatible with 802.11b.[1]	May interfere with Bluetooth devices or cell phones; slightly more expensive than 802.11b.

FOOTNOTE: [1] Will run at the slowest common speed.

PHOTOGRAPH: RICK RIZNER

FIGURE 2: CHECK YOUR WIRELESS signal strength via your adapter's status utility.

network adapter (including the one in your router) needs an Internet Protocol (IP) address. IP addresses have four numbers from 0 to 255, separated by periods, such as "192.168.1.1".

Your ISP provides the IP address of the network adapter you use for connecting to the Internet. For an always-on broadband connection, it may assign a permanent (or static) IP address that never changes; or like the PPPoE protocol, it may assign a temporary (or dynamic) IP address for each session. Your ISP will tell you which type of connection you have.

FIGURE 3: WINDOWS XP's Wireless Zero Configuration utility finds networks in range.

Enable DHCP server: Your router can automatically assign an IP address to the network adapter of any PC on its network via its dynamic host control protocol (DHCP) server. Using the DHCP server to assign IP addresses is easier than manually configuring each machine's address.

SSID: The Service Set Identifier (SSID) is the name assigned to your wireless network. All devices on a wireless network must be configured with the same SSID. Don't just use the default value, however; it can give hackers a hint about the type of hardware you're using.

Channel: 802.11b and .11g networks broadcast over one of 14 channels, but only channels 1 through 11 can be used in the United States. As with the SSID, devices sharing a wireless link must be tuned to the same channel. Channels 1, 6, and 11 don't overlap each other and may provide a clearer signal.

Your wireless adapter's installation program should install and configure the adapter's driver. If asked to select a mode during installation, choose *Infrastructure* if you're configuring a wireless access point or router, or *Ad hoc* for file sharing on a peer-to-peer network. For SSID and channel settings, choose the same values that are set in your access point or router.

Once the adapter is installed, Windows XP's Wireless Zero Configuration (WZC) utility will scan for available networks and display a notification bubble when it finds any (see **FIGURE 3**). Click the bubble to select a network and connect to it.

Your adapter's Properties dialog box lists 'Available networks' and 'Preferred networks'. WZC connects to preferred networks in the order they are listed. Use the options to add, remove, or change the order. To open this dialog box, right-click *My Network Places*, select *Properties*, and click *Wireless Networks* (see **FIGURE 4**).

If you lose connections, disable WZC by unchecking *Use Windows to configure my wireless network settings* in Wireless Network Connection Properties. ■

Go to find.pcworld.com/31511 for past Hardware Tips *columns. Send your tips and questions to kirk_steers@pcworld.com. We pay $50 for published items. Kirk Steers is a* PC World *contributing editor.*

FIGURE 4: YOUR ADAPTER'S properties let you reprioritize your network connections.

WIRELESS SECURITY

Avoid Prying Eyes

DO YOU TRUST YOUR neighbors–or passersby in the street–with the contents of your PC? If not, enable the security features of your wireless access point and change its default settings.

Use a new password: Don't leave the password field blank, and don't use the device's default password (if it has one).

Hide your SSID: By default, most access points broadcast the network's SSID so that clients can automatically configure themselves and connect. If your router allows you to disable this, do so.

Enable MAC filtering: Your desktop PC's network adapter, the wireless PC Card adapter in your notebook, and any other device connecting to the network have unique alphanumeric identifiers called media access control (MAC) addresses. Enter the address of each adapter on the network into the MAC filter feature in the access point's setup program so that only those adapters can access the network. To find an adapter's MAC address in Windows XP or 2000, click *Start•Run* and type **cmd ipconfig /all**. The MAC address is labeled 'Physical Address'. In Windows 98 and Me, click *Start•Run*, type **winipcfg**, and look for 'Adapter Address'.

Enable WPA or WEP encryption: Both the Wireless Encryption Protocol (WEP) and the newer Wi-Fi Protected Access (WPA) standards encrypt data on wireless networks. To send or receive data requires the proper key or passphrase entered in the adapter's utility program.

Unfortunately, WEP can be hacked by determined snoopers. Look for routers that support the stronger WPA encryption scheme. If your current router offers only WEP protection, you may be able to upgrade to WPA via a firmware update.

Turn off Windows file sharing: Right-click the drive's icon in Windows Explorer, select *Sharing and Security* (in Windows XP) or *Sharing* (in other versions of Windows), and make sure that 'Share this folder on the network' is unchecked (you may have to click through a Windows warning to get to this option).

