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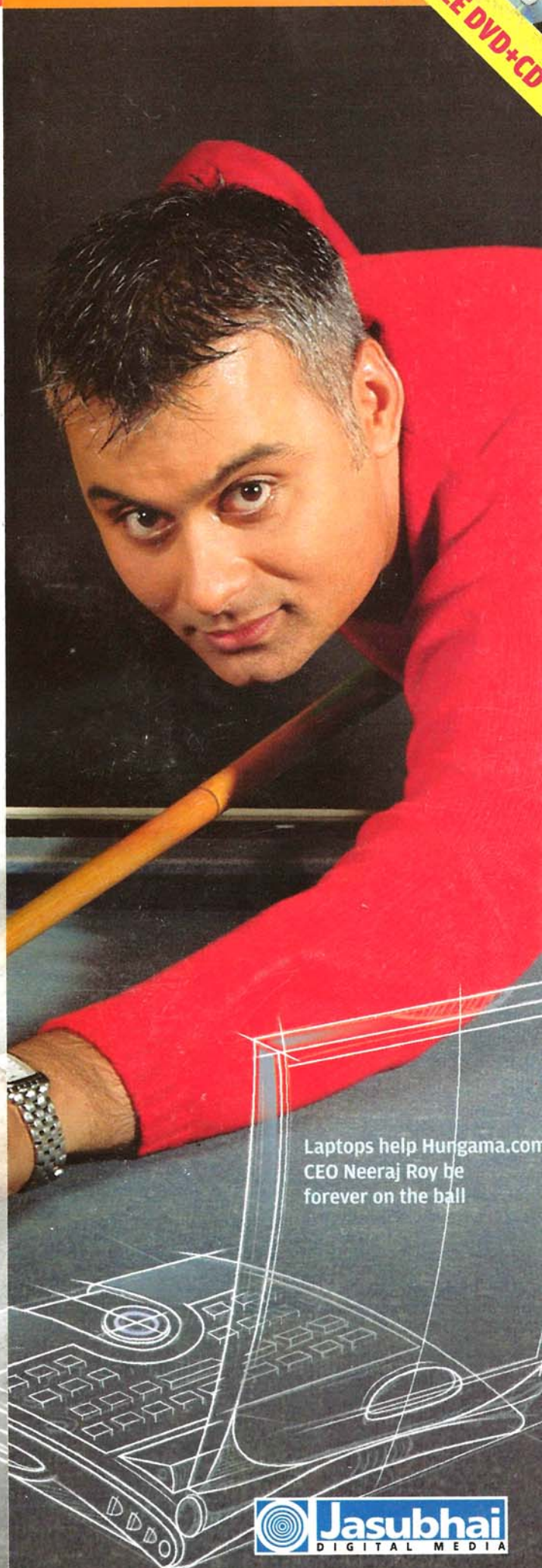


Laptops help Hungama.com CEO Neeraj Roy be forever on the ball

Jasubhai DIGITAL MEDIA

Smart Cards, Dumb Bureaucrats

AS YOU TRAVEL along the lunar stretch that connects Pune to Mumbai—euphemistically called a highway—you come across the first toll booth at a place called Vashi. In August, the people who levy toll on this road, decided to introduce smart cards to make things easier.

Until July, vehicle owners would stick an ugly, fluorescent sticker on their car's windscreen. It was their monthly toll pass.

So when smart cards were introduced in August, there was some jubilation. The toll contractors installed spanking new PCs, printers, and a smart card system, thereby ending the Ugly Sticker regime.

Or so the commuters thought.

Earlier, the man who handed out the sticker noted your vehicle registration number in a log book, returned the change, and then wrote the registration number on the sticker. This routine took not more than 45 to 60 seconds.

You'd think the smart card would make it easier. But here is what happens: The same man now notes the vehicle registration number in his log book, and later onto the computer, extracts a smart card from his filing cabinet, puts a sticker on it, and writes the vehicle registration number on the sticker. He then goes back to the PC, and prints out a receipt. Once this is done, he returns the change and hands you the smart card. Time taken: five minutes. Result: Delayed service, long queues, and more than 5,000 agonised commuters.

One hundred marks for transparency, zero for efficiency.

After spending lakhs on thousands of smart cards (priced at Rs 70 each, a cost passed on to commuters), Pentium 4 PCs, four dot matrix printers, and a smart card authenticator, Mumbai's outbound commuters are still stuck with a sticker (every month one more sticker will be stuck to the previous one), and now they even have to remember to carry the smart card every day, which, for all practical purposes, is a dog tag, because the authorities have not installed a card reader at the toll booth.

The Vashi toll booth is a perfect example of how technology is used where none is required—or even if needed, how bureaucrats tend to over-engineer solutions instead of using a little common sense. The ugly sticker, however undesirable, was a reasonably comfortable solution, especially in resource-poor India.

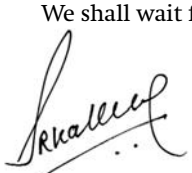
Sachin Kalbag Executive Editor

"Smart cards can proliferate only if the infrastructure is in place"

Admittedly, smart cards need to proliferate in the economy, but can only do so if the infrastructure is in place. One that will allow not only easy passage at Vashi (or any other toll booth in India), but also serve as a card for cashless transactions at multiple points—supermarkets, petrol pumps, ration offices, or when dealing with government departments. It can make the transactions cleaner, and prevent corruption to a certain degree.

Only then would smart cards have truly touched our lives.

We shall wait for that day.



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YOUR TECHNOLOGY NAVIGATOR

September 2004 • Volume 4 • Issue 9

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Full Version

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Microsoft .NET 1.1 (SDK)
Visual Studio .NET Documentation Update
Visual Basic 2005 Express Edition Beta
Borland Delphi for .NET
Borland JBuilder

CONTRIBUTIONS

Securelock
I-Browser++ (Hindi)

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Worms Forts: Under Siege

Enjoy the popular Worms, now in a semi-strategy version. Build and strengthen your fort to defeat your opponent

GAME VIDEO

Doom 3 Trailer

SOFTWARE

Microsoft .NET Framework 1.1 Redistributable

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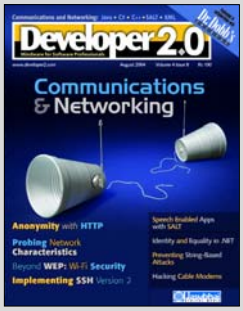

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- AVOne Gold - DVD/VCD Converter 3.36
- Pinnacle Studio 9
- dvdSanta v3.21

SYSTEM

- nVidia Detonator 56.72 (XP)
- DirectX 9.0c Redistributable
- Office 2003 Service Pack 1

3DMARK03 The Gamers' Benchmark

Benchmark your graphics system to find out where it stands with respect to your friends, or just to check how good a gaming machine you have

MULTIMEDIA

- DVD Audio Ripper 1.0.23
- Free CD-DA Extractor 4.8
- IconView Pro
- McTools-lite (Linux)

- Pinnacle Studio 9

SYSTEM

Visual Basic 6 Service Pack 6 Runtime

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Latest updates of Anti-virus Software

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PC-Cillin
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DIGITAL BUSINESS

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- Microsoft Project 2000 Tutorial Demo
- Knoppix Linux Distribution

Create your very own live 700 MB Linux CD, and try it out without disturbing Windows or other operating systems

MUST HAVE FREE TOOLS

- POPFile
- Opera 7.52

- GAIM 0.81
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- Convergence and the Contact Centre
- Securing Voice in an IP Environment
- Managing Voice over IP for Successful Convergence
- Optimising the VoIP-Enabled Contact Centre and Enterprise

MUST HAVE FREE TOOLS

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- Bayden PopupPopper 1.1
- IncrediMail Xe
- AceMoney Lite 3.4.4

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- Great Expectations
- David Copperfield
- Oliver Twist
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- Hunted Down

MUSIC

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- Laura Garcia y La Banda - Buscandote
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- Illegal Zucchini - Shes Happy

MOVIE TRAILERS

- The Village

- Exorcist: The Beginning

BOOKMARKS

- BlogDrive
- LiveJournal
- MovableType
- RediffBlogs
- OpenDairy

MOVIE TRAILERS

Hero

An emporer is hell bent on conquering the world, and stops at nothing to fight, kill and win. It is then that Jet Li, acting

as a fearless warrior comes in to fight for his people who are being massacred

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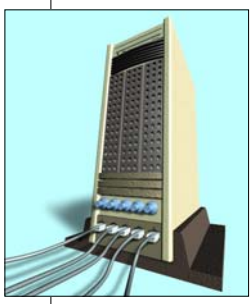

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- ☐ PCs, Laptops, and related accessories
- ☐ Spend? What Spend? My Papa's The Richest!

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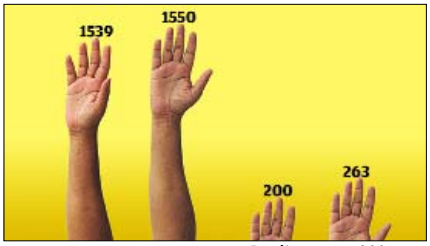

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From *Linkin' Park* to *Doom III*, it's all here

Bazaar
Have money, will buy!

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Thousands of answers to every question you have

A Billion PCs By 2010

Research agencies IDC and Gartner say the number of PCs the world over will touch one billion by 2010. But, manufacturers must adapt the PC to local usage, battle government sanctions, and also create awareness in emerging markets.

No More CeBIT America

The CeBIT America show, slated for June 28 to June 30, 2005, has been called off. It could not raise enough revenue to justify a third year. CeBIT America would now concentrate on the enterprise segment and organise a show along the lines of Comdex.

Illustration Atul Deshmukh

Enter

Amrita Rao

The *Ishq Vishq* Girl

She has since been seen in *Main Hoon Na*, this year's biggest domestic grosser; in the Vivek Oberoi starrer *Masti*; and will feature in *Deewar* later this year.

What does technology mean to you?

Innovation. It also means interacting with my fans and keeping in touch with them real-time.

What gadgets do you own?

A Sony PDA, a Samsung DVD player and a Nokia cellphone.

Which Web sites are you regular on?

I visit a few Bollywood entertainment sites like bollywoodworld.com and planetbollywood.com, etc.

Do you store your holiday memories on a CD, say a video you shot with your family abroad?

Yes. I prefer storing on a CD because they will stay with me for a long time, and in good quality. Besides I can store more.

Do you think technology is only for geeks?

Everyone interacts with technology every day. You can even book rail and cinema tickets online. This just shows how even the smallest, simplest thing in life is made easier due to technology.

Are you updated on the latest technology trends?

I do like to keep myself updated on MP3 players, digital cameras, and the latest computer peripherals.

Aparna Krishnakumar

YOU ARE GONNA GET ZAPPED SOON

Virus In Your Handheld

The wait is over, but for the wrong reasons. A Trojan Horse program called Backdoor.Brador.A, or WinCE.Brador.a, has arrived. It infects palmtops running the Pocket PC OS. The program arrives buried in an ordinary program, and once the former is installed, it is activated. It then uses the Internet connection from the infected device to send a message to the entity that planted it. That entity then gets to retrieve or delete data from the compromised device. If the palmtop is connected to a desktop computer, the desktop would be under the attacker's control as well.

Illustration: Mahesh Benkar

However, Symantec rated the threat as level 1, the lowest on its five-point scale. The popular security firm stresses that the program's efficacy is limited merely to devices using an ARM processor and the Pocket PC OS.

Antivirus firm Kaspersky Labs said the Trojan was probably written by a Russian coder.

"We were certain that a viable malicious program for PDAs would appear soon after the first proof-of-concept viruses emerged for mobile phones and Windows Mobile," said Eugene Kaspersky, head of Anti-Virus Research at Kaspersky Labs.

In this issue (page 44), we have discussed the upcoming threats to smartphones—and this report is just the beginning, as Dr Kaspersky fears.

PORN BLOGGERS' EXCUSE

That's Not My Porn

On August 3, Wired News reported that porn blogs were manipulating Google's Page Rankings. The report said a firm called CyberQuest was responsible for the marketing. It had set up a "few dozen" cross-linked and porn-themed blogs on Google-owned Blogspot. The blogs linked to three of CyberQuest's porn sites. Many experienced bloggers feel that the purpose behind it all was to artificially raise the Page Rankings of the porn sites.

"It's the latest sleazy porn marketing scheme," said John d'Addario, editor of Gawker Media's porn-themed gossip blog, Fleshbot. "It's another example of porn folk being sort of ahead of the curve when it comes to technology and marketing."

"It's another example of porn folk being sort of ahead of the curve when it comes to technology and marketing."

The whole ploy brings back memories of early porn-marketing techniques in which porn operators used meta-tagging to outwit search engines.

Later, on August 5, CyberQuest vehemently denied the accusations, blaming the episode on "an affiliate".

CyberQuest owner Fade Saab told Wired News that until that day, he had been unaware of what was going on.

Headlines such as "Porn blogs manipulate Google" have been doing the rounds lately. It is surprising to see a flat denial—"it was done by an affiliate" is as lame an excuse as they come.

MANY MORE SUPERCOMPS

More power To NASA

National Aeronotics and Space Administration (NASA) is all set to get a massive supercomputing boost soon with Project Columbia. This project is part of the plan to get its shuttle missions back in action after the tragic crash of the Columbia in 2003 that killed seven astronauts, including India-born Kalpana Chawla. It is touted to bolster NASA's computing power ten-fold.

The new supercomputer will be one of the world's biggest Linux-based supercomputers, and will help NASA with flight missions, analyses of weather paterns, climate research, and aerospace engineering. The system will have 500 terabytes of storage, and will use the power of 10,240 Intel Itanium 2 processors!

The system will have 500 TB of storage, and will use the power of 10,240 Itanium 2 processors

Interestingly, the supercomputer will be used to model the human impact on climatic changes and global warming.

"The more computer power you have, you can do two things: you can simulate more events, have that many more 'what if scenarios' to foresee other circumstances," Richard Dracott from Intel's Enterprise Platforms Group told BBC News Online.

Climate and weather patterns critical for shuttle missions can be simulated, merged and stored graphically. They can also be modelled over a period of weeks or even months, instead of over just a few days.

HOT

Windows XP SP 2

Bundles security revisions and a new update. Important features: Windows Security Centre, auto-triggering Windows Firewall and browsing enhancements for IE.

NOT

Windows XP SP 2

Some programs just 'stop working'. By default, SP2 enables Windows Firewall. Over 200 programs have compatibility problems. Even MS Office isn't spared.

VIRUS CREATOR'S TRIAL

Script Kiddie Pleads Guilty

Jeffrey Lee Parson, the unleasher of the Blaster-B variant of the Blaster worm last August, pled guilty on August 11. Parson is a 19-year-old living in Minnesota.

Parson is not the author of the original Blaster worm, which infected one million computers last summer, according to a report in the Seattle times. What Parson did was create a variant of the worm, called Blaster-B, by modifying the original Blaster. He unleashed the worm onto the Net in early August of 2003. Blaster-B would launch a distributed DoS attack against one of Microsoft's Windows Update Web sites from infected computers.

So how was Parson caught? Blaster and its variants are worms that spread by exploiting a well-known vulnerability in Windows. Blaster-B is functionally equivalent to the original Blaster, but creates a file called 'teekids.exe' in the Windows system folder. The original Blaster created a file called 'msblast.exe.' Parson's online nickname, or handle, was 'teekid' or 't33kid.' This, and other

Security Watch

MyDoom

Also Known as W32/Mydoom.o@MM, W32/MyDoom-O, WORM_MYDOOM.M, Win32.Mydoom.O

Infection Method This worm uses its own SMTP engine to send e-mails. It searches the victim's computer as well as Altavista, Google, Lycos and Yahoo for e-mail IDs. For example, if it finds 'something@rediff.com' on your PC, it uses a search engine to procure e-mail IDs ending with rediff.com. The mail's subject, text and attachment vary and the sender is spoofed.
It also drops the Trojan Backdoor.Zincite.A, which allows unauthorised remote access to the infected computer.

Damages Degrades system performance, and may clog mail servers as well as networks. Hackers can download and execute files on the affected system.

Removal Instructions: Download the removal tool from **http://security response.symantec.com/avcenter/FxMydoom.exe**, close all programs, disconnect the PC from the network, disable system restore, and run the tool. You may need to enable Active Desktop after this.

BROUGHT TO YOU BY symantec.

One Silly Question: What is a USB port?

Universal Serial Bus. It connects any computer to 127 devices.
Avijit Majumdar, Kolkata

It's Universal something something. Oops, I forgot.
Chintan Shah, Mumbai

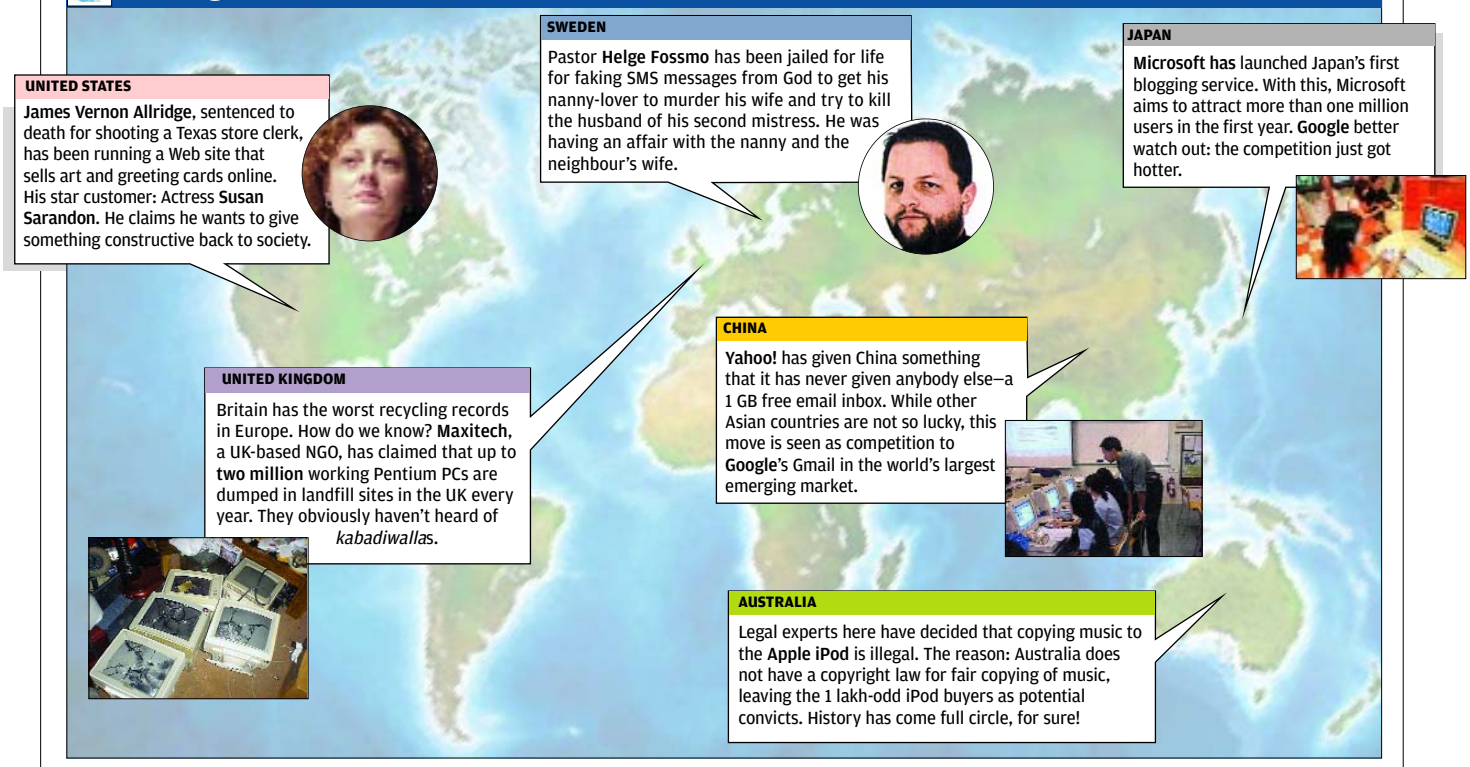
Dunno, sounds like some typical gizmo.
Nisha Dhorba, Mumbai

If you let me do a Google search, I can tell you.
Tilak Pokharel, Kathmandu

What is it? Is it something in a computer?
Siddhartha Ganguly , Nagpur

The Digital World

A Round-up of Technology News from Across the Globe



UNITED STATES

James Vernon Allridge, sentenced to death for shooting a Texas store clerk, has been running a Web site that sells art and greeting cards online. His star customer: Actress **Susan Sarandon**. He claims he wants to give something constructive back to society.

SWEDEN

Pastor **Helge Fossmo** has been jailed for life for faking SMS messages from God to get his nanny-lover to murder his wife and try to kill the husband of his second mistress. He was having an affair with the nanny and the neighbour's wife.

JAPAN

Microsoft has launched Japan's first blogging service. With this, Microsoft aims to attract more than one million users in the first year. **Google** better watch out: the competition just got hotter.

UNITED KINGDOM

Britain has the worst recycling records in Europe. How do we know? **Maxitech**, a UK-based NGO, has claimed that up to **two million** working Pentium PCs are dumped in landfill sites in the UK every year. They obviously haven't heard of *kabadiwallas*.

CHINA

Yahoo! has given China something that it has never given anybody else—a 1 GB free email inbox. While other Asian countries are not so lucky, this move is seen as competition to **Google's** Gmail in the world's largest emerging market.

AUSTRALIA

Legal experts here have decided that copying music to the **Apple iPod** is illegal. The reason: Australia does not have a copyright law for fair copying of music, leaving the 1 lakh-odd iPod buyers as potential convicts. History has come full circle, for sure!

Three Incredibly Useful Sites

Academic and Career Guidance

educationinfoindia

www.educationinfoindia.com

This is one Web site you just have to hit. Right from aptitude tests to model test papers to loan information, this Web site has it all. **Educationinfoindia.com** also has counsellors providing career advice via chat sessions between 11 am to 1 pm IST.

Youngbuzz

www.Youngbuzz.com

Neatly classified data helps you make your career choice. Its Careers section lists every detail about computer engineering, photography, biochemistry, microbiology, etc. Those interested in pursuing careers abroad may hop to its Study Abroad section that answers such queries.

indiaEducation

www.indiaEducation.info

Career counselling, self evaluation, career options, advice for students just clearing their 12th std. exams and a whole bundle of useful sections are found in one major box on the homepage. Information about distance education, vocational education and correspondence courses are smartly packed under the Other Avenues section.

clues, gave Parson away. He was arrested on August 29, last year.

Parson, in court, admitted "intentionally causing damage to a protected computer" before a federal judge in Seattle, as part of a plea bargaining arrangement. He faces between 18 and 37 months in jail, instead of a maximum of ten years. He may also be ordered to pay a fine, which could run into millions of dollars, according to Assistant US Attorney Annette Hayes.

Why the reduced sentence? Parson's Blaster-B hit nothing like a million computers—just about 48,000. In his plea agreement, Parson admitted using Blaster-B to commandeer 50 computers, which he then used to launch a broader attack on the 48,000 computers, a Reuters said.

Parson is what is known in hacker circles as a script kiddie. According to **Webopedia.com**, a script kiddie is "a person, normally someone who is not technologically sophisticated, who randomly seeks out a specific weakness over the Internet in order to gain root access to a system without really understanding what it is s/he is exploiting because the weakness was discovered by someone else."

TURN THAT COMP OFF!

Off Or On?

You have probably often wondered whether it is better to leave your computer on all the time, or to shut it down once you are done. If you leave your PC on all the time, how much energy are you actually wasting?

Researchers at the University of Waterloo in Canada tried to answer this big question with some interesting tests. They found that PCs with Pentium 4 processors running at 1.7 gigahertz drew 110 watts while booting up, and 60 watts when they were on and idle. A 17-inch CRT monitor added an additional

Photograph Jiten Gandhi

Beat That!

Digit Caption
Flexible working hours, they said. First class travel, arrangements, they said...

Every month, *Digit* will carry a funny caption for a photo. Come up with something funnier, and beat them at their own game!

Last Month's Winner!
Sylvester D'Souza (Goa)
Side effect of a Microsoft OS on a PDA—BSOD (Bald Screen Of Death)

Send your captions to **beatthat@thinkdigit.com** and win an **Optical Mouse** from **Logitech**

75 Watts. Newer, flat-screen LCD monitors use about half as much power.

These numbers say that the PC isn't really an energy waster. But add up all the hours of standby time, and now multiply that by the number of PCs in the world. Doesn't it total up to quite a bit?

Dell spokesman Lionel Menchaca said, "There used to be a bigger difference in terms of wear and tear when you power up your PC, but it's not an issue anymore."

It is best to go green and turn your computer off if you are not going to be using it for a long time.

ROAM BETWEEN WI-FI AND 3G

Mobile, WiFi Hybrid Phones Soon

Cell phone vendors are planning the release of WiFi phones ahead of schedule. But, it is feared to unleash new threats and opportunities to wireless carriers as well as traditional phone service providers.

A hybrid phone gives you the luxury to connect using a local wireless Internet access point, and seamlessly switch over to a mobile network. Motorola, in cooperation with Proxim and Avaya, has developed such a hybrid phone. The result is greater flexibility in mobile communications—as well as potential slash in costs.

The phones will combine the three technologies—WiFi wireless networks, VoIP and wireless broadband.

Early versions of WiFi phones failed miserably because of the drain on the batteries, which had to support two chipsets, and also because users were forced to manually switch between networks. Motorola solves the automatic transfer problem. Carriers are promising fabulous scenarios by December this year. A user could start a call on an office WiFi network, switch to a cell phone network as he travels outside the office building, then conclude the call on a home wireless network—all without any interruption.

MICRO NOW MACRO

Toshiba Gets To 60 GB

Toshiba has recently added 30 GB and 60 GB models to its 1.8-inch hard drive line-up, both offering the highest areal density of any hard drive of that format.

The two models feature one and two 30 GB platters, respectively. Both offer an areal density of 93.5 GB per platter. Both have 2 MB of buffer memory and offer a 15 ms average seek time. The drives can each cope with knocks and bumps of up to 500 Gs for 1ms while running, or 1,500 Gs for 1 ms when the drive heads are parked. Toshiba said that the

Best Buys

Electronic Goodies
Fabmall.com's Discount Store has a remarkable collection of electronic goods. Save Rs 6,150 on the Che-Ez Boxx Digicam, originally priced at Rs 9,995. Or grab a Rs 4,999 portable MP3-VCD player at half the price. Maybe you could even use the 79 per cent discount on the cool Mouse Phone to buy it for a meagre Rs 425. Walkmans, digital diaries, wireless intercom sets—you name it, you got it. All at bumper discounts.

http://www.fabmall.com

Cheap Cell Phones
Sify.com has some really affordable deals this time around for cell phone freaks. You get to choose from Nokia, Samsung, Motorola, Siemens, and Sony Ericsson. Go get that Rs 18,499 Nokia 5100 for just Rs 11,499. It's Rs 3,600 off on the sleek Nokia 6800, originally priced at Rs 12,599. The Rs 16,290 Siemens S55, up for grabs for just Rs 11,790, is just one of many other great deals in here.

http://sify.com/shopping/

A Selection Of Best Offers From Popular E-commerce Sites

two drives will ship in the fourth quarter of 2004. This puts a timeframe on the 60 GB iPod that has been anticipated ever since a Toshiba staffer admitted that the company had a 60 GB model in the works, and that Apple was a big-time customer.

Pricing, however, is yet to be disclosed.

OPT-IN REQUIRED

FCC Bans Cell Phone Spam

The US Federal Communications Commission has finally decided to crack the whip. The FCC recently voted to outlaw all unauthorised text messages to mobiles and pagers without permission from the owner. However, it remains to be seen whether the law is going to actually work.

The US Congress sought strict rules for cell phone spam from the FCC last year, while passing the Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) Act of 2003 last year. CAN-SPAM allows spammers to send unsolicited commercial e-mail to e-mail accounts until the recipient opts out of receiving e-mail from that sender. But it hasn't been too successful in tackling this nuisance.

Opt-out or opt-in, there is little doubt that spammers will dodge the new law

The FCC's action this time requires an opt-in. Commercial entities sending text messages to mobile phones and pagers must get customers' permission before sending them.

Opt-out or opt-in, there is little doubt that spammers will dodge the new law, and come up with newer ways to spam us. If our fears are right, cell phone and smartphone attacks will shoot up in the years to come.

GOING UPMARKET

Indian PC Market Shoots Up

According to Gartner, the Indian PC market grew 34.6 per cent, with more than 7.6 lakh units being shipped in the second quarter of 2004.

Vinod Nair, Analyst-Computing systems, Gartner India, said, "Healthy economic conditions coupled with increase in run-rate business resulted in a good second quarter this year. The election quarter and expectation of further reduction in prices due to the financial budget caused a marginal halt in desktop purchases during the last two weeks in June... but the upward trend continued."

Desktop sales grew 32 per cent; notebooks grew 123 per cent, constituting five per cent of the total shipments this quarter.

HP was the market leader with a 14.9 per cent share. HCL follows at 11.9 per cent. The growth has come at the expense of assembled PCs.

This indicates four trends. First, the increased market share of branded players means there is little to choose between branded and assembled machines. Also, branded players now offer customisation in their PC solutions, and this is something the Indian market sorely needs.

Third, and perhaps most important, companies such as HP and HCL are moving on to services and value-addition.

Finally, with most users having desktop PCs for quite a few years, they are steadily moving towards laptops or high-end machines.

GENDER BENDERS

Aditya Govindarajan vs. Jayshree Haran

Find The Sketcher Tool On The Zire 71 PDA

20 sec.

Aditya, an engineering student, is brimming with confidence, itching to lay his hands on the PDA. No sooner did he grab the gadget that it briskly turns on. He smartly runs the stylus on the screen. In no time, he is looking up the drop-down menu of utilities. Eureka!—"There's the Sketcher," he gasps, beaming. Little time is lost in scurrying back to the main menu again and switching the PDA off. Boy, that was really fast!

1 min 40 sec.

There's a slight worried look on Jayshree's face when she takes hold of the PDA. The engineering student takes a few moments before launching the hunt. Oops, a few unsure moves. More follow. After groping for the utilities for a while more, she finally tracks it down. Ah! So, here's the elusive sketcher. But that's just the job half done. She's gotta escape. She rummages all over the screen with the stylus, looking for the main menu, overlooking it several times, till she finally manages to make it.

Trust Busters

In order to write the 'Old Way, Tech Way' article (Page 77), we had to file income tax returns online (Tech Way). Everyone suggested **FileMyReturns.com**, so we logged on.

They had three plans on offer: The Rs 99 plan, where you do all your calculations online, download the filled forms, and submit them yourself. The second plan costs Rs 200, and the only difference is that they send a representative to pick up the forms from your house and submit them. The third plan costs Rs 250, and only needs you to contact them—their representative comes to you and fills and submits everything.

We applied for all three plans, filled out the contact information, and then waited... and waited... Three days later we e-mailed their helpdesk, nothing... As of going to print, over 10 days after contacting them, and over 15 days after registering on the site, there's still no reply.

WWAN CHIPS

Intel For 3G, WiFi Chip

Just as the news comes that companies like Motorola will ship WiFi mobile phones, Intel is gearing up to release a wireless chip that is capable of talking to both WiFi and 3G phone networks. Intel said it will ship a joint 802.11a/g product soon, though it is not clear where this chip is to find use. The chip has been dubbed 'WWAN,' for 'Wireless Wide Area Network', and Intel might pitch it towards handset makers.

An Intel spokesman said that the picture may become clearer in two months, hinting at an upcoming announcement surrounding, in general, the ability to roam seamlessly between WiFi hotspots and mobile phone networks. The announcement is likely to be made at the Intel Developer Forum, which opens on September 7.

Products that are already available, which could make use of the new chip, include mobile data cards for notebooks, which incorporate 3G or GSM/GPRS radios along with WiFi capabilities. Software comes into the picture, too—several firms are working on software that will allow the user to move seamlessly from one type of network to another.

Intel is working on that part, too.

TECH FOCUS ON PEOPLE, BENQ TELLS DIGIT

Here Comes The Chic

Technology is trying hard to be sexy. From Intel's Centrino to the Apple iPod, small, chic, a study in white, technology now attempts to connect with its audience. BenQ calls it engagement versus intrusion—generate emotional value around a product to engage the buyer.

At Taipei, where *Digit* visited BenQ's home ground, its products may be little known. But it is investing a great deal in building its brand. From LCDs to keyboards. AUO is the third largest manufacturer of LCD displays and BenQ has a meaty 14 per cent stake in the company. This gives them an edge in an area which is both capital and technology intensive. Indeed,

LCD TVs, monitors and large-screen smartphones such as the P30 and the P50 are harbingers of the OLED products that will soon follow (see "W5H" alongside).

Jerry Wang, Executive Vice-President and Chief Marketing Officer, isn't too keen though about Tablet PCs. "Embracing a new product category is too dangerous," he told *Digit*.

Slim 17-inch LCD monitors, widescreen Joybooks, Flash-based Joybee MP3 players, digital cameras with touch sensitive LCD and friendly UI, projectors, LCD TVs, scanners, keyboards, funky optical media—what's common to all this? Fashion and lifestyle, not technology. The colours, the organic shapes, all speak the same mantra. There's only one focus all along—people. It explains why BenQ has more software engineers than for hardware. The interface is a more important issue than most others.

Ease of use is paramount. The iPod, the Treo 600, the

TiVO stand out for user-friendliness. Peter Chen, Vice President and General Manger, Digital Media, said that Windows Longhorn was "getting even more complicated."

Chen informed that every home in Taiwan has an Ethernet connection, and that the digital home is not all that far-fetched. He said: "We are not talking about connecting fridges and microwaves. We are talking about connecting storage devices, something more real." Many IT companies are going for convergence today. But Chen's words will keep ringing for long—"Who can make it first and easier to use is the consideration. We hope to be the first." First and sexy, don't forget the sexy. ⊠

(Senior Writer Ahmed Shaikh visited Benq's headquarters on invitation. This report is meant only for information. Digit *does not endorse Benq's products listed in the story)*

WHATWHENWHYWHEREWHOHOW

W5H

WHATWHENWHYWHEREWHOHOW

Organic Light Emitting Diode

What is an OLED?

An Organic Light Emitting Diode is an organic molecule (carbon, as opposed to silicon-based) that emits light when teased with electricity. This simple concept requires one to find the right molecule to get the right colour, and you are all set for dazzling displays. Displays made with OLEDs save both on thickness and power.

Who invented OLEDs?

Kodak researcher Ching Tang, a Hong Kong-born chemist working in Rochester, New York, noticed a blue glow emanating from one of the organic solar cells he was working on.

How did he develop OLEDs?

Tang investigated the above phenomenon and published a paper on the results in 1987, concluding that organic materials were efficient converters of electricity, were great to show moving images and needed a low voltage to glow.

Why do we need OLED displays?

OLEDs are thin. They can be sprayed or printed on to very thin substrates; they neither need high-voltages to be driven nor additional power to backlight them. They also have a higher contrast and look equally bright from all angles.

Where can I find OLED displays?

Right now, as screens on small devices. Typically, an external screen of a cell phone is likely to be OLED-based, if at all.

When can I find OLED displays everywhere?

2005 is going to be the magical year for OLEDs. Expect them to proliferate from small devices such as cameras, cell phones to laptops and monitors, etc.

38 Games Manan Plays

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44 What Threats Lie Ahead

Main Story

Playing God

The Indian entertainment industry looks good these days, and it's all thanks to some very special effects...

Meera Vankipuram

When we heard that Salman Khan battles six Akshay Kumars in David Dhawan's *Mujhse Shaadi Karogi* for the hand of Priyanka Chopra, we thought of many doubles with bad wigs and mismatching body sizes. However, we were in for a pleasant surprise when we saw the movie—there actually were six Akshay Kumars! Special effects (SFX) in Bollywood movies are hitting new heights.

Directors are now looking for that something extra to make their movies a tad more special—just a good soundtrack doesn't cut it anymore in India. It's not just Bollywood either: whether it's TV serials, sports programmes, music videos, or animation films, we expect so much more in terms of visual appeal. If the Wachowski brothers can do it for *The Matrix Trilogy*, why can't we? Dhawan's flick has nowhere close to the amazing SFX that thrilled us in the *Matrix*, but it's a start! Other movies such as *Rudraksh*—where the SFX is more comic relief than awe-inspiring—could have used some professional SFX help.

Indian cinema and production houses are beginning to adopt advanced SFX techniques such as Motion Capture and Motion Control—a combination of which made Neo appear super-human in the Matrix.

John Gaeta, visual effects supervisor of *The Matrix Trilogy*, used a technique called 'Bullet Time'—inspired by the popular Japanese animation style 'animé'. He also coined the term 'Virtual Cinematography'—the process of translating the Bullet Time technique on to the big screen. Virtual Cinematography helped depict action-packed, surreal scenes in slow-motion, as seen by a camera moving at regular speed. The result was super-human feats, accomplished at a level of realism never seen before. Motion Capture (MoCap) helped create these virtual super-humans.