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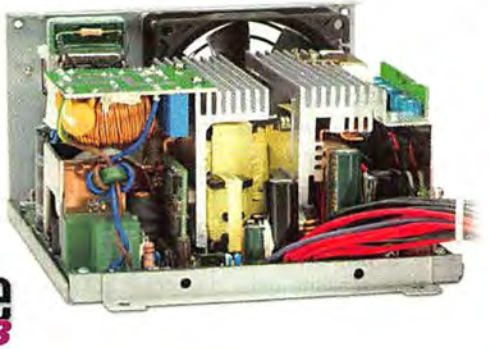

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WINDOWS TIPS

SCOTT DUNN

REMOVE CONTROL PANEL ICONS | OPT OUT OF XP'S BOOT MENU | FREE FAT 32 FILE ENCRYPTION

Security Alert: It Pays to Know Your File Extensions

Windows 2K XP 98 ME

COMPUTER VIRUSES sometimes masquerade as harmless e-mail attachments. The fastest way to spot the interlopers is by their file extension—the letters (usually three) following the final period in the file's name. This extension is an essential aspect of nearly every file on your computer; without it, Windows doesn't know whether to open the file in your word processor or another app, to launch it as a program, or to let other programs use it as a system resource. Knowing a file's extension can also help you customize your system and clean out the dross.

Unfortunately, Microsoft started hiding file extensions in Windows 95. To make sure your file extensions are visible, open Windows Explorer or any folder window and choose *View•Folder Options* or *Tools•Folder Options* (depending on your version). Click the *View* tab, make sure the option to 'Hide extensions for known file types' is unchecked (the exact wording will vary depending on your version of Windows; see **FIGURE 1**), and click *OK*. Now extensions will be visible for nearly every file on your desktop and in your Explorer and folder windows.

FIGURE 1: THE HIDDEN is revealed when you make Windows show all file extensions.

The File Types tab in the Folder Options dialog box lists the extensions registered on your system ("registered" means that Windows knows what to do with that type of file; see **FIGURE 2**). It also shows the file descriptions you would see if you looked in the Type column of Explorer's Details view (choose *View•Details*). Note that in Windows 9*x*, you must select one of the registered file types to see its extension displayed in the area below.

If you're willing to edit the Registry, you can display most file extensions but hide a few of your choice; go to find.pcworld.com/38684 for instructions. Or you can show the extensions of only the file types you select; visit find.pcworld.com/38687 for the details. Here are the file extensions you need to be aware of.

An eye on executables: An executable (**.com** or **.exe**) lists machine-language instructions that a computer can understand and execute. Don't launch executable files that you receive from an unknown source (such as via an unsolicited e-mail), since the sender could have a malicious purpose. Also, many worms propagate via e-mail address books, so you may know the purported sender of an infected file. Don't open any executable file until you have confirmed by phone or e-mail that the file is legit. By extension (pun intended), **.bat** (batch files) and **.cmd** (Windows 2000 batch files) include executable commands and may contain malicious code.

Script teasers: Scripts are pieces of human-readable programming code that services translate into machine-code instructions and execute. Windows will launch one of its many script services when you double-click a script file (just as Windows will open Word to display a word processing document if you double-click a .doc file). You encounter scripts frequently while Web browsing and performing other PC tasks, but you probably don't want to let just any old script file run on your computer. The script file extensions to be wary of include those that work with Windows Script Host (**.ws**, **.wsc**, **.wsf**), JavaScript (**.js**), and Visual Basic (**.vb**, **.vbe**, **.vbs**).

Other service-launching extensions: If you double-click a file whose extension is associated with a Windows service, that service will open and run, using the information in the file you double-clicked to tell the service what to do. Such extensions include **.pif** (a program information

ELIMINATE XP'S BOOT MENU

JOE HENRIQUES of Etobicoke, Ontario, reinstalled Microsoft Windows XP Home Edition, but now a menu asks him to choose 'Microsoft Windows XP Home Edition' or 'Microsoft Windows XP Setup' before Windows will start. Since the default option is Setup, he gets an error if he doesn't select XP Home within a short time. The underlying problem: An entry has been added to his boot.ini file, a system file in the root of the start-up drive.

Henriques could edit the file to leave only the correct option, but it's easier to tell Windows to ignore the unwanted entry. In Explorer, right-click *My Computer* and choose *Properties*. Click *Advanced•Settings* (under Startup and Recovery). Choose the OS from the 'Default operating system' drop-down list to switch the default. To suppress the menu entirely, uncheck *Time to display list of operating systems*. Click *OK* twice.

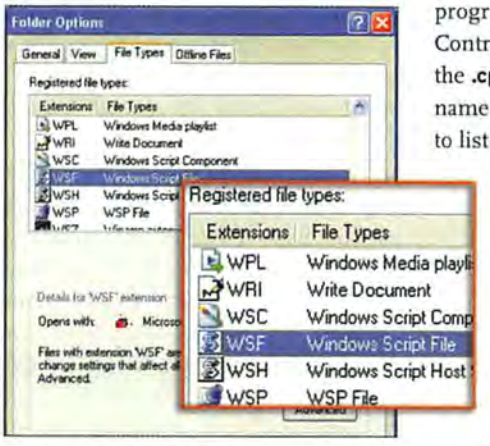


FIGURE 2: GET THE SKINNY on your PC's file types in the Folder Options dialog box.

file that tells Windows how to run an old DOS app), **.msi** (a Windows installer database), **.hta** (an HTML application), and **.scr** (a screen saver).