Inside MoCap

MoCap is a process that uses subjects in special suits that contain several 'data points'. Data (an action sequence or movement) is transmitted to the computers using wired or wireless technology, and cameras. Textures can be added to create realistic animated imagery.

The subject, whose motion is cap-

Imaging Parag Joshi

tured, usually wears a body suit with reflective markers taped or glued to specific points all over his or her body. Several cameras film the subject as he or she performs specific motions—for example, the multiple Mr Smiths in *The Matrix Revolutions* were created by mapping actor Hugo Weaving's face and then transposing it on to the CG replicas.

The cameras report the exact position of each reflective marker, hundreds of times a second, to a computer. A magnetic system can also be used in place of the optical system—a sensor detects a nearby magnetic field and transmits data on its 3D position to the computer. Camera motions are also fed into the computer. MoCap software then processes this data to determine the exact movement of the subject. The animation data exported by the computer, can be manipulated using software such as Maya or 3D Studio Max.

MoCap in India

The word 'animation', a decade ago, would invoke thoughts of cartoon characters—remember Bugs Bunny? Today, realism is key, and movies use animation techniques such as MoCap to achieve this realism in tales of fantasy. MoCap is also used in computer games and television shows.

In India, very few animation studios have invested in MoCap systems, mainly due to the absurdly high costs of the equipment. Pentamedia (Chennai) and FX Factory (Mumbai) are two studios that have spent the big bucks on this equipment.

Chennai-based Pentamedia have one of the largest Motion Capture facilities in the world. The company has produced full-length animation films (including *Sinbad—Beyond The Veil Of Mists*; *Pandavas—The Five Warriors*; *Alibaba and Son of Aladdin*), and also specialises in SFX for Tamil (Shankar's *Jeans*) and other regional language films.

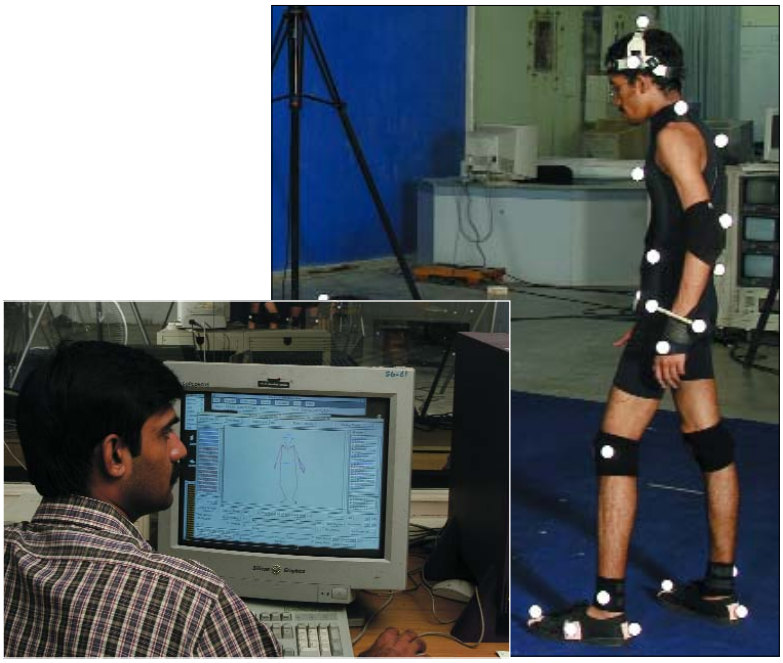
Pentamedia's setup includes high-speed Falcon cameras, capable of running between speeds of 60 to 240 frames per second (fps). The cameras read data from special scotch-brite type markers that are fitted onto a subject's body. The cameras can capture data from anywhere within the 20 x 20 ft capture area, and software such as 3D Studio Max, Maya and Soft Image can use this data to create the required animation.

Riyaz Babu, who manages the 80'x 40'x 80' Mo Cap facility at Pentamedia says, "Our Optical Mo Cap system enables data capture from multiple characters, animals, stunt and sports sequences as well."

FX Factory's 50-member team of animators, art directors, storyboard artists, sculptors and visual effects supervisors is led by special-effects expert Ramesh Meer. They use full-body motion capture systems—Gypsy 2.5 and Gypsy 3.0, manufactured by Saicom Studio Systems. Gypsy is a cost-effective MoCap system, and has a large wireless capture range—up to half a mile (800 m) outdoors and up to 200 yards (180 m) indoors. This system does not require cameras, and records motion directly from the body. It is also portable, and works with any PC.

Fantasyland

The character 'Gollum', in Peter Jackson's trilogy *The Lord of the Rings* (LOTR), was filmed using MoCap. Oscar-winning director of photography Andrew Lesnie and his team first captured actor Andy Serkis' performance on the set. Animators then used his movements and facial expressions, captured with MoCap cameras, and applied them to the animated Gollum. Motion capture photography, CG imagery and digital sound mixing combined to produce what you saw in *LOTR*.



MoCap equipment helps animators study movement precisely

MoCap starred in George Lucas' *Star Wars - Episode II Attack of the Clones*, especially in the form of Jar Jar Binks—a completely CG character, played in costume by Ahmed Best. Jar Jar, incidentally, was the first CG character in Hollywood filmdom ever to interact realistically with live actors.

MoCap has been used to create mind-blowing SFX in films like *Titanic* (1997), *Gladiator* (2000) and, of course, *The Matrix* series. Even full-length animation films such as Columbia Pictures' *Final Fantasy: The Spirit Within* are believed to have used MoCap data.

Hotshot director John Woo is currently exploring the possibility of translating Nintendo's best-selling video game franchise '*Metroid*' onto the big screen—large portions of which will involve MoCap. Robert Zemeckis' *The Polar Express* (due for release in 2005) plans to use MoCap to create an animated character 'played' by Tom Hanks.

MoCap is also used to create games such as Electronic Arts' *FIFA* and *Cricket* series, games based on the *LOTR* trilogy, and *James Bond 007: Everything or Nothing*, in which actor Pierce Brosnan's expressions were digitally mapped. *James Bond: 007 Nightfire*, a cinematic simulation of the original Bond game used MoCap for half the project—the rest was animated by hand.

Bangalore-based Dhruva Interactive, a game developer, was the first Indian company to be signed on by a major global publisher to develop an international title—*Mission: Impossible PC*, in 1999. Says CEO Rajesh Rao, "We used MoCap stu-

Origins

MoCap probably takes its origin from rotoscoping, a process that involves creating a series of drawings by projecting individual frames of an actor's filmed performance onto sheets of paper. These drawings are then filmed to create an animated sequence, which can be as lifelike as possible, in appearance and movement. Disney Studios used this method to create the human characters in *Snow White*—the animation was traced out over film footage of live actors playing out the scenes.

dios in the UK and US to develop this game, because the required pantomimes were not available in India. Besides, MoCap equipment is very expensive. We would rather hire studios for a few days, as even the voice recording for international games has to be done abroad."

Howzzat!

Sri Lankan spinner Muttiah Muralitharan's controversial '*doosra*'—the leg spin delivery bowled with an off-spin action—was subjected to a series of tests at the University of Western Australia's human movement department, using twelve high-speed MoCap cameras shooting at a speed of 250 fps.

A team of bio mechanists studied this *doosra* under controlled conditions. Reflective markers were placed on Muralitharan's body, which were then captured by the cameras and computers. The actual analysis was computer-generated.

Testing Murali's 'doosra'

In 2003, the International Cricket Council (ICC) adopted an analytical software tool called e-Cricket Pro, produced by Bangalore-based Phoenix Global Solutions India (PGSI) Private Limited to train umpires for international games. This software was also used by the Indian cricket team for game training and analysis.

Many Indian players, including former Test cricketer Javagal Srinath and the inimitable Sachin Tendulkar—who studies his game on a laptop (one is provided to each member of the cricket team)—are believed to have benefited from motion analysis software. Motion analysis also aids injury prevention, and opportunities to study the effects of orthopaedic or athletic devices.

Apart from the Phoenix software, the Indian cricket team also uses a video-based motion analysis system called Silicon Coach, developed by Joe Morrison, a bio-mechanist from New Zealand. The system helps analyse players' techniques through four basic processes—error detection, analysing why the problem occurs, planning a solution to the problem, and finally, communicating with the player to implement the suggestions.

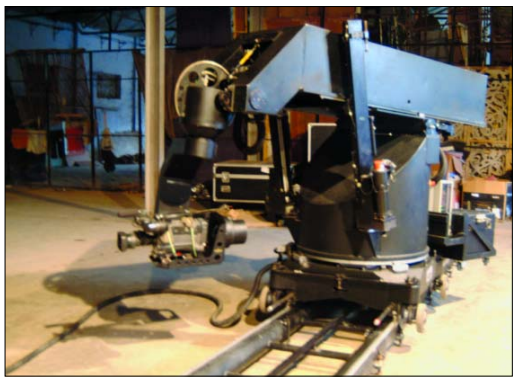
"Like MoCap software, Flair (used by Motion Control equipment) is compatible with most animation software such as Maya and 3D Studio Max,"

Sandeep Sethi
Manager- Motion Control, Prime Focus Ltd

This software is marketed in India by S Ramakrishnan, a former First Division player, IBM certified computer professional and head of Meru Sports Technology Services, Chennai, which offers video-based motion analysis for the Indian cricket team. "Over time, small changes creep into a player's techniques without his or her knowledge. Video analysis helps you to identify these problems at an early stage, and possibly correct them," he says.

Silicon Coach is currently being used by the BCCI, National Cricket Academy, MRF Pace Foundation, Tamil Nadu Cricket Association, Mumbai Cricket Association, Bengal Cricket Association, TNTA and the Golf Federation. "We have also worked with world class coaches such as Dennis Lille, Bobby Simpson, Bom Woolmer, Peter Philport, Graham Gooch, Bruce Reid, John Wright and bio-mechanists from India and abroad, including Bruce Elliot and Mark Portus of the ICC," adds Ramakrishnan.

The 'Time Warp' feature in Silicon Coach provides instant feedback to players. A bowler can check and correct his action immediately after a delivery. "Though Silicon Coach is ideal for self-analysis, the presence of a coach will definitely help the player," Ramakrishnan says.



Motion control cameras can achieve super-human shots

TA Shekhar of the MRF Pace Foundation, one of the first institutions that invested in the software, says, "Almost all the boys who have trained at the Pace foundation have used Silicon Coach to analyse their style and performance. Bowlers like Irfan Pathan, Zaheer Khan and all the others too."

Indian coach John Wright is also believed to be doing extensive research on opposition teams studying data compiled by computer analysts such as Ramakrishnan.

The Motion Control Maya

Another emerging technology called Motion Control also helps achieve an effect similar to MoCap. Motion Control systems use computers to control camera movements. Replication (many clones of the same actor), for example, is made possible thanks to Motion Control. An actor is filmed in one position using motion controlled cameras, and then again in a different position. This creates a series of shots where the background is identical, as are the movements the camera makes. These shots are then collated on a computer to yield multiple copies of the same actor in the same scene.

A year ago, Mumbai-based Prime Focus Ltd went where few Bollywood enterprises would fear to tread: studio heads Naresh and Namit Malhotra decided to invest in Motion Control equipment that cost them nearly Rs 3 crore.

Hardware Requirements

Motion capture involves mapping 'data points' (usually at the joints) of the subject. The process involves the use of electromagnetic fields and magnetic sensors, or by using special markers that reflect the infra-red light that comes from illuminators, which is then captured by MoCap cameras.

The captured data is then analysed using specialised software (such as Kaydara MOCAP, for example), which renders the performer's movements on 3D characters in real-time. The data can then be edited and manipulated using animation tools, or advanced mapping technologies by applying motion data to characters.

MoCap equipment is very expensive—the digital cameras, lights, and the software required are extremely high-end, and very few studios invest in the equipment. The risk of obsolescence, too, runs high with any such technology.

The Vicon VCam MoCap camera

Gollum was brought to life thanks to MoCap and Andy Serkis

According to Rajnish Sah, Manager Operations, "The rig is the only one of its kind in the country." It has added zing to several ad-films, Hindi feature films, television serials, documentaries and music videos. You can see the Motion Control effect in the Titan Raga watch advertisement with multiple Gul Panags, and also in the Palmolive Aroma talcum powder, and the LML Freedom bike commercials. "The French company that had commissioned the Palmolive advertisement were so impressed by the Indian version that they flew the model down to India, and the international version was also shot here," says Sah. *(Find the actual clips on the Digit DVD.)*

Prime Focus is also responsible for the *Mujse Shaadi Karoge* scene. Motion Control was used there to replicate the six Akshay Kumars. *(See the movie clip on the Digit DVD.)*

Prime Focus has a seven-member team, led by Manager Sandeep Sethi, to run the Motion Control rig. The equipment is powered by 'Flair'—a software that helps the operator build complex moves and coordinate all the axes of the Motion Control system. "Like MoCap software, Flair is compatible with most animation software such as Maya and 3D Studio Max," says Sethi.

The Motion Control equipment can track, rotate, lift, pan, tilt, roll, zoom, etc., when shooting a scene. Its geometry allows it to perform these moves from ground level to a maximum of 4.1 metres (13.5 feet) with minimal image jerkiness. The rig can repeat a complex series of such moves with the flick of a button—something no human cameraman could ever achieve. It is also used to replicate crowds, make objects appear and disappear (the Hindi movie *Gayab* was filmed using Motion Control), and juggle background imagery.

Motion Control has been employed in the making of films such as *Harry Potter and the Prisoner of Azkaban*, *Alexander*, *The Matrix (Reloaded and Revolutions)*, *James Bond: Die Another Day*, *Stuart Little 2, Terminator 3,* and *Black Hawk Down*.

Techniques like Motion Capture and Motion Control represent the acme of synergy between technology and human creativity. MoCap makes it possible to create fluid, life-like character animation, in a faster, easier and more realistic manner than traditional animation. Motion Control helps capture near-impossible camera angles to add a dash of the unreal to cinematic action.

Whereas MoCap technology in its current avatar can record only the movement of a few key points on the actor's body (where the reflective markers are placed), in the not-so-distant future, MoCap sessions might be able to capture the complete frame of a person, from several angles. Every inch of the actor's body can be mapped, thus providing animators MoCap data with higher resolution of detail.

However, all the advanced equipment in the world will not create a *Matrix*, or a *LoTR*—that requires the ability to put such equipment to good use, and of course, some out-of-the-box thinking—Wachowski *ishtyle*! ☒

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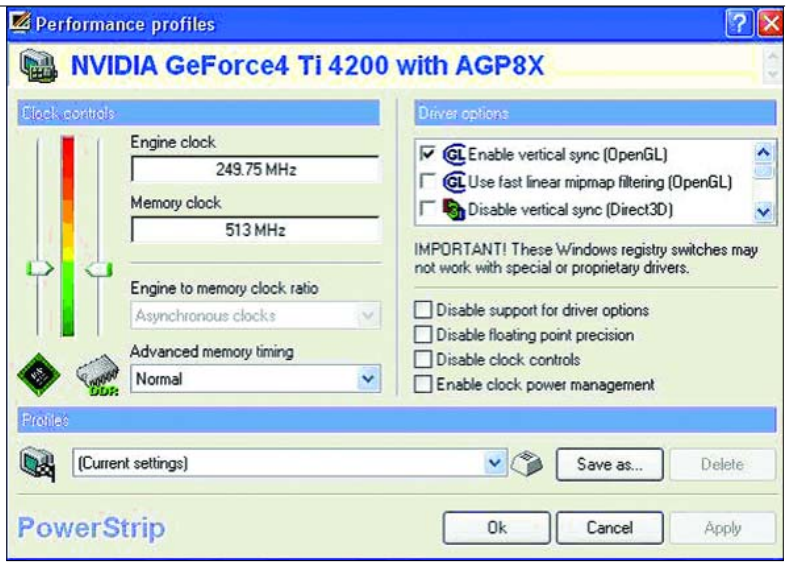
1/2 Pg H AD

Microsoft Hardware

Take a Crack

Overclock Your Graphics Card—Without A Crash!

Every month, Digit will pose a question that will set you thinking. Digit challenges the geek in you to take a crack at the problem. If you indeed crack it, send in your answers to Digit with your **full name, address** and **contact details** to **takeacrack@thinkdigit.com**. Digit's Test Centre will select the correct answers. In case of multiple correct entries, the winner will be decided by a draw of lots.



Last Month's Challenge Was:

Can you overclock your graphics card safely without causing a crash? The winner of the Microsoft keyboard and mouse is **Jayesh C. Limaye.** Congratulations, Jayesh! His solution is published below...

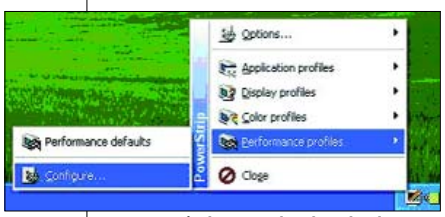
Solution

Before you proceed, remember that overclocking your video card nullifies its warranty.

To overclock your video card, use EnTech Taiwan's Powerstrip (**http://www.entechtaiwan.com/ftp/pstrip.exe**) and test whether the speed is safe using Artifact Tester (**http://www.3dcht4u.de/3dc/kfd53t5fes8z/artifact-tester.zip**).

First, ensure that no programs are running in the background. Start PowerStrip, click on its system tray icon and go to **Performance profiles** > **Configure**. The 'Performance profiles' dialogue has two sliders: one on the left to adjust the clock speed of the GPU and the other to adjust that of the video memory.

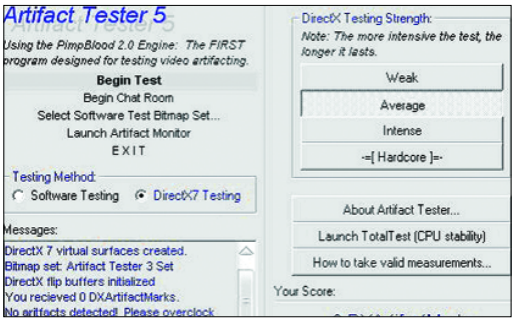
Move the sliders up to overclock. Avoid taking long strides; increase the clock speed by 4 MHz at a time and click OK or Apply. Initially, increase both the video chip and memory clock speed in this manner. You can overclock most video cards to achieve speeds that are around 10 per cent above their default specifications.



Powerstrip lets you load and select performance profiles

A video card overclocked above its safety limits shows artifacts—random dots and lines on the monitor. Unpack the artifact-tester.zip file to a folder and run ArtifactTester5.exe from that folder.

Use PowerStrip to overclock your video card by 4 MHz. Now, click on 'Begin Test' in Artifact Tester. The bottom right of the window indicates if any artifacts were detected, when the test completes. For a start, select 'Average' under 'DirectX Testing Strength.' You may also want to use software testing methods to be completely sure that artifacts are not produced. Increase the clock speed if it does not detect artifacts. If it detects some, then lower the clock speed by 1 or 2 MHz and test again. Note the final stable clock speeds. This is the 'absolute maximum clock speed' (AMCS) that your video card can safely reach.



Artifact Tester diagnoses whether the performance boost leads to artifacts

If your system freezes, return to the previous clock speed value and take that value as the AMCS.

You may also launch the Artifact Monitor by clicking on 'Launch Artifact Monitor', located at the upper left of the monitoring application. Keep this window open as you go about detecting artifacts while overclocking the video card.

To be on the safe side, lower clock speeds by around 4 MHz below the AMCS since the video card tends to get heated when playing 3D games and may produce artifacts during game play or worse, get fried. Overclock the video card above the AMCS only if you have a PC cabinet with proper ventilation and use a cooling solution for your video card such as a better heat sink/ fan combination.

Additionally, ATi card owners can use the ATi Tool (**http://atitool.ocfaq.com/**), whereas nVidia card owners can employ Riva Tuner (**http://www.guru3d.com/rivatuner**) and NV Hardpage (**http://www.guru3d.com/nvhardpage**). Use these only if you are adept at overclocking.

This Month's Challenge

Insert an item in the menu that opens as you right-click on a Web page in Internet Explorer

WIN!

Sponsored by Microsoft Hardware

Price **Rs 3,648**

Rules and Regulations

- Readers are requested to send in their answers by the 15th of the month of publication.
- Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.
- Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.
- Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are solving the problem.

SuSE Professional 9.1

Ahmed Shaikh

Circa 1994. I was weaned on Slackware, moved on to Red Hat, and flirted briefly with Mandrake. Along the way, I had a GNU/Linux epiphany: call me when you have better font-support, when the X server does not hang my system or when an application stops the rude memory-dump-to-my-desktop-and-exit game. The call came in 2004. ■

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Graphic Atul Deshmukh

Day 1

5 CDs of SuSE Professional 9.1 dare me. I boot into a pretty blue and white installation screen—a long way from Slackware's textual installation.

Excellent layout here, good use of hyperlinks, well-presented relevant information—everything was logically placed.

I made changes, mostly because I could... showed off my 133t skills to a younger brother. Reiser FS, five partitions and a 512 MB swap, all set.

Day 2

Things change all the more... Boots into X by default. I don't like the graphical bootup, seems most unLinux-like.

SuSE took me to KDE: decent fonts all around, which, given its history, surprised me. I have heard a lot of negatives about the KDE menu—its busy layout mostly—didn't bother me. KDE wasn't aware of my monitor though, which is ridiculous since its installation detected it fine.

Oh well, the hunt for the KDE version of the Control Panel begins...

Day 3

Well hidden, in plain sight. The monitor setup is a ninja waiting in the shadows; you won't see it until it's breathing down your neck. Right-clicking on the desktop just lets you change wallpapers. The default desktop needs serious makeup; time to find out just how flexible KDE is in terms of looks.

Day 4

Very flexible. I love it... Settled for a pseudo-BeOS look, although am certain there is a better one out there. I must communicate with the world... But dude, where's my network? Some trials and errors later, I have Internet access.

Day 5

*Opera on KDE, feels like home already. Oh, I almost forgot: KDE supports system-wide mouse gestures _grins_*

Day 12

Grrr, plugins! Where are my plugins?

Day 17

Multimedia on Linux? Hmm, worth a try, at least I will get a laugh or two out of it. Foobar 2000 got the closest to my Quintessential (QCD) Player experience on Windows. I like Foobar, but QCD (not for Linux, alas) is still the best around in terms of ease-of-use. I am looking at you, Winamp.

Day 25

Let's try getting some work done with KDE! Kidding, just kidding, lower your flamethrowers. OpenOffice.org actually boots slower on KDE than on Windows. KOffice is OK, but it does not offer that MS Office feel. Since I am migrating, OOo it will be. It works. Yes, it can behave a lot better as per cross-compatibility with an MS Office document...

Day 28

I did try Gnome—the one with the ridiculously small fonts—for a while. I have neither the time nor the patience to do the font tango with Tux. Gnome, I love you mate, but you will have to wait. By the way, where is my Ximian desktop? Nautilus rocks, spatial-browsing and all.

Day 30

30 days just aren't enough. SuSE surprises me equally with its brilliance and stupidity. I am intrigued enough to give this relationship more time.

L Athens Display

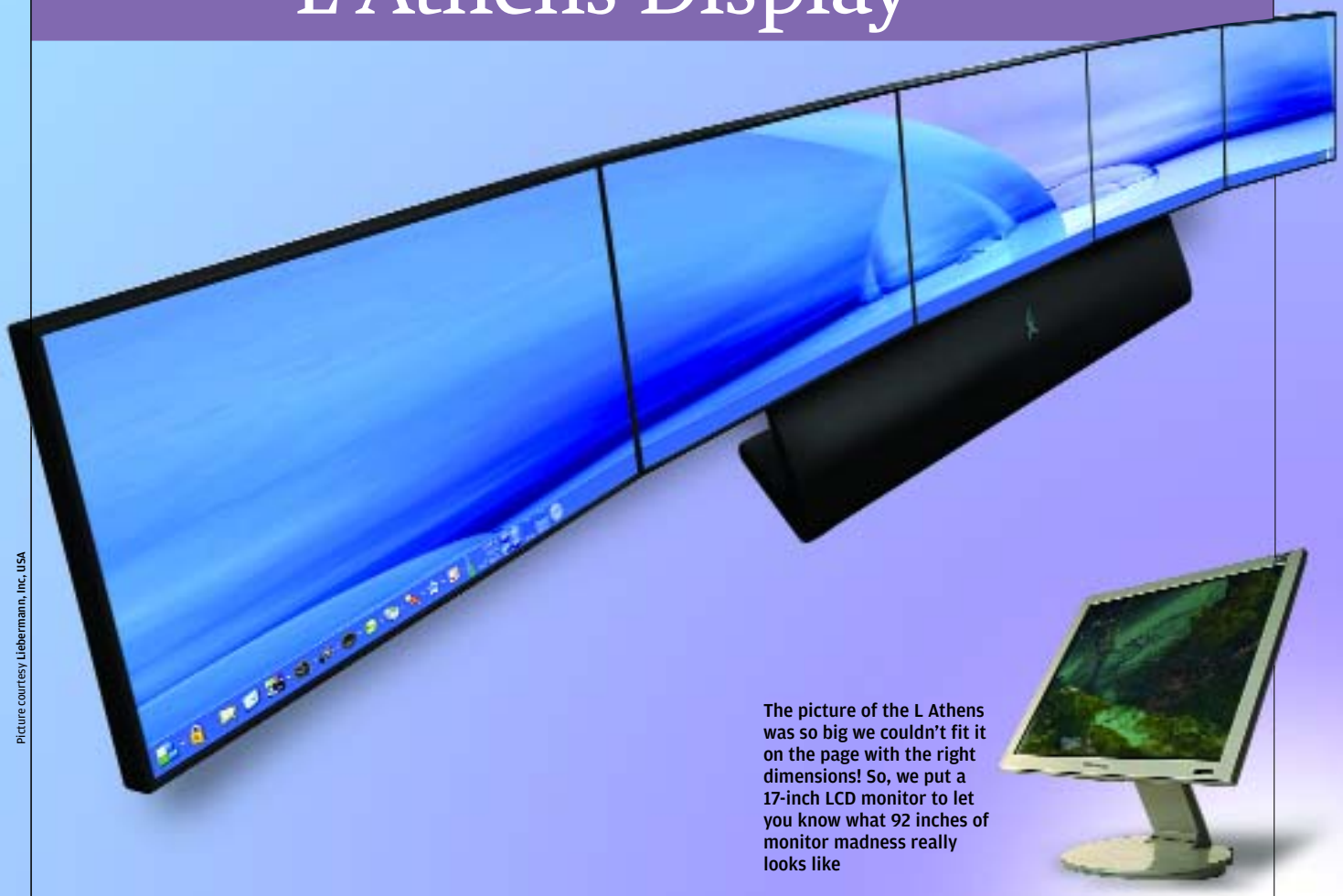
The Athens Olympics was one of the world's biggest sporting events. The *L* Athens Display is one of the world's biggest computer displays ever. At 92 inches and resolution support up to 6,400 x 1,200 pixels, you get to work on them only with professional quad-head display adapters.

Why would you want this? One, it will make you the talk of the town, not just the neighbourhood. Two—and more importantly—you can work on multiple applications at the same time without taking an appointment with the ophthalmologist, thanks to its double anti-glare hardcoat. It can interface with any platform—PC, Mac, HP, SGI and Sun.

Its feet are detachable, making the display wall-mountable. The *L*-Athens display can be used for creative, medical, military, engineering modelling, high-end audio-video editing, and TV broadcast applications.

At 48 kg, it is not lightweight by any standards. You need a heavy wallet, too. In American money, it costs $20,000. In Indian money, that is around Rs 10 lakh, not counting the taxes, duties, and shipping costs.

Whoever said size doesn't matter?



Picture courtesy Liebermann, Inc, USA

The picture of the L Athens was so big we couldn't fit it on the page with the right dimensions! So, we put a 17-inch LCD monitor to let you know what 92 inches of monitor madness really looks like

Info graphic Solomon Lewis

OpenMosix gets the work done

Nodes A, B and C are part of a system-wide OpenMosix cluster. Node B needs more computation power to complete a task, while Node C needs more memory to store data brought in by workers. Both send out requests, which Node A acknowledges by transmitting power to Node B and allocating memory to Node C

When three young and unassuming geniuses from Jalandhar get together, this is what they come up with—a Linux-based supercomputer! Meet...

Team Prerna

Ahmed Shaikh

There are geniuses amongst us. Young, unassuming characters, destined to change the way you think, work and live.

Abhinav Dhall, 19 years old: The World to a religious homemaker, brother to a fellow student, and son to Tarsem lal Dhall, an Executive Engineer under the Pushpa Gujral Science City project and a role-model to Abhinav. His favourite movies are *Armageddon* and *Kal Ho Na Ho*. He also enjoys the Backstreet Boys.

Vibhore Jain, 20 years old: Best friend to his sister, Sonu to his mom and his father, an insurance advisor with TATA AIG. He loves classics—*Ben-Hur* is his favourite movie, Mark Twain one of his favourite authors, with Robert Frost's seminal beauty *Stopping by Woods on a Snowy Evening* his inspiration.

Abhinav Dhall, 19
Second year student

Vibhore Jain, 20
Second year student

Sandeep Kath, 24
Faculty Member

Both Abhinav and Vibhore are second-year students at the D A V Institute of Engineering & Technology (DAVIET), Jalandhar. Under the auspices of Sandeep Kath, a 24-year-old computer science BTech, and faculty member, the dynamic duo has created a supercomputer for all of us. Codename: Prerna.

How it All Began

DAVIET dabbles with fibre-optics and electronic simulations. Research needs that require computational power upwards of the gigaflop range. Affordable faster machines were needed. What better way than to maximise the potential of the desktop computers that filled two labs within the DAVIET campus? Enter clusters!

A cluster is a collective of PCs or "nodes" with task-masters, which divide tasks between the nodes—the more nodes there are, the faster the cluster. Prerna hired openMosix as the overseer, which sits atop a Linux kernel, openMosix and distributes work amongst the lab PCs.

Each node handles smaller tasks, has greater access to a cluster-wide memory, and finishes a job faster as a single unit. Thus was Prerna born.

"The idea struck us when I read an article on Beowulf in *Digit*," recalls Abhinav. "We began by analysing the technologies available for parallelising computational tasks. We started with PVM on Windows and then tested MPI on Fedora—the most demanding part was that for

This apples to oranges comparison indicates the effectiveness of a cluster-based system. A 23-node Prerna is five times as fast as the dual-processor Xserve. The Xserve sells for about $4,000 (about Rs 1,88,000). Prerna, with 23 nodes costing Rs 10,000 per node, comes for Rs 2,30,000

Each node of Prerna is powered by an Intel Pentium 4 processor at 1.8 GHz, on an 845 chipset-based motherboard, with 256 MB DDR RAM, a 40 GB, 7,200 rpm hard disk, over a 100 Mbps network. Currently Prerna has 23 such nodes and is expected to hit 50 soon

both these libraries, the applications we intended to run were not available, " he added.

MPI? PVM? Reads like a job for the TLA (Three Letter Acronym) police. Abhinav explained, "PVM and MPI are parallel libraries. PVM (Parallel Virtual machine) and MPI (Message Passing Interface), are sets of libraries using which parallel programs are developed. MPI is widely used. Our problem is that the programs which we have, such as the fibre-optics simulation, are Windows-based. So, we need to run them using VMware or WineX. But these are not optimised for PVM and MPI. Here, customised software development is required. A MATLAB MPI toolkit is available, but then the cluster would have been very specific. We wanted a general cluster which could compute a whole lot of stuff from simulation to games."

Why did Team Prerna decide to forego the Scalability Hero of Linux Clustering, Beowulf, for a newcomer? The reasons ranged from flexibility to cost. Vibhore says, "With openMosix, we can run almost all Linux apps, except Java threads. It gave us sound performance. As far as scalability is concerned, yes, we can only add 50 nodes using openMosix. Beowulf can run in thousands, and scores over openMosix when a job is complex... but openMosix is free and easier to implement."

openMosix is a delicate balance between the range of applications possible and the speed at which a job is completed. Take a complex job, such as a nuclear fission simulation, which require "tons of complicated calculations". If this task is optimised for MPI/PVM, the performance will be great, but sticking to these libraries takes away the flexibility afforded.

> **Girlfriends? [Smiles] Not at present, I think VB has one but does not disclose... but who is Prerna [Laughs]?**
>
> **Team Prerna, on passions of the female persuasion**

Looking Ahead

While travelling at faster-than-bullet speeds along the roads laid by Moore's Law, the semiconductor industry has hit the proverbial wall. Diminishing returns and migrating electrons have made shrinking processors an uneconomical strategy. It seems the future lies in multi-core processors.

Clusters and distributed computers already exist. By parallelising a task, a cluster offers supercomputer speeds at a fraction of the cost.

"The speed and portability [of Prerna] interested us," Vibhore tells us, adding, "We imagine clusters being used instead of expensive servers... end-users will use these services to fuel ultra-modern gadgets such as wearable computers. At present, clusters will find more penetration in institutes and universities in India."

Presently, Prerna is used for "number crunching problems, and rendering using Blender and POV-Ray." Vibhore discusses plans to outsource its power, "We can provide computational services to agencies, which have massive calculation requirements. We can also help companies migrate from Windows to Linux, and set up clusters."

Abhinav chips in with a view to tomorrow, "We intend to shift it to the R & D facility of our college. Prerna will be used for MATLAB and fibre-optics simulations and for SETI@Home!"

The success of Linux with Prerna is also the inspiration for a cheap hardware routing solution. When their college router got "useless ARP packets", they thought of creating a router of their own. Abhinav says, "The main node of the cluster can also act as a router. For this, Vibhore and I are looking for a good firewall. The next phase will be to make router from very cheap hardware. Our estimate is Rs 7,500. We are studying FREESCO to gain knowledge. The cheap box concept is based on embedded Linux."

A likely application for a distributed or a cluster-based computing system, such as the Grid initiative, is to harness the power afforded, to drive low-powered devices such as PDAs. Think of a handheld computer running *Doom 3* by drawing power from a cluster of thousands of PCs.

A far-fetched concept? "Clusters can bring supercomputing power to small laboratories," Abhinav tells us, adding, "There are endless benefits... (A cluster) can be mixed with a SIMPUTER, where the latter will draw all the power from a cluster, reducing the price of the SIMPUTER to within reach of the common man."

Apologies to Frost: clusters sound promising and perhaps even deep. But Team Prerna has promises to keep, and miles to go before they sleep, and miles to go before they sleep. ■

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Write in

Assembled something just as geeky? Tell us about it. Write to **firsthand@thinkdigit.com**

Buzzword of the MONTH

MMOs

With the release of Ragnarok Online, Massively Multiplayer Online (MMO) games have been heralded to Indian shores. Currently enjoying a beta phase, Ragnarok will soon come to a cyber-café near you. Meanwhile, find it with the August issue of Digit. Globally, online games are expected to grow to a $1.1 billion market by 2008

The Game's On

With 1,700 gaming titles across all platforms, 23-year-old Manan Bhanushali is a first among equals. This is a glimpse of the man who has spent Rs 3 lakh on buying original games

Meera Vankipuram

As you enter Manan Bhanushali's modest apartment in Garodia Nagar, located in north-central Mumbai, everything seems pretty ordinary—from the twin-apartment with teak furniture, to the old world look of the interiors and the conservative Marwari family talking in hushed tones. Step inside Manan's room, however, and the illusion fades away.

Placed neatly on shelves on a sidewall are a Sony PlayStation 2, a Microsoft Xbox and the Nintendo Game Cube—the three most powerful consoles that any gamer worth his salt would die for. If that's not enough, Manan introduces you to two more gadgets—the Game Boy Advance SP, and a Nokia N-Gage QD, a newer, slicker version of the N-Gage. "The QD lets you play arcade and console games, and also online multiplayer games using Bluetooth," he says.

But these are just the starters. He opens a cupboard, and steps away so you can peep into his gargantuan collection—1,700 game titles costing around Rs 3 lakh, including Xbox, PS2, Game Cube and N-Gage games. Most purchased from abroad, courtesy obliging friends and relatives. He is also a familiar face amongst game dealers in Mumbai. "Unfortunately, they charge me way more than the actual store price," he says.

His collection covers all the game genres there are, "except flight simulators!" Gamers will drool at adventure titles such as *Broken Sword*, role playing games (RPGs) such as the *Final Fantasy* series, strategy games such as the *Hero* series, action games such as *Quake III*, *Unreal Tournament 2004*, *Doom 3*, *Max Payne* and *BloodRayne*.

"Piracy is inevitable, especially in India. If official versions are not released simultaneously in India, pirated copies hit the grey market in a day or two. Gamers do not like to wait," he says with a wry smile. "International companies are realising the need to enter and cater to the Indian market. The Nokia N-Gage for example, has a decent price-point (street price: Rs 9,000) for the Indian market," he adds.

> **"I want to pursue a career in gaming. I think I was born to play games."**

Manan is 23, and has a Diploma in Computer Technology. In his final year, he was offered a job with Milestone Interactive Software, India's leading distributor and developer of PC and console games, as a technical support executive. He soon became a product specialist, which let him write game reviews, maintain their Web site and test games. Manan's plans include developing games for mobile phones. "I'm reading up on J2ME now. I want to pursue a career in gaming; I think I was born to play games! I intend to start a company of my own, to develop and market games," he says.

Manan started gaming at the age of four—from *Space Invaders* on an Atari, to EXE files that masqueraded as games on his old 386 such as id Software's *Wolfenstein 3D*. Manan today owns an AMD Athlon 2000+ XP, with 512 MB DDR RAM, a 40 GB 7,200 rpm hard disk and an ASUS GeForce FX 5600 Ultra graphics card.

He has also travelled to Chennai, Bangalore, Kolkata, and Delhi to provide tech support to the gaming community. He even trained the staff at McDonald's to use the PS2.

As Manan begins a session of *Resident Evil,* the room quakes with the powerful sound effects and the near-real graphics. "Pay attention to the details," he says, as he points to the way the leaves of a plant sway with the wind, on screen. "I'd give *Resident Evil* and *Metroid Prime* 10-on-10 for detailed graphics."

Given a choice, Manan would prefer to *'Enter the Matrix'*. Reality can wait a while! ⊠

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Manan's Picks

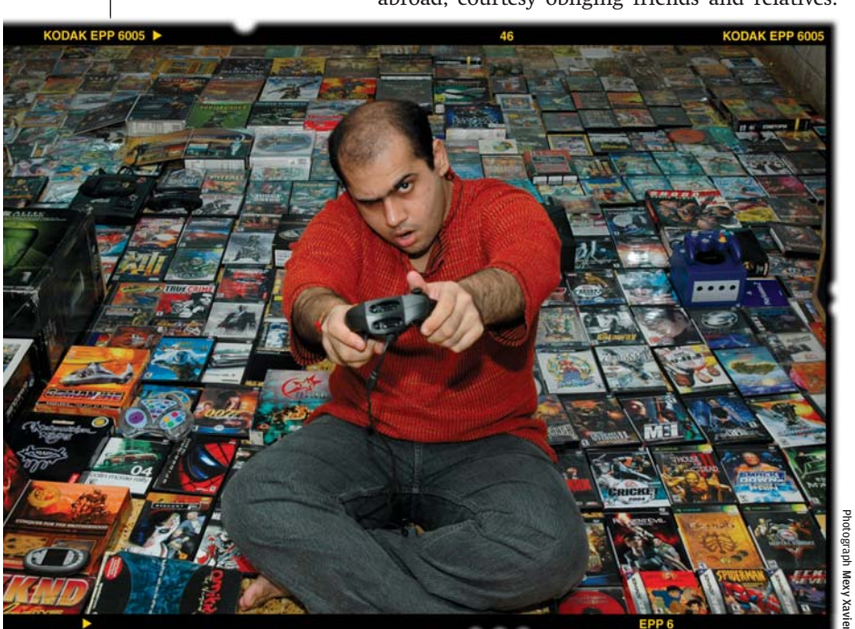
GameCube
Metroid (Rs 3,000)
Super Mario Sunshine (Rs 2,500)

Game Boy Advance
Spiderman Mysterious Menance (Rs 1,900)
Golden Sun (Rs 1,200)

Play Station 2
Final Fantasy X (Rs 2,999)

XBox
Ninja Garden (Rs 3,000)
Halo (Rs 3, 500)

PC games
Black and White (Rs 1,999)
Metal Gear Solid (Rs 1,500)
Unreal tournament 2004 - Special DVD edition (Rs 2,000)
Baldur's Gate, complete pack (Rs 4,000)



Photograph Mery Xavier

Gameboy: Manan Bhanushali can go on, and on, and on...

DOOMed To Succeed

Be afraid, be very, very afraid

Badri Narayan

Back in 1995, we first heard the name *DOOM*. The game actually had 'VGA' graphics—the word VGA inspired awe, and was spoken in a hushed tone back then. Most PCs were too 'underpowered' to play this game, so a few of us dashed over to a friend's place—he had just bought a 'fast' 486-SX, running at all of 40 MHz. As he fired up the game, our jaws dropped in amazement.

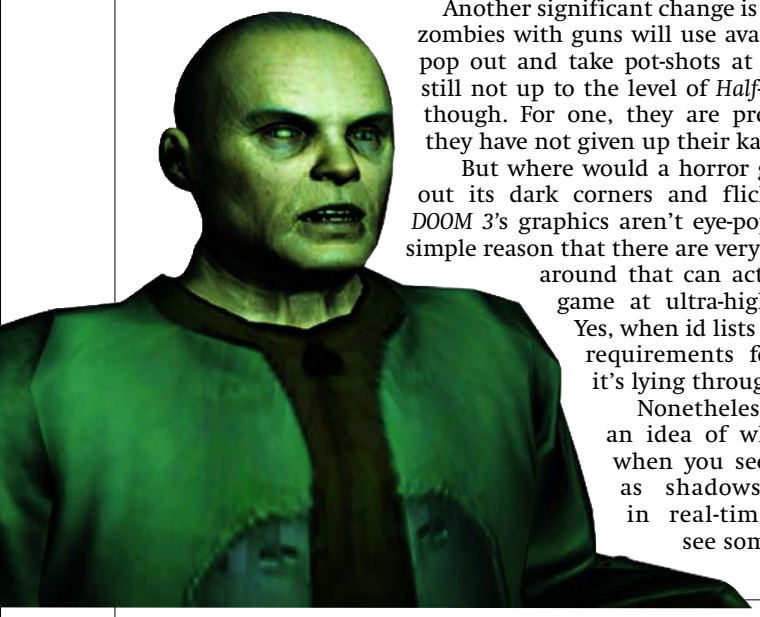
More colours than you could count, finely detailed graphics, a bob effect that simulated walking, superb weapon models, the list was endless. Then there was the environment itself—the mountains of Mars could only be described as achingly beautiful.

In short, it was a revolution—a whole bunch of never-seen-before features packed into a single game. It was the sole reason for thousands of people to upgrade our systems.

Gaming has come a long way since then, but no other title has managed to evoke the same reactions as *DOOM*.

With its latest game, id has finally dumped the old-school run-and-gun gameplay that it fathered, in favour of a more personal interaction with your deepest fears. A classic survival-horror shooter, it tells the tale of how all hell breaks loose (literally!) within minutes of you arriving at a Martian military base.

The game feels like living in a movie—steam pipes hiss, metal creaks, and monsters lunge out at exactly preordained points. FPS evolution has taken two distinct paths: the classic shooter with waves of monsters coming at you from everywhere, and the game with "cinematic quality" graphics and surround sound.



Another significant change is the better AI—zombies with guns will use available cover to pop out and take pot-shots at you. They are still not up to the level of *Half-Life*'s marines, though. For one, they are predictable, and they have not given up their kamikaze rush.

But where would a horror game be without its dark corners and flickering lights? *DOOM 3*'s graphics aren't eye-popping, for the simple reason that there are very few machines around that can actually run the game at ultra-high resolutions. Yes, when id lists the minimum requirements for the game, it's lying through its teeth.

Nonetheless, you can get an idea of what to expect when you see effects such as shadows being cast in real-time. Expect to see some remarkable results a few years from now, when other developers bring out their games based on the *DOOM 3* engine, and the hardware to actually run them has become more common. Is *DOOM 3* worth the upgrade, like *DOOM* was back in 1995? We don't think so! It's good, but not that good.

The game will genuinely scare you at times. It's a classic entertainer. It's a trendsetter. But it's certainly not revolutionary. *Far Cry* brought with it the great outdoors, *DOOM 3* brings in amazing lighting and graphical effects, and *Half-Life 2* is expected to provide realistic physics and tough AI. The tools for making the next wave in gaming are all here. Now it remains to be seen how they will be put to use. ⊠

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Space: The Final Frontier

It is one of India's fastest growing tech segments. For many, however, the DVD is still a conundrum of formats. Here's demystifying the 4.5 GB storage behemoth—the DVD

Imaging Parag Joshi, Photograph Jiten Gandhi

Bhaskar Banik

Ever since it was launched commercially in 1997, the US market alone has sold more than 85 lakh DVD players, and 1.2 crore DVDs. The Indian market is no different. The DVD player market is one of the fastest growing in India today.

With good reason, too. A recent survey by IDC, the world's premier IT research agency, predicted that only five per cent of all PCs shipped by end-2005 will have CD-ROMs. The rest will have DVD-ROMs, or DVD combo drives or DVD and DVD writer combinations. DVD-Writers that let you back up data and copy movie DVDs are also gaining popularity amongst both DVD-movie enthusiasts, as well as, the average computer user.

Why DVD?

A typical SoHo-content creation business needs to back up images, audio, video and documents of projects—something that might run into several gigabytes. A CD, therefore, becomes unviable. You would require more of them, and also more space to store—let alone cataloguing them carefully.

The options are a bigger hard disk, a DVD-writer, or a tape drive. Investing in a new hard drive is not a portable solution. DAT, or Digital Audio Tape drives offer you 120 GB and above, but costs are a deterrent.

This is where the DVD-writer steps in. Commonly available DVD media, which offer 4.5 GB of disk space, cost around Rs 160, while a DVD-writer would cost Rs 7,000 and upwards.

The DVD, therefore, with six times the storage space of a CD, offers itself as an affordable alternative. Yes, it does take time to write a DVD, but it is far better than juggling around seven CDs.

Does this mean that it is good-bye to CD-burning? Definitely not, since all new-generation DVD-Writers burn CDs as well. However, before you get yourself a DVD-Writer, there are some factors that you need to consider.

The Format Wars

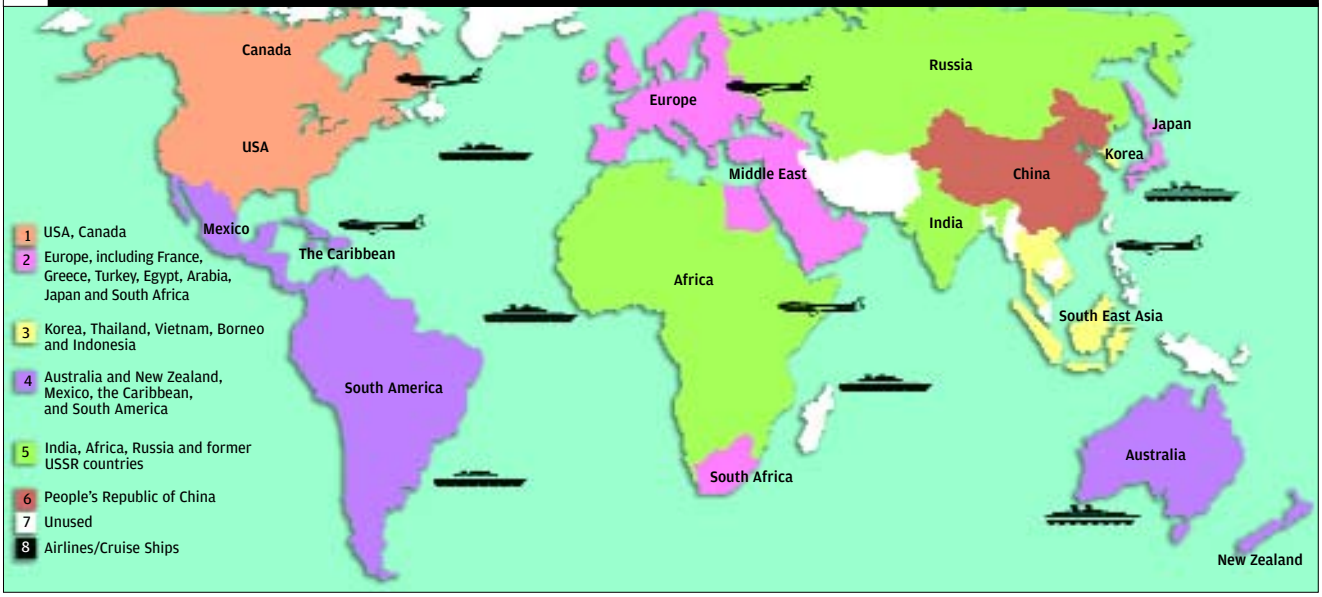
Buying the right DVD-Writer would need some research. Here are some DVD media formats available: **DVD-R and DVD-RW**

Pioneer developed and released the DVD-R and DVD-RW formats in 1997. However, Pioneer was the only manufacturer at that time with such a product, and it did face compatibility issues.

The DVD-R format is split into DVD-R (A) 'Authoring' and DVD-R (G) 'General' formats. They differ in terms of the laser used to write on them. The DVD-R (G) writes with a cheaper 650-nm (nanometre) laser, whereas DVD-R (A), intended for professional development, uses a 635-nm laser. The problem is that these formats are not compatible with each other.

DVD-R (A) drives cannot record on DVD-R (G) disks, and vice-versa. Their capacities also vary.

DVD Regions



DVD-R (A) disks offer 3.95 GB of space, while DVD-R (G) disks provide 4.7 GB.

DVD-RAM

It's a fast-disappearing DVD format, ushered in just after the DVD-R made its appearance. These disks are still preferred by those who munch video for a living. The reason was that it was the only format that allowed direct data manipulation on the disk in real-time, without having to rewrite the whole disk. Initially, these disks came with a storage capacity of 2.8 GB, which later increased to 4.7 GB.

The DVD+R and DVD+RW formats

The DVD+R and DVD+RW alliance was formed by Dell, Hewlett-Packard Company, MCC/Verbatim, Philips Electronics, Ricoh Company Ltd, Sony Corporation, Thomson Multimedia and Yamaha Corporation. These companies formed their own consortium and came up with these two formats.

They are relatively new. Worldwide, they were made available only in late 2001. The DVD+R made its appearance only in mid-2002.

Advantages and Disadvantages

Unlike other formats, DVD-RAM media are disks housed in cartridges, which DVD-ROM drives cannot read. A later version allowed the disk to be removed from the cartridge, but DVD-ROM drives still failed to read them.

DVD-Rs and DVD-RWs are incompatible with DVD+R and DVD+RW media. You cannot write to either of these disks using interchangeable writer drives. Hence, drive manufacturers came up with dual-format DVD drives that can actually write to all of them.

DVD-R media are written at a lower speed than that used for DVD+R media. Both have a theoretical limit of 16X, and a few DVD-writer drives write at 12X. The DVD-R format is yet to do so. The higher the media speed, the faster your job gets done, provided the drive writes at that speed. Another aspect is the finalisation property. Say, you want to write a video-DVD comprising different clips. In the case of a DVD-RW, you need to finalise the DVD. It means, simply mark the lead-in and lead-out before you play it on a standalone DVD player. A DVD+RW though can play on a DVD player without finalisation. This feature is known as the DVD+RW VR (Video Recording). Hence, you

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Timeline

1980
Philips and Sony agree upon the standard for the Compact Disk (CD).

1994 September
Sony/Philips announce the High-Density CD (HDCD)—the grandfather of dual-layered DVDs such as DVD-9 and DVD-18.

1995 December
The final DVD format is officially announced. Initially, the word was not an acronym. It later came to mean Digital Video Disk and Digital Versatile Disk.

1996 November
The first DVD players are released for sale in Japan.

1997 March
DVD players are available to US consumers.
Also in 1997, first General DVD Forum Meeting held in Tokyo, Japan.

1998
DVD launched in Europe.

2000 July
DVD audio players launched in the USA.

2000 November
First DVD-audio disks in the USA.

2001
DVD-video recorders launched in Europe.

2002
DVDs officially make their appearance in India.

can add episodes of your favourite TV serial to a DVD+RW, and play it instantly on a DVD player. However, DVD-RWs needs finalisation before playing.

Another factor is the Mount Rainier support, the *de facto* standard with all future releases of Windows. It lets you write directly to a DVD+RW *sans* any special software. Not so with the DVD-Rs and DVD-RWs since this was not specified in their format.

Compatibility

DVD-R, DVD-RW, DVD+R and DVD+RW media are compatible with 85 per cent of the available standalone DVD players. As for DVD-RAM disks, they were not designed for, and are not compatible with, any of the available DVD players. Only specialised drives, such as, the Iomega SuperDrive read them.

The Dual-layer Format

All available DVD media are limited to single-layered, single-sided mode (DVD-5) and hold up to 4.7 GB of data. Some manufacturers sell dual-sided, single-layered media (DVD-10), but these are a fast disappearing specie since the same amount of data fits onto single-sided, dual-layered DVD-9 disks. This also provides less clutter since you are effectively stuffing two disks worth of data on a single disk.

Philips and Mitsubishi Kagaku Media developed the first DVD+R and DVD+RW dual-layered media, meant for general users. Not to be left behind, Pioneer released a dual-layer format of the DVD-R.

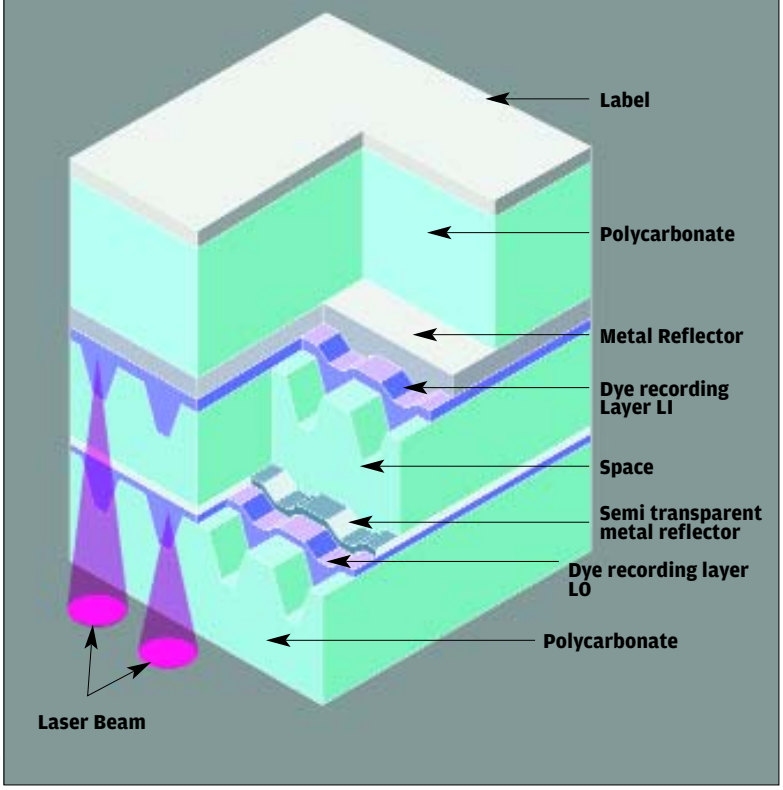
Worldwide, dual-layered media is scarce and was not available in India at the time of going to press. Also, as of now, only dual-layered DVD+Rs and DVD+RWs are available. For the purists who would rather opt for a dual-format, dual-layered DVD-Writer, there still may be some time to go before they actually get hold of one.

Two media layers are separated from each other on one single side of the disk. While writing, the first layer is written with the same speed as that used on a single-layered disk. As the laser switches to the second layer, the speed decreases and the data is written at a much slower speed.

For example, the DVD-Writer may slow down from 4X to 2.4X. The point at which this switch occurs is a known issue for the current crops of DVD-ROM drives available in the market.

When we conducted DVD-ROM drive tests, the older Creative 12X PC DVD drives did not recognise the dual-layered disk sample, though it did read single-layered disks. The new Samsung SD-616F 16X DVD-ROM drive read the dual-layered disk without any problems and so did the Lite-On LDW-811S and 812S and the LDW-401 DVD+RW drive. Hence, be warned that compatibility can be an issue with older DVD-ROM drives.

DVD+R: A Cross-section View



Infographics Solomon Lewis

Buying Guide

Portability

External as well as internal DVD-writer drives are available. If your job involves taking backups from PCs scattered across different locations, an external drive would be ideal. All you need to do is connect it to the PC, and backups can be done instantly. While opting for an external drive, make sure that it supports both USB 2.0 and Firewire for high-speed data transfers.

Speed

A 4X dual-format DVD-writer costs less than an 8X dual-format DVD-writer. The latest DVD-writers have speeds of around 12X. Writing 4.7 GB of data at a speed of 4X takes about 15 minutes,

Future Formats

With DVD capturing everyone's fancy (even 'Digit' now offers a free DVD with its every issue), the amount of storage space it provides may seem more than enough. Eventually, even this space will fall short. Here's an example. HDTV broadcasts are already available for prime-time shows in the US and Japan. HDTV offers crystal clear picture quality, but takes up more space as compared to the DVD format. Hence, recording HDTV shows will need more space than a single DVD. This is where the new formats step in.

Blu-Ray

Blu-Ray technology was founded by a consortium of Hitachi, LG, Matsushita, Pioneer, Philips, Samsung, Sharp, Sony, and Thomson, with Mitsubishi joining them in 2003. Dell and HP recently announced their support for this standard. Sony's PlayStation 3 console will also support Blu-Ray disks. These disks offer a storage capacity of 27 GB per layer, and use a 405 nm blue laser to write data. Blu-Ray recorders have already started shipping in Japan. And yes, they are really expensive.

HD-DVD

Developed by Toshiba and NEC, an HD-DVD disk is similar to the current DVD, and stores 15 GB of data per layer per side. This technology also uses the same 405 nm blue laser to write data. Its biggest plus lies in its ability to use existing production lines for manufacturing processes. Toshiba and NEC have already announced plans to launch HD-DVD recorders next year. Microsoft too has announced native support for HD-DVDs in Windows Longhorn, which is slated for a 2006 release.

Choose a dual-format DVD-Writer. It may cost you more, but it lets you write to any type of media

while the same written at 8X takes around nine minutes—a difference of six minutes per DVD. If you get a lot of backups done, you may want to opt for a faster DVD-writer.

Format

Rewritable disks need to be formatted before they are used. DVD-RW disks do not support background formatting whereas DVD+RW disks do.

Therefore, opt for a DVD+RW disk when writing data on to a rewritable disk. Also, choose a dual-format DVD-writer, as it lets you write to any type of media, even if it costs more.

On the other hand, if you also want to write to DVD-RAMs, opt for a superdrive that lets you write to media of any format. At present, only Iomega manufactures superdrives.

Three Little DVDs Went to the Market

At Lamington Road, Mumbai's hardware heaven, Mitsubishi DVD+Rs were available for Rs 210 each, while a Pioneer DVD-Rs cost Rs 180. On the other hand, Imation and Moser-Baer offer both types of media for Rs 130 each, while Sony prices it at Rs 150.

Princo was the surprise. While a single DVD-R retails for Rs 38, a spindle of 10 costs a reasonable Rs 320. We did not find any dual-layered media.

Rewritable media were priced steeply: Mitsubishi's DVD+RWs retail at Rs 400 each and those from TDK Rs 375. As for DVD-RWs, we could just find some manufactured by Pioneer retailing at Rs 375.

Cheap variants of both formats are available for anything between from Rs 31 to Rs 110. ■

bhaskar_banik@thinkdigit.com

1 COL AD

Tread Softly into The Future

The year is 2015. Technology has taken over the world. It's not the Terminator story yet, but we are almost there...

Illustration Mahesh Benkar

Ram Mohan Rao

It is a truism that every device is interconnected. They all recognise one another, they all understand each other. Unfortunately, they all put each other at risk. Welcome to the future!

Soon, viruses on your PCs will be passé, Spyware will be antiquated, and you will actually wish the 'good old days' were back. Of the several tech threats that lurk around the corner, these are the ones that stand high on the maximum disaster index.

Smartphones

Picture this: You are at your office, equipped with a newly configured WLAN (Wireless Local Area Network), and you receive an e-mail on your smartphone. Business as usual, right? It turns out the e-mail has a virus attachment. The attachment has a virus payload that reads and sends malicious e-mail and spam MMSes to all the contacts in your address book. The same, multi-faceted virus also propagates over any wireless network you are connected to at that moment. Your WLAN is now infected.

You don't realise you have a virus, and promptly sync your handheld with your PC as soon as you reach home. Once on the PC, the virus takes on a sinister role—part of the virus attaches itself to all digital devices connected to the PC, propagating via memory cards, synchronisations and the like. One part directly attacks the host computer. One part uses your PC to spam; another launches a DoS attack.

It's strange that it hasn't happened already. The only well-documented viruses for wireless devices thus far are proof-of-concept ones—and now, as of August, we also have WinCE.Brador.a for Pocket PCs (See box "*I Have Seen The Future, And I Am Scared*").

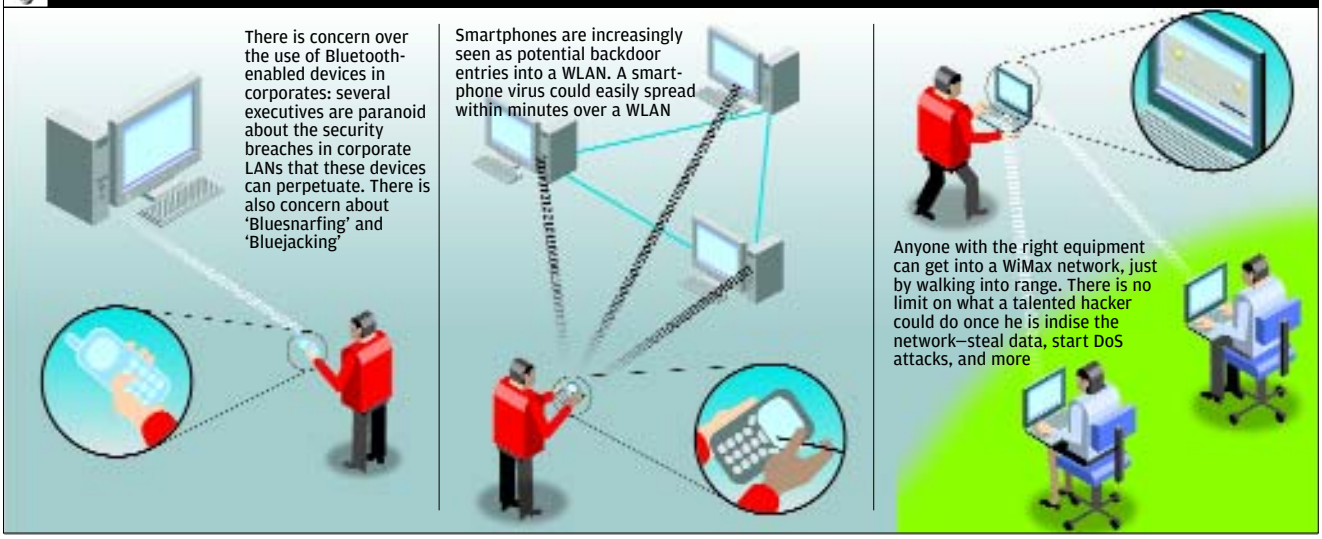
Smartphone users routinely download ringtones and Java games. However, when it comes to anti-virus software, firewalls or spam filters for these devices, there aren't many, as of yet. This lack of software development should change with the rising popularity of mobile devices. Unfortunately, so will virus development. Thus far, virus developers have ignored such devices only because of the small numbers they can affect.

Tomorrow, however, there will be millions of smart phone users, and each user will have hundreds of contacts, with each contact just an e-mail, SMS or MMS away. Attack one phone, and you cause a domino effect that will sweep across the globe in a few hours. We switch off our computers, we barricade ourselves with firewalls and anti-virus software, but we rarely ever turn off our cell phones, or bother to think twice when we receive an SMS or an MMS. So how do we prevent this?

Take the Cabir virus, for example. It was sent to security firms for analysis; it wasn't released "into the wild". But as security firm F-Secure noted, the next attack might not be so civilised.

In 2003, the *New York Times* reported that the

Chinks In The Wireless Armour



Infographic Solomon Lews

I Have Seen The Future, And I Am Scared

Although the threat was characterised as relatively low, anti-virus companies said on August 2, 2004, that a Trojan program for Pocket PCs has emerged. The program, known as Backdoor.Brador.A or WinCE.Brador.a, lets an attacker gain full control of the infected handheld device. Brador is the first 'backdoor Trojan' program that has emerged for Pocket PCs, thus far. Such programs cannot self propagate, and have to be sent as e-mail attachments. Symantec said Brador seems to be limited to devices that use ARM processors and Pocket PC operating systems.

Eugene Kaspersky, head of anti-virus research at Kaspersky Labs, said in a statement, "We can be sure that the computer underground will snatch at the chance to attack PDAs and mobile phones in the nearest future."

virus threat to cell phone networks was "probably" five times larger than that to PCs, because of how few people are focused on the problem. The article quoted incidents in Japan, when DoCoMo customers "were being sent messages that froze their screens and automatically dialled 110—the hotline to the police in Japan." If they could dial the police, they could just dial other numbers as well, at random, racking up a huge phone bill?

As smartphones replace laptops, the problem will intensify. Right now, infection may mean just be the loss of your contacts and a few notes; later, it could crash your PC.

> **We can be sure that the computer underground will snatch at the chance to attack PDAs and mobile phones in the nearest future.**
>
> **Eugene Kaspersky**
> Head of Anti-virus Research
> Kaspersky Labs

Wireless Networks

The issue is that people are at risk without knowing it. It's a time bomb. In a wide-range WiMax wireless network, where people typically sit at a large distances from access points, they may be at risk even when they are not connected to the Internet—the network is there for anyone to exploit. There's a spectrum of threats: PANs—typically Bluetooth-connected areas; WLANs; and WANs—WiMax networks. Few people are aware of the risks of insecure networks.

Smartphones, as also other Bluetooth-enabled devices, could be used as a backdoor into corporate networks: when an infected phone is synchronised with a terminal, the entire office network could get infected.

According to research agency Gartner, WLAN attacks will be the biggest wireless-related security issues through to 2008. The current insecurity of WLANs is well known and well documented—not too many administrators take the trouble of securing them; several independent researchers have gone to the 40th floor, and easily accessed a WLAN on the 38th floor, as benign experiments.

Wireless Internet Magazine warned in 2001 of "economic information warfare, involving sophisticated attacks against entire economies, commerce and enterprises"; and "next-generation computer viruses that will self-mutate and are designed to destabilize, confuse and destroy critical electronic infrastructure essential to industry and government." These are plausible scenarios, and WLAN security, or the lack of it, will hurt us.

VoIP

Anything that's smart can be subverted. You are soon going to have smart VoIP—something that will trickle down into every device. This is a perfect recipe for disaster.

It is envisaged that much of the role the existing telephone system plays will be replaced by VoIP networks. Imagine your home phone line replaced with a fixed VoIP line, operated by your broadband provider. Data and voice will be on the same cable. Your PC will, naturally, be connected to this cable. What happens if your computer gets infected? It will suck up all the bandwidth, and you can't even place a call to customer service! And if the attack happens at the service provider's end? You will end up with no phone, no Internet service, nothing.

The problem is that VoIP networks happen to be especially easy to crack. It's hard to secure a simple protocol like http, so what are the chances of securing the whole range of protocols used in VoIP, and written by different groups? That's what VoIP is—three complex protocols, each of them not a single protocol, but a protocol family in its own right.

Consider Asterix, a PBX software for Linux. PBX is short for Private Branch eXchange, and is a small, private telephone exchange. With just a configurable tool such as Asterix in a hacker's hands—not to mention various, other underground tools—imagine the damage that could be inflicted on a VoIP network.

VoIP, where you can send any return number you want, takes phishing to a new level. (Phishing is the sending of spam that makes you believe you're receiving it from a legitimate source, and which asks you to disclose personal financial details such as your bank account number.) You could be phished by a person with a PDA and a headset sitting outside your home.

Cable modems run real-time OSes; they can be hacked and reprogrammed. Eventually, VoIP phones will make use of a cable-modem type device. With such a device sitting in your home, it will definitely get exciting for hackers.

At some stage, you could imagine your 'VoIP line' connected to your desktop, laptop, TV, entertainment system, and more. Someone could send you a pre-recorded message over the channel, and cause your phone to crash. And every device that's connected to the channel is suddenly under threat.

Consider the convergence of devices in the home that's happening. You are soon going to have a single device that acts as entertainment centre, VCR, TV, PC, and more. This device is connected to a broadband cable, and suddenly, is open to hacking.

Convergence also means Bluetooth-enabled refrigerators, washing machines, microwave ovens. All connected via the cable, all vulnerable, and all putting the others at risk. Soon, the term 'virus' will take on a new meaning, not limited to 'computers': any device with a microchip and software will be at risk.

As we take small, hesitant steps into the future, let us hope we can be smart enough to prevent rather than cure. ☒

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Jumpstart

A Brush With Technology

Jaideep Mehrotra is India's first artist to use a CD-ROM and the Web effectively to promote his work. Here's how he has harnessed technology to take his art across the globe

Aparna Krishnakumar

Armed with easel and paintbrush, canvas and oil paint, a Web site, a CD-ROM, an Apple G4, a 22-inch LCD Cinema Display, and more than a fair share of common sense, Jaideep Mehrotra is quietly conquering new worlds.

Mehrotra on the art scene is just like the view from his elegantly comfortable home on the Mumbai seafront—calm, serene, and almost noiseless. Which is why, although he is one of India's most accomplished painters and sculptors, his name is hardly taken in the same breath as his other media-savvy colleagues. It is a pity, really, because Mehrotra's work is as important as any other contemporary major artist.

He is also a pioneer—he was the first artist in India to set up his own Web site, and later, the first to create and market a CD-ROM of his work.

It is not an exercise in vanity; in fact, it is a productivity tool few can afford to miss.

It has been a long time since Mehrotra set up his Web site, and began marketing his CD-ROM. Three years, in fact. And his technology training has taken the same route as his art education—everything he does is self-taught. Whether it is creating art installations, wood art or even fabric art, Mehrotra has never had any formal training.

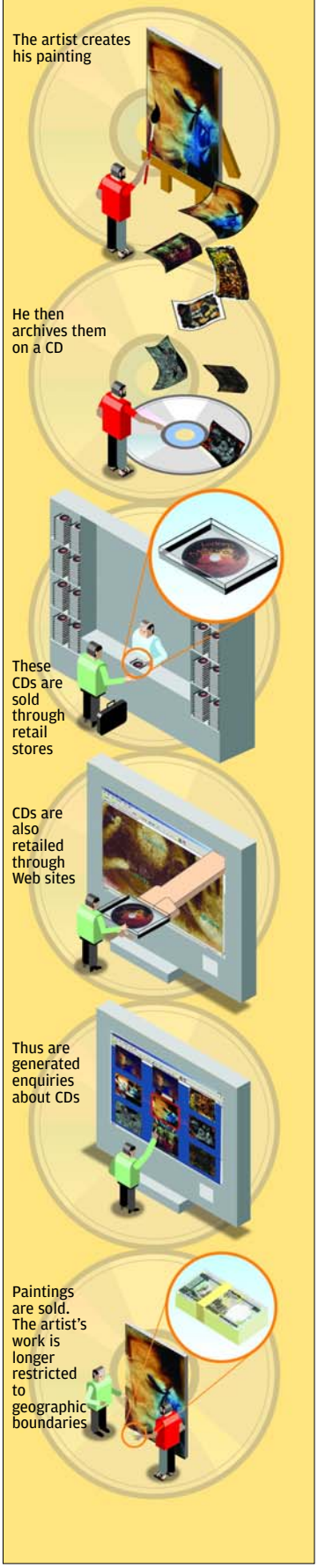
First Among Equals

It was not a Eureka moment that brought about the idea of a CD to showcase his art, and expand his audience manifold. Mehrotra has been drawn towards technology for quite some time now—he was VSNL's 35th customer for an Internet account at a time when it cost in excess of Rs 10,000 for a 100-hour registration. Prior to that, he was also part of the LiveWire Bulletin Board Service run by the Nanda brothers—Suchit and Anish—India's pioneering digital entrepreneurs, whose foray into BBS was viewed with much scepticism in 1992.

It would take three days for a message to reach the US, and another three for a reply if it was posted. "It was

Photographs Mexy Xavier. Imaging Atul Deshmukh

How it Works



Infographic Solomon Lewis

faster than snail mail, though," says Mehrotra.

The Internet, therefore, was a natural progression. He created a self-titled Web site, for which he learned to author HTML pages. "It was great fun," he remembers.

It all began when, in the late '80s, Mehrotra began experimenting with digital lithographs, something he would develop into a fine art, and a constant revenue stream. He was in New York then.

Later, in the '90s, he created exquisite works of art using both two-and-three-dimensional software. Adobe Photoshop and Fractal Design Painter were his easels; his Wacom cordless pen and a digitiser, his brushes.

And A CD Takes Birth

The CD-ROM would seem a run-of-the-mill idea, but when Mehrotra pioneered it in 2001, it was nothing less than revolutionary.