Space savers: If you're tired of the screen savers on your system, save disk space by searching for all of your system's .scr files (enter ***.scr*** as the file name you're searching for) and deleting the ones you don't want (see **FIGURE 3**). For instant privacy, use the right-mouse button to drag any .scr file to your desktop or the Start menu (or one of its submenus), and choose *Create Shortcut(s) Here*. Just click the shortcut to launch the screen saver, and tap a key or wiggle your mouse to turn it off.

Control Panel icon elimination: Readers frequently ask how to remove icons from their Control Panel window. When the culprit is not one of Windows' own control panels but an uninvited intruder installed by some other

FIGURE 3: FIND AND DELETE unwanted screen savers by searching for all .scr files.

program, it's useful to know that most Control Panel icons represent files with the **.cpl** extension. Enter ***.cpl*** in the filename field of Windows' search function to list the Control Panel applets on your system. Double-click each file until you find the one that you don't need. Move the unwanted file to another folder, or make a backup copy and delete the original. Note that in some cases multiple icons in the Control Panel window may represent a single .cpl file. For example, removing main.cpl will eliminate the Fonts, Keyboard, Mouse, and Printers icons.

System secrets: Some system file types don't run by themselves and don't open in an application; other programs on your PC use these files to get information about your settings, special programming functions, and other resources. You can customize your system by editing certain **.ini**, **.inf**, and other system files. For example, changing your sysoc.inf file gives you more control over uninstalling components of Windows 2000 and XP (find.pcworld.com/38693). Or edit your desktop.ini file to add wallpaper to XP's folder windows (find.pcworld.com/38696).

One common system file type is the dynamic link library, or **.dll**. Sometimes multiple applications will install one **.dll** file, potentially causing conflicts. To help advanced users and IS pros sort through **.dll**-related snafus, Microsoft has set up a searchable database at find.pcworld.com/38699 that they can use to ferret out the purpose of any Microsoft **.dll** file.

Wascally Wegistwy files: Exported portions of the Windows Registry have the **.reg** extension. When you edit the Registry, these files serve as small, targeted backups of the portion you'll be working on. Click *Start•Run*, type **regedit**, press **<Enter>**, navigate the tree pane on the left (or use the *Edit•Find* feature), and click the section of the Registry you plan to edit. Choose *Registry•Export Registry File*, make sure that 'Selected branch' is highlighted, specify a name and a location to store it in, and click *Save*. The settings for that portion of the Registry will be saved as a file with the **.reg** extension. If you make a boo-boo, you can restore that portion of the Registry to its prior state by double-clicking the backup file and then following the on-screen prompts. You're not likely to encounter a problem with **.reg** files that you make yourself, but beware of unknown or unsolicited **.reg** files! If you merge a corrupt, outdated, or malicious **.reg** file, you can damage your Windows settings. ■

Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay $50 for published items. Visit find.pcworld.com/31607 for more Windows Tips. *Scott Dunn is a contributing editor for* PC World.

WINDOWS TOOLBOX

Get Free 128-Bit Encryption for FAT 32 With AxCrypt

Windows 2K XP 98 ME

TO MAKE YOUR files private without resorting to the NTFS file system, look no further than AxCrypt, a handy little utility that lets you lock your files by clicking your right-mouse button. After you install the program, right-click a file and choose *AxCrypt* to see a submenu of commands for protecting or accessing your files using the utility's 128-bit encryption. Encrypting a folder protects all of the files it contains. You can even have AxCrypt remember a single password and use it by default so you only

have to enter it once per log-on and/or reboot. Secure and simple: What's not to like? Though AxCrypt is completely free, its makers encourage a $5 or $10 donation if you like it. Go to find.pcworld.com/38702 to download the program.

STEP BY STEP

STAN MIASTKOWSKI

Stop the Spam: How to Filter Out Junk E-Mail

WE'LL SPARE YOU THE discouraging statistics on e-mail spam. Just look at your in-box. Day in and day out, spam costs individuals and corporations time and money. Purveyors of spam are getting cleverer all the time, but so are the makers of software designed to stop it.

Though the newest versions of Microsoft Outlook (included in Office 2003) and Eudora incorporate sophisticated spam-blocking features, users of older e-mail clients such as Outlook Express will need more-powerful blocking tools.

A wide range of reasonably priced and free spam filters are available. Some integrate with your e-mail client, and some are stand-alone. All employ combinations of automatic and semiautomatic spam-stopping techniques. See "Natural-Born Spam Killers" (find.pcworld.com/38753) for an overview of blocking technology, and go to find.pcworld.com/38754 for a list of downloadable antispam utilities.

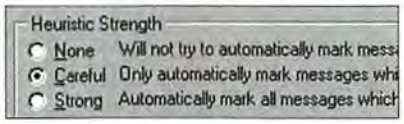
Every antispam package is different, but most share some core features. Below is a list of common settings for maximizing spam blocking, though your software may not have all of them. The examples shown are from Symantec's Norton AntiSpam 2004, Sunbelt Software's IHateSpam ($20, www.sunbelt-software.com), and MailWasher (free, www.mailwasher.net). We can't show details for every program, so read the manual and online help for your software carefully. ■

Stan Miastkowski is a PC World *contributing editor. Contact him at stan_miastkowski@pcworld.com. Visit find.pcworld.com/31676 for past* Step-By-Step *columns.*

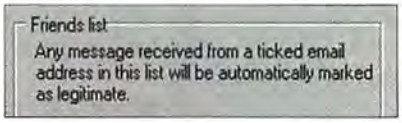
1 Try your ISP's spam-blocking features: Many Internet service providers offer free or low-cost built-in spam blocking. Some providers enable it by default. Check your ISP's home page for details.

If your ISP has no integrated antispam software or if you decide not to use it, you should install your spam-filtering package now. The following steps apply to server-based filters like the ones your ISP uses, as well as to local software that you install.

2 Determine how aggressive you want blocking to be: Most antispam packages allow you to adjust the level of spam filtering. The feature goes by various names (threshold, heuristic strength, and so on). Expect to do some tweaking of this setting. It's a trade-off: Aggressive filter settings may block some legitimate mail, but 'careful' filtering will often let more spam through.

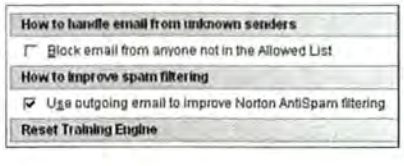


3 Decide who your real friends are: If you're new to antispam software, one of your biggest concerns will be to make sure that the e-mail you want to receive doesn't get blocked. Most packages import your e-mail client address book and let you choose which senders you want to mark as "friends." The antispam software will then admit any e-mail sent to you from those addresses. Don't worry about adding everyone you correspond with to the list right away—you'll have the opportunity to inspect what was blocked and mark additional addresses as friends.



4 Tweak and maintain the blacklist: Spammers change e-mail addresses continually, so you'll want to pay close attention to your blacklist. This feature, sometimes called a blocked list or enemies list, collects addresses or entire domains from which you don't want to receive e-mail. Many packages populate the list by accessing servers that keep lists of known spammers. You can manually add problem addresses to your list at any time.

5 Enable special features: IHateSpam, for example, can block messages with foreign character sets, and Norton AntiSpam can analyze outgoing e-mail to improve its spam-blocking accuracy. Read the manual or online documentation to see what additional features are available in your package, and then experiment with any features you like.



6 Be patient: This is the most difficult step of all. Don't expect your antispam software to be 100 percent accurate from day 1. Be prepared to deal with some false positives (legitimate e-mail marked as spam) initially, along with junk that gets through as legitimate e-mail. Eventually, as you adjust the settings we've mentioned in these steps, your software will filter spam more accurately. Despite marketing claims to the contrary, no antispam software will catch all spam all the time, but well-tuned software should make your life much easier.

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INTERNET TIPS

SCOTT SPANBAUER

Master Outlook's Bizarre Addressing Mysteries

WHEN I START to type a name in the 'To:' field of a new Outlook e-mail message, the program completes the name and corresponding e-mail address. As my contacts' e-mail addresses change, I update them in Outlook's Contacts area. However, I recently encountered several instances where Outlook's autocomplete feature supplied an out-of-date e-mail address, long deleted from my contacts.

To try to clear out these bad addresses, I exported my contacts file, deleted all the outdated contacts from the Contacts folder, and removed the Outlook Address Book. But now when I start to type a name in the 'To:' field, it still finds those old names!

John A. Anderson, Wyoming, Ohio

THOSE PHANTOM e-mail addresses drove me crazy, too. Over time, however, I realized that Outlook 2002 was keeping track of people I corresponded with, though not through its normal Address Book.

After poking around on Microsoft's support site, I found several articles that reveal the secret: Outlook 2002 and 2003 automatically store *every* address you enter—including addresses you look up in Outlook's Contacts—in a hidden file.

This behavior has good and bad points. On the good side, Outlook remembers addresses you've used in the past, even if you never store them as Contacts; and you can retrieve them by typing only the first few characters. The bad points, however, go on and on. The worst is that as you update Outlook's Contacts, the autocomplete name cache file remains static. So even though your cousin Jethro's address has changed three times in the last year, the one Outlook suggests when you start typing *Jethro* in the 'To:' field will be ancient.

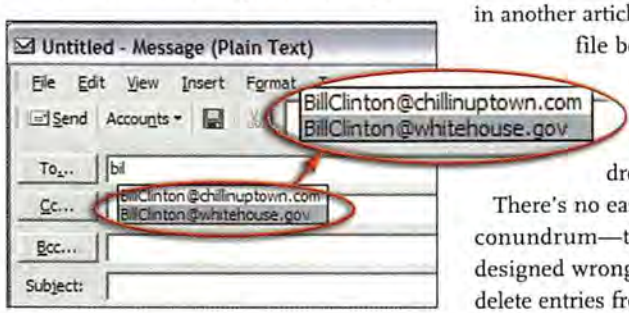

FIGURE 1: WEED OUT OLD addresses that pop up due to a bad autocomplete feature.

A MICROSOFT DESIGN FLAW?

AND IN TYPICAL Microsoft fashion, there is no way to edit the file, since it isn't written in plain text. Regrettably, it contains enough plain text—the addresses and corresponding names—to get you in trouble with a snooping spouse or employer who knows how to find and open it.