Even today, no other Indian artist has developed a CD-ROM. Mehrotra is quite reticent about it, though.

"I have done a lot of diverse work since 1967. I felt I should preserve my work in a medium different than a glossy catalogue. The CD-ROM idea came primarily with that objective in mind."

Mehrotra also wanted it to be interactive. A CD-ROM would be the best medium, then, given his needs. The medium, he hoped,

> **"The CD-ROM is an important step in making people aware of my work... I am happy that several artists are now going digital.**
>
> **Jaideep Mehrotra**

would make his work accessible to a larger section of art connoisseurs and peers, both Indian and from across the world.

The CD itself is a digital journey into the artist's life. Divided into sections that detail his life, his work is in the form of paintings and lithographs.

It even includes his poster design for the Dev Benegal film *Split Wide Open*. It then records his views in the form of newspaper and television interviews.

"It has my work from 1984 onwards. Each of the paintings includes a description of the work along with the attached price, if it is still available for sale. You can find my sculptures and other art work too."

Interestingly, Mehrotra authored the CD on his own for both Windows and Apple platforms compatibility.

Veteran actor and one of the early adopters of the Web in India, Shammi Kapoor, launched the CD in 2001, and Mehrotra has since sold over 300 CDs, a unique achievement for something that is as niche as an art CD-ROM. Mehrotra later sold through midday.com (the Web site of a popular evening newspaper in Mumbai) to sell the CD, a move that resulted in a lot of enquiries from the US about his work.

Why CD-ROM?

Mehrotra feels that a CD-ROM is important for any individual or

Online Art Will Be Big... Soon

Experts say technology will only enhance the art experience. It is only a matter of time before artists in India begin to process, catalogue and archive their works digitally. Art critic Jasmine Shah Varma believes the Internet has opened a new vista for Indian artists.

Dinesh Vazirani, co-founder of Saffronart.com's India chapter, says the Net has helped promote art in a big way. "It has provided an objective platform for artists to display their works to a global audience."

He adds that the Net is increasingly being used by artists to experiment and usher in new movements in terms of style.

Mehrotra is probably the first Indian artist who experimented with digital media, but others are following suit. Says Vazirani: "Digital art is not a hot trend due to lack of awareness, and due to the misconception that digital art can be reproduced a million times over. This has resulted in a cautious approach towards this medium."

Shah Varma, meanwhile, feels that technology has some way to go before it we can confidently say that the time for it has arrived.

"It is a relatively new field, and only two other major contemporary artists—Akbar Padamsee and Gulammohammed Shaikh—have experimented with this medium," she says. "The awareness of digital art and use of technology in art among art buyers is practically non-existent, and art buyers are more comfortable with traditional media like oil and watercolour.

"It is hard to say whether the market for digital art will thrive in India in the current scenario."

But she is also certain that technology is making inroads into the field of artistic creation. "Many artists have been using video and computers as media to make and display art. Gradually, we will see greater use of technology, but it is hard to predict how soon and to what extent."

small company as an effective marketing tool. "A CD should be created from the long term business point of view. Unlike music or films, the success of a CD cannot be just determined by sales alone; people buy the CD and may even take years to buy my work; this is just a step towards making my work known to people."

The initial reaction to Mehrotra's CD was that of fascination, since nothing of this sort existed in the art world before. "But now I see a change," he says, "Several colleagues of mine are now going digital." There is a sense of accomplishment in his eyes when he says this, even if some of the purists have not accepted this form of building awareness.

Technology And Art: Do The Twain Meet?

Mehrotra defends digital art not with the irrational fanaticism of a blind supporter, but with the reasoned rationale of a seasoned parliamentarian: "Digital art is equally creative. There is a misconception that digital art is dependent only on the computer's capabilities. This is simply not true. Unless you give the necessary commands to the machine, and incorporate your ideas, how in the world is the computer going to create art?

"Technology has ensured that art sites have mushroomed; one is now able to look at pieces of work that were not accessible earlier. It has brought art to the common man. Earlier, making a film was considered a multi-layered process; today one can shoot on a personal video camera, and edit pictures at home on a personal computer."

Even as art dealers and artists try to get comfortable about the use of technology, Mehrotra has only shown the way. He says the day is not far when the world's first digital painting with a digital signature of a prominent artist would go on sale for half a million dollars. "This will make people notice digital art," he believes.

Meanwhile, at Crossword, a nationwide chain of bookstores, Mehrotra's CD sells as the sole representative of a CD-ROM on art. For now, he can be happy that he still remains the only Indian artist to have dabbled in this medium. It won't be long before he has followers. ⊠

aparna_krishnakumar@thinkdigit.com

1/2 pg V Ad

Towards the Paperless Office

Swamped by paper in your office? Digitising your documents could be your way out of the clutter

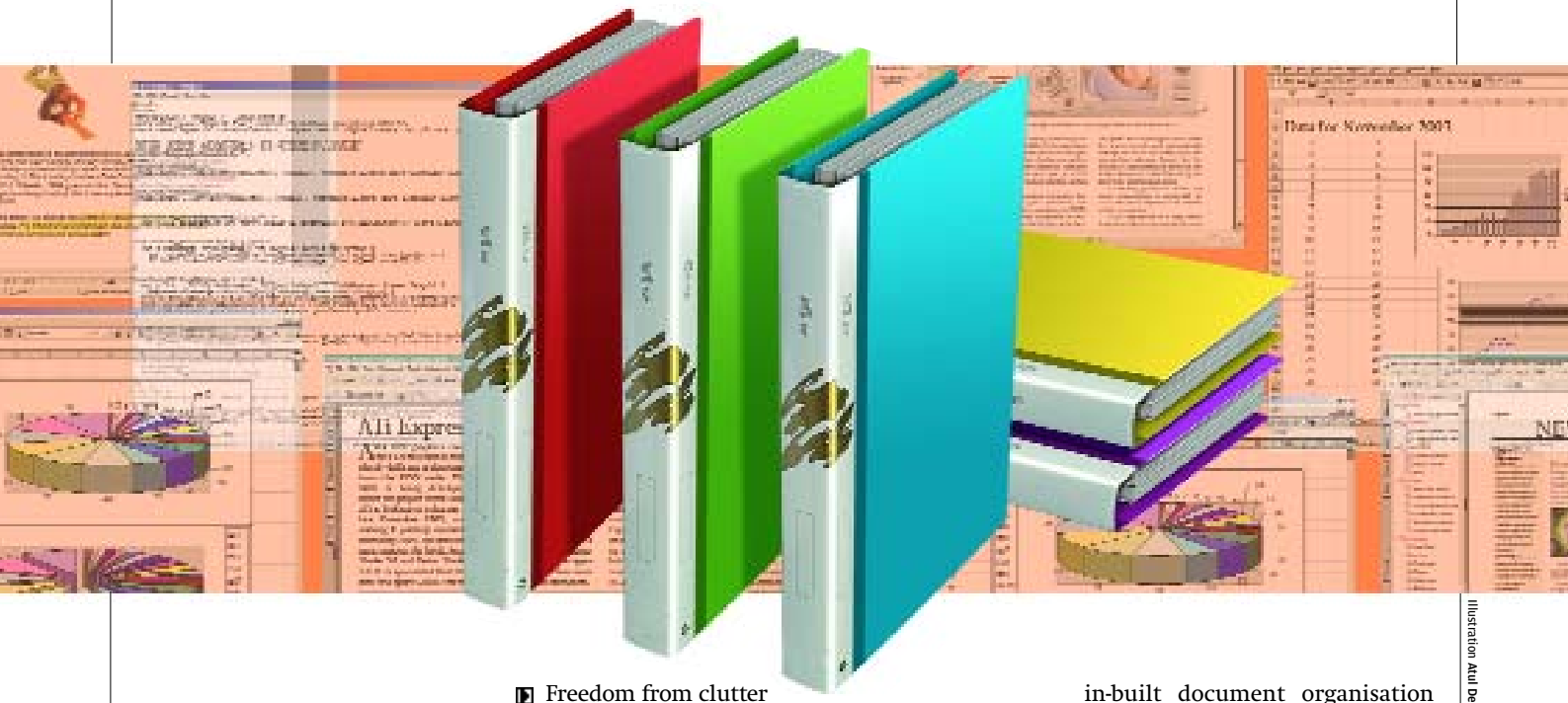


Illustration Atul Deshmukh

Ram Mohan Rao

It's been said all too often now—the paperless office is a dream, and it's become more of a dream since the advent of the very things that promised it. The demand for printers and printouts is only going up, with offices getting increasingly swamped in tonnes of paper. Add to that stockpiles of newspaper clippings, handwritten notes, books, the works. Hapless employees are then left swimming in a sea of paperwork. Metaphorically, at least. What can be a remedy to the paper mess? Is it really possible to have clutter-free workplaces?

First things first, though. It is not possible to have a totally paperless office, and this is something we have to accept. Besides, humans are more adept at reading paper than digital documents. Having said that, the advantages of less paper in the office are several. Besides, seamless integration of paper and digital documents is indeed possible.

Here's how you can benefit with less paper:

- Freedom from clutter
- Better, more effective organisation of information
- Cost-effectiveness, because going paperless means you cut down on physical storage space
- Better archival, and therefore, easier retrieval
- Easier communication when a piece of information is required to be sent
- Greater efficiency in the office

The questions now would be:

- Would it involve huge labour cost to digitise manually?
- How does one rely on hard disks to keep information secure?
- How does one organise compiled information?

Here's the good news: there are answers for these questions.

Hard disk reliability is not really an issue. With hard disk costs coming down by the day, taking multiple backups is a viable option. You can use backup-scheduling software like WinBackup and Second Copy to further protect your data. Also, manually digitising documents isn't as difficult as it used to be, with automatic document feeders, combined with in-built document organisation software.

There are three fundamental operations you would need to do:

- OCR (OCR stands for Optical Character Recognition which involves scanning your pages, and storing them in text format instead of as images) your documents
- Organise and archive your data once it's done

Paper vs Paperless

Imagine a thousand sheets of paper of different kinds in your office. A rough calculation would indicate that each page is 2 KB of text with formatting. If, say, every page has a 100 KB image, these would amount to 1,00,000 KB or 100 MB of images. The text comes to approximately 2 MB. So, 100 MB of disk space would store the thousand sheets. Extrapolate this, and you would get on a 10 GB hard disk (Price: Rs 2,000), 1 lakh sheets of paper.

Normally, you would spend money on the cartridge ink, the real estate to store the documents, printer maintenance, the cost of the paper, and so on.

Digital, therefore, is the way to go. It requires only a small mindset change to go digital. Next time you need something; don't simply shoot off a printout. Instead, get a PDF, or use e-mail.

The Guide to Digitise 50 Documents

- Use a scanner, such as the HP Scanjet 5590. Connect it to the PC.
- Use the Automatic Document Feeder to feed in all the documents. You should get a speed of eight pages per minute, making for a total of six minutes for the scan process.
- Set DPI (dots per inch) to 300 for optimal scanning.
- Click on 'Scan Now'.
- When scanning is over, click on 'Recognise'.
- In ABBYY FineReader, click 'Save' and choose 'PDF'. You should get 50 PDF files.
- Use the scanner's document management software to annotate and archive the PDF files.
- Throw all your paper documents into the bin.

Record what's on paper and what's digital. Create a system to manage such records, so that you can keep track of what is where, and whether it's digital or not.

The Tools that Digitise

There is no dearth of tools that help build a paperless, or less cluttered office. Consider standalone OCR software, which you can use in conjunction with the scanners your organisation already has.

The best OCR software we have tested is ABBYY FineReader. It can digitise any type of document, however complex. Charts and pictures aren't any problem with the FineReader. Just scan, OCR and archive—the OCR process is as simple as this.

When it comes to scanning, however, you will need something that supports automatic feeding of documents. Scanning thousands of sheets manually is both impractical and unfeasible.

Contemporary scanners have in-built OCR software helping you to simply feed in a document and get a PDF file as output.

Now, here's where the smart solutions come in. Consider, for example, HP's high-speed Scanjet 5590. The scanner comes with its unique document-management software and a 50-page duplex automatic document feeder. The machine makes it easy for the users to manage multiple documents and paperwork.

At a price tag of Rs 26,990, the product even features a Transparent Materials Adapter (TMA) that helps convert negatives and slides to digital images.

The scanner comes with in-built document management software. The additional capability of scanning books and 3D objects makes the HP Scanjet 5590 a boon for office users. It is ideal for those looking for better control of management of documents for digitising, indexing, storing and retrieval purposes.

> **Scanjets will be integral to infrastructure in organisations where document flow is high.**
>
> **Manu Sharma,** Country Category Manager, Digital Imaging Products, HP

Says Manu Sharma, Country Category Manager, Digital Imaging Products, HP: "The HP Scanjet 5590 will serve as an integral requirement for organisations where document flow is high, such as financial services, logistics and large distribution companies with dealer networks, etc."

Xerox takes this concept of paperless office a step further. FlowPort, Xerox's image routing software, lets you move smoothly between hard copy and digital information. You can capture, store, access and retrieve just about any kind of document.

The idea is, when people actually have immediate access to the documents they need, instead of saying, "I'll courier you a copy when I find it," they can say, "I have it right here on my screen."

FlowPort turns hard copy documents, even complex ones, into high-quality digital documents. It then routes it to e-mail, document repositories, or other applications, where it can be easily accessed and shared.

The FlowPort Cover Sheet shows a sample of a digitised task list

It even does the reverse: It identifies and retrieves specific digital documents and routes them for faxing, e-mailing or printing to a specific output device. Ergo, work is now easier and cheaper.

FlowPort's user interface is a piece of intelligent paper—a Paper Ware Cover Sheet that puts documents exactly where you want them, with the simplicity of a checkbox and a green button. You can route documents anywhere on your network by marking checkboxes on the PaperWare Cover Sheets. Essentially, you need to put a Cover Sheet with the document. Then scan it to FlowPort on a network scanner or a traditional fax machine.

All you have to do now is push the button. FlowPort interprets the Cover Sheet and routes the documents accordingly. For example, a Cover Sheet contains checkboxes for several categories. E-mail the document to a specified team, send the document to a specified printer in a particular department, or send the document to a Xerox DocuShare collection, in a specified category.

Once this is done, they are instantly available—minus the costs of a crowd of people managing them, transportation delays and delivery fees. FlowPort even tells you, when your files arrive, where you want them, with printed or e-mailed confirmation reports.

Once all that paper is off your desk and out of your file cabinets, you can use PaperWare Document Tokens and Document Catalogues. They give you FlowPort-specific retrieval instructions to find and print files from any FlowPort supported repository.

Document Organisation and Retrieval

- OCR your documents, using either the in-built OCR software or a third-party OCR software, using the Scanjet 5590.
- NewSoft's Presto! Page Manager saves the results as thumbnails. The thumbnails will contain relevant information about each document.
- Create appropriate directories, for example, 'June', or 'Meetings', and save the thumbnails to the appropriate directories.
- Later, when you need to retrieve a document, use as many or as few keywords as you want. The software will automatically find all documents containing the keywords or keyphrases

A Final Word

Think paperless. Documents belong in the PC, not on paper!

More advanced solutions such as Xerox's DocuMate series are not available in India yet, but should be, soon.

Archiving and organising are a smooth process if your documents are digital.

Seeking a completely paperless office is unrealistic, but you can definitely go quite a good way towards clearing the clutter.

And becoming greener. ■

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Baazee.com

Trading on this auction site is fun, and addictive

Robert Sovereign-Smith

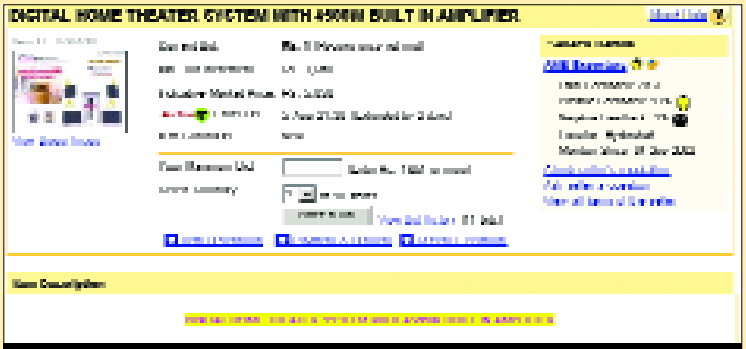
It is a Web site we are familiar with, yet we hardly know how it works. Baazee, arguably India's most accessed e-commerce site, has hundreds of links that give you thousands of options. And therein lies the problem—how to create order out of those options? A few pointers would help:

Register

You need to register with Baazee to conduct any transaction. The procedure is simple, and similar to the one followed by other Web sites.

Search

You can search products in two ways: Either use the Search field from the home page, or browse through the various categories by clicking the respective links.



Most vendors accept Cash on Delivery (CoD), allaying Internet fraud fears

Buy

There are five different ways items are sold on Baazee:

QuickBuy: If you like a product that is priced within your budget, click on Buy Now. There is no auction process in this category; hence bidding is out of the question. The buying process is the simplest here.

Auctions: Search for and select an item. Each item is accompanied by a 'Current Bid Status', which indicates the highest bid for that product thus far.

Often there is a 'Reserve Price' for a product. A seller usually sets a Reserve Price so that he doesn't have to sell at a ridiculously low price if no one bids on his item. Otherwise, people might be able to buy a car for Rs 10, or something equally ridiculous. If the final bid is below the Reserve Price, the transaction is considered complete. Though we have all heard stories about people buying stuff at dirt cheap prices, don't hold your breath, at the end of the day, the sellers are here to make money, not lose it.

MaxBid: This new concept by Baazee involves a little thinking, a bit of luck and some 'Baazee Points', which can get you that proverbial 'steal of a deal'.

Here's how it works: Buying stuff in the Quick Buys section earns you Baazee points. Redeem these to enter MaxBid. A MaxBid item is sold at a 90 per cent discount on its MRP. So, a Rs 20,000 video camera is sold on MaxBid for Rs 2,000. Use a few hundred Baazee Points to bid on such products, and remember to bid as close to the MaxBid as possible. All bids are compared once the maximum bids limit (as in, the number of bids) is reached. Two or more biddings of the same price are discarded, and the winner is the highest unique bid. Hence, you can get that video camera for any price below Rs 2,000—if no other bidder choses the same bid amount, or a unique bid that's higher.

Secondhand Goods: The Secondhand Goods store sells anything from computer memory to laptops, or sofa sets to houses—all at discounted prices. However, before you take the plunge, remember the phrase "Let the buyer beware". If you opt for secondhand, it's always at your own risk, since there is no warranty for any of the goods you buy.

The 99 Store: Another innovative section for those with slim wallets. Purchase anything in this store for Rs 99 or less. T-shirts, VCDs, pendants, wallets, and more—they are all here.

The Baazee Home Page shows the three steps to buy

Pay

The most common form of payment is Cash on Delivery (COD), popular among individuals who are wary of revealing their credit card number on the Web, or small businesses operating on Baazee. Bigger vendors accept credit cards, demand drafts, cheques and electronic bank transfers.

Sell

Baazee is a great place to set up your own business online without investing in expensive real estate. There are three ways to sell your goods: Auction, QuickBuy or Classifieds. You can 'Auction' absolutely anything except real estate and services. QuickBuy is for anything except real estate, services and automobiles, and Classifieds are only for real estate and services. Depending on what you are selling, choose between Auction and QuickBuy.

Remember that QuickBuy is a fixed-price sale—so people will either like or dislike your offer. Auctions, on the other hand, let people bid on the item, and you may end up with more than what you expected. However, you should know that Indian buyers are not likely to pay extra.

After you choose the way you are going to sell, you have to select a category. Choose one that your goods fit into, and you will see a verification page with relevant details. Click on Verify Me, and Baazee's customer service promises to contact you within 24 hours. Once they complete their verification process, you are informed via e-mail, and are then allowed to put up your item for sale.

Now that eBay.com has bought Baazee, we can expect more innovative buying and selling options from the site. Until then, keep searching for the proverbial 'steal of a deal.' ■

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eBay buys out Baazee

This past June, eBay bought Baazee.com Inc. and its subsidiary Baazee.com India Pvt Ltd, for $50 million (Rs 230 crore). In turn, Baazee.com will use its relationship with eBay to further develop its business and strengthen its position in India's e-commerce market.

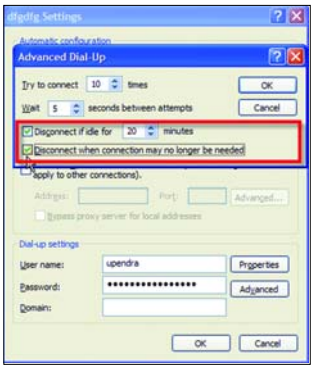
Retrieving Lost Password For Content Advisor

Control the Web sites that users surf using your PC via Content Advisor in IE. Specify a password. Forget the password and you may not be able to visit certain Web sites at all. There is a work around though. Go to **Start > Run**, and type 'regedit' to bring up the registry editor. Navigate to the registry key **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\Ratings**. Delete the key entry in the right pane and close the registry editor. Now, start Internet Explorer, go to **Tools > Internet Options > Content > Content Advisor** and click '**Disable Ratings**'. Do not enter any password when asked to do so and click **OK**. That's it! All Content Advisor Settings eliminated.

Auto-disconnect

This feature was enabled by default in IE4; not so in the latest version. Enabling it lets you specify the period of inactivity after which the Internet connection is disconnected. You can also configure it to prompt you to ascertain that IE should go offline, when you close all its instances—a useful feature for dial-up users.

Open Internet Explorer, go to **Tools > Internet Options** , flip to the Connections tab, click Settings and then click Advanced. Select the checkboxes that says '**Disconnect If Idle for [X] minutes**' and 'Disconnect when connection may no longer be needed'.

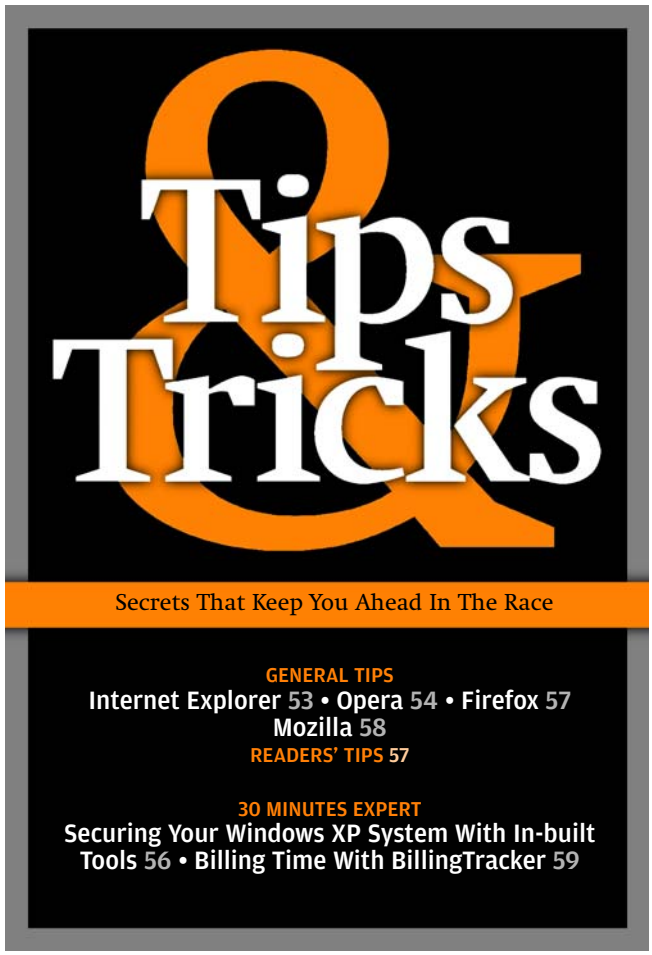


You can set Internet Explorer to disconnect the dialup connection automatically when you don't need it

Click **OK** thrice to save changes.

FTP With Internet Explorer

Internet Explorer can emulate an FTP client. Simply type in addresses in the following format: **ftp://username:password@servername.com**. If you are behind a firewall, or cannot access FTP folders, try using the Passive mode. To enable this, go to **Tools > Internet Options**, switch to the Advanced tab and enable the '**Use Passive FTP (for firewall and DSL modem compatibility)**' checkbox under Browsing Settings.



Scroll Through History

If your mouse has the scroll wheel, then simply press the [**Shift**] button and scroll up or down to go forward or backward in the browser history.

Disable Images, Graphics

Disable all graphics and images of a Web site to load the page faster or to save costs of ink while printing, Here's how you do this: make a plain text file with the line '**IMG { display: none !important;}**' in it and save it as **imagesoff.css**. Use Notepad to do this. Now, in **Tools > Internet Options**, press the 'Accessibility' button. Use the '**user style sheet**' option to specify the .css file you just created. Once you press **OK**, all your images will vanish, until you go back to the Internet Options dialog and disable the selected settings.

Zoom In/Out Quickly

To increase the font size on a Web site using the scroll wheel of the mouse, scroll your mouse down, while pressing the [**Ctrl**] button. Scroll up to reduce the font size.

Get Alerts On Updates

Many IE users hardly know how to use the **Offline Viewing** feature of Internet Explorer. If you visit a particular Web site regularly, you can add it to your list of favourites, and click on '**Organize Favourites**'. Now, click on the '**Make available offline**' option and select '**Properties**'. You can even set the rate at which IE checks whether the page is updated. If the page does get updated, IE can alert you by displaying a small red icon in the favourite list, or even by sending you an e-mail.

Make a Web site available offline on the 'Organize Favourites' window

Home Sweet Home

Another feature that's seldom used, is the homepage. If you start browsing your Internet every time by a specific Web site—an e-mail site or or your homepage, for example—you can set the URL of this Web sites as your browser's homepage. This will cause IE to start by visiting that URL first. Set this by going to **Tools > Internet Options** and inserting the URL in the 'Home page' field.

Auto-flush Browser Cache

If you wish to clean up your surfing trackswhen you are done, but hate to empty your IE cache manually, then here is 1a better way out. Go to **Tools > Internet Options** and flip to the Advanced panel. Scroll down to Security and check '**Empty Temporary Internet Files folder when browser is closed**' and click **OK**, IE will now automatically delete its cache when you close the browser window.

Keep History Trimmed

You can configure Internet Explorer to

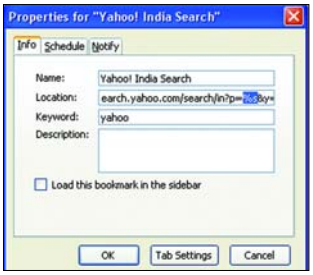
Bet You Didn't Know

Your Own Search Keywords in Internet Explorer

Opera and Firefox let you use keywords to search from the address bar. You can implement this in Internet Explorer too via a registry tweak. If that frightens you, use the Tweak UI utility, which can be downloaded from Microsoft's Web site.

Visit the search engine site you want to add a keyword for, search for something, say a phrase, and copy the URL. Next, expand Internet Explorer in the left pane of Tweak UI and then click Search. In the right pane, click Create and paste in the URL. Now, replace the phrase you searched for with %s, and enter a keyword of your choice in the Prefix box. For example, if you want to add Google, your search string will be something like **http://www.google.co.in/search?q=%s** and the keyword may be g. Click OK twice to change your settings. The next time you want to google Digit, just type in 'g Digit' in the address bar.

automatically delete the history of visited Web sites. Go to **Tools > Internet Options**. On the first tab, under 'History', set the number of days for which the browser should retain the history. If you enter five, then all track of Web sites older than five days gets purged automatically.



Add your keywords for easy, customised searches

Opera

Multiple Sessions

You can start surfing with the same set of Web sites by saving them as a session.

For example, if you like to start out with a Web-based e-mail site along with a couple of news sites, open them and click on **File > Sessions > Save session.** Save the file with a .win extension in the default location.

You can recall these saved sessions even while browsing some other sites; **File > Sessions > Insert Session** will take care of this. Next, press [Alt] + [P] to bring the

You can choose to start any saved session or last auto-saved session when you start Opera

Preferences dialog, head to **File > Preferences > Start** and Exit. Here, check **'Show start-up dialog'** to bring up the startup dialog box every time you open Opera.

This box allows you to maintain multiple sessions and eliminates the frustration associated with a browser crash—you can start browsing at exactly the point where the crash occurred, a very useful feature. The default path for the saved sessions is:

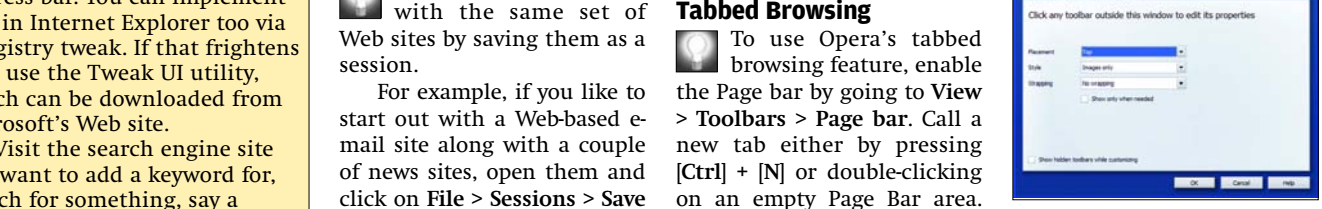
- Windows 2000/XP: **C:\Documentsand Settings\<login name>\Application Data\Opera\Opera7\profile\sessions\opera.win**
- Windows 95/98: **C:\Windows\ApplicationData\Opera\Opera7\sessions\opera.win**

Tabbed Browsing

To use Opera's tabbed browsing feature, enable the Page bar by going to **View > Toolbars > Page bar**. Call a new tab either by pressing [Ctrl] + [N] or double-clicking on an empty Page Bar area. Right-clicking a link and selecting **'Open in background page'** opens a tab in the background—a better feature, as it lets you browse the parent page as the link opens without disturbing you. Note that the text of the tab changes colour once it finishes loading a Web page. Browse between tabs by using [Ctrl] + [Tab]. You can also use the mouse to do this: With the mouse right-clicked, use the scroll button to move up and down the list of tabs. Use [Ctrl]+[W] to close any active tab. Close all open tabs using [Ctrl] + [Shift] + [W]. To close all tabs, but the one you are browsing under, press [Ctrl] + [Alt] + [W]. You can also change the position of the tabs by simply dragging and dropping them wherever you deem them to be fit.

Clothes Make the Browser

The default user interface can be tweaked to be leaner and much less of a resource-hogger. Right-click on the Main Bar, click on **'Images only'**, and then uncheck **'Large images'**. Right-click again and choose Left, then disable the Personal Toolbar by right-clicking on it and selecting 'Off'. Switch off the Hotlist by pressing [F4]. To make the interface cleaner and more user-friendly, you can perform the following modifications: go to **View > Status Bar > Bottom, View > Page Bar > Top, View > Address Bar > Top, View Navigation Bar > Auto**. You can drag-and-drop elements to the toolbars. We will do so for the Address Bar: right-click and choose **'Customize toolbars'**. You will find three tabs here: Large, Small and Fields. The last tab is where you will find search options—the Zoom and Status fields. Let us add the Google search field to the Address Bar. Just click on it and drag it to the bar. Note that it is a drop-down field. An especially useful search criterion is 'Find' in the page search, which highlights keywords within the Web page as you type in the field.



Opera is the most customisable browser around. You can easily change buttons and the position of all the toolbars

Illustrations: Farzana Cooper

get Tribes 2

The Full Game (538 MB) on Digit DVD

Magic Wand

Logging on to Web sites is a much simpler task thanks to the Wand feature-a password and forms manager. Log in to a site and let Opera save your username and password. When you next come to the same site, the login boxes will be bordered golden. Press [Ctrl] + [Enter] at the login

screen and Opera fills in the requisite personal information, and automatically log in. All Wand passwords can be cleared from '**Delete private data**' on the File menu. Your usernames and passwords are scrambled by the Wand before they are saved to disk. However, for added protection you may set a master password in Opera's Security preferences. Press [**Alt**] + [**P**] and go to the Security section of the Preferences dialog box. Click on '**Set password**' next to '**Master password**' for added security. You can also change it when Opera asks you for the password, and when it asks whether the same should be used for both the e-mail client and the Wand.

Search Me

Opera supports several search engines. You can either type in a query into the search field—[**Shift**] + [**F8**]—or you can use the Address Bar to do the same. Every engine is associated with a single letter; thus, Google gets a 'g', Download. com gets a 'w', etc. Press [**Alt**] + [**P**] and go to the Search option for the list of engines supported and the associated letter. Here, you can also change the number of results displayed per page. To use the Address Bar for a Google search, press [**F8**] and precede a query with a 'g,' for example, 'g X-Men movie Web site' [**Enter**], will search for the 'X-Men...' string in Google.

Forward/Rewind

When viewing a page with no user forward history, Opera will try to detect a possible forward link that you can access. The Forward icon will change into a FastForward icon when this is possible.

Certain Web sites, mostly forums and search engines, have a single link at the bottom that takes you to the next page of posts. Try it with a search engine to go to the Next page link, or when reading a multi-page article.

It can detect link-next elements, and will perform checks to find one if not. Press the spacebar to follow the link to the next post, or page. Rewind takes you back to a site in the history. If you have jumped from Google.com to Thinkdigit.com, you can rewind to Google by pressing [Shift] + [Z]. Rewind takes you back a Web site, so unless you have followed more than one link at Thinkdigit.com, you can press [Shift] + [Z] to go instantly back to Google.

Pressing [Z], on the other hand, would take you just one page back. Note that [Shift] + [X] takes you forward in a similar vein.

Slideshow

In a Web site that has a lot of images linked in a continuous manner (for example, a site that displays family photos or screenshots of games), you can use the Slideshow feature of Opera to enjoy the pictures better. The FastForward button displays photo files on the Web in a

slideshow. To see photos full-screen on a black background, press [**F11**] to invoke Opera's presentation tool, OperaShow.

Reload Time

Opera can reload a Web site after a user-specified time. Right-click on a Web page and go to **Reload every** > **Enable**. Note that you can also set a custom time, to reload at, say, every two minutes and 30 seconds.

The Custom dialog box also lets you reload only if the Web page has expired (as determined by the site programmer). Great for those cricket score Web sites!

By Proxy

To set up a proxy server, press [**Alt**] + [**P**] > **Network** > **Proxy Servers**. Add the address and port number for the appropriate type of the proxy server here, and just make sure that the checkbox is ticked. You can also disable proxies for certain addresses, such as within a LAN, and can point Opera to an automatic proxy configuration URL, in case your ISP requires such a setting.

Bet You Didn't Know

Mouse Gestures in Opera

Mouse gestures are a novel way to navigate the Web using Opera. For instance, you can hold the right mouse button and draw an 'L' on a Web page to indicate that you want it closed. Similarly, right-click and hold the mouse over a link and move it down and then up to open the link in the background window. Here are some gestures supported by Opera. Click and hold the right mouse button, move the mouse in the directions indicated below and then release the button:

- Open new document: Move down
- Reload: Move up and down
- Restore or maximise window: Move up then right
- Minimise: Move down then left
- Duplicate window: Move down then up
- Close document: Move down then right, or move right-left-right

Note it Down

Opera lets you keep snippets of text from Web sites as notes. For example, a particularly interesting piece of news can be saved for posterity as a note. To do this, select any amount of text off a Web page, right-click and click on '**Copy to note**' ([**Ctrl**] + [**Shift**] + [**C**]). Notes can then be accessed by pressing the [F4] key, to invoke the Hotlist under the Notes section. You can delete notes here

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Securing Your Windows XP System with In-built Tools

Just set up a new installation of Windows XP Professional? Here is what you need to do to secure the PC using in-built tools in Windows XP

Deepak Dhingra

Enable Firewall

Before you connect to the Internet or your LAN, enable the built-in firewall—without this, your PC may be infected with Blaster or Sasser within minutes of connecting. To do so:

1. Go to **Start > Control Panel > Network and Internet Connections > Network Connections**.
2. Right click on the connection you want to protect and click Properties.
3. Click on the Advanced tab and then select '**Protect my computer and network by limiting or preventing access to this computer from the Internet.**' Click **OK**.

Internet Connection Firewall

Also Remember

- Install an antivirus software, such as the free AVG or Avast anti-virus solutions to protect your computer from viruses. Let the software get automatic updates to its virus definitions to make sure that you are immune to the latest threats.
- Do not open unidentified e-mail attachments.
- Do not share passwords and credit card numbers with anyone over the Internet.

Install Security Updates

Security updates protect your computer from vulnerabilities and malicious code. Whenever threats are detected, Microsoft promptly releases security patches for their OSes. Windows XP comes with an automatic update feature that downloads new patches automatically. To activate it:

1. Go to **Start > Control Panel > Performance & Maintenance > System**.
2. Click Automatic Updates, and then select Keep my computer up to date.
3. Select an appropriate setting. You can specify a schedule as to when the updates will be downloaded and installed.