The problems continue. Outlook stores up to 1000 entries in this hidden name cache, and the entire cache is loaded into memory each time you launch Outlook. According to Microsoft's Knowledge Base (find.pcworld.com/39335), the lookup feature slows noticeably when the cache reaches 1000 names. The company notes in another article that if the name cache file becomes corrupted, Outlook may start sending mail to another autocomplete entry's address. So what can you do?

There's no easy solution to this cache conundrum—the feature is just plain designed wrong. Nevertheless, you can delete entries from the file one at a time in certain instances. To accomplish this, click the *New* button to open a new message, type the first three characters of the cached name into the 'To:' field to trigger the autocomplete feature, press the **<Down Arrow>** key to highlight the offending cached name, and then press **<Delete>** to remove it (see **FIGURE 1**).

Unfortunately, this works only if more than one cached name begins with the first three letters, triggering the drop-down list. Microsoft provides a workaround for this problem (find.pcworld.com/39338), but instead I recommend simply jettisoning the whole file.

To locate the file in Windows XP, click *Start•Search*, select *More advanced options*, choose *All files and folders* in the 'Type of file' drop-down list, and check *Search hidden files and folders*. Type ***.nk2** in the 'All or part of the file name' field, and click *Search*. At find.pcworld.com/39341, Microsoft provides specific instructions for earlier versions of Windows (which require additional steps to find hidden files). Once you've located the file, either delete or rename it. However, Outlook will simply start a new one for you, so be prepared to repeat this process later. ■

Send your questions and tips to nettips@spanbauer.com. We pay $50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. *Scott Spanbauer is a contributing editor for* PC World.

BYPASS AOL'S .ART IMAGES

READER DENTON BANKS of San Francisco wrote to say he always gets a .art extension when he tries to save a picture from the Internet in AOL. He wondered if there's any way to change .art files to JPEG or some other common format. Actually it's even easier than that. To speed downloads, AOL uses the proprietary .art compressed graphics format by default. The result, in addition to degraded image quality, is that all images are converted from their original formats (such as BMP, GIF, or JPEG) to the AOL format. To disable this compression and receive the native-format images in AOL 8, click *Settings•Preferences•Internet Settings•Web Graphics•Never compress graphics,* and click *OK.*

ANSWER LINE

LINCOLN SPECTOR

How Do I Keep Other People Off My PC?

I SET UP Windows to require a password to log on, but then I discovered that anyone could bypass this simply by clicking *Cancel* at the password prompt. How can I protect my PC?

Lee F. Martin, Rocky Mount, Missouri

THE WINDOWS password doesn't do much—especially in Windows 98 and Me (things are better in Windows 2000 and XP, but not perfect). Here's some security advice for each version of Windows, and some general advice for all versions.

Windows 98: This trick is bound to scare interlopers who try to log on to your Windows 98 computer—unless they've read this article. Select *Start•Shut Down•Restart in MS-DOS mode* and click *OK*. At the C:\WINDOWS prompt, type **ren win.com xyz.com** and press **<Enter>**. From now on, when anyone turns on your computer, instead of Windows they'll get an error message and a C> prompt. You'll know that you can load Windows by typing **xyz** and pressing **<Enter>**, but others trying to log on will think they broke something.

To reverse this arrangement and return to a regular boot, simply go to the MS-DOS mode, type **ren xyz.com win.com**, press **<Enter>**, and reboot.

FIGURE 1: FOR A MORE SECURE PC, turn off XP's Guest account, which lets anyone boot into Windows.

Windows 2000 and XP: You can't press <Esc> to bypass the password prompt in these versions of Windows, but anyone who isn't set up as a user beforehand may be able to log on as a guest. Even though guests have no access to your data, you may want to disable the Guest account just to play it safe. In Windows 2000, select *Start•Settings•Control Panel•Users and Passwords*. Click the *Advanced* tab and then the *Advanced* button. In the left pane, click *Users*. In the right pane, double-click *Guest*. Check *Account is disabled* and then click *OK*. In Windows XP, select *Start•Control Panel•User Accounts•Guest•Turn off the guest account* (as shown in **FIGURE 1**).

Can other people who use the system (with their own log-on names and passwords) see your data files? They can if they have an Administrator-level account, but anyone with a more limited account cannot. If there are two administrator accounts on the system, each can see the other's files.

If you have XP, you can shut other administrators out of your files. (Though the other administrators can override this block, doing so is a hassle, and you'd know if they did it.) To protect all of your data and settings files, for example, right-click your folder inside Documents and Settings (such as *C:\Documents and Settings*yourname), select *Sharing and Security•Make this folder private*, and click *OK*.

All versions: You can password-protect your screen saver in any version of Windows to keep people off your PC when you leave it on while you're away from your desk. Right-click the desktop and select *Properties•Screen Saver*. Choose a screen saver (if one isn't active already) and check *Password protected* (in XP, *On resume, password protect*). In Windows 98 and Me, click the *Change* button to select a password; Windows 2000 and XP use your existing log-on password. Make any other choices you want, and click *OK*.

For the best protection of sensitive files, use third-party encryption software. Yes, Windows 2000 and XP have built-in file encryption, but the third-party programs are more versatile. My favorite file encryption program is Steganos Safe, which you can purchase from www.steganos.com for $25 ($30 for the boxed version). When the safe is open, it acts as another disk drive that you can read from and write to. When the safe is closed, it's password-protected with 128-bit Advanced Encryption Standard encryption.

Last but not least, you can use a boot password to protect your system before Windows even loads. Go to find.pcworld.com/38960 for Kirk Steers's instructions from the September 2003 *Hardware Tips* column on creating a boot password. ■

Send your questions to answer@pcworld.com. Answer Line *pays $50 for published items. See find.pcworld.com/31577 for more* Answer Line *columns. You'll find Contributing Editor Lincoln Spector's humorous writing at www.thelinkinspector.com.*

UPDATE XP'S START MENU

YOU KNOW THAT area on the upper-left side of Windows XP's Start menu where icons for your browser and e-mail client reside? You can put other shortcuts there, too, turning it into an auxiliary quick-launch pad without taking up valuable taskbar real estate. Simply drag a program, file, or shortcut from elsewhere on your Start menu—or from any folder or Explorer window—and drop it on that section of the menu. One warning: When you drag a shortcut to this area, Windows makes a shortcut to the shortcut instead of copying the original one. If you delete the original shortcut, the one in the Start menu will stop working.

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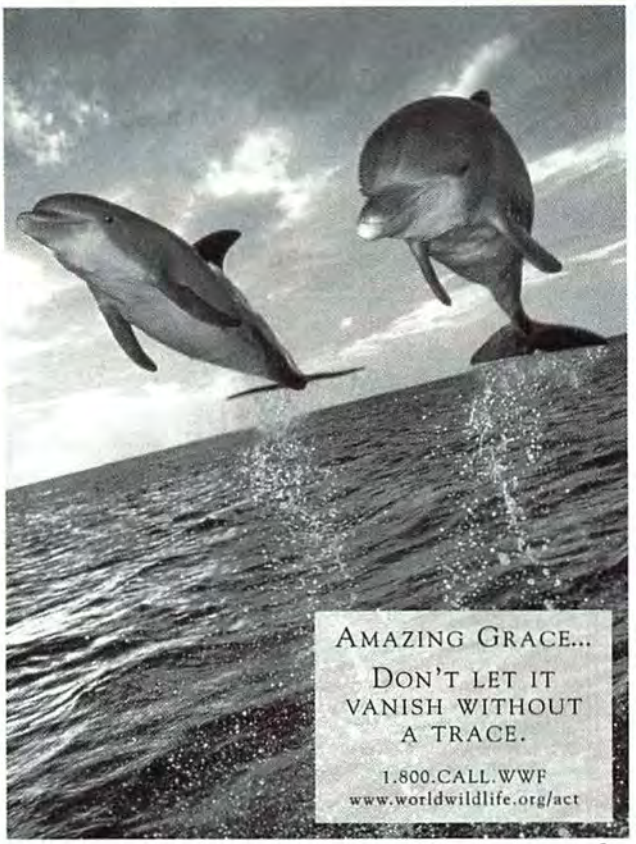

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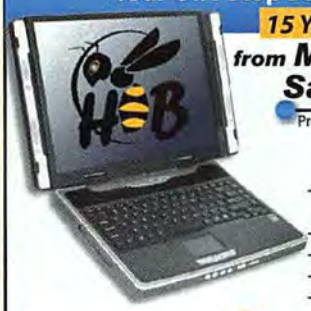

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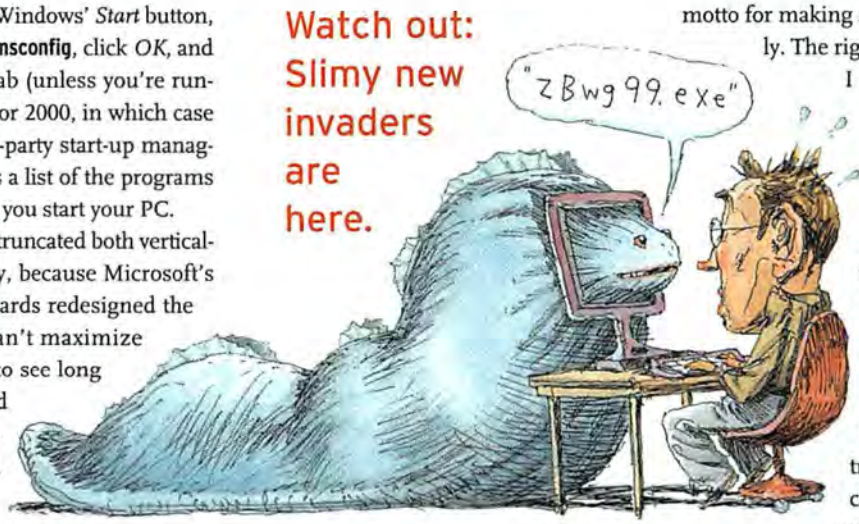
Evidence? Click Windows' *Start* button, click *Run*, type in **msconfig**, click *OK*, and click the *Startup* tab (unless you're running Windows 95 or 2000, in which case you'll need a third-party start-up manager). Voilà! Up pops a list of the programs that run whenever you start your PC.