Since Automatic Update only installs future updates, you will also need to go to the Microsoft Web site for updates and install the latest available updates.

1. Go to **http://windowsupdate.microsoft.com**
2. Click '**Scan for Updates.**' Windows Update scans your computer and displays a preselected list of critical updates.
3. Under '**Pick updates to install,**' click 'Critical Updates and Service Packs'. A list of the updates that are appropriate is generated. Critical updates are selected for download by default.
4. Click '**Review and install updates.**'
5. Select the updates and then click **Install Now**.

Create Users

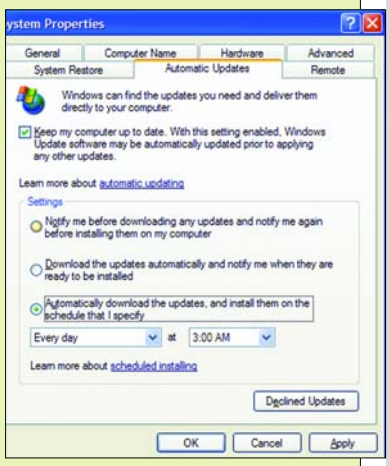
The User Accounts features in Windows XP can also be used to protect your computer from unauthorised access. To avoid misuse, you can create limited user accounts. If your PC is 'hacked' while you are logged in as a 'limited' user, the hacker can only inflict limited damage. To set up a user account:

1. Go to **Start > Control Panel > User Accounts**.
2. Under Pick a task, click Create a new account.
3. On the '**Name the new account**' window, type a name for the new account. Click **Next**.
4. On the '**Pick an account type**' page, click the type of account, and click **Create Account**.

You need to assign a password to your administrator account so that only you can access it:

1. Go to **Start > Control Panel > User Accounts**.
2. Under '**Pick an account to change,**' select and click on the name of your account.
3. On the '**What do you want to change about your account**' page, click '**Create a password.**'
4. In the 'Type a new password' box, enter a password, and follow the steps that come up.
5. Click '**Create Password.**'

deepak_dhingra@thinkdigit.com,



The settings for Automatic Updates

get Knoppix

The Linux Distribution (700MB) on Digit DVD

Readers' Tips

Firefox

Navigation Made Easy

Firefox lets you navigate browser history with ease using the scroll wheel. Press [**Shift**] and roll the wheel backwards to visit the previous Web page, or forward to go back to the next Web page.

Sreevirus

Opera Tricks

Some Commands For The Web Page

Here are some smart Opera tricks up my sleeve. Double-click on a blank page to go to the predefined homepage. Middle-click on a link to open it in a background window. If the heavy Java system slows the browser down, press [**F12**] and uncheck '**Enable Java**'. Press the Spacebar twice to '**FastForward**' to the next page. Opera intelligently 'looks' at a page and detects '**Next**' hyperlinks. Use [Ctrl]+[Alt]+[V] to validate Web pages. Press [G] to toggle between preventing image to load or permitting them to load afresh, or from the cache. And by the way, Opera lets you reopen windows closed in the current session by going to **Window > Closed**. Press [Ctrl]+[Alt]+[Z] to reopen the Web page that was closed last.

great_manish

News Feeds

About Opera and RSS

RSS feeds publish news to Opera, hence you can get to know the latest without actually browsing any news sites. Go to **Mail > News Feeds**. A dialogue showing a few news sites such as BBC, etc., comes up. Check the ones already mentioned or add a Web site of your choice, and Opera fetches news from that site at the specified time interval.

No need to press the refresh thing at all. News downloaded is elegantly indicated by a small popup to the bottom left of the browser. News sites such as Yahoo! **(http://story.news.yahoo.com/news?tmpl=s&u=/rss_index_tech/static)** and Reuters **(http://reuters.com/newsrss.jhtml)** that provide free RSS feeds can be good places to start with.

Deep

and create new ones as well. You can also send a note via e-mail by right-clicking on it.

Hotlist

The Hotlist panel is toggled by the [**F4**] key. It is a repository of useful stuff—Bookmarks, Mail, Contacts, History and Transfers can be accessed from here. It also provides a quick listing of all the windows open (Windows), information on the Web page that you are browsing (Info), and a listing of all the links off a Web page (Links).

If that were not enough, you can customise this panel by adding games, news pages, dictionaries, etc. To make a Web page show up in the Hotlist, bookmark the page by pressing [**Ctrl**] + [**T**] and select to show it as a panel. You can find more panels, specifically designed for the slim, vertical layout that the Hotlist offers, at **http://my.opera.com/customize/ panel/**.

Bookmarks

To file a bookmark, press [**Ctrl**] + [**T**]. You can show the page under the Hotlist or on the Personal Bar here. You can also give a bookmark a nickname. For example, by giving Thinkdigit.com the nickname 'Home,' you can enter 'Home' in the Address bar, and Opera will take you to the Web site. Make sure you do not assign a common URL such as 'Microsoft.' A bookmarked site gets precedence over a URL, so typing in 'Microsoft' will take you to Thinkdigit.com in this case. Manage your bookmarks by pressing [**Ctrl**] + [**Alt**] + [**B**]. Note that deleted ones are stored in a Trash folder. You can import bookmarks from IE, Netscape, Mozilla, etc, over here. You can also export your current bookmarks for backup or other purposes.

Mail

It is possible to import e-mails to Opera's M2 e-mail client, from earlier versions of Opera as well as from Outlook Express, Eudora, Netscape Mail (only version 6 and 7), or any mailbox stored in the generic mbox format, including older versions of Netscape. Select **File > Import > Mail** to import your e-mail. You can import different accounts, folders, settings and contacts.

When importing from Opera 6, the folder structure will be copied to 'My folder,' and the imported e-mails will be saved to the Received folder. Quick reply is useful for chat-like conversations. You can type a short text that will be appended to the top of the original quoted message.

When you are viewing an e-mail, type your message in the text box, and click on the '**Quick reply**' button. This will send the reply to all the recipients of the original e-mail. Set up filters for My folders and Spam by right-clicking on a folder and then Properties. Click on Add filter: Boolean operators are supported—you can match your filters by criteria such as Sender, To header, or Entire mail. The condition can be set to 'Contains', 'Doesn't contain', or 'Matches regular expression'.

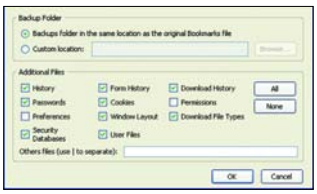
When you are finished with each filter, set the filters to 'And' if your messages must satisfy all the filter terms, or 'Or' if they only need to match one of them.

Firefox

Backing Up

Use MozBackup **(http://backup.jasnapaka.com)** to back up your profile. This freeware utility works with Mozilla, Mozilla Firefox, Mozilla Thunderbird and Netscape. It allows you to backup e-mails, favourites, contacts, etc. Just run MozBackup and choose what you want to backup.

Bookmark Backups: the name of this extension



Use Bookmark Backup to backup Bookmarks and other settings in Firefox

Use MozBackup to backup important settings automatically

explains its function. Firefox uses it to copy the bookmarks file to a desired location as you close the browser. If the original file gets corrupt or lost, you can restore the latest backup by copying into your profile folder. Simply go to **Tools > Extensions**, and click Options to choose what you want to back up. Apart from bookmarks, you can specify other files to back up too. Be warned though: use this extension along with the regular profile backup. Download Bookmark Backups from **http://www.pikey.me.uk/mozilla/?extension=bb**.

Profile Games

All personal settings such asfavourites list, history, cookies, e-mail settings, etc, constitute one profile.

Firefox uses profiles to manage multiple users. As a rule, you have to delete the installation directory whenever you install a newer version of Firefox, but you can safely retain the profiles folder and restore it.

Use Bookmark Backup to backup Bookmarks and other settings of Firefox

Knowing the location of the profile can be useful when you install a newer version or reinstall the existing version, when you are migrating to another computer, or just backing up settings. This folder is located at **C:\Documents and Settings\<Windowslogin/username>\Application Data\Mozilla\FireFox\Profiles\<Profile name> in Windows XP /2000** and at **C:\Windows\ApplicationData\Mozilla\Firefox\Profiles\<Profile name>**.

Extensions

Akin to plugins, extensions are software that work with Firefox to give you the desired functionality. Download more than 200 such extensions at **http://extensionroom.mozdev.org/main.php/Firefox**.

Tabbed Browsing

Tabs let you open many Web pages simultaneously. It reduces clutter at the Task bar and brings other added benefits, such as sessions, with it. Most popular browsers such as Opera, Netscape, Mozilla, and, obviously Firefox support tabbed browsing.

You can also use extensions to enhance tab functionality. Some of them are:

- Flowing Tabs: Wraps tabs onto multiple rows
- Session Saver: Remembers open tabs and reopens them the next time you use the browser
- Tab Killer: Disables tabbed browsing
- Tab Scroller: Lets you switch between tabs using the scroll wheel
- Tab X: Adds a Close button to every tab
- Undoclosetab: Allows you to reopen tabs closed recently

Tab browser Extensions or 'TBE' **(http://white.sakura.ne.jp/~piro/xul/_tabextensions.html.en)** is a heavy duty extension that lets you reopen up to 50 closed tabs, drag-and-drop and thus rearrange tabs and use the mouse to navigate. It also bestows a Close button and a progress bar on each tab, and also bundles along the auto-reload feature.

Customising Configuration

Here's how you configure Firefox real quick. Simply type **'about:config'** in its address bar and press [Enter] to bring up a list of customisable features. Changing a value for a feature is as simple as double-clicking it and entering the appropriate value. Change these values only if you are sure of what you intend doing.

For example, to alter image animation, find the line that says **image.animation_mode** and change it to once, none or normal. 'Once' causes animations to play once, none stops all animation and normal indicates default animation.

Easy Search

Search using your favourite search engine via the search bar in Firefox. Press **[Ctrl]+[K]**, type the search phrase and press **[Enter]** to search using Google—the default search engine. To add more search engines, click the arrow at the search bar and choose '**Add engines**'. This brings you to a Web site offering search engine plugins.

An easier way to search is by using keywords. For example, type 'google searchphrase' in the address bar to search in Google. Other keywords are: 'goto' to use Google's 'I'm Feeling Lucky' search, 'dict' to search dictionary.com, etc. You can come up with your own keywords too: Add the page (that you intend creating a keyword for) to bookmarks, point to this entry, right-click and choose Properties. Replace the phrase you searched for on the Web page with '%s', type in a value in the keyword field and then click **OK**.

Load Firefox Faster

In Windows XP, right-click the icon you choose to start Firefox and choose Properties. In the target box, add **'/Prefetch:1'** to the end of the line so that it reads: **'C:\Program Files\Mozilla Firefox\Firefox.exe" /Prefetch:1'**. This gets Firefox to load faster.

Bet You Didn't Know

Importing IE Cookies into Firefox

Open Internet Explorer, go to **File > Import / Export** and choose **'Export Cookies'**. Specify a location and click **OK**. Now, open this file and put a dot before every line. For example, **'yahoo.com TRUE/FALSE 1271725143'** becomes **'.yahoo.com TRUE/FALSE 1271725143'**. Now, move this file into Firefox's profiles folder.

Mozilla

Form Manager

To better fill out forms on Web sites, the Form Manger can remember your personal information. Go to **Edit > Preferences > Privacy & Security > Forms** and click on the **'Save data from...'** checkbox. Furthermore, you can also pre-fill personal details by clicking on the 'Manage Stored Form Data' button.

getDOOM 3

'The Making Of Doom 3' Video On Digit DVD

Tip Of The Month

Question: In Opera, is there a way to arrange my downloads automatically by folders?

Answer: Yes, you can do so. Among the many features that Opera comes loaded with is one that automatically organises all your downloads (transfers) as separate folders, based on the type of files downloaded.

To have Opera accomplish this feat, go to **Tools > Preferences** and select the **'File types'** section of the Preferences dialog box.

Here, locate the file type that you intend sending to a specific folder. For example, to send your downloaded MP3 songs to your **'c:\music'** folder, search for the MIME type called **'Audio/mpeg'** with file extensions of MP3, MP2, and MPGA.

You can use the Search box on the top to type in the extension you need (for this, you have to uncheck **'Hide file types opened with Opera'**). Once located, click **Edit** and in the dialog box that opens.

Click on **'Save to disk'** and **'Do not ask for folder, but save directly to'** and then enter the target folder—eg, **'c:\music'**—in the text box that you see there. Click **OK** and you are done!

Repeat the same steps for extensions of all the other files that you want to store in different folders.

30 Minutes Expert

Billing Time with BillingTracker

Freelancers—manage your clients, invoices, expenses, work, and more

BillingTracker Pro is is the ideal time-management tool for freelancers, whose earnings depend on the time spent on a project.

Setting it Up

The latest version of BillingTracker Pro is on the September *Digit* DVD/CD.

Entering Client details and then Project details are the initial steps to start using BillingTracker

Freelancers work for several clients at the same time. Also, there are several projects to be tackled for each client. This is when BillingTracker comes in handy.

To enter client details, go to **Manage > Manage Clients**. Click the '**Add new client**' button at the bottom of the program window. Entering Client details and then Project details, are the initial steps to start using BillingTracker. You can add as many clients you want by clicking the '**Add new client**' button.

Next, go to **Manage > Manage Projects** and choose the name of the client from the dropdown list. Then click '**Add a new project**' to enter project details for the client name that you selected.

Use the Timer function to keep constant track of the time spent on various projects: Go to **Manage > Timer**. Here, you get to keep track of two projects simultaneously. Choose the first client and project and click the button '**Set A**'. Then select the second client and project and click '**Set A**'. Now, you can simply use the Start button to start the timer, the Pause button to pause it and the '**double arrow**' button to switch between the projects.

Managing Expenses

All you have to is go to **Manage > Manage Expenses**, and you get to view all the expenses incurred. To record a new expense, just click on '**Add a new expense**' button, and enter the values.

Managing Work

Whenever you complete a particular task, you can enter it to keep track of the time taken. Go to **Manage > Manage Work** to view the list of all the work done.

It's Billing Time

Here comes the most crucial part of the software—creating invoices and billing your clients. To manage all your invoices, go to **Manage > Manage Invoice**, and you will get to see a list of all invoices that you have created. You can search for any particular invoice.

Keep track of the time spent on projects using this tool

Got Payment?

BillingTracker Pro is designed to manage all your transactions with clients. To record payments received, go to **Manage > Manage Payments**, and click '**Add a new payment**'. It will show you a list of all outstanding invoices.

no more excuses!

DVD-RW @ Rs. 4750 Only

Contact information, billing details and shipping particulars can all be separate sets of data, granting greater flexibility. After you configure it, you can save a relevant form's data from **Edit > Save Form Info** and the saved data can be loaded by clicking on **Edit > Fill in Form**. You can select which fields to auto-fill here.

Bet You Didn't Know

Changing the Words 'Mozilla Firefox' in the Window Title

Navigate to the installation folder. Typically, it's **C:\Program Files\Mozilla Firefox**. Once there, copy a folder called chrome to some other location, so that you can restore it later if something goes wrong. Extract en-US.jar (present in this folder), unzip it, and go to **locale\en-US\global** folder. Open the file brand.dtd using Notepad. Locate these lines:

<!ENTITY brandShortName "Firefox">
<!ENTITY brandFullName "Mozilla Firefox">
<!ENTITY version "0.8">
<!ENTITY vendorShortName "Mozilla Firefox">

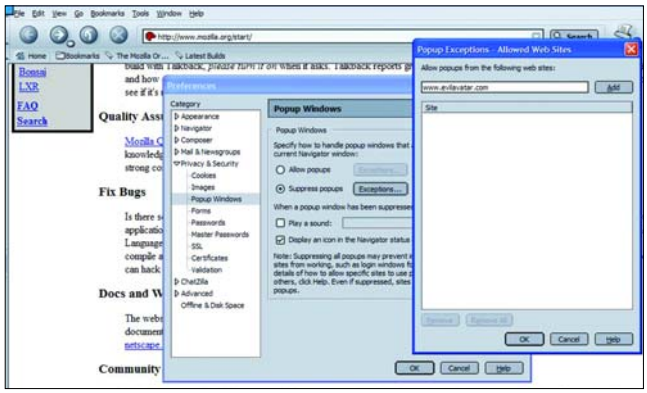
and change them to:

<!ENTITY brandShortName "My Browser">
<!ENTITY brandFullName "My Browser">
<!ENTITY version "1.0">
<!ENTITY vendorShortName "My Browser">

Now zip the folder and start Firefox to see the results. If you plan to use the inbuilt zip feature of Windows XP, rename the extension of en-US.jar file to .zip, unzip it, make the changes, zip it and change its extension back to .jar. In case anything goes wrong, replace this folder with its backup.

Popup Windows

Annoying popups can be turned off from **Edit > Preferences > Privacy & Security > Popup Windows**. You can also define Web sites as exceptions for both allowing and suppressing pop-up windows. Also, Mozilla displays a confirmation dialog box, and displays an icon in the status bar upon popup blocking.



You can block pop-ups and create a list of exceptions—sites whose pop-ups are not blocked

Managing Passwords

Password Manager stores your login information for password-protected Web sites, mail and news servers. Turn on this option from **Edit > Preferences > Privacy & Security > Passwords**. You can also encrypt this stored data. Stored data such as passwords can have a master password acting as a safety mechanism. This way, Mozilla can confirm your identity before auto-filling login information and such. You can tell the browser to ask you the master password either the first time it is needed, or every time. It can also be tagged to a time limit—useful if your PC is used by multiple users.

Bookmark Keywords

To set keywords (custom shortcuts to bookmarks): go to **Bookmarks > Manage Bookmarks (or press [Ctrl] + [B])** and select the bookmark you want to set a keyword for. Click Properties or press **[Ctrl] + [I]** and enter a keyword for that bookmark. You will be able to go there by entering this keyword in the address bar.

Rescue Me

If your old profile has been corrupted, this is how you can rescue it:

1. Note the name of the folder with the old profile.
2. Start the Profile Manager and create a new profile. Exit Mozilla (and also Quick Launch).
3. Go to the profile folders. Copy all files from the old profile folder to the new profile folder, allowing existing files in the new profile's folder to be replaced.
4. If you want to copy your form data and passwords: save your form data and passwords in your new profile. Find the two numbered files with the .w and .s extensions in your new profile's folder. Make copies of the files with the same extensions in your old profile folder, rename them (with numbers matching those of the files in the new profile folder. Copy them to the new profile. Replace the files.
5. Restart the Profile Manager and start with the new profile. The contents of your old profile should now have been successfully restored to the new profile.

Add-Ons: Visit **http://www.mozdev.org/projects/active.html** for more add-ons.

Bet You Didn't Know

Speed Browsing in Mozilla

Go to **Edit > Preferences > Advanced > HTTP Networking** and check **'Enable Pipelining'**. Mozilla defaults this to 'off' as certain servers and proxies have problems with pipelining, but when 'on', the browser fetches everything on the page in a single connection, rather than making one connection for each item, thus boosting browsing performance.

MozBlog: Blog with Mozilla while you surf—**http://mozblog.mozdev.org/MouseGesture Support**: Navigate the Web using click-and-drag mouse gestures **http://optimoz.mozdev/gestures/Piemenus**. A radical way to access the Mozilla UI, Piemenus reduces mouses movements and is easy to adapt to—**http://www.gamemakers.de/mozillaradalcontext/**. ⊠

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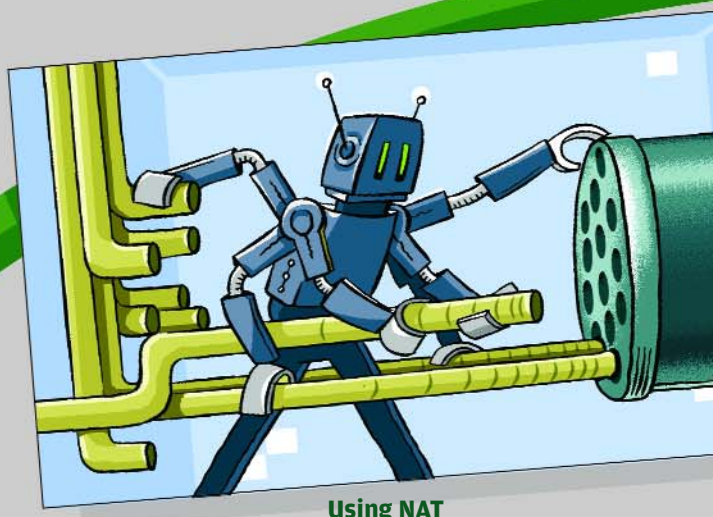
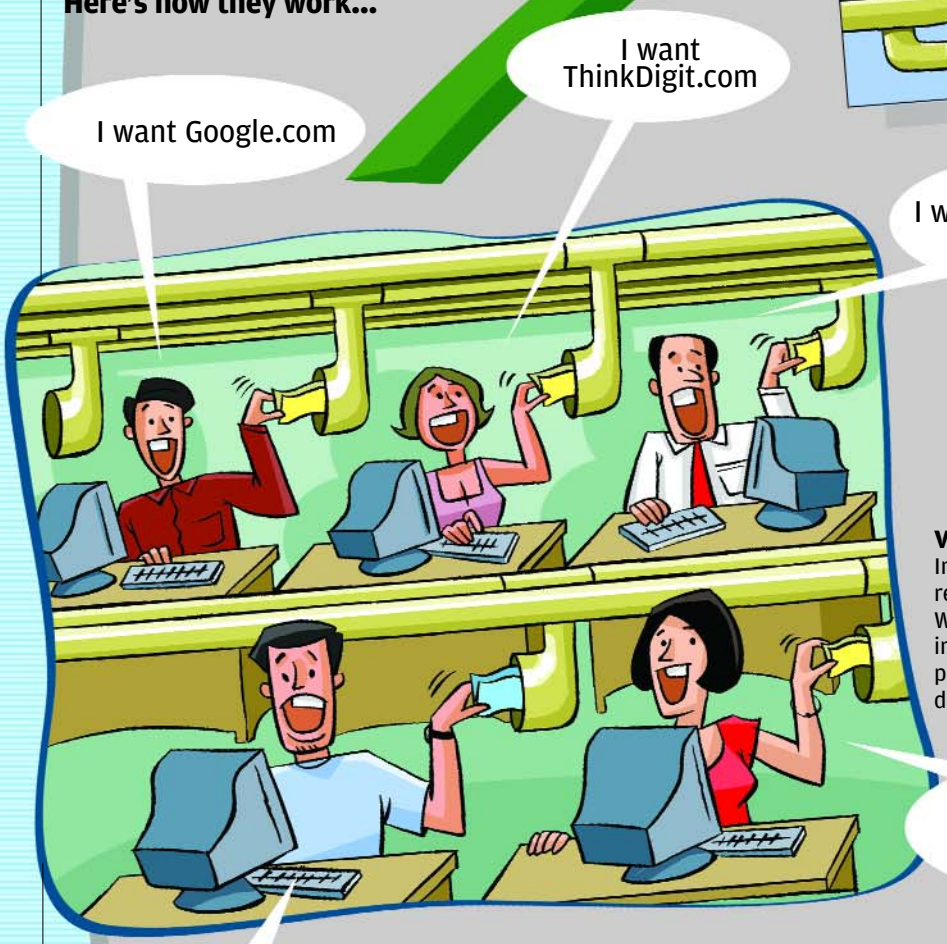
How Shared Internet Works

In a typical office environment, an Internet connection is shared over a network across several users. The two basic sharing systems are NAT (Network Address Translation) and Proxy (Squid in our example). Here's how they work...



Using NAT

A NAT (Network Address Translation) server works like a robot. It shows no understanding, and doesn't care what it is you want. All it knows is that one Internet Protocol (your computer's) wants to connect to another (the IP of the server you want to connect to). A NAT server is a solution for all non-HTTP traffic, as all other protocols have no need for caching.



Varied Requirements

In a typical office, connectivity requirements differ from user to user. We can break up these requirements into HTTP requests and 'other' protocols, but every computer wants data, and it wants it now

Squid

Proxy servers, such as Squid, can take care of HTTP requests. Squid, for example, is intelligent. It reads what you want, then checks its cache for the requested item. In the example, Google.com is present in the cache, whereas ThinkDigit.com isn't

Text Robert Sovereign-Smith Illustration Mahesh Benkar

The End Justifies The Means
Both Squid and NAT have their place in an office where an Internet connection needs to be shared. Used in conjunction, the two can power your sharing requirements, and make for a satisfying user experience

Internet Requests
When Squid recieves data from the Internet, objects are cached for later retrieval. Of course, all this depends on the size rules you set in Squid, such as maximum object size. In the example, the request for ThinkDigit.com is saved in the cache, and a reply is sent to the user requesting it

Cached Hits
When an object is available in the cache, Squid doesn't connect to the Internet, and instead, sends a reply instantaneously. Not only does this improve surfing speeds on the average, it also translates to bandwidth savings. In the example, a reply for Google.com is sent immediately, while Squid sends a request to the Internet for ThinkDigit.com

Photograph Mexy Xavier Imaging Atul Deshmukh

Say good-bye to endless cables and entangled wires, and say hello to a whole new workplace

Break Free

Mustali Kachwala

Wi-Fi, or Wireless Fidelity, means freedom—freedom to connect to the Internet from just about anywhere in your home or small office. We are all familiar with the cell-based technique of mobile communication. It is the basis of Wi-Fi technology too. As long as you are in a region covered by Wi-Fi—also called a hotspot—you can access the Internet.

While on one hand, Wi-Fi gets rid of problems, such as wire hassles, that exist with wired networking, it does bring about a setback in the data throughput provided by the various Wi-Fi standards, *vis-à-vis* wired networking. Here, we check which products in this domain are the best. How large is the bandwidth gap between wired and wireless? How much extra do you pay? We explore several such questions and attempt to provide answers.

SETTING UP A NEW OFFICE

Site Survey

A major hurdle you encounter while setting up a Wi-Fi hotspot is determining the exact location for Access Points (APs), and the number of APs you need to provide a constant and reliable connection. Install too many devices and you end up paying more than needed. This also increases the chances of RF interference with nearby APs.

In its simplest form, you can conduct a site survey with just a Wi-Fi enabled laptop and appropriate software. A comprehensive site survey can be conducted with devices such as spectrum or handled hardware analyser from, say, AirMagnet, especially designed for this purpose. However, these are expensive and you might want to take the laptop route.

The site survey process consists of first checking whether any device is causing interference in the region that you need covered. You might find signals from neighbouring areas. If you do find interference, locate that is causing it and reposition the equipment.

The next step involves placing each AP at different locations, one at a time, and marking out the boundaries where the signal is available. The entire process is based on trial and error. Once you prepare a boundary map by placing an AP at multiple locations, analyse it to ensure a proper overlap of signals, and make sure that

Channel Conflict

An AP works in any of the channels that it is supposed to work in. The RF, say 2.412 GHz for channel 1, represents the centre frequency. Similarly, 2.417 represents channel 2. These channels are separated by 5 MHz from each other. However, the bandwidth that each of these channels needs is around 30 MHz-15MHz on each side of the centre frequency. Hence, technically, two APs overlap each other if they use consecutive channels.

If you assign channel 1 to Access Point 1, then you cannot use channels 2, 3, 4, and 5 for the second Access Point, as 2 and 3 will overlap with 1 while 4 and 5 will overlap with 2 and 3. This means you can only use channel 6. Now, if you wish to connect a third AP, then only channel 11 is available. Channel 11 is the last channel available, so if you wish to connect a fourth AP, you cannot do so without overlap.

change channels, while Linksys' WPC11 does not allow you to save the configuration to the disk.

Price

Linksys' WPC11 provides the best price for an AP at Rs 4,000, while Dax's DX-910AB0 and Net4India's N4I-WB2200APR products turned out to be too expensive.

Thus, even though the top two performers were Net4India's N4I-WB2200APR & Dax's DX-910AB0, pricing made the Linksys WPC11 and the Compex WP11B+ the winners.

Connections Of An AP

The site survey determines the location and nature of an AP needed. Now that you have selected a device to buy, you need to install it. The first step is simply placing the APs at the determined locations and powering them up.

A factor that plays an important role is the type of Internet connection. If you have a cable/DSL connection, you need to connect the cable from the provider to the WAN port of the AP. You need to know details such as the IP address, the subnet mask and the gateway from the ISP provider.

Compex WP11B+

If you access the Internet using dial-up, you need to connect the modem to the USB/COM port. However, if the device you selected has an RJ-11 port, you can just connect the telephone line directly. There is no need for a separate modem, as the device will have an inbuilt modem.

Most of the devices have four LAN ports. If you wish, you can connect up to four machines using wires to the LAN ports.

Minimum Configuration In An AP

To configure the AP, you have to connect at least one PC with a wireless PCI card or a Wi-Fi-enabled laptop to the network of the AP. If you do not have a Wi-Fi-enabled machine, you can connect using a 'patch cord'.

For the LAN—be it wired or wireless—it should have the 'Obtain an IP address' setting enabled. The DHCP server in the AP will assign an IP to a wireless client. In some APs, DHCP is turned 'off', so you will have to look up the manual—to obtain the IP address of the AP, as well as find the other steps you need to take.

To access browser-based configuration, you will need to know the relevant username and password combination. This information is different for each AP, and you will need to refer to the manual to figure out a particular combination.

There are three important tasks that you need to perform as soon as you log in. The first is specifying the ESSID and channel:

Turn to page 82

Score Board

		802.11g Category				802.11b Category			
Brand		Buffalo	Compex	D-Link	D-Link	Dax	Compex	Compex	Linksys
Model		WBR2-G54	WPE54G	DWL-2000AP+	DWL724P+	DX-910ABO	NetPassage 16A+	WP11B+	BEFW11S4
Performance (40%)		**15.24**	**13.17**	**14.73**	**14.15**	**13.56**	**11.80**	**13.36**	**11.58**
Data Throughput - WLAN Port									
Centrino 11G (Acer)									
	Location 1 (Avg MPS)	1.18	0.97	0.96	0.47	0.18	0.15	0.23	0.17
	Location 2 (Avg MPS)	1.20	0.76	1.04	0.36	0.17	0.12	0.24	0.23
	Location 3 (Avg MPS)	0.26	0.00	0.06	0.11	0.16	0.14	0.02	0.19
TI (DWL-650G+)									
	Location 1 (Avg MPS)	0.09	0.09	0.08	0.08	0.09	0.07	0.10	NC
	Location 2 (Avg MPS)	0.09	0.11	0.09	0.08	0.09	0.06	0.11	NC
	Location 3 (Avg MPS)	NN	NN	0.05	0.00	0.02	0.05	NN	NC
Realtek (WPC11)									
	Location 1 (Avg MPS)	0.36	0.12	0.41	0.42	0.25	0.25	0.23	0.26
	Location 2 (Avg MPS)	0.31	0.13	0.37	0.41	0.24	0.06	0.24	0.25
	Location 3 (Avg MPS)	NN	NN	NN	NN	NN	NN	NN	0.11
Ping									
Centrino 11G (Acer)									
	Location 1 (Avg ms)	20.00	10.00	2.00	2.00	115.00	25.00	3.00	3.00
	Location 2 (Avg ms)	13.00	1.00	18.00	1.00	14.00	233.00	3.00	15.00
	Location 3 (Avg ms)	20.00	72.00	21.00	131.00	11.00	19.00	14.00	26.00
TI (DWL-650G+)									
	Location 1 (Avg ms)	233.00	78.00	109.00	50.00	44.00	92.00	58.00	NC
	Location 2 (Avg ms)	97.00	34.00	198.00	44.00	65.00	175.00	84.00	NC
	Location 3 (Avg ms)	NN	NN	140.00	NN	139.00	231.00	NN	NC
Realtek (WPC11)									
	Location 1 (Avg ms)	13.00	4.00	7.00	1,314.00	2.00	21.00	102.00	19.00
	Location 2 (Avg ms)	35.00	2.00	2.00	133.00	653.00	RTO	3.00	20.00
	Location 3 (Avg ms)	NN	NN	NN	NN	NN	NN	NN	3.00
SNR									
Centrino 11G (Acer)									
	Location 1 (Avg db)	73.00	73.00	76.00	75.00	66.00	71.00	78.00	87.00
	Location 2 (Avg db)	58.00	67.00	67.00	70.00	65.00	62.00	71.00	71.00
	Location 3 (Avg db)	26.00	30.00	29.00	29.00	26.00	30.00	24.00	39.00
TI (DWL-650G+)									
	Location 1 (Avg db)	70.00	69.00	70.00	71.00	68.00	70.00	69.00	NC
	Location 2 (Avg db)	51.00	48.00	60.00	54.00	48.00	54.00	52.00	NC
	Location 3 (Avg db)	NN	17.00	21.00	19.00	19.00	NN	NN	NC
Realtek (WPC11)									
	Location 1 (Avg db)	55.00	55.00	55.00	50.00	55.00	54.00	55.00	55.00
	Location 2 (Avg db)	37.00	55.00	40.00	42.00	43.00	44.00	55.00	44.00
	Location 3 (Avg db)	NN	NN	NN	NN	15.00	NN	NN	18.00
Data Throughput - LAN to WAN									
	Location 1 (Avg MPS)	1.70	-	-	3.79	-	-	-	0.60
Others									
	Network Issues (Out of 28)	22.00	22.00	25.00	23.50	24.50	22.00	21.00	19.00
	Compatibility (Scale of 3)	3.00	3.00	3.00	3.00	3.00	3.00	3.00	2.00
Features (20%)		**10.00**	**10.80**	**8.60**	**9.40**	**8.00**	**7.40**	**7.80**	**7.80**
No of Antennas		0	1	1	1	2	1	0	2
No of LAN ports		4	0	0	4	0	4	0	4
Additional ports		Ext Ant	Ext Ant	Ext Ant	LPT, Ext Ant	COM, Ext Ant	COM, Ext Ant	-	-
Kit bundled		CAT5 UTP	CAT5 UTP	CAT5 UTP	CAT5 UTP	CAT5 UTP	CAT5 UTP	RJ45, CAT5 UTP	-
Hardware Reset Button		Y	Y	Y	Y	Y	Y	Y	Y
Auto firmware upgrade via internet		N	N	N	N	Y	N	N	N
Power Over Ethernet		N	N	N	N	N	N	N	N
Encryption		WEP, WPA	WEP, WPA	WEP, WPA	WEP	WEP	-	WEP, WPA	WEP
LED		Power, LAN, WLAN, Diag	Power, LAN, WLAN, Diag	Power, LAN, WLAN	Power, LAN, WLAN, Diag	Power, LAN, WLAN	Power, LAN, WLAN, Diag	Power, LAN, WLAN, Diag	Power, LAN, WLAN
Port Mapping		N	N	N	Y	N	N	N	Y
Access Control		N	Y	N	Y	Y	N	N	Y
WDS		Y	Y	N	N	N	N	N	N
Firewall		Y	N	Y	Y	N	Y	N	Y
Gateway/Router		N	N	N	Y	N	Y	N	Y
Wireless Bridging		Y	Y	Y	N	N	N	Y	N
Ease of Use (20%)		**18.80**	**19.20**	**18.30**	**20.00**	**20.00**	**15.40**	**18.00**	**15.40**
Browser-based configuration		Y	Y	Y	Y	Y	Y	Y	Y
Ease of determining Access Point's IP (Scale of 5)		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Configuration (Scale of 5)		4.00	5.00	4.00	5.00	5.00	3.00	3.50	4.00
Channel Change allowed		Y	Y	Y	Y	Y	N	Y	Y
Save Settings to HDD		Y	Y	Y	Y	Y	Y	Y	N
Menu Layout (Scale of 5)		4.00	3.00	4.00	5.00	5.00	5.00	3.00	3.00
Price Index (20%)		**13.68**	**13.51**	**16.00**	**13.87**	**4.63**	**10.16**	**10.67**	**16.00**
Price (Rs)		7,600	7,700	6,500	7,500	13,815	6,300	6,000	4,000
Overall Score (Out of 100)		**57.72**	**56.67**	**57.63**	**57.42**	**46.19**	**44.76**	**49.82**	**50.78**

USB Wireless Clients

Notebooks are WiFi-enabled using PC cards while desktop PCs use PCI WiFi cards to do so. Another solution is to use an external USB wireless adapter. These support both 802.11g as well as 802.11b, and can be used with notebooks and desktop PCs as well.

Those supporting 802.11b come with USB 1.1, while the ones supporting 802.11g are equipped with USB 2.0. The USB interface itself does not impose any restriction on data transfer rates. All the three tested devices put up performances as good as any other PCI or PC wireless card.

If your system does not have a free PCI slot, or if the laptop's PCMCIA slot is already in use, you have no option but to buy a USB-based wireless client.

These devices are costlier than the PCI/PCMCIA option, but do remember that an external USB device can provide you with the option of enabling WiFi functionality on your home as well as office PC.