In XP, the list is truncated both vertically and horizontally, because Microsoft's programming wizards redesigned the window so you can't maximize or even stretch it to see long names. But the bad interface can't obscure the truth: A collection of mysterious programs that aren't in the Startup folder has made its way into your system and, in some cases, onto Windows' system tray. And you thought that you owned your PC and managed its performance and reliability?

Sometimes this sort of thing is fine: It clearly makes sense for your antivirus and firewall programs to load themselves without your intervention. Other unwelcome visitors can be quickly doped out and disabled—like Quicken applets that appear on many new machines even if you never so much as click on the program icons. But what on earth, for instance, is "srmclean.exe"? And once you find it, what should you do about it?

Google to the rescue: A quick search for that file name turns up a British site (find.pcworld.com/39731) with a huge directory of start-up programs. The site reveals that srmclean.exe is a file required for onboard digital audio in some Compaq PCs and says that, according to Compaq, "If you disable the entry from loading into startup, then you will not be able to use the features of the sound card." In other words, it's a keeper. But I still haven't been able to construct a Google search for one peculiar start-up item that appears in the list with blank entries for both its short name and its file name. For now, it has to remain a keeper, too, alas.

There are plenty of other items you may not want or need. One type launches pop-ups that remind you to register a program you've just installed. Another detects and connects peripherals like PDAs when you plug them in. Thanks for the seamlessness, but sometimes I'd rather invoke that software myself. It's a rare setup routine that inquires about your start-up preferences, though. "Just do it" is the wrong motto for making stuff start automatically. The right one: "Just ask me."



I don't recall receiving a choice from Musicmatch or RealNetworks or practically anybody else about adding their program to my system tray. Companies have figured out that while the Windows desktop is almost invisible to most people, the tray still offers precious corporate visibility—and users be damned.

Not that they care, but vendors ought to be far more circumspect about spamming our PCs' Registry and system tray without our permission. And while they're at it, could they employ names that we poor users have a chance of understanding?

"Adobe Gamma Loader" in Msconfig's Startup list tells me all I need to know about that particular file. But "ezSP_Px.exe"? Go gently with that delete key, reader. Careful Googling will reveal that enigmatic and apparently worthless file to be something you might want to keep. ■

Visit find.pcworld.com/31595 to see more columns by contributing editor Stephen Manes. He has been writing about technology for more than two decades.

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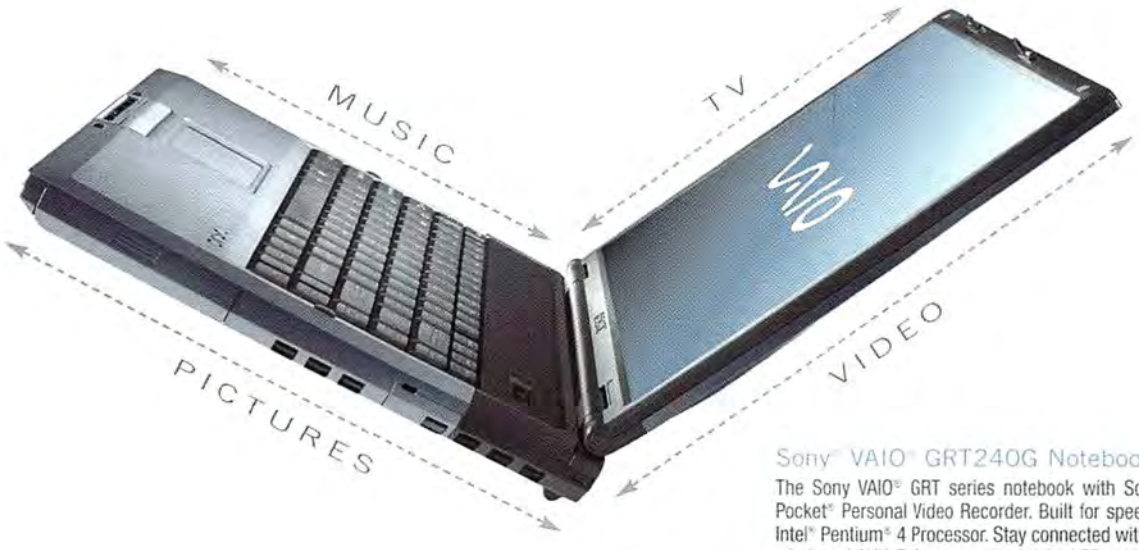

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Display sold separately

RZ Series

The Ultimate Entertainment PC

PCV-RZ40CG—Display sold separately

- Intel® Pentium® 4 Processor with HT Technology at 2.60CGHz[1]
- Microsoft® Windows® XP Media Center Edition
- 160GB Hard Drive[2] (7200 rpm)
- 1GB DDR at 400MHz
- DVD±RW/DVD-ROM Drives[4]
- 128MB nVIDIA® GeForce™ FX5600 Graphics Card
- Creative® Inspire™ 5.1 5200 Speaker System with Sound Blaster™ Sound Card
- Multi-Media Card Reader
- Personal Video Recorder powered by Giga Pocket® Engine
- 1-Year Limited Warranty[3]

$1,789.99 As low as $45 per month for qualified customers.[11]

UPGRADES
- Upgrade to a 200GB Hard Drive[2] for $80
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Enhance your VAIO® PC experience with these other great Sony products. After all, they're made to work seamlessly together so you can easily create and share your music, photos and video.