Data Throughput (MPS)	Dax DX-900USB (802.11b)	Compex WLU54G (802.11g)	Compex WLU11A (802.11b)
Compex 26G	.39	.52	.37
Linksys WPC11	.13	.13	.17
D-Link DWL-2000AP+	.36	.62	.33
Latency (ms)			
Compex 26G	2	2	82
Linksys WPC11	25	5	4
D-Link DWL-2000AP+	3	3	3
SNR (db)			
Compex 26G	100	-51	NC
Linksys WPC11	100	-55	NC
D-Link DWL-2000AP+ (db)	100	-60	NC
Price (Rs)	3815	4400	2600

here, ESSID is optional—it just the name by which the AP will be recognised. The channel should be specified so that there is no overlapping. Next, you will need to specify WAN details, which will be provided by your ISP. Finally, you need to set up security. Here, give preference to WPA—it is more secure.

Making your PCs Wi-Fi-enabled

APs, by themselves, do not make a wire-free zone; you need to purchase PCI cards for your computers. Just like the APs, PCI cards also come in 802.11g and 802.11b flavours. In this test, we saw five cards supporting 802.11g, while only one represented the 802.11b category. This clearly indicates that the market is moving towards 802.11g.

PCI CARDS@802.11G

Performance

In this test, Buffalo's PCI card achieved a maximum data rate of 1.17 MBps when connected to a Compex 26G AP, but the pair was not able to give sustained performance. NetGear's WG511, though a little slower, showed a sustained data throughput across APs and

AirPlus G+ DWL-520G+

across locations, thus being the performer of interest. The best two turned out to be NetGear's WG311 and Buffalo's WLI-PCI-G54.

Features

PCI cards with antennas that are flexible wires about two metres long help you get better connectivity than those that provide a fixed antenna that protrudes from behind the cabinet. These tend to get blocked in corners, and thus cause performance to degrade. Buffalo and MSI provide antennas with flexible wires.

Unlike PC cards, all PCI cards provide an antenna. Buffalo's antenna connector, though, is not standard: you cannot

Installing PCMCIA cards is not much of a hassle

SMC 2802W

connect a replacement antenna if the original gets damaged. Also missing in the Buffalo device was WPA.

Ease Of Use

There is not much to configure in a wireless client—just install the drivers and connect it to the AP. These steps are essentially the same, irrespective of the card you are using. Still, a quick-start guide and a configuration utility can come in handy.

Price

Here again, the performers were not the winners: pricing causes both Buffalo's WLI-PCI-G54 and NetGear's WG311 to lose out to SMC's 2802W and D-Link's AirPlus G+ DWL-G520+.

Adding Hardware

For PCI cards, there is not much of a hardware installation hassle. Find a free PCI slot on the motherboard and insert the wireless card. Connect the external antenna, if one comes bundled. Remember to switch off the power supply before doing a surgery on your PC's internals.

Driver Installation

On restarting the PC after you insert the PCI card, Windows will ask for the driver disk. Insert the driver CD-ROM that comes with the card. You can switch on the APs now. As the driver installation completes itself, you should see a network icon in the system tray. Right-click on this icon and select 'View Available Wireless Networks'. Now, you should be able to see the AP. Select it, then

The Standards Battle

	802.11a	802.11g	802.11b
Data Rate (Mbps)	54	54	11
Avg. Actual Data Throughput (Mbps)	25 - 30	20 - 25	4 -5
RF Band (GHz)	5	2.4	2.4
Channels	12	11	11
Non-overlapping channels	8	3	3

Score Board

	802.11g PCMCIA Cards		802.11b PCMCIA Cards		802.11g PCI Cards		802.11b PCI Card
Brand	D-Link	NetGear	Buffalo	Compex	D-Link	SMC	Asus
Model	DWL-G650+	WG511	WLI-CB-G54A	WL11B+	DWL-G520+	2802W	WL-130B
Features (15%)	7.13	3.38	4.88	4.88	11.63	11.81	11.44
External Antenna	N	N	N	N	Y	Y	Y
External Antenna Port	N	N	Y	Y	Y	Y	Y
Popout Antenna	N	n	N	N	Y	Y	Y
Flexi Wire Antenna	N	N	N	N	N	N	N
Encryption	WEP, WPA	WEP	WEP	WEP	WEP, WPA	WEP, WPA	WEP, WPA
LED	Link, Act	Power, Link	Power, Link	Link, Act	Power, Link, Act	Power, Link, Act	Act
Supports Ad hoc Mode	Y	Y	Y	Y	Y	Y	Y
Ease of Use (10%)	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Quick Start Guide	Y	Y	Y	Y	Y	Y	Y
Configuration Utility bunbled	Y	Y	Y	Y	Y	Y	Y
Performance (50%)	8.48	20.67	36.12	17.61	26.42	23.14	23.74
Data Throughput - WLAN Port							
LinkSys							
Location 1 (Avg MPS)	NC	0.1	0.14	0.09	0.15	0.13	0.16
Location 2 (Avg MPS)	NC	0.07	0.13	0.1	0.14	0.12	0.15
Location 3 (Avg MPS)	NC	0.08	NN	0.04	0.15	NN	0.15
Compex 26G							
Location 1 (Avg MPS)	0.09	0.61	0.95	0.06	0.74	0.46	0.04
Location 2 (Avg MPS)	0.08	0.55	0.96	0.18	0.77	0.33	0.1
Location 3 (Avg MPS)	0.00016	0.01	NN	NN	0.5	NN	NN
D-Link 2000AP+							
Location 1 (Avg MPS)	0.06	0.59	1.09	0.19	0.85	0.86	0.24
Location 2 (Avg MPS)	0.1	69	0.77	0.17	0.94	1.11	0.23
Location 3 (Avg MPS)	NN	NN	NN	NN	NN	NN	0.19
Latency							
LinkSys							
Location 1 (Avg ms)	NC	3	2	37	2	4	2
Location 2 (Avg ms)	NC	4	12	12	7	3	5
Location 3 (Avg ms)	NC	34	NN	37	3	3	8
Compex 26G							
Location 1 (Avg ms)	49	2	1	3	1	1	1
Location 2 (Avg ms)	46	1	1	2	1	1	1
Location 3 (Avg ms)	70	20	NN	NN	1	5	2
D-Link 2000AP+							
Location 1 (Avg ms)	59	2	1	3	2	2	2
Location 2 (Avg ms)	45	2	5	2	23	2	2
Location 3 (Avg ms)	NN	NN	12	NN	NN	4	4
SNR							
LinkSys							
Location 1 (Avg db)	NC	73	74	77	71	75	80
Location 2 (Avg db)	NC	54	75	58	65	61	70
Location 3 (Avg db)	NC	24	33	22	39	34	39
Compex 26G							
Location 1 (Avg db)	69	55	75	65	72	72	77
Location 2 (Avg db)	50	46	57	54	60	53	67
Location 3 (Avg db)	24	19	NN	17	32	27	43
D-Link 2000AP+							
Location 1 (Avg db)	70	71	74	71	73	64	74
Location 2 (Avg db)	49	46	52	52	54	58	67
Location 3 (Avg db)	NN	14	59	15	31	34	37
Others							
Network Issues (Out of 27)	15	25	21	23	25	24	26
Compatibility (Scale of 3)	2	3	3	3	3	3	3
Price Index (25%)	20.00	13.64	16.00	17.39	17.14	18.75	20.00
Price (Rs)	3000	4400	2500	2300	3500	3200	2000
Overall Score (Out of 100)	45.60	47.68	66.99	49.88	65.19	63.70	65.18

Contact Sheet

Brand	Company	Telephone	Fax	E-mail	Web site
Apple	Apple Computer International	080-25550575	080-25550660	indiainfo@asia.apple.com	www.apple.com
Asus	Rashi Peripherals	022-28260258	022-56916609	ho@rptechindia.com	www.asus.com
Buffalo	Buffalo Inc.	011-51527935	011-51527989	anjuthapa@buffalo-india.com	www.buffalo-india.com
Compex	Rashi Peripherals	022-28260258	022-56916609	ho@rptechindia.com	www.compex.com.sg
D-Link	D-Link India Limited	022-26526696	022-56902210	sales@dlink.co.in	www.dlink.co.in
Dax	Dax Networks	044-24323558	044-24357267	sujit@daxnetworks.com	www.daxnetworks.com
Linksys	Kaybee Infotech	022-28216763	NA	sales@kaybeeinfotech.com	www.linksys.com
MSI	Tirupati Enterprises	033-22251192	NA	abhishek@tirupati.net	www.msi.com.tw
Net4India	Net4India Limited	022-24988511	022-24988543	infohps@net4india.net	www.net4india.net
Netgear	Cyberstar Infocom Ltd	080-22223762	080-22236781	deepak@cyberstarindia.com	www.netgear.com
SMC	Cyberstar Infocom Ltd	080-22223762	080-22236781	deepak@cyberstarindia.com	www.smc-asia.com

Note

NC - Not Compatible
NN - No Network detected

For details of all the tables, visit **www.thinkdigit.com/fromthemag/200409 or refer to the Digit CD.**

Glossary

DHCP: Domain Host Control Protocol lets each computer that connects to the network get a temporary IP address. It is used in scenarios where there are more computers than available IP addresses.

MIC: Message integrity check. A one-way cryptographic hash function used in WPA instead of CRC32.

Repeater mode: In this method, an AP is an extension of remote access point. Repeater Mode is used to extend the signal range of a remote AP or wireless router. The MAC address of the remote AP is required to set an AP into repeater mode.

RF: Radio Frequency. Specifies the frequency at which the signal is being broadcast.

SNR: Signal-to-Noise Ratio is the ratio of the amplitude of desired signal to that of noise at a specific time. It is expressed in decibels.

SSID: Secure Set Identification is a name given to the Access Point. When the client PC scans for an available network, the SSID will be displayed in the 'available network' box, and the user can click on it to connect.

TKIP: Temporary Key Integrity Protocol ensures the key changes at every specified interval, and also performs a hash to generate a new key in WPA.

WEP: Wired Equivalent Privacy is a data encryption method to provide security to the client systems connecting to it. It is not very safe because of the insufficient length of the network key; besides, there's no method to distribute it amongst the clients.

Wireless bridge: In this mode, two APs can be bridged with each other for communication. It is used when the networks of two buildings or offices need to be connected wirelessly.

WPA: Wi-Fi Protected Access is an improvement over WEP, as it utilises the Temporary Key Integrity protocol (TKIP). It will be in use until the 802.11i standard is properly ratified.

select 'Allow me to connect to the selected network' and press 'connect.' The PC is now on the wireless network.

Creating a Mobile Workforce

Wireless PCMCIA cards (PC cards) let laptop-wielding executives connect to the network as they walk into office.

But then, they may not need a PC card, as most of the new laptop models are already Wi-Fi-enabled. If your company uses such laptops, configure the cards to connect to the AP and you are done.

In the tests, we had six PCMCIA cards—three each for 802.11g and 802.11b.

PC CARDS

Performance

Performance-wise, the PCMCIA cards did not put up a great show as compared to PCI cards. A factor that definitely affected performance was the presence of an external antenna in PCI cards, which is absent in the PCMCIAs, especially at Location 3. In the 802.11g category, the NetGear WG511 outperformed the others. Similarly, the Buffalo WLI-CB-G54A easily came out tops in the 802.11b category. In the compatibility test, Compex's WL54G failed badly at Location 3.

NetGear WG511

AirStation WLI-CB-G54A

Features

By default, PC cards do not have an external antenna, but Compex's WL54G and Buffalo's WLI-CB-G54A did provide ports to connect them. Only the D-Link in the 802.11g category and Linksys' WPC11 in the 802.11b category had WPA.

Price

Here, the NetGear and Buffalo took a big lead in the performance tests, and so, despite the low price of the D-Link and the Compex, the NetGear and Buffalo devices took the crown in this category.

Enabling Wireless

Just like PCI cards, PC cards too are simple and straightforward to install. Just plug in the PC card into the slot in the notebook, insert the driver CD in the CD-ROM and let the installation complete. The difference here is that you can

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Price Comparison

	Wired	802.11b	802.11g
Switch	1600	-	-
Access Point	-	4000	7600
100 metre wire	2200	-	-
10 RJ45 connectors	80	-	-
5 PCI Ethernet cards	2500	-	-
5 PCI Wi-Fi cards	-	10000	17500
1 PCMCIA Wi-Fi card	4400	2500	4400
Total	**10780**	**20500**	**29500**

insert a PCMCIA card while the laptop is on. Next, right-click the network icon and select an AP, just as for PCI cards.

Securing Your Airborne Data

You cannot limit radio frequencies to the borders of the office wall. It will definitely be visible in the neighbouring areas, making the network open to attack. If, you simply sit and relax after the network is up, you are putting the data of your organisation at risk. Most devices still depend on the WEP security standard, which is not very secure at all. Even a novice hacker, armed with a good search engine, can find a WEP sniffer to get into your wireless network in no time.

D-Link DWL-650G+

Managing the WEP key is pretty difficult too. Since each mobile client stores a WEP key, it is a nightmare for a system administrator to modify the key for every mobile client to keep enforcing security, or in a situation when one of the clients permanently leaves the network.

The TKIP (Temporary Key Integrity Protocol) in WPA forms part of the final key, which is used to encrypt data.

It also requires a re-keying mechanism between the mobile clients and the AP every 10,000 packets. This process reduces the chances of key detection using sniffers.

The extended IV (Initialisation Vector) reduces the chances of replay attacks. Similarly, MIC (Message Integrity Check) prevents attackers from capturing, modifying and re-sending data packets.

All said and done, WPA is a solution to all known issues of WEP authentication and data security.

Setting up WPA in a home environment is as simple as setting up WEP. Just think of a key, which could be alphanumeric text. Specify this in the AP as well as the clients. That's it!

Compex WL11B+

Summing It Up

802.11g is killing 802.11b, which is only good for the end user. The speed provided by 802.11g is not similar to that of the speed provided by a 100 Mbps wired network—let alone Gigabit Ethernet. The price you pay for being wire-free is high, but the cost of the setup is coming down.

Devices which retailed for more than Rs 20,000 some time ago are available for less than Rs 7,000 now.

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HP PhotoSmart R707

A Smart Cam For Amateurs—Say Cheese!

The HP Photosmart R707 will leave amateur photographers drooling. This easy-to-use camera sports a 5.1 megapixel CCD. Expect impressive picture and colour quality. One hitch: images can be saved only in the JPEG format. The camera comes with bundled software and a memory capacity of 32 MB, with an additional memory slot. The red-eye reduction and image advice features are cool. It would be ideal to buy the HP 8867 docking station along with the camera.

Company Hewlett Packard India ltd
Price Rs 29,990; Docking Station Rs 6,000
Phone 1600-114141
E-mail seema.dawar@hp.com
Web site www.hp.com

Sony Ericsson K700i

A Worthy Successor

This top-of-the-line phone from Sony Ericsson is set to take over the mantle from the older T610. A brushed aluminium finish lends a sleekness very few phones have. It is elegant and compact, and has a rich, vibrant 65K colour screen—the best we have come across. Marketed as a 'Dual front'—a reference to its look—it has all the trappings of a phone on one side, and looks like a digital camera on the other. The K700i is tri-band-enabled and offers Bluetooth, IR, FM radio, MMS support, and 40 polyphonic ringtones along with a 4X digital zoom VGA camera. The phone is powered by a fast processor, which is why it is fun working with—something we found lacking in the T610.

Company Sony Ericsson India
Price Rs 20,995
Phone 0124-2560808
E-mail dhiraj.soni@sonyericsson.com
Web site www.sonyericsson.com

New&Notable

Transcend JetFlash DSC 128 MB

Slightly larger than a standard thumb drive, this USB flash drive integrates a digicam. The body incorporates a small viewfinder, a tiny lens and two status LEDs. A cap opens up to reveal the USB connector. The device powers on as you open the slider to reveal the lens. The memory LED glows green if there is available memory for additional images. Image quality is quite ordinary, and the lack of a flash can sometimes handicap.

Company Mediaman Infotech
Price Rs 5,000
Phone 022-23823100
Fax 022-23877418
E-mail sales@mediamangroup.com
Web site www.transcendusa.com

Atek Super Optical Mini Mouse

Calling all laptop users: the feather-light Atek works on any surface. You can use it on the palmrest of the laptop, too! The 50 gm device works plug-and-play with most Windows versions, and comes with a three-foot cord. It's the size of the optical mouse that will bowl you over—it fits perfectly well between the index and middle fingers.

Company J S Equipments
Price Rs 2,500
Phone 022-23810713
E-mail jse@vsnl.com
Web site www.atek.com

Nikon D70

Camera Ergonomics At Its Best

The D70 is Nikon's answer to the EOS D300 from Canon. This digital SLR sports a 6 megapixel CCD, and stores images in RAW, TIFF and JPEG formats. The camera's ergonomics will leave you gasping. Playing around with functions such as white balance, ISO or Image quality is no stiff ask. The cool 1/8" LCD screen is quite a beauty, too. Image quality is breathtaking, even without in-depth settings. It's ideal with a Nikkor F mount lens.

Company Inter Foto India Pvt Ltd
Price Rs 68,500 (for body), Rs 88,500 (with lens)
Phone 022-24925151
E-mail info@interfotoindia.com
Web site www.nikon.com

HP Scanjet 5590

Photo Finesse

The 5590 is all about superb performance and splendid features for business houses. You can scan photos at up to 2,400x2,400 dpi! This beauty handles 50 sheets at a go. The scanner gives you a Transparent Material Adapter to scan large documents and transparencies. You can also convert 35mm negatives into digital images.

Company Hewlett Packard India ltd
Price Rs 34, 892
Phone 1600-114141
E-mail seema.dawar@hp.com
Web site www.hp.com

Apple iPod Mini

The Mini Revolution

The smaller sibling of the popular iPod sports the same set of features. Available in 5 colours, the iPod Mini measures just 3.6 x 2.0 x 0.5 inches and weighs just over 100 gms. A menu button and playback options sit on the scroll wheel itself and thus enable a smooth, one-handed operation. The Select button is placed in the centre of the scroll wheel. The contrast on the backlit 1.67-inch greyscale screen is adjustable. There are 22 preset equaliser settings to choose from. With 25 minutes of skip-protection, this iPod Jr plays audio in the AAC (16 to 320 Kbps), MP3 (32 to 320 Kbps), MP3 VBR, Audible, AIFF, Apple Lossless and WAV formats. And of course, there are always songs to purchase from the iTunes Music Store. You can also view contacts, read text files, play inbuilt games and use it as an alarm clock.

Use the bundled FireWire or USB 2.0 cables and iTunes software to transfer music and other data. Also included are earphones, a power adaptor and a belt clip. Audio quality is typical IPodesque; the output classy even at maximum volume.

Transferring a GB of songs over USB 2.0 took us just 3 minutes and 27 seconds. The iPod Mini logged a battery life of 7 hours and 25 minutes, just 35 minutes short of its claimed battery life. This little wonder is bound to be an audiophile's favourite. It is also available in a choice of colours, something that the bigger-size iPods are not.

Company Apple Computer International
Price Rs 19,500
Phone 080-25550575
E-mail indiainfo@asia.apple.com
Web site www.apple.com

Freecom USBCard 16MB USB2.0

Data in the Wallet!

Wanna carry your data in the wallet? USBCard, the credit card-sized USB storage device, does just that. It measures 85.5 x 54 x 3.9 mm and weighs just 28 gm. The connector works with Windows and Mac machines. And for plug-and-play, it doesn't even ask for clumsy drivers (with Win ME & above). Data transfer is fast too—a 10 MB data transfer took just 17 seconds. Bundled software includes Password Lock, Auto Mail, Auto Run, and Secure and Zip.

Company J.S Equipments
Price Rs 2,250
Phone 022-23810713
Fax 022-23860976
E-mail jse@vsnl.com
Web site www.usbcard.com

Looking for more information on any of the products featured in New & Notable?

Please write to products@thinkdigit.com. The DIgit Test Centre will be delighted to respond to your queries.

Hitachi Deskstar 7K400

Hitachi's 7K400 hard drive offers a staggering 400 GB of storage, which promises to hold 45 hours of HDTV broadcast, or 1,00,000 songs of 4 minutes each, or thousands of e-books in the PDF format, and lots more.

It comprises five platters, 10 heads and a solid 8 MB of buffer memory. But increased mechanical movements though could result in long term reliability issues.

We got a SATA version of the drive and it turned in good scores. The SiSoft Sandra test showed its access time as six milliseconds—quite impressive for a 400 GB drive. A GB of file transfers across partitions logged an average time of around a minute for sequential and random files.

Company Cyberstar
Price Rs 25,000
Phone 011-26438216
E-mail anil@cyberstarin.net
Web site www.hitachigst.com

PixelView PlayTV Box3

This external TV-tuner box operates without a PC. You can, however, connect a PC to the monitor via this box and switch between TV programs and PC output. The box also allows the picture in picture mode. Use its remote to power it on or off, as well as play around with its volume, channels, etc., the controls for which are also present on the box itself.

PlayTV's output may not be as good as the Pinnacle Pro card, but is decent enough and allows full screen viewing (SXGA - 1280 x 1024 @ 75 Hz).

The kit comes with all the necessary cables, a power adapter, and batteries for the remote.

Company Rashi Peripherals
Price Rs 5,400
Phone 022-28260258
E-mail ho@rptechindia.com
Web site www.prolink.com.tw

Compex UE202-B USB Network Adapter

This tiny USB 1.1 adapter is for those stuck with old laptops equipped with defunct LAN hardware, or without Ethernet ports. It is also ideal for use with desktops that do not have a network card installed. Although it promises a speed of 100 Mbps, the USB 1.1 interface limits the throughput to just 12 Mbps.

Company Rashi Peripherals
Price Rs 1,000
Phone 022-28260258
E-mail ho@rptechindia.com
Web site www.compex.com.sg

A Safer XPerience

Microsoft's celebrated and trusted Windows XP OS is vulnerable to security threats. The operating system has a huge number of loopholes—and these chinks invite a host of virus attacks.

This is where Windows XP Service Pack 2 (SP2) steps in. SP2 is Microsoft's attempt at plugging this set of loopholes—it is Microsoft's damage control effort at fortifying XP's defences.

Here's a walkthrough of the installation and configuration of SP2.

Installation

Installing SP2 can be tedious. Depending on how often you have been updating the OS, you may have to install anywhere between 80 and 270 MB of updates.

If you are installing SP2 on a laptop, which is quite a lengthy process, you had better run your machine on AC power.

Security Center

Once you have installed SP2, you are asked to reboot, following which a message asks you if you want to turn the Automatic Update on or off. The Security Center offers three options—Firewall, Automatic Update and Virus Protection. The Virus Protection option is displayed alongside the anti-virus software already installed on the system. Similarly, if you have installed a third-party firewall, the Firewall option shows alongside the customary Windows Firewall.

Security Center comes up after installation, and you can manage various settings from here

Windows Firewall

The Internet Connection Firewall (ICF) that came with the earlier version of Windows XP was inadequate, and was disabled by default. Consequently, a whopping number of computers with XP were paralysed by high impact worms such as Sasser and Nimda. With SP2, the firewall is enabled by default. The firewall's Stateful Packet Inspection (SPI) feature monitors the computer during booting. It meticulously checks incoming data packets against requested outgoing data packets. If the SPI comes across a suspicious data packet that does not match the request criteria, it simply rejects it. This tackles malicious programs when the system starts. Once the OS initialises, the Windows Firewall's run-time policy takes over.

However, the Windows Firewall still isn't as sturdy as third-party solutions. Most firewall solutions, available for free on the Internet, are much better equipped to handle serious attacks.

The virus protection tab displays information such as the name of anti-virus software installed and its status

Internet Explorer

SP2 comes with a pop-up blocker for IE. It's in the form of an info bar on top of the page, and offers options such as temporarily allowing pop-ups. You can also manage IE add-ons in SP2. It comes as a special feature that can be found in the Tools menu. You can view the add-ons currently installed on the system, enable or disable them, and even update ActiveX control for the plugins.

Another option lets you view disabled add-ons with digital signatures from unknown publishers. However, one big hitch that actually throws open the system to possible virus threats is that you can only enable and disable add-ons for IE, but no other browser.

Outlook Express

Outlook Express has always been vulnerable to e-mails with malicious attachments. SP2 now makes Outlook Express much safer. Now Outlook Express will not directly display images. Instead, it asks you whether you want to download the images to view them.

A Final Word

With the current security issues we all face, installing SP2 is not really an option—it is a necessity. Dial-up users need not fret—Microsoft will shortly start shipping a free CD to all authorised Windows users. **You can also get SP2 from the DVD and the CD with this issue of *Digit*.**

Apart from security patching, SP2 also includes useful features such as DirectX9.0b and Bluetooth support, and an update for Windows Media Player 9.

It even has features that ease out WiFi settings on your machine. We can't say for sure whether SP2 will stand the test of time, but it is a step in the right direction. ⊠

Problem Areas

The following programs are known to experience a loss of functionality when they run on a Windows XP Service Pack 2-based computer: Norton AntiVirus, OmniPage Pro, Outpost Firewall, ZoneAlarm, Yahoo! Messenger, and Virtual PC. For the complete list, visit **http://support.microsoft.com/default.aspx?kbid=884130&product=windowsxpsp2**

OLD WAY TECH WAY

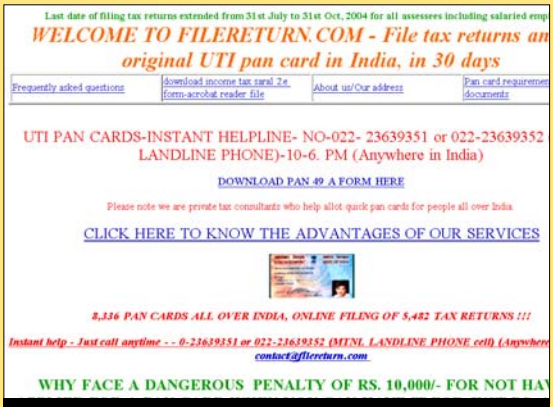
Filing Tax Returns

It was time for the yearly ritual—where we tell the government that we have paid our taxes honestly. While Robert stayed put in his rather over-sized chair and checked his options to do so on their Web site, Garfield travelled, sneered, and scurried like rat from one office to another. Here is an account of what happened:

Garfield D'Souza *(garfield_dsouza@thinkdigit.com)*

Robert Sovereign-Smith *(robert_smith@thinkdigit.com)*

The returns form and challan, that's all you need



Use the phone instead of the browser...

1	I got the IT returns form (ITS 2E) from my HR department. Time now to fill it. Looked around for help. Found it in the form of a close relative—my dad. It took a day to get the form filled. **Time taken: 1 day and 10 minutes**	I am not very comfortable with things that involve the words 'tax', 'bank', 'work', etc. I found FileReturn.com, and was immediately lost in all the jargon—the bad design of the Web site didn't help either. Thankfully they had a phone number! **Time taken 30 minutes (mostly spent trying to make sense of the site; we suggest you just call)**
2	I realised I had to pay taxes this time. I needed a challan. This too came via the same route as the ITS 2E form. **Time taken: 1 day**	I called them, told them I wanted everything done for me. Two days later a representative showed up at work. This thing works, then. **Time taken 3 days**
3	The next day saw me at HDFC's Nerul branch. The staff prepared the challan in a little over 45 minutes. **Time taken : 30 minutes to travel, 45 minutes for the challan, Travel cost: Rs 20**	The FileReturn.com representative asked me for my Form 16. Gave me a 'Saral' form with two 'X's marking the spots I had to sign. I also signed a cheque for Rs 250, and was done. **Time taken 15 minutes**
4	10:30 am Bandra-Kurla Complex: T-day! I walk into building C-13 of the Income Tax Department, Mumbai, and get my documents stamped. No long lines, no delays—kudos to the Government of India (or maybe I just got lucky today!) **Time taken : 45 minutes to travel, 2 minutes to submit, Travel cost: Rs 50**	I was told I would get the stamped form back in two days time. Four days later I recieved it! **Time taken 4 days**
	Total Time Spent: **2 days, 2 hours and 12 minutes** Total cost: **Rs 70**	Total Time Spent: **7 days and 45 minutes** Total cost: **Rs 250**

And The Winner Is...

The old way is faster to get the stamped form in your hands. However, the actual time spent on filing taxes is practically nil with the tech way. If it's all about laziness, tech way wins hands down. The problem is Robert learnt absolutely nothing about income tax, while Garfield might actually be able to file his returns without his father's help next time. The old way most definitely teaches you a lot more.

BEST MUST-HAVE TOOLS

Productivity software for a SoHo is a great idea. Getting them at zero cost is even better

Illustration Atul Deskmukh

Saurabh Kumar and **Avinash Rai**

Using trial versions of your favourite software may help get your job done, but it is not always fun to see the license for your e-mail client expiring just when you need to submit a monthly report.

Hence, we decided to find out the best available freeware for most, if not all, of your day-to-day computer tasks—from managing finances to checking e-mail.

To save you from having to wade through hundreds of them, we provide you the top contenders in various categories.

OFFICE

Finance Management

AceMoney Lite 3.4.4

AceMoney helps you keep track of where exactly you stand financially, and where your financial details are headed.

You can track your bill payments, even set reminders. There is the option of filing all your transactions under various transaction categories. This helps you organise finances better, with transactions neatly categorised.

AceMoney also supports the QIF and OFX file formats. So you can directly download account statements from your bank's Web site. It comes bundled with a loan calculator and a mortgage analyser. The reports are generated in bar and pie charts.

AceMoney can also help you achieve your budget goals, by setting up budgets and transaction categories. At the end of the month, you get a break-up of your expenditure, along with comparisons with those of the previous months. The software checks all transactions for discrepancies and reconciles them.

Notable alternatives
RentTracker Lite 3.22
Pegasus Capital 2.0

Spam Control

POPFile 0.21.1

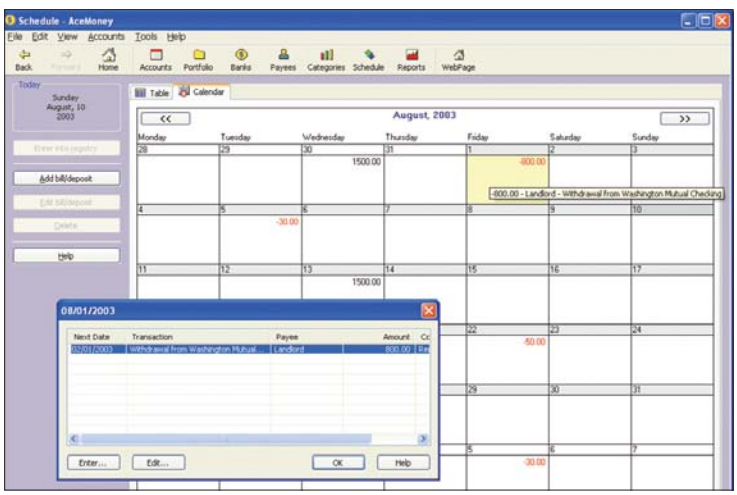
POPFile integrates with your existing mail setup and provides Bayesian filtering. The filter learns, in time, what is spam and what is not. Apart from marking messages as 'Spam' and 'Not Spam,' it can also be used to classify regular e-mail into folders based on logic filters. POPFile has an intuitive Web-based interface. Additionally, there are other third-party interfaces available to make POPFile even more user-friendly. One such is OutClass, available from **http://www.vargonsoft.com/OutClass/**.

Notable alternatives
All-in-One Secretmaker 3.8.5
Ella for Spam Free 1.5.6.1

Personal Information Managers

Contact Plus Personal 2.7

Contact Plus Personal is a featured-packed organiser for all your existing contacts. You can



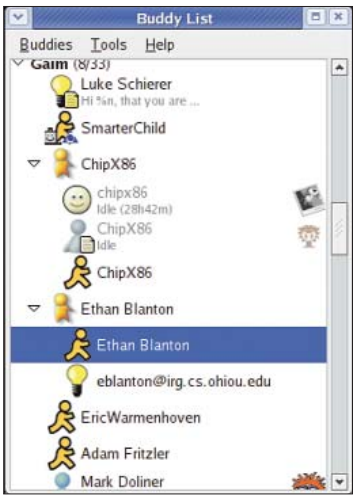
AceMoney can show you a calendar of your Bill payments for your reference

keep track of communication with your contacts, send e-mails, schedule and track events, etc.

You can backtrack to communications of a year ago if you want to. This software features 'Quick Pick'—a table of frequently-used data for fields to help you fill forms quickly.

Each contact can have four different event alarms, with a customised 'snooze' time for reminders such as meetings, etc. Also provided is an 'events' screen that displays all your events, which can be filtered to display only specific event types.

The software also has a collection of templates for letters, faxes, etc. There's also an option to create envelopes, complete with a mail-merge provision! Groupwise



Use GAIM to seamlessly interact with your friends on all IM networks

reports can be also be generated and viewed onscreen or printed.

Notable alternative
The Literary Machine 2000

INTERNET

Instant Messengers

GAIM 0.77

GAIM is a multi-network Internet messenger solution that allows simultaneous logins on Yahoo!, MSN, ICQ, AOL, Jabber, and even IRC networks with a single username and password. Other features include, light resource requirements, plugins, typing notification, Buddy Pounces, text replacement, etc.

Notable alternatives
Trillian 0.74
Bassline WinPopUp Free Edition 5.27

Popup Blockers

Bayden PopupPopper 1.1

Opera is well-equipped to combat crashes. It lets you start surfing from where you left off when the crash occured

This free utility adds a program item, 'Control Panel,' in the Start menu, which is the list of all blocked and allowed sites. Add or remove any Web site in the allowed or blocked sites lists.

You need not open the Control Panel while surfing the net as the application always runs in the background. Whenever a popup is about to come up, it brings up a window asking whether the popup be blocked or permitted. By clicking on various options in the window, a particular pop-up, or the site itself, can be blocked to be opened. However, this gets annoying—it pops up its own windows very frequently, but the functionality is impressive. At installation time, it needs an Internet connection, since it needs to download a library file.

This utility will do the trick for users who just need to get rid of basic pop-ups, but those seeking extra features and support for Flash and banner ads will have to look elsewhere—and there are plenty of other choices.

Notable alternatives
Smart Popup Blocker 1.05
Video Ads Blocker 1.0b

HTTP to POP Utilities

YahooPOPs 0.6

If you are fed up of browsing to your e-mail site and waiting for the page to load, use YahooPOP to make Yahoo! mail POP-based. YahooPOP starts a local POP/SMTP server wrapper for Web mail so that your regular POP client—MS Outlook, Eudora, etc—can read and send Yahoo! mail directly. This saves time and allows you to use your client's advanced features such as receiving headers of large mails, deleting mails from the server only if deleted from Outlook, send mails in groups, etc.

Configure YahooPOP to allow your POP3 mail client to transparently access your Yahoo! mail account

Notable alternatives
Pop Goes the Gmail (PGtGM) 0.9
Hotmail Popper 3.0.2

Browsers

Opera 7.52 [ad-based]

Opera is low on resource requirements, and bundles loads of related applications such as an e-mail client, a newsgroup reader, an address book, auto-form filler, password manager, presentation system, etc.

It boasts of one of the best popup blocker engines, and an efficient cache system that makes for zippy page loading. Opera is equipped for crashes and can restore your browsing session if it

Opera doubles up as a mail client and a newsgroup reader as well

crashes, or if your machine reboots. You also get the option to save your session, allowing you to, say, click on the mail session to reopen all your Web mail Web sites and log in to them with single clicks.

Also featured are mouse gestures that help minimise time at your keyboard, improving productivity. The zoom feature can actually zoom into images and fonts without breaking the page formatting as some other browsers tend to do.

Notable alternatives
Mozilla 1.6
Mozilla Firefox 0.9.11

E-mail Clients

IncrediMail Xe

IncrediMail allows you to compose mails using new kinds of stationery and backgrounds. IncrediMail supports skins and most e-mailing features. It also allows managing of an address book and rules for particular kinds of mail. In addition to all this, the latest version has a spam filter. This version also has IMAP/POP3 emulator support.

Notable alternatives
Eudora 6.1
Pegasus Mail 4.12

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Download Managers

FlashGet 1.6a [ad-based]

FlashGet downloads large files from the Internet. Apart from resuming broken downloads, it also boosts download speeds: FlashGet splits files into chunks, and downloads them from multiple servers in parallel.

FlashGet has an organised interface, can be scheduled to download at specific times of the day or week, can turn off your PC after downloading, and can limit downloads to a specified speed, especially if your office admin does not like downloads to move too fast.

Apart from resuming broken downloads FlashGet also boosts download speeds

Notable alternatives
Getleft 1.1.2
Download Wonder 1.55

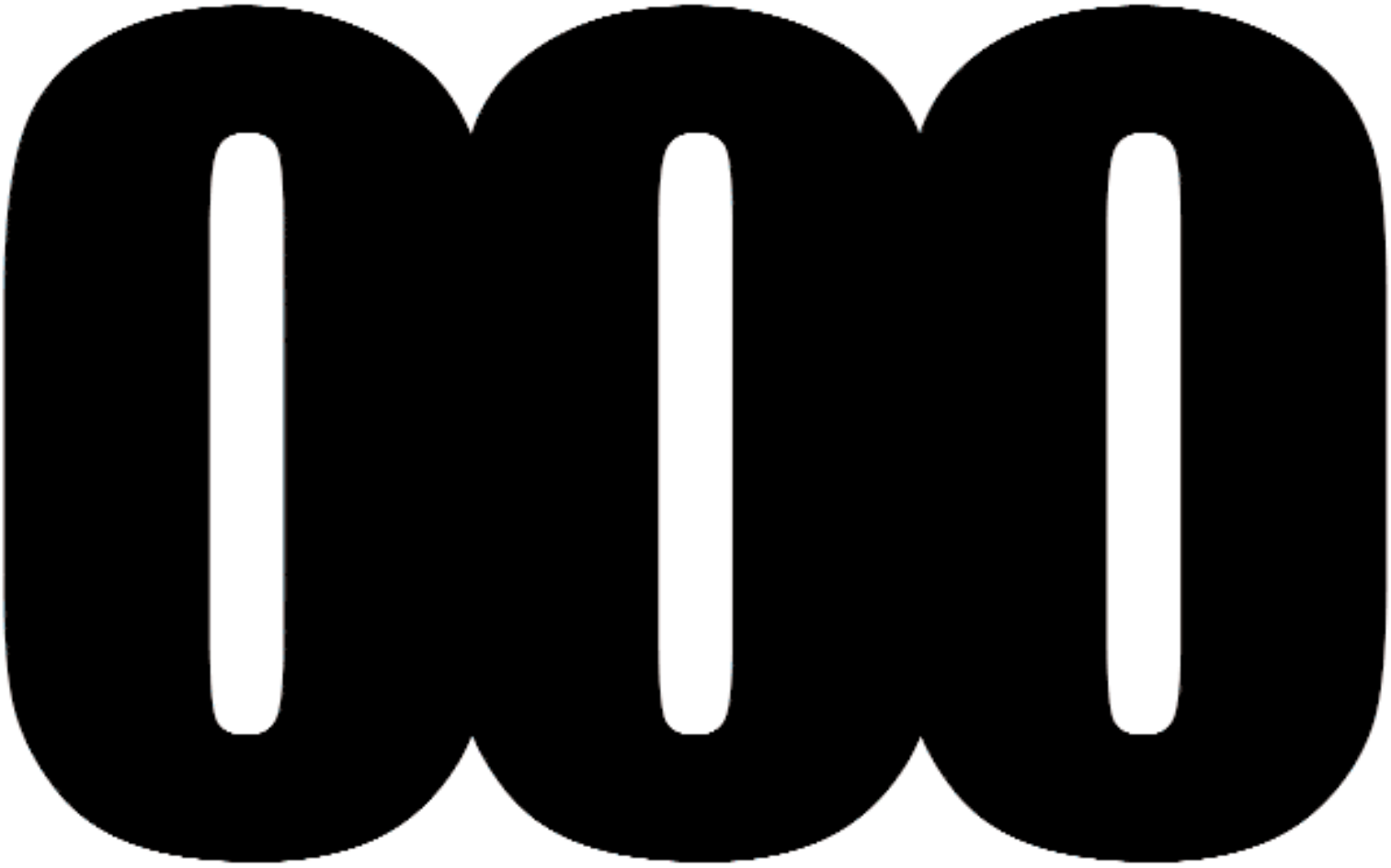
Mail Servers

IMail Express 8.0

IMail Express comes with Web mail access, and anti-spam and anti-virus scanning capabilities. It has the basic requirements of a mail server, but can also be expanded with add-ons. It also supports SSL as well as ODBC database connections, mail rules, etc.

It can alert the administrator and restart critical services in the event of a critical mail service failure, to ensure reliability and better uptime. The Finger and Whois servers are also included.

Notable alternatives
Mailtraq 2.0
Office Mail 1.1



Proxy Servers

602LAN Suite 2004

This mail server has anti-spam and anti-virus support. 602LAN Suite 2004 is available free for five users, to use commercially and non-commercially.

This Windows-based software has a fax server, firewall, ICS and Bayesian spam filtering as well. It can delete suspect e-mails, or mark their headers so you can look at them. During setup, it installs Network Address Translation (NAT) and proxy services along with services such as Web services and user account handling. A few things need improvement though like GUI administration and separate anti-virus support, but the spam filtering and connection-sharing facilities make it a decent try.

Notable alternatives
FreeProxy 3.6
SOHOConnection 2.1

SYSTEM

Anti-virus

Avast 4.1

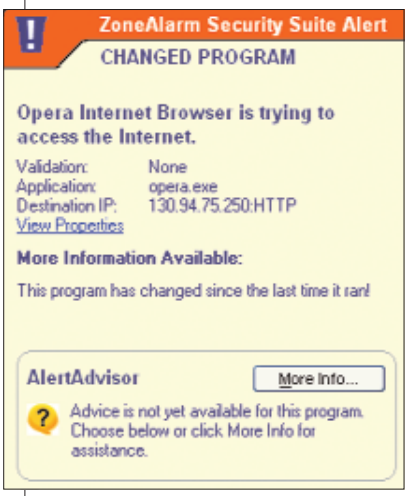
The Professional edition provides enhanced protection from threats coming over IMAP, ICQ and mIRC. The Home edition has an on-demand scanner with Standard Shield, and an embedded e-mail scanner. This makes for protection from threats when opening or using any application, e-mail or documents. It also

includes a screen-saver mode scanner that scans your PC in the background. Virus definitions can either be scheduled, or downloaded manually.

Notable alternatives
AVG 6 Free Edition
Vcatch Basic 5.0.20.2 [Bargain Buddy installed]

Firewalls
ZoneAlarm 4.5.594.000

ZoneAlarm is a good out-of-the-box firewall for people who understand the need for network security, yet are hesitant to configure a full-fledged firewall. ZoneAlarm is easy to deploy, and can be tweaked for better control. It offers an easy-to-use interface, a visual tutorial and good help features. It detects a new network connection automatically and assigns user-defined security levels.



ZoneAlarm ensures that only known and wanted applications access the Internet services

Notable alternatives
Sygate Personal Firewall
AlertWall Personal Firewall

Anti Spyware
SpyBot 1.3

This new version of SpyBot 1.3 is even more user-friendly and useful. Notable among its features is its huge comprehensive database of adware. SpyBot 1.3 displays spyware and adware search results in an tree format that can even be understood by a novice user. Before starting a search on your hard drive for malware, SpyBot performs a backup of the registry. A revert option lets you rollback if any malware was wrongly identified. You can configure theIE-resident utility to stop malware in its tracks automatically, to inform you before blocking it, or to ask permission to block it. It can also clean up the lists of last-visited Web sites, opened files, cookies, etc. SpyBot supports IE, Netscape Communicator and Opera.

You can schedule ZoneAlarm to access the Internet (in a controlled manner) after office hours

Notable alternatives
Free Spyware Scanner
Bazooka Adware and Spyware Scanner 1.12

Compression
ZipGenius 5.5.1.400

ZipGenius supports scanner and digicam file formats as well—it imports pictures to compress from a scanner. It also supports local (proxy) networks as well as Star Office and Openoffice.org. A broad range of expression formats are supported. While it works, it does anti-virus checks, and does everything that most compression software do. But it also supports XX, UU and MIME/Base 64 encoding as a unique feature. It has a backup command that automatically creates a compressed archive of a selected folder. ZipGenius is good for administrators too, as it supports unattended setup.

Notable alternatives
UHA
7-Zip 3.1 pop

MULTIMEDIA

Audio Players
Winamp 5.03

Winamp is one of the best and most capable audio players around, with a stable core and a very usable interface that can be changed using any of the hundreds of skins available.

Winamp supports a wide variety of plugins that help fill in any missing functionality easily. This includes things such as new audio formats as well.

Winamp allows you to stream music over a network and set up an audio radio. The latest version comes with file management (Media Library), ID3 tag editing, AAC encoding, CD-burning and more. Winamp now supports skins of both version 2 and 3.

Winamp 5 supports both Winamp 3 and 5 skins, apart from other great features

Notable alternatives
Quintessential Player 4.5
Musicmatch Jukebox Basic 8.2

Video Players
Fresh View 2.6

Fresh View is a multimedia file organiser. It can be used to create albums of image files, etc. Images can only be saved in the BMP, GIF and JPEG formats, but it supports more than 80 multimedia formats such as PNG, TIFF, MIDI, MP3, AVI, etc. It allows you to create HTML albums, to view pictures as slide shows. You can print images using toolbar buttons. Fresh View is easy to use, and pop-up tool tips are helpful. This file organiser does not have a batch-renaming facility, however you can rename files from the albums, which is not a difficult thing to do. Overall, Fresh View does justice to its job and can be termed as a good multimedia organiser.

Notable alternative
Fox Media Center 1.0

Music File Converter
Easylame

Easylame is considered as the best encoder to convert files from the .wav to the .mp3 format. This tool provides you with lots of options that can be customised. It comes with drag-and-drop functionality and has a friendly interface.

Notable alternative
MP3 Organizer

Media Cataloguing
Whereisit

Whereisit is a media catalogue generator that keeps track of files and media on your disk. Managing media files using Whereisit is a happy experience—it works flawlessly. The best part is it does not bundle along any malware. ■

saurabh_kumar@thinkdigit.com
avinash_rai@thinkdigit.com

Q&A

Your Questions, Our Answers

Display My TV

Q **Our educational institution wants to use 29-inch TVs as an output device instead of monitors. What computer configuration do we need for that purpose? We use a Pentium 4 2.4 GHz , an Intel GVSR original motherboard, 128 MB DDR RAM with a 40 GB hard disk, and need output to both TV and monitor.**

AGS

A The hardware configuration that your institution currently uses is just perfect. However, you will need to install a display card with TV-out capability. Doing so will help you connect the computer to the TV. Since your motherboard does not have an AGP slot, you need to find a PCI display card with a TV-out connector. You can either use an S-Video cable, or a composite cable (if the video card supports it) to connect the TV.

The TV-Radio button is highlighted once you connect the TV to the graphics card

Drained Batteries

Q **I have a Pentium III 733 MHz, a 20 GB hard drive and 128 MB of RAM. For the past one year, my motherboard's battery has been draining swiftly. I have to correct the system clock every time I reboot. A couple of months back, the computer refused to boot as well. If I change the battery, everything starts working normally again, including the clock. Does a computer refuse to boot if the battery is completely dead? If yes, why does this happen, and is there something wrong with my motherboard?**

Tejendra Nanabhai Pathare

A It is unusual for a battery to drain so quickly. Also, your computer should boot, regardless of whether the battery is dead or not. Your motherboard seems to have a problem, and you will need to contact your hardware vendor to solve this.

Missing Floppy Drive

Q **I run Windows 2000 Professional. Recently, my floppy drive stopped showing up in My Computer. All the other drives display correctly. Under Floppy disk controllers, in the Computer Management console, it says that the drive is working properly. What is the problem?**

Amit

A The BIOS doesn't seem to detect your floppy drive. Check the CMOS settings and see if the floppy drive is visible. Ensure that the CMOS is set to 'Halt on all errors' and also check that the BIOS 'Report the floppy drive to the OS' setting is enabled.

Another reason could be drive letter conflicts caused by software such as RAMdisk. TweakUI from PowerToys, which is available from the Microsoft Web site, can also cause drive letters to be hidden in Windows Explorer and My Computer. If you have it installed, go to **Start > Settings > Control Panel** and double-click on TweakUI. In the My Computer tab, select the checkboxes of the drives that are shown as hidden. Click Close, and restart your computer.

Sharing The Link

Q **I am an IIT Bombay student. We access the Internet via a LAN from our rooms. The problem is, my room has only one LAN socket, but we have two computers in the same room, and want to connect both. How can we allow both to connect to the network using the single LAN socket? What hardware and software do we need? Also, this needs to be a solution for both Linux and Windows.**

Vamsi Krishna

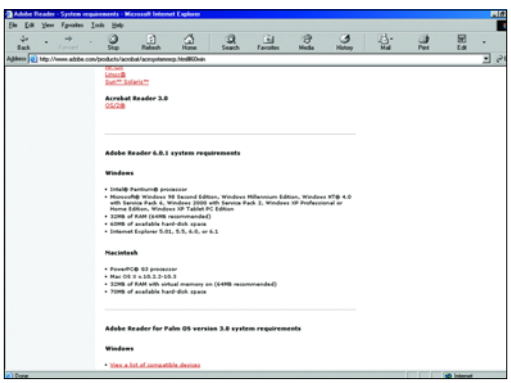
A The simplest solution is to buy a four-port hub, and connect that to your LAN socket. You can then connect up to four computers to that one LAN socket. A four-port hub costs around Rs 800.

Adobe Incompatibility

Q **The Digit CD with archived content asks for Adobe Reader 6. I tried installing it from your CD, but I get an error saying the OS is not compatible. I run Windows 98 First Edition. Why is this so?**

Dr Girish

A Adobe Reader 6, and above, are not compatible with Windows 98 First Edition. All you can do is either upgrade to Windows 98 SE or install Adobe Acrobat Reader 5. This



Adobe Reader 6 requires Windows 98SE and later OSes to work

sos@jasubhai.com

E-mail us your computing problems, and we may answer them here! Since we get more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

previous version lets you view PDF files, but you will not be able to use advanced features, such as the search capability.

Undelete My Data

Q How can I retrieve files that have been deleted from the Recycle Bin, and how can I find the current date using DOS commands?

Kripal Singh

A Irrespective of the Windows flavour you use, files deleted from the Recycle Bin are irrecoverable. This is because Windows does not bundle a utility to do so. MS-DOS had an 'undelete' command up to version 6.22, and the command line tools in Windows 98SE, but this was discontinued in Windows XP. You will need to use a third-party tool, such as R-Studio, Ontrack EasyRecovery or Get Data Back, which will let you recover data from your hard drive even if you format it accidentally.

To view the date in DOS, just type '**date**' and press [**Enter**].

QUESTION OF THE MONTH

20 Questions?

Q I have an Intel Celeron 1.7 GHz CPU, 128 MB RAM and an Intel 845G motherboard, running Windows XP Home.
I have a few questions:
Are refilled cartridges hazardous for printers? What do I use to clean the rollers? What paper should I use to avoid paper jams? Can you give me some buying tips on how to choose the right CD-R? I have a GTA 4 anti-CD check crack, how do I use it? How can I run PlayStation CDs on my computer? What software do I use to get DVDs to run on my machine?

Ishan Raut Desai

A Now that's a lot of questions! Let's take them one at a time: Yes, refilled cartridges sometimes leak, which may damage your printer, and also give poorer quality printouts.

You can use alcohol to clean the rollers of the printer. This is a generic solution. You may want to consult your printer's user manual to check the exact type of liquid that you can use to clean the rollers.

Regarding the type of paper, choose any good quality printing paper as long as it is not translucent or too thick. Bond paper is the best type of printing paper but may be expensive in the long run. The paper thickness is not an issue as bond paper is the normal recommended paper type for all printers.

Original game CDs are copy-protected, and thus cannot be replicated using software such as Nero Burning ROM. Copying game CDs is illegal! If this problems occurs even when burning a new compilation, or copying CDs that aren't copy-protected, your CD-Writer might be faulty. Send it to the manufacturer's service centre for repairs.

Using no-CD check cracks is illegal. We suggest you buy your own CD.

You can run PS1 and PS2 game CDs on your computer using emulators such as Bleem!. Make sure you own the original PlayStation CDs, or you will be heading into illegal territory here again.

DVDs only play on a DVD ROM drive. Since, you have not mentioned what drive you have, we will suppose it's a DVD ROM drive, and that you are asking about DVD movies. Install software such as Power DVD or Win DVD to watch DVD movies on your computer. Data DVDs can be accessed using Windows Explorer.

Need For Speed!

I have a Pentium III 600 MHz, 128 MB RAM and an Intel 82815 graphics controller, running Windows 98SE. I wanted to play *Halo*, but the game gave me an error that says, "Hardware acceleration may be disabled, run dxdiag." Also, when I try to run Need for Speed: Underground, I get an error that says, "This program has caused an illegal operation and will be shut down." What do I do?

Arshad

A You will face such problems when you try to run newer games. This is because your onboard graphics controller cannot support the game that you intend playing. The minimum system requirements for Halo are at least a Pentium III 733 MHz processor, 128 MB RAM and a 32 MB video card that supports Hardware Transformation and Lighting. So you need at least an nVidia GeForce2 or an ATi Radeon 9200SE. You will need to upgrade to be able to play most new generation games.

Mole In Internet Explorer

Q I run Windows XP Home Edition, and my e-mail client and Internet Explorer display an unknown Web page as default. Though I set IE's start page as 'blank', the unknown page still shows up. I even reinstalled IE, but to no avail. It is annoying me no end.

Swarup Mondal

A Looks like you have spyware on your computer. The best solution is to install anti-spyware tools such as SpyBot or Ad-Aware, and scan your entire system with them. These software check and prompt you to remove all spyware applications present on your hard drive. This should solve your problem, and also prevent future applications from installing.

How to...

Share one computer among multiple users

Solutions that share a PC between multiple users help SOHOs utilise their PCs to maximise productivity as well as cut IT-infrastructure costs. Call centres, hospitals, educational centres, etc also find it useful. You may employ it to share your home PC with your children.

We used one such solution-+ONE PC-that uses the time-slicing technique to share a PC. Its pack contains a PCI display card, a connector box, a software CD, a 15 feet long SVGA cable and a USB extension cable.

+ONE PC provides a computer with three extra I/O connections-keyboard, mouse and monitor-that use the resources of the host PC. Users can do light tasks such as surfing, playing small games and such. The host can instantly see changes made to its disk by the workstation.

Up to five users can share one PC using this solution. Their speed depends upon the configuration of the host PC.

System requirements

The host PC should have approximately 128 MB of RAM per user. This means that you need to have at least 256MB of RAM installed if you want to share the PC among two users. The OS should be either Windows 2000 or XP. The host PC

+ONE PC set up for two users

requires at least a Pentium III 500 MHZ processor. Enhancing the system configuration of the host PC improves the performance of the workstations.

Installation

Shut down and switch off the host PC. Open the cabinet and install the bundled PCI display card. Connect one end of the SVGA extension cable to this card, and the second monitor to the other. Connect the second set of PS/2 keyboard and mouse to the bundled junction box. The box, in turn connects to the USB port of the host PC.

Next, power on the PC and press [Del] to enter the BIOS. Select the 'Integrated Peripherals' or 'BIOS features Setup' menu, locate the 'Init Display First' or 'VGA- Boot-From' option., set it to 'AGP' or 'AGP/onboard', press [F10] to save your changes, and then restart the computer. The PC detects the new display card as ATI 128 Rage series and installs it automatically. Disable Power Management since +ONE PC doesn't support it. To do so, right-click on the desktop, select Properties, switch to the Screen Saver tab and click the 'Power... ' button. Set all the fields in the selected power scheme settings to 'Never'.

Next, run the Setup file from the bundled software CD according to the type of processor that you have installed - with or without Hyper-threading - and install the necessary software. Select password protection and network administrative control options as and when they appear during the setup. Click OK to restart the PC when setup is finished. That's it, you're through!

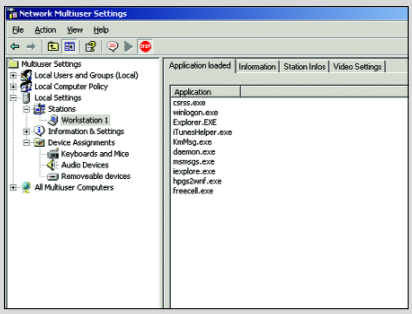
Configuration

If the first boot brings up the logon screen on the workstation monitor too, then the workstation is configured properly. Initially, you may face some keyboard problems-both keyboards may work for the workstation only. However, the solution to this is simple: double-click the +ONE PC icon in the system tray and set the first keyboard for the Host PC. You will also see the Network Multiuser Settings window there. In its left panel, navigate to **Multiuser Settings > Local Settings > Device Assignments > Keyboard and Mice**. You will see two mice and keyboards configured in the right panel of the window; double-click 'Keyboard #01'.

In the properties window, go to the 'Keyboard Recognition via LED-Blinking' tab, and click on the 'Start LED-Blinking' button. This sets the lock LEDs blinking to help you identify the keyboard connected to Keyboard #01. You can also press a few keys to see the progress bar going up on the data received from the keyboard connected to the host PC. If the keyboard indeed is the right one, flip back to the General tab, select 'Station to Main Console,' and click OK. Now, you can use both the host and workstation PCs at the same time.

You can also use the Network Multiuser Settings window to monitor processes or applications. Go to **Multiuser Settings > Local Settings > Stations > Station 2**. Four tabs-Application loaded, Information, Station Infos and Video Settings-appear in the right panel. The first tab shows you real-time information of all the running processes on the workstation. The Information tab displays general information about the workstation. The Station Infos tab lets you know the station name, which is changeable. It also shows up some configurations for the workstation, which you can define. The Video Settings tab helps you change the resolution and refresh rate of the workstation.

However, the system disappoints in the security department. The workstation user can delete or uninstall any software without as much as a warning being issued to the host. He can also shut down the host PC.



The Network Multiuser Settings lets you monitor processes and applications

In Sum

+ONE PC, along with the other solutions mentioned alongside, help you harness the spare power of a single PC to run multiple workstations. These are very cost-effective, especially in the scenarios we have mentioned. We've reviewed only +ONE PC here, but the others too do their job quite well. They are bound to bring about a tremendous reduction in your infrastructure bills.

Price Rs 6000 plus taxes (For 2 user set up)
Contact Adline Systems
Phone 011-25720911
E-mail adline@del6.vsnl.net.in
Website www.adlinesystems.com

Similar Solutions

Jetway N2view TwinMagic Motherboard
Contact: Anirox Technologies (Phone: 022-28655282)

IOGear ShareView
Contact: J.S. Equipments (Phone: 022-23810713)

SD Versus DDR

Q I have a Celeron 1.7 GHz processor, a VIA motherboard and 128 MB SD RAM. I want to upgrade my RAM and have four slots on my motherboard—two DDR and two SD slots. Will I be able to use DDR and SD memory simultaneously, and just add 128 MB DDR RAM to my computer?

Gagan Cheema

A Unfortunately, you cannot. You can choose to run your system either on DDR or SD RAM, but the two will not run simultaneously. We suggest you sell the SD RAM to your vendor, and buy 256 MB of DDR memory. As of now, SD RAM costs more than DDR RAM, because the former has been discontinued.

The Death Of A CD-ROM

Q I have a Celeron 266 MHz processor with a 20 GB hard drive and 64 MB RAM. I bought a Samsung 52X CD-ROM about two years ago. Last month it suddenly started acting up and refused to detect re-writable CDs. After many tries, it detected the CD-RW as an audio CD, and now treats all CD-RWs as audio CDs. What's wrong?

Rakshit Desai

A Your CD-ROM drive is on its last legs. You can try a lens cleaner to make sure this isn't caused by a dirty lens. If the lens cleaner doesn't solve the problem, you will have to buy a new drive.

Beat The Heat

Q I have a Pentium III 1.0 GHz, a Mercury 815e motherboard, an 80 GB hard drive and 150 MB of SD RAM. The problem is that my heat sink gets really hot, and as a result, the PC hangs or restarts. The CPU fan is working fine, but the BIOS setting doesn't show its RPM. I have another case fan, and the BIOS reports its speed. Is there a problem with my motherboard?

Abhay

A In order to find the culprit, you need to make sure that the CPU fan is working correctly. Open your cabinet and make sure the fan rotates easily. Make sure the heat sink and fan blades are free from dust.

You can use a paint brush to clean both. If necessary, remove the fan and heat sink, clean them thoroughly, and apply thermal paste again and fix them back on to the CPU.

To make sure that it's a heating problem, you can try running the CPU with the same heat sink and fan on another motherboard.

Another factor, due to which the BIOS may not be reporting the RPM speed of the CPU fan correctly, could be that the CPU fan cable is not connected to the proper connector on the motherboard. You may want to check that.

If all is in order and you still have an issue, you will have to opt for an external CPU fan kit which will lighten your wallet by Rs 600.

We Have A Spy In Our Midst

Q Whenever I log onto the Internet, my computer gets infected with viruses. I use AVG as my anti-virus, but it seems to be of no use. I run Windows XP with Service Pack 1. My virus definitions are always up-to-date. While scanning my computer with spybot , it says, "There is a security hole in your computer which allows unauthorised material to pass on to your computer without your knowledge." What do I do?

Akash

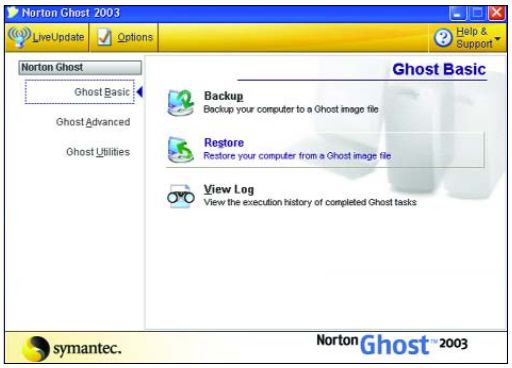
Illustrations Mahesh Benkar

A Your problem stems from a Trojan or spyware that has been installed. What you can do is run SpyBot and make it remove the spyware. Download and install the latest Windows and anti-virus updates. This will ensure that your computer stays safe all the time. Also turn on the inbuilt Windows Firewall. Turn to Page 56 for more instructions on securing your Windows XP PC in 30 minutes.

Carbon Copies

Q I brought my friend's hard drive over to copy some data to my system. After I was done, that hard disk developed problems. My friend says some system files are missing. I formatted the hard drive, and now want to copy all the software that is on my drive to his. I do not have any software CDs though. Is there a way to copy everything, as it is on my drive, to his drive-including the OS?

Shaik Basha



Norton Ghost creates an exact copy of your hard drive

A It's possible, but it won't work because your friend will have a different hardware configuration. If by some miracle, you both have exactly, and we mean EXACTLY the same configuration, you can use utilities such as Norton Ghost or DriveImage to make an image file (exact copy) of your hard drive on to your friends. ■

How To Set Up A 'Professional Looking' E-mail Service

With basic knowledge of DNS and how it works, it is actually possible to set up a free e-mail account and get your mails delivered as if it was from a professionally managed server. Here's how:

- First, set up an e-mail account with any free e-mail server, say, **yourname@rediffmail.com**. Or if you have bought an internet connection from you ISP, you can use the e-mail account of your ISP (**yourname@vsnl.net**, etc.)
- Set up your own Web site, in one of many free hosting services
- Buy your own domain name **(www.mycompany.com)**. Indicative prices are given below.
- If the provider you bought your domain from supports DNS (refer to box: DNSing in the dark), configure it to point to your Web site already hosted in the hosting service. Else, use a free DNS service such as ZoneEdit **(www.zoneedit.com)** or no-IP **(www.no-ip.com)**
- Using ZoneEdit as the example, in the control panel, enter the name of the e-mail account you need to have as an official e-mail account, viz., **mail@mycompany.com**, and use ZoneEdit's redirection service to redirect all mail sent to this address to your free account (**yourname@rediffmail.com** or **yourname@vsnl.net**, etc.)
- You can use Outlook, Outlook Express or Netscape mail to send mail. Just use the outgoing mail server name such as **smtp.vsnl.net** as your outgoing mail server. If you have a leased line or ISDN at office, it is easier to send and receive the 10 MB attachments that can be sent from most e-mail accounts these days
- Any e-mail your business associates will receive from your free account will appear to come from **mail @mycompany.com**, thus imparting a professional look to your business

Location	Company name	Website name	Prices/Year US$	Prices/Year INR
US	NameSecure	http://www.namesecure.com/en_US/index.jhtml?cat=null&subCat=null	74.90 for 10 years	3,445
India	WebLinkIndia	http://www.weblinkindia.net/web-hosting/index.htm		445
US	GoDaddy	http://www.godaddy.com/gdshop/default.asp	8.95	412
India	Net4Domains	http://www.net4domains.com/	11	500

hundred rupees apiece as the business grows. There are other perks such as sending SMS messages from the mail account and also a large address book that holds 2,500 entries. All this comes for a little under Rs 1,500.

Yahoo!, on the other hand, provides only 25 MB storage per account, and all the facilities that Rediff provides. Other than that, they offer 200 blocked addresses, 50 filters and Yahoo!'s trademarked Bayesian spam filters. Additionally, they have waived the $25 setup fee that they usually charge for new accounts. That brings the cost down to around $9.95, or around Rs 460.

Indiatimes Meramail features Personalised e-mail IDs, 6 e-mail addresses, 1,200 MB e-mail and 6 GB briefcase space, for a little under Rs 1,500.

All this comes at a price that most businesses can well afford!

However, all this has a sizable downside. As Abbas says, the problem with services such as Rediff, Yahoo! or Indiatimes is that their setup is rather rigid. For starters, Web sites hosted on their servers have problems with language and platform support. They mostly run on Microsoft products, so they generally lack support for PHP or MySQL. This makes Web site maintenance cumbersome, and the number of choices drops significantly. On the other hand, if only the e-mail service is subscribed to, the cost is slightly on the high side. Sharma says that bandwidth for outsourced e-mail management is a definite issue, so is spam. Neither Yahoo! nor Rediff were available for comment.

"We are not aware of outsourcing options, especially to bigger service providers such as Yahoo! or Rediff. However, free mailboxes are out of question in our line of business; security is important to us.

Kuldeep Sharma
Cravitex Ltd
Mumbai

Yahoo!'s Web hosting and Business Mail solutions are controlled from the US, according to Yahoo! India. That necessarily means the payment has to be made in US dollars and the customer support is also undertaken by US offices. These are issues that would concern an entrepreneur looking to outsource e-mail needs.

On The Other Hand

It is in fact possible to get the same functionality at even lower prices if you have your own business and can spare some time to learn a little bit about Domain Name Servers (DNS). It is possible to actually use your free e-mail account to receive mails sent at your official e-mail id *(See box above, "How to Set Up Professional Looking e-mail IDs")*. All you need is a little tweaking, and you can bind your e-mail with your domain name and make it look like it is coming from the company mail server.

Setting up a system of this sort means that a lot of the traffic is dependent on free services such as NoIP or ZoneEdit. Which means you are at the mercy of the vagaries of the Internet economy.

Solutions to Swim In!

Most SMEs however, go in for an in-house server for internal e-mail and an outsourced service for external ones. Setting up mail servers, setting up mailboxes, calling up people to ask them to set up your mailboxes for you, it is hard not to be bewildered by so much choice. This is easily managed by keeping in mind the end-point of investing the time and the money. It is ultimately based on the kind of requirement that confronts the company. Choices are choices, but they can only become solutions if chosen judiciously. ■

suprotip_ghosh@thinkdigit.com

DNSing in the dark

Names such as "ThinkDigit.com" are easy for people to remember, but computers do not understand them. They use names called IP addresses to refer to one another instead. For instance, you may type in 'www.thinkdigit.com' into your browser, but your computer connects to '130.94.75.250'. Every time a domain name is used, your computer accesses the domain name servers (DNS) on the Internet to translate the 'domain name' into the machine-readable IP address. During a single day of browsing and e-mailing, your computer might access the domain name servers hundreds of times.

102 Business E-mail Options

106 Manage Your Hard Disk

108 Notebooks That Mean Business

Imaging Parag Joshi, Photo Mexy Xavier

Case Study

Squash Your Phone Bills

Shamrao Vitthal Co-op Bank saved Rs 25 lakh by switching over to VoIP. This is the story of how it happened

Aparna Krishnakumar and Suprotip Ghosh

The communication revolution has changed the way we use phones. Gone are the days when we hesitated to make national or international calls. For an organisation, it is even more imperative to be in touch with employees as well as clients.

And so, when calls are made even to check whether someone is present within the company, or one makes STD and ISD calls in the daytime, the meter ticks away furiously.

Hence many organisations use an STD/ISD lock or disallow personal calls. But what do you do when constant calling is inevitable?

The initial euphoria over dial-up connections and the overdependence on MTNL is slowly dying. Companies and individuals are discovering alternative, cost-effective ways of staying connected. Voice over Internet Protocol telephony (VoIP) and Closed User Groups (CUGs) are two such. And in this case, a co-operative bank shows that, when it comes to using technology or its services, it need not be an order issued from a higher authority.

About Shamrao Vithal Co-op Bank

Shamrao Vithal Co-operative (SVC) Bank, originally registered as a Co-operative Credit Society in 1906, is a leader in its segment with deposits of Rs 1,449.30 crore. With nearly 92,000 account holders, it operates from 42 locations in Maharashtra, Karnataka, Mumbai and Goa.

Their activities include fixed deposits, savings bank deposits, cumulative deposits, cash credit loan systems, and cash certificates. Two years ago, they deployed a distributed core-banking application on their intranet and linked all 38 branches and the four extension counters.

The application—a departure from the standard centralised deployment form-came in for a lot of flak from industry analysts.

As a major player in the increasingly competitive Indian banking sector, SVC Bank, like all other banks, was facing increasing competition from private and multinational banks.

Technology-led Growth

Faced with a slowdown in profits due to declining lending rates and a lack of growth in deposits, SVC's target was to accelerate growth while minimising costs. There was also a need to expand customer base.

As a core thrust area, the bank identified extensive service automation as a possible route. Says Ravi Kiran Mankikar, Chief, Information Technology, SVC Bank, "The speed of delivery of financial transactions is critical to any bank's operations.

That needs authorisation and constant communication between the head office and branches. Speedy decisions need instantaneous communicationthat has to be reliable, secure and authenticated. Earlier, decision makers communicated via e-mail, telephone, fax, and through instant messaging. However, this entailed significant costs that needed to be reduced."

This aside, SVC intended to integrate seamlessly with its core-banking application, which follows a distributive deployment instead of the standard centralised form of implementa-

"Implementation of VoIP is not as important as the fact that it works well"

Ravi Kiran Mankikar
Chief, Information Technology, SVC Bank

tion. All this was planned keeping the crossover to the paperless office in mind."

And How They Found A Solution

SVC Bank has a total of 38 branch offices and four extension counters. Of these, 26 are in Mumbai, five in the rest of Maharashtra, 10 in Karnataka and one in Panjim, Goa. A Unicenter Service Desk Network was set up to replace the help desk to assist users with IT-related issues. This solution from Computer Associates morphed the conventional 'help desk' into an all-encompassing operational support group. Accordingly, a broadband backbone, comprising leased lines and ISDN, interconnected all 42 locations.

Existing and upgraded connections were used from DoT and MTNL. As the next step, all the ATMs were connected together using this dedicated link. Last, a major step was taken in the implementation of VoIP telephony.

The interconnecting VoIP network took three months to build. Now, for the past 18 months, most official communication is done using IP phones. These were deployed keeping in mind the infrastructural cost overhead as well as utilisation of available resources.

The deployment of VoIP, says Mankikar, was primarily targeted at significantly decreasing communication costs. Official communication via the standard phone, fax and e-mail proved costly, while on the other hand, there was a considerable amount of idle bandwidth on the 64 Kbps intranet data network.

Moving to VoIP meant efficient resource utilisation, while ensuring that telecommunications costs cut down significantly. This could have entailed complications with MTNL; however, the unified network approval took care of that.

Setting up a VoIP network does incur costs. But the benefits more than compensate for the expense. SVC Bank, for instance, shaved Rs 25 lakh off its communications bill.

You can trim such expenditure by using the existing data network for voice data transfers via VoIP, simultaneously ensuring reliability and security. Having voice and data on the same network also means it is fit to be used for branch transactions. Firewalls and IDS protect the intranet. This aside, the data network is separate from the existing network.

The implementation of VoIP was targeted at ironing out kinks in the decision-making and authorisation process without having to rely on conventional correspondence modes such as e-mail and fax. However, non-written modes of official transaction tend to be problematic, as questions of confidentiality come into the picture.

For example, you need to authenticate a transaction request to the head office and authorisations for branch offices. An e-mail-based system accomplishes this via digital signatures. This can not be achieved through an STD call. VoIP phones however, says Mankikar, can also be used as a locator for employees in responsible positions.

It Takes Time To Deploy And Train

It took three months to deploy the system and another three months to train employees. The training did not coincide with the deployment process and took place independently. Wipro set up all the hardware, the sleek call manager and the Cisco IP7940 phones included. The call managers and the servers reside in a glass room cooled by intelligent air-conditioning systems. VoIP is just a component for internal corporate communications for SVC bank. IP telephony is supplemented by the Microsoft Exchange server.

Apart from handling e-mail and other correspondence, it is also integrated with the call manager, which monitors the various links among the branches and remote offices. If a link is down, it sends e-mails to the concerned authorities in the office and SMSes others.