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DCR-DVD200
DVD Handycam® Camcorder

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- 2.5" SwivelScreen™ LCD display
- Digital Still Memory Mode
- Carl Zeiss® Vario-Sonnar® lens
- Super NightShot® Infrared System and Color Slow Shutter
- Super SteadyShot® Picture Stabilization System
- Free shipping[20]

FREE carrying case

$999.99 As low as $25 per month for qualified customers.[11]

MUSIC

Sony's MDR-NC11 Noise Canceling Fontopia® Ear-Bud Headphones offer you peace and quiet wherever you go.

SRS-MDR-NC11
Noise Canceling Headphones

- Reduces noise by 70% (10dB) when noise canceling circuit is switched on
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- Miniature connection box for AAA battery
- Noise Canceler on/off switch
- Battery DC1.5V, 1 size AAA battery
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Get unmatched imaging capabilities, incredible creative flexibility, and both automatic and manual controls including focus, aperture and exposure with Sony's Pro lineup of digital cameras.

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Digital Still Camera

- 2/3" 8.0 Megapixel Super HAD™ CCD
- Unique 4-color system
- 7X optical/2X digital/14X total zoom
- Carl Zeiss® Vario-Sonnar® T* lens
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- MPEG Movie VX fine modes
- FREE shipping[20]

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Z1 Series

Elegance and Mobility

- Featuring Intel® Centrino™ mobile technology
  - Intel® Pentium® M Processor 1.60GHz[1]
  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[18]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 60GB Hard Drive[2]
- 14" SXGA+ TFT display
- 512MB DDR SDRAM
- Integrated CD-RW/DVD Combo Drive[4]
- Amazing battery life up to 6.5 hours[5]
- Integrated Bluetooth™ Wireless Technology[10]
- USB 2.0
- Stylish and sophisticated design in a 4.7-lb.-light[6] and 0.9–1.5"-thin body
- Included software: PictureGear Studio,™ SonicStage,™ DVgate Plus™
- 1-Year Limited Warranty[3]

$100 >mail-in rebate<[14]

~~$2,299.99~~

$2,199.99 After $100 mail-in rebate.[14] As low as $58 per month for qualified customers.[17]

UPGRADES
- Sony VAIO® Port Replicator for $199.99
- Sony VAIO® Double-Capacity Lithium Ion Battery[9] for $499.99

V505 Series

Powerful. Mobile. Slim Design

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  - Intel® Pentium® M Processor 1.40GHz[1]
  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[18]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 40GB Hard Drive[2]
- 12.1" XGA TFT display
- 256MB RAM
- Integrated CD-RW/DVD Combo Drive[4]
- Sony VAIO® Creation Suite Standard software package
- 1-Year Limited Warranty[3]

$1,729.99 As low as $44 per month for qualified customers.[17]

UPGRADES
- Upgrade to a 60GB Hard Drive[2] for $50
- Sony VAIO® Double-Capacity Lithium Ion Battery[9] for $200

TR Series

Sony's Smallest PC Packed with Features

PCG-TR2A

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  - Integrated Wireless LAN: Intel® PRO/Wireless Network Connection 802.11b[18]
  - Intel® 855 Chipset
- Microsoft® Windows® XP Home Edition
- 40GB Hard Drive[2]
- 10.6" widescreen XBRITE™ LCD display
- 512MB RAM
- Integrated CD-RW/DVD Combo Drive[4]
- Amazing battery life up to 7.0 hours[5]
- Integrated swivel camera
- Sony VAIO® Creation Suite Standard software package
- 1-Year Limited Warranty[3]

$2,199.99 As low as $55 per month for qualified customers.[17]

UPGRADES
- Privacy Screen for $79.99
- Sony VAIO® Standard Lithium Ion Battery[9] for $299.99
- Sony VAIO® Double-Capacity Lithium Ion Battery[9] for $349.99

GRT Series

Transportable TV Entertainment Center

PCG-GRT280ZG

- Intel® Pentium® 4 Processor with HT Technology at 3.06GHz[1]
- Microsoft® Windows® XP Home Edition
- 80GB Hard Drive[2]
- 16.1" UXGA (1600x1200) with XBRITE™ technology
- 1024MB RAM
- DVD±RW/CD-RW drive[4]
- Record and watch your favorite TV programs with Sony's Giga Pocket® Personal Video Recorder and remote control
- Convert your old analog videos to digital and record to DVD
- Integrated 802.11g wireless LAN[17]
- 1-Year Limited Warranty[3]

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UPGRADES
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- Sony VAIO® Standard Lithium Ion Battery[9] for $249.99

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