These e-mails and SMSes are then used to monitor intranet activity for the entire backbone. The records, in the form of e-mails, can also be used to cross-check event logs prepared by HCL Comnet, the company that maintains the data network. The same call manager also

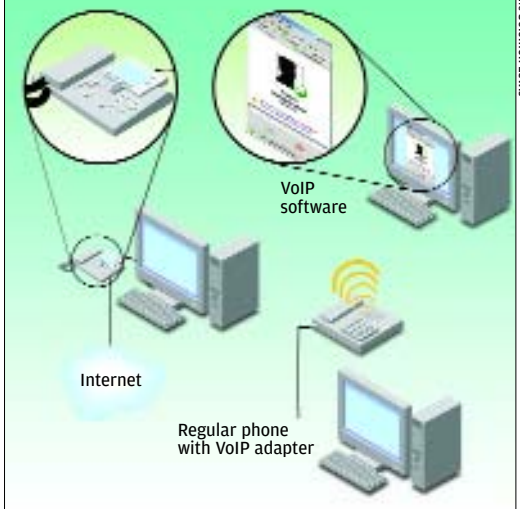
Where Will You Incur Costs

Investments
VoIP telecommunications hardware and software
IP phone sets or soft phones
Network upgrades for possible quality of service and performance upgrades
Implementation labour and professional services
On-going support and administration labour
Support and maintenance contracts
Increased support calls and potential user downtime losses on initial deployment
IT Training
User Training
Write-off, write-down and disposal costs for existing telecommunication assets

Risk Potential
Quality of service/performance
User training and adoption
Administration and support skill levels and resources
Proprietary vs. open systems interoperability

Source
http://searchcio.techtarget.com/ateQuestionNResponse/0,289625,sid19_cid558148_tax292624,00.html

How VoIP Works



Infographic Solomon Lewis

VoIP converts voice signals from a telephone into a digital signal that travels over the Internet. If it's a regular phone number that is dialled, the signal is converted back at the other end.

VoIP also lets you dial directly from a computer. At times, service providers may provide a dial tone for VoIP-enabled phones. If the service assigns a regular phone number, then an individual can call from his or her regular phone into the VoIP set without using special equipment to access the Intern

CUG Saved Rs 20,000 For Bangalore-based IT Firm

Closed User Group (CUG) is a facility most telecom operators offer companies that run up fairly huge telephone bills. For a nominal fee, this service lets a fixed number of people make calls at a reduced rate from the same company.

SVC Bank along with the VoIP facility got an internal CUG, which resulted in a substantial reduction of communication costs. They also got an external CUG for their executives spread across Maharashtra from Orange, a Mumbai-based cellular service provider.

CUGs met with success at Select Technologies, Bangalore. Six months ago, the company faced burgeoning telephone bills. Despite support partners across the world, its 17 Indian branch offices were found making the maximum number of calls.

This prompted A Santosh, Manager, Finance and Operations, to switch to Airtel's CUG service. With a basic tariff of Rs 599 per person and a call charge of 30 paise per minute, 55 phones became a part of the CUG.

The result: Savings of at least Rs 20,000 per month.

Column Ad

deals with support requests from other branches.

The MS Exchange server is also used to create a common bulletin-board service for meetings and other programmes. On the internal network, digital signatures used to authenticate e-mail-certificates are issued inhouse. All this is part of an effort to create a seamless business communication network.

Says Mankikar, "Its implementation is not important, but that it is working well is." However, some holes need to be plugged—communication on the move, for instance.

For that, he says, SVC bank uses a Closed User Group (CUG) of mobile users with Orange as the service provider. The CUG and the internal data network are maintained as separate entities, which are as distinct as external PSTN and GSM networks, to ensure that internal security is not compromised.

Other than that, the bank also uses an FTP server that holds support documentation for the implementation of VoIP.

It has been designed to ensure that the support system runs smoothly in the unlikely event that the links to the head office go down, and at the same time, reduce traffic to and from the Head Office servers.

The Results Are Showing

The past two years saw SVC Bank migrating to the paperless office in a phased manner. The migration for most of the intra-location organisations is complete.

In the pipeline are projects to set up a service using which employees can log in, apply for leave and check the status of their applications.

They also plan to implement Microsoft's Unified Messaging System (UMS), which aims to provide unified messaging based on Windows NT and Windows 2000 as the operating systems, along with Microsoft Exchange Server as well as Windows CE.

This allows users access to a single inbox containing e-mail, voicemail, fax and paged messages via a phone or another device.

For SVC bank, this means that employees can manage their e-mail, voicemail, fax and page messages via the same interface they use to search the Web or an intranet, and access corporate data and applications.

All this is to ensure that network costs remain the same as they increase their leverage on existing systems, says Mankikar as his colleague, Jayavanti K Hattangdi, Deputy General Manager, Operations, SVC Bank calls up a branch office on her IP phone.

He points out that this call is being routed to Pune. Back in his office, he shows us the system that generates warnings and e-mails that contain information such as status reports, coming from the call manager, thus giving a bird's-eye view of the links to all branches and ATMs.

SVC bank seems to be plugging its corporate communication gaps swiftly. "My aim is to change the way people perceive co-operative banks," he says. Innovation, it seems, need not come from far above. ■

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suprotip_ghosh@thinkdigit.com

FACE-OFF

Do IMs Kill Productivity?

Business decisions facilator or an idle chat tool? The two sides of instant messaging

"Yes, they encourage idle chat"

Asha Ayare
Head, Business Solutions, Kotak Mahindra Primus

Kotak Mahindra Primus has a partnership with Ford Motors, Australia, of which Kotak owns 40 per cent. The head office uses 150 PCs; 400 more are used in the branches. We want to optimise the time we give our employees with those PCs. We observed that employees chatted on instant messengers during working hours.

We could not monitor everyone's PCs. Adding to that was the bother of viruses and spyware through instant messengers, since every messenger today has a file transfer feature.

So, we formulated a business policy a year ago that permits only the use of business-oriented applications such as Microsoft Office. Messengers were uninstalled in all areas of the office, except the Treasury and Wholesale departments, who continue to use it for business purposes. Early morning reminders are sent via the instant messenger, and that's that.

This policy has eliminated idle chat, resulting in substantial productivity enhancement. News and other useful features offered by certain messenger applications help keep an individual updated, but then you have news Web sites for those updates, right?

Jiten Gandhi

"No, they are powerful office tools"

Nishant Kolgaonkar
Head, HR & GIAS, Computer Associates India Pvt Ltd

At CA, we see instant messaging as a powerful, real-time, shared communication tool. Instant messaging fosters rapid communication and decision-making, and provides people in an organisation a valuable way to introduce each other.

CA employees make active use of MSN Instant Messenger for internal communication. Our Human Resources department finds it a great way to keep in touch with, and improve relations with, employees. Teams scattered at multiple locations use it to coordinate their work, thus bringing about a noticeable surge in productivity.

At present, IMs are only used for internal communication. This effectively secures us from hacker attacks. We also use e-Trust, and that precludes hacker intrusions.

Chat messages here are short and concise, and hence, they do not really clog the bandwidth. CA employs a mature set of people who have free and on-demand access to different forms of communication such as telephone, fax, e-mail, etc. As such, IM is not a medium that somebody would exploit for idle talk. That has never been our concern.

— As told to Garfield D'Souza

A Mailman for Your Business

Small businesses face a perennial dilemma—to outsource e-mail services, or create an in-house system. Here are a few reasons why outsourcing could help

Suprotip Ghosh

E-mail is an indispensable part of business today, be it a start-up or a Small or Medium Enterprise (SME). With GBs of e-mail space available for free, it is tempting to just use any such free services for the business needs of the SME. However, just any e-mail ID cannot be used for official correspondence. It is far savvier to have an e-mail ID that contains your company name, and also yours! The statement it makes at once impresses clients as being authentic.

But owning a domain name and running a mail server is expensive, especially if it has to be used for commercial purposes. It needs to be secure, well-maintained, and capable of handling and storing large amounts of data. "If e-mail is critical to a business, it makes sense to have separate providers for Web hosting and e-mail." says Abbas S Dean, IT manager, Mumbai Liaison office, Anglo Eastern Ship Management. This Mumbai-based organisation has around 60 users in its office. Though they do not have a resident mail administrator in their Mumbai office, they would prefer to have their mail-server in-house. "It would give us more flexibility," he says. They use MS Exchange on an XP/2000 platform.

This solution makes eminent sense if you are a large corporation. But if you are a start-up, or an enterprise not directly involved in IT, these technical details can be daunting. It is possible to learn all this, or else, look for options elsewhere.

Illustration Mahesh Benkar

Attention! Mailman Wanted

There are various solutions available for the Small and Medium Enterprise (SME) sector. Hardware is cheap, and software prices vary according to the kind of license needed since the needs of a typical SME are not too high.

There are problems though. A mail server needs to continuously connected to the Internet, otherwise mails will bounce, and typically, cannot be retrieved unless there is a perimeter server in place.

There are also risks of virus infections, malicious attacks and the Denial of Service (DoS) attacks. Some viruses on the prowl can send hundreds of thousands of e-mails from e-mail accounts, eating up bandwidth and forcing clients to block mails from the server. This means enterprise grade firewalls and antivirus software, which in turn means constant monitoring of the mail server, and high costs.

Technology needs pampering to run, and much to the chagrin of us all, pampering costs money.

Still, businesses tend to host mail servers in-house. The security, as well as the freedom of managing a server in-house has a higher comfort level for most businesses.

Trust and security are most important, says Kuldeep Sharma of Cravitex Ltd Mumbai, a firm that markets and exports apparel, footwear and fitness systems. Cravitex hosts their mail server in-house, running MDaemon (a product by C&C software) on the local LAN on NT.

It has outsourced the external mail server to a hosting service. However, bandwidth and

spamming are chronic problems. Sharma confesses that he can only place trust in the service provider as far as confidentiality of sensitive external information is concerned.

They Also Gain, Who Stand and Wait

Fortunately, the average entrepreneur today has many more choices than five years ago. It is possible to 'outsource' most needs. Early this year, Spymac began to give out its 1 GB mailbox accounts. In April, Google launched the beta GMail service, with a 1000 MB mailbox and mail search for its free e-mail accounts.

That move heated up the e-mail war, and a few months later, people who had bought 20 MB or 10 MB mailboxes with rudimentary facilities were left looking a bit foolish when Yahoo! and Hotmail said they would increase the free account sizes to 100 MB. Rediffmail increased their accounts to 1 GB too.

They compensated commercial clients by giving them double the size of free accounts, other than a number of enhanced facilities such as spam-protection and enhanced security. Commercial e-mail accounts today provide cutting-edge service and performance.

And all this comes at rates dirt-cheap. The interesting trend is the enormous amounts of space on free e-mail accounts that have opened up vistas.

An Embarrassment of Choices

There are literally as many ways to 'outsource' e-mail needs as the number of service providers themselves. Most major e-mail service providers such as Yahoo! and Rediff have premium business e-mail services. Rediff, for example, have Rediffmail Plus, which comes with a package of 5 mail IDs, 1 GB mail storage, your own domain name, POP3 and virus protection added. Other than that, e-mail IDs can be bought for a

IM!portant

At a time when the Small and Medium Enterprise is the target of aggressive marketing, Yahoo! Business Messenger, a hosted service accessed through instant messaging (IM) software from Yahoo!, has been discontinued. This fee-based IM service offered features that many companies require for instant messaging. These features include message encryption, IT management and administration tools, message logging and archiving, voice and video communications and online meetings.

Yahoo! has decided to focus instead on its popular free IM service while relying on partners such as Akonix, FaceTime Communications and IMlogic, which specialise in gateway software. These enable companies to manage IM platforms.

Quite a few such messengers are available in the market. These can be used as a complement to e-mail for intra-office communications. They save a lot of work, and are easier on the computer.

Jabber is an open-source instant messaging platform that uses an open, XML-based protocol to create the standard functionality people expect of an IM system.

Exodus is a Windows client for Jabber (**http://www.jabberstudio.org/projects/exodus/releases/**). Read the Jabber manual **(http://www. jabber.org/user/userguide/)** for details.

DataTel Lite provides secure IM along with an assortment of customizable features.

DataTel Lite runs as a true peer-to-peer program so no central server program is required. Get it from **http://www. datamate.com/products.html**

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How To Set Up A 'Professional Looking' E-mail Service

With basic knowledge of DNS and how it works, it is actually possible to set up a free e-mail account and get your mails delivered as if it was from a professionally managed server. Here's how:

- First, set up an e-mail account with any free e-mail server, say, **yourname@rediffmail.com**. Or if you have bought an internet connection from you ISP, you can use the e-mail account of your ISP (**yourname@vsnl.net**, etc.)
- Set up your own Web site, in one of many free hosting services
- Buy your own domain name **(www.mycompany.com)**. Indicative prices are given below.
- If the provider you bought your domain from supports DNS (refer to box: DNSing in the dark), configure it to point to your Web site already hosted in the hosting service. Else, use a free DNS service such as ZoneEdit **(www.zoneedit.com)** or no-IP **(www.no-ip.com)**
- Using ZoneEdit as the example, in the control panel, enter the name of the e-mail account you need to have as an official e-mail account, viz., **mail@mycompany.com**, and use ZoneEdit's redirection service to redirect all mail sent to this address to your free account (**yourname@rediffmail.com** or **yourname@vsnl.net**, etc.)
- You can use Outlook, Outlook Express or Netscape mail to send mail. Just use the outgoing mail server name such as **smtp.vsnl.net** as your outgoing mail server. If you have a leased line or ISDN at office, it is easier to send and receive the 10 MB attachments that can be sent from most e-mail accounts these days
- Any e-mail your business associates will receive from your free account will appear to come from **mail @mycompany.com**, thus imparting a professional look to your business

Location	Company name	Website name	Prices/Year US$	Prices/Year INR
US	NameSecure	http://www.namesecure.com/en_US/index.jhtml?cat=null&subCat=null	74.90 for 10 years	3,445
India	WebLinkIndia	http://www.weblinkindia.net/web-hosting/index.htm		445
US	GoDaddy	http://www.godaddy.com/gdshop/default.asp	8.95	412
India	Net4Domains	http://www.net4domains.com/	11	500

hundred rupees apiece as the business grows. There are other perks such as sending SMS messages from the mail account and also a large address book that holds 2,500 entries. All this comes for a little under Rs 1,500.

Yahoo!, on the other hand, provides only 25 MB storage per account, and all the facilities that Rediff provides. Other than that, they offer 200 blocked addresses, 50 filters and Yahoo!'s trademarked Bayesian spam filters. Additionally, they have waived the $25 setup fee that they usually charge for new accounts. That brings the cost down to around $9.95, or around Rs 460.

Indiatimes Meramail features Personalised e-mail IDs, 6 e-mail addresses, 1,200 MB e-mail and 6 GB briefcase space, for a little under Rs 1,500.

All this comes at a price that most businesses can well afford!

However, all this has a sizable downside. As Abbas says, the problem with services such as Rediff, Yahoo! or Indiatimes is that their setup is rather rigid. For starters, Web sites hosted on their servers have problems with language and platform support. They mostly run on Microsoft products, so they generally lack support for PHP or MySQL. This makes Web site maintenance cumbersome, and the number of choices drops significantly. On the other hand, if only the e-mail service is subscribed to, the cost is slightly on the high side. Sharma says that bandwidth for outsourced e-mail management is a definite issue, so is spam. Neither Yahoo! nor Rediff were available for comment.

"We are not aware of outsourcing options, especially to bigger service providers such as Yahoo! or Rediff. However, free mailboxes are out of question in our line of business; security is important to us.

Kuldeep Sharma
Cravitex Ltd
Mumbai

Yahoo!'s Web hosting and Business Mail solutions are controlled from the US, according to Yahoo! India. That necessarily means the payment has to be made in US dollars and the customer support is also undertaken by US offices. These are issues that would concern an entrepreneur looking to outsource e-mail needs.

On The Other Hand

It is in fact possible to get the same functionality at even lower prices if you have your own business and can spare some time to learn a little bit about Domain Name Servers (DNS). It is possible to actually use your free e-mail account to receive mails sent at your official e-mail id *(See box above, "How to Set Up Professional Looking e-mail IDs")*. All you need is a little tweaking, and you can bind your e-mail with your domain name and make it look like it is coming from the company mail server.

Setting up a system of this sort means that a lot of the traffic is dependent on free services such as NoIP or ZoneEdit. Which means you are at the mercy of the vagaries of the Internet economy.

Solutions to Swim In!

Most SMEs however, go in for an in-house server for internal e-mail and an outsourced service for external ones. Setting up mail servers, setting up mailboxes, calling up people to ask them to set up your mailboxes for you, it is hard not to be bewildered by so much choice. This is easily managed by keeping in mind the end-point of investing the time and the money. It is ultimately based on the kind of requirement that confronts the company. Choices are choices, but they can only become solutions if chosen judiciously. ■

suprotip_ghosh@thinkdigit.com

DNSing in the dark

Names such as "ThinkDigit.com" are easy for people to remember, but computers do not understand them. They use names called IP addresses to refer to one another instead. For instance, you may type in 'www.thinkdigit.com' into your browser, but your computer connects to '130.94.75.250'. Every time a domain name is used, your computer accesses the domain name servers (DNS) on the Internet to translate the 'domain name' into the machine-readable IP address. During a single day of browsing and e-mailing, your computer might access the domain name servers hundreds of times.

Optimise Your

80 GB hard disks are de facto today; but what do you do with all that space? Here are some suggestions...

Program Files - 3 GB

You can move the Program Files directory to another partition. All it takes is a registry edit as soon as you finish installing Windows XP. Go to **Start > Run**. type **'regedit'** and head to: **HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current Version** and change the KEY = ProgramFilesDir to reflect the new partition; for example D:\Program Files. Do not delete C:\Program Files! This is a sentimental place for Windows XP, the OS needs it...

My Documents - 3 GB

The My Documents folder carries much more than your documents. It is where movies and music are meant to be stored by default (which we won't do). Moreover, files that you receive over an Instant Messenger such as MSN Messenger or Yahoo! Messenger also reside here. So do e-books created by Adobe Acrobat, etc

Windows XP - 7 GB

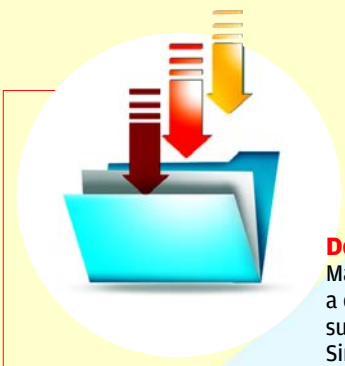
Reinstalling an operating system becomes easier once you have segregated it from your data files. No more backing up to another hard disk. Just delete the OS partition and reinstall

Temp - 500 MB

This is a dedicated partition for your Windows' swap. To be more effective, change the default cluster size of this one to 64 KB. Note that this is not an essential element by far

Games - 9.5 GB

With games breaking the 3-CD barrier, more space is always welcome. You can also store patches and mods for your favourite games in here

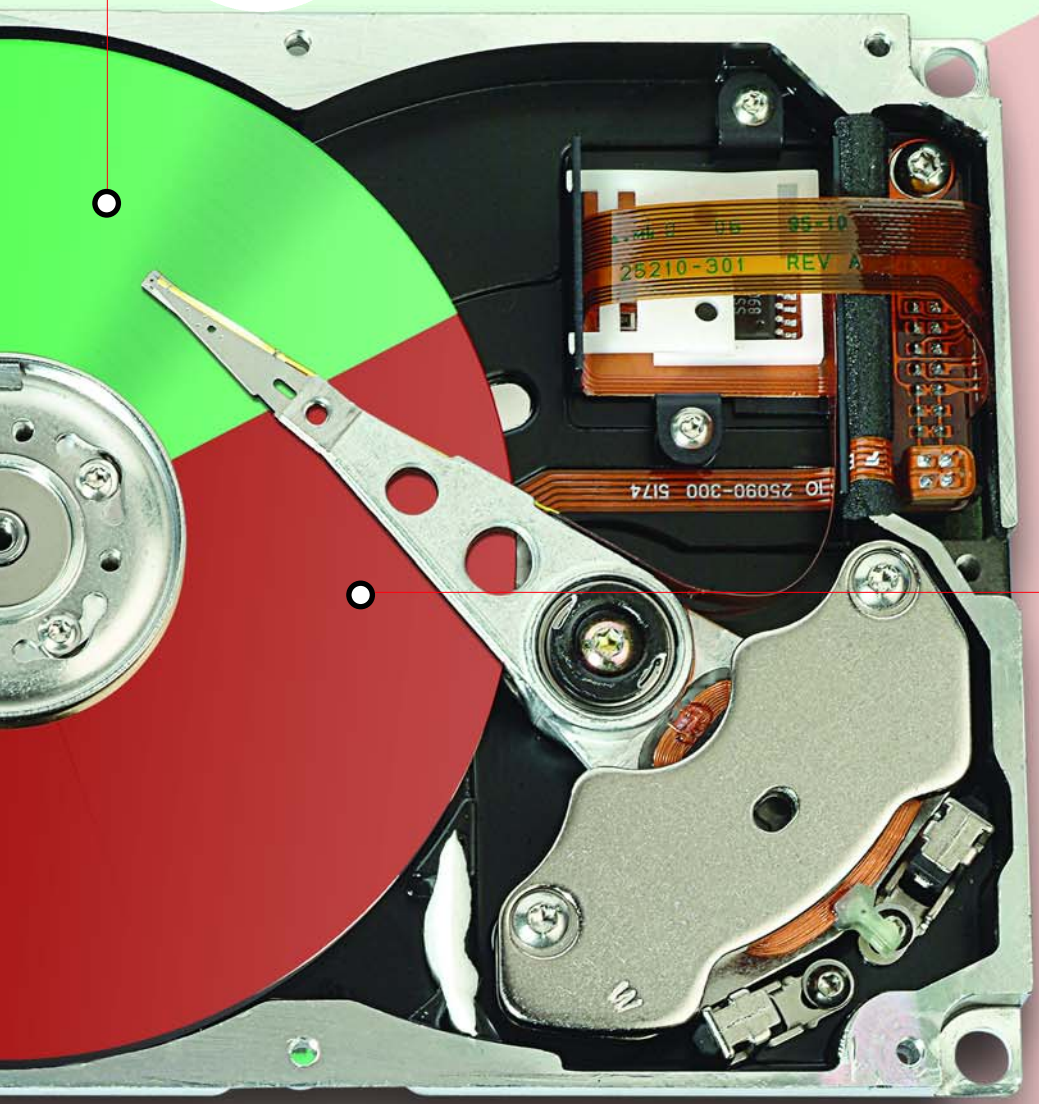


Downloads - 6 GB

Make this the default partition to which a download manager (such as FlashGet, supplied on the Digit DVD) saves files to. Similarly, this can be the default path that browsers such as Opera or Firefox use to save files

80 GB Hard Disk

Music - 20 GB
The Music partition should also contain a folder that stores your playlists. Keeping playlists within one dedicated folder makes music management much more user-friendly



Movies - 30 GB
Note that the sizes are mere suggestions. If you feel that movies or games do not deserve this much space but your backups do, feel free to change the partition sizes accordingly

Backup - 1 GB
The Backup partition is where you maintain copies of essential data. For example, ask Microsoft Outlook to back up your e-mails to this partition. Thus, you have one place from which you can restore your data

Why Partition?

By dividing the hard disk into partitions, not only is data segregation possible, data fragmentation is also reduced. Additionally, consider upgrading your drives to the NTFS file system. NTFS causes less data fragmentation, is more secure and compatible with practically every program out there. The only reason not to upgrade is the fact that an older operating system (Windows 98, mainly) may not read or write to an NTFS partition.

MOBILE Powerhouse

Laptops are no longer expensive executive toys; they are essential business tools. Find out which one suits your needs the best

Aliasgar Pardawala and **Sanket Naik**

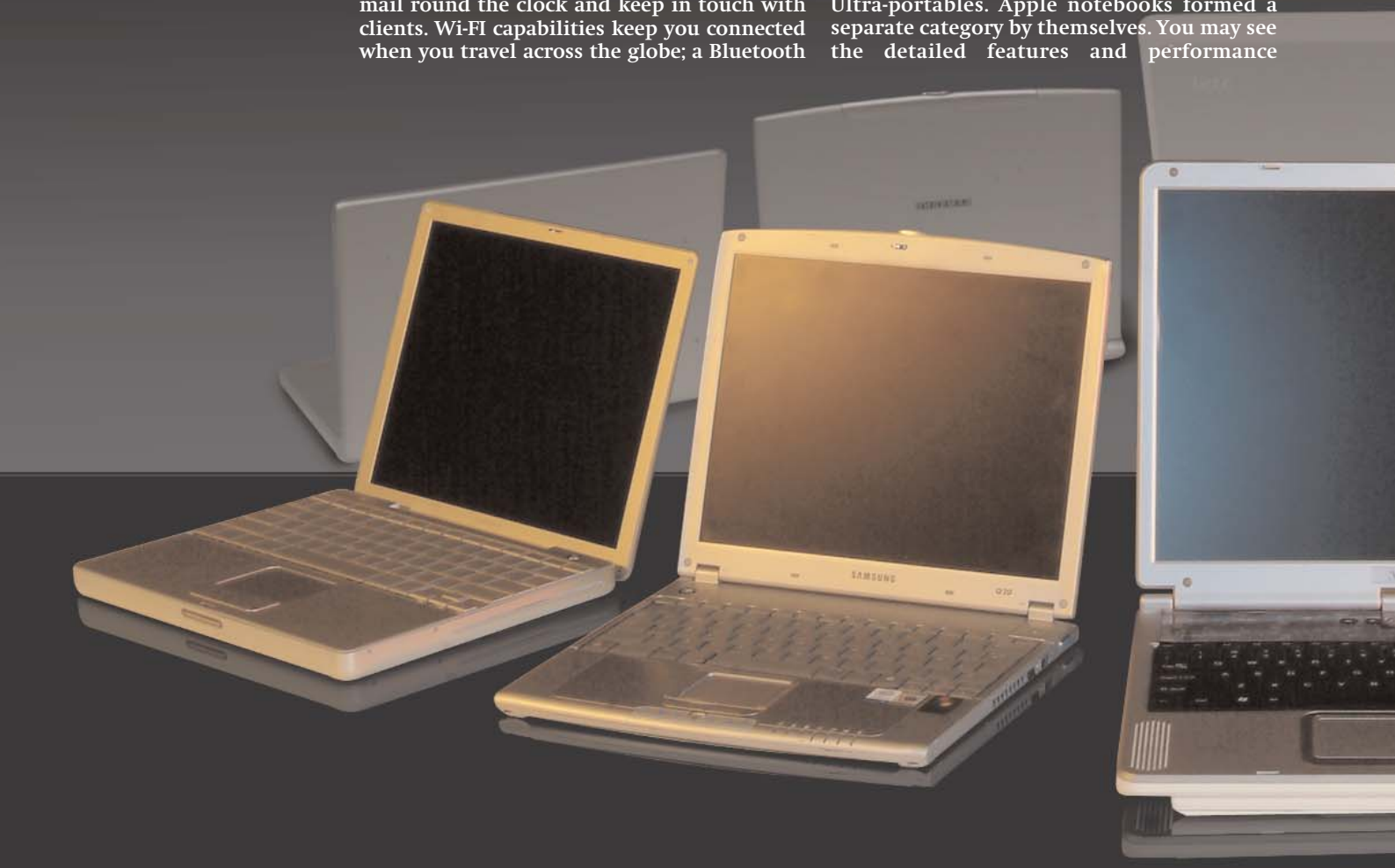
Mobile computing is redefining the way we do business, and corporates are only too happy to equip mobile workers with notebooks—it is a great business productivity tool. The importance for mobile computing stems from the need for access to critical data wherever and whenever an employee needs it. With access to data round the clock, the 9-to-5 time barrier is no longer valid, and ensures work happens outside office and past office hours.

Notebooks are favourites among marketing and sales people. Coupled with a CDMA connection that offers data services, one can access e-mail round the clock and keep in touch with clients. Wi-FI capabilities keep you connected when you travel across the globe; a Bluetooth adapter lets you synchronise your contact data across all your devices; a Firewire port lets you unload pictures from your digital camera at will. Besides, who likes to be away from a computer for long!

The recent fall in the prices has thrown up obvious advantages of using laptops, including time saved, efficiency, etc.

Whether you are a CEO or a sales manager looking to empower your sales force with the right mobility tools, or an individual looking for a notebook for business enhancement, you will find something here that you can use.

We tested 43 popular notebooks, classifying them into five categories—Budget, Workhorse, Lifestyle, Desktop replacements and Ultra-portables. Apple notebooks formed a separate category by themselves. You may see the detailed features and performance



comparison tables included in the *Digit* CD with this issue.

BUDGET BUDDIES

Notebook prices have fallen steadily over the past 12 months, resulting in a new target audience. The 'Budget' category comprises notebooks that sell for around Rs 50,000, which may be the price point that will encourage their mass adoption.

Eight models fit into this category—one each from IBM, Mercury and Zenith, two from Wipro and three from ACi. The prices ranged from as low as Rs 31,000 to close to Rs 57,000.

Features

As expected, most laptops here ran on desktop hardware. There were some exceptions though—ACi managed to include a Centrino-based notebook, which promises decent features and a good battery life without compromising much on performance. The ACi's Ethos V ran on VIA's C3 processor while Zenith's Performer model integrated an 800 FSB processor. IBM and Wipro opted for Intel's Celeron processors to power their notebooks, while the others ran on Intel Pentium 4 processors.

All notebooks came with at least 256 MB of RAM, making it easy for users to opt for Windows XP. The IBM and ACi Ethos V models had a 14-inch TFT display, which should suffice for most. If you are looking for more, the others deliver. The IBM R40e, the Wipro Notebooks and the Zenith Performer have the best displays in this category.

All the laptops had a minimum of two USB ports, with the Zenith One-up model boasting of six. Apart from the IBM, Zenith and ACi Ethos, all others had a Firewire port. All the notebooks, without exception, had an Ethernet port.

Hard disk capacities vary the most, and this segment saw a variation of 20 GB to 60 GB. With increasing application sizes of today, 20 GB is too little for a notebook; a decent music collection or movies can rake out GBs of space leaving little space for the OS and applications, not to mention your mail folder. The ideal proposition seems to be a 40 GB hard drive, and Zenith and ACi get full marks for their generosity. CD-ROM drives seem to be a popular choice with most laptops. IBM, Zenith and Mercury opted for a combination drive, and scored over the competition.

Usability

Nothing comes close to IBM's R40e. It sports the best finish of them all, and is ruggedness personified. All other models had similar build qualities, but were nowhere close to being as rugged as the IBM.

The ACi Ethos model's build quality feels weak, but at this low a price you can't really complain.

Don't be fooled by its looks though—this notebook tackled most of our tests better than the competition.

Photograph **Mexy Xavier** Imaging **Solomon Lewis**

Ergonomically, all the laptops are no-frills products. The IBM misses out on a touchpad, but offers its patented track point. But it makes up for it by offering a good, solid keyboard.

Except for Zenith, all notebooks ran Windows XP Home Edition. IBM was the only one to supply a recovery CD, along with other useful IBM utilities that help you recover the factory conditions in case your system crashes. Most came with average quality carry cases.

Only the ACi Emerald Pro and Emerald C come with a three-year warranty, the rest offer a one-year warranty. Wipro offers an on-site warranty—the rest offer a carry-in warranty. The turn-around-time (the time it takes for you to get a new laptop, or get your laptop back after repairs) typically ranges from 12 to 48 hours across various vendors.

Performance

ACi's Emerald Pro performed well; hot on its heels was Zenith's Performer. While both were on par in most tests, the Emerald Pro sported a better battery time—still not enough to watch an entire movie on a single charge. IBM and Wipro couldn't keep up with their feeble Celeron processors.

ACi's Emerald C, the lone Centrino notebook, fared well, but was edged out in the end. Astonishingly, the Mercury notebook offered better battery life than the Centrino-based Emerald C. ACi's Ethos V returned poor scores.

ACi Emerald Pro

Wipro Little Genius 1000D

Despite the weakest processor of the lot, it managed to pass most of our stress tests, proving that it's worth its amazingly low price tag.

Conclusion

The budget category needs the maximum value from a minimal investment. The feature sets and usability of all the laptops were almost identical, so it was up to the performance scores to decide the winner. ACi's Emerald Pro emerged winner; however, we should mention that the margin over the competition was nothing special.The Wipro Little Genius 1000D turned in good performance scores; this, coupled with good pricing and the great offer of an on-site warranty pushed it ahead of the Zenith performer to win the Best Buy Silver award. Zenith's Performer and Wipro's Little Genius 4000D are also commendable buys, and perform better than the Wipro Little Genius 1000D.

If it wasn't for the below-par performance, ACi's Ethos V would be the perfect example of a budget laptop.

If you have a low budget and need to deploy laptops for your team, nothing matches the cheap Ethos V.

How We Tested And How We Decided The Award Winners

We assessed laptops on five main parameters—features, performance, usability, price and warranty, and support. Weightages varied, depending on the importance of a parameter to a particular category. Windows XP Professional SP1 was the standard operating system. We also loaded all the latest drivers for optimum performance.

Features
We noted features such as the type of RAM, hard disk capacity, the optical drive provided, types of ports, etc. As per their importance, weightages were attached and thereby scores derived.

Usability
Usability was evaluated on the basis of how simple or difficult it was to handle the device in our everyday lives—of primary importance here were weight, dimensions, and ergonomically inclined factors such as keyboard feel, touchpad sensitivity, etc. As a measure of heat dissipation, we logged temperatures, shown by a thermistor-based device, at various points on the notebook.

Package contents
We checked whether the vendors provided OSes, recovery CD with the laptop. We also noted extra software and accessories—power adapter, carry case, etc., bundled along.

Performance
We ran a number of tests to evaluate each individual sub-system. The following benchmarking suites were used:

SiSoft Sandra 2004 Professional: This synthetic benchmarking suite evaluated CPU, memory and hard disk performances. The scores for each individual sub-system were noted down.

PCMark 2004: PCMark 2004 is a system-wide benchmark that tests the complete system as well as individual components such as processor, and graphics sub-system and returns aggregated scores.

Ziff Davis Business Winstone 2004: This benchmark tests using applications that are used on a daily basis, evaluates complete system performance, and returns a unified score. Higher the score, the better is the system performance.

Video encoding: Here, we encoded a 50 MB .vob file using Dr DiVx to convert it into the AVI format. The time taken do so was noted.

Call of Duty: The game was run at resolutions of 800 x 600 and 1,024 x 768, and the average fps was noted down.

DisplayMate Video Edition: The LCD display was evaluated using tools such as Point Shape and Visibility, and Streaking and Ghosting slides. Protractor was used to measure the maximum viewing angle from which you can read text on a white background.

WiFi test: NetCPS—a utility that pumps data to test TCP/IP connections was used to evaluate WiFi data throughput. We also copied 20 MB of assorted data and streamed a movie file too-all via WiFi.

Digit Battery Meter: We ran a .vob file till the battery drained. A software timer developed inhouse kept time.

Warranty and Support: Apart from the support, warranty period, we also took into account the number of service centres and the average turnaround time.

How The Awards Are Given
The scores from features, performance, usability, warranty and support, and price, are given weightages relevant to the specific category. An overall score out of 100 is calculated.

The product that scores the highest here is adjudged the winner of the **Digit Best Buy Gold** award for its category. The second highest scorer gets the **Digit Best Buy Silver** award.

WORKHORSES

The majority of notebooks owned by upper-management in most companies form this category. Executive looks, essential features, a good balance between processing power and battery life, good pricing, etc., are some of the things to look for in such laptops.

In all, 12 laptops from eight different brands made it to this category. Three Compaq notebooks; two from Toshiba; and one each from IBM and Acer made up the international brands. Zenith contributed with their Strategist and Director models, while Wipro sent in two notebooks. A new entrant—MSI, known for great motherboards—also sent in one laptop.

The laptops were all designed to cater to two sets of people—the more mature and elegant looking notebooks for senior management, and the peppy-looking ones to cater to the young blood rising in the corporate ranks.

Features

Almost all the laptops here were based on the Pentium M Centrino platform. Only the Compaq P2514AT, Compaq P2563AI and the Toshiba Satellite A60 models used either a Pentium 4 or Celeron processor.

Most of the Centrino-based notebooks integrated a 1.5 GHz processor; Acer went one step further and used a 1.8 Ghz processor and Zenith's Strategist model used a 1.7 GHz Processor. The IBM's R50 processor was the lowest rated at 1.4 GHz processor—still a decent clock speed.

Centrino platform-based notebooks offer long battery life, great performance, and wireless connectivity

256 MB seems to be the norm for RAM. A few exceptions—the Compaq P2514AT, and both the Zenith models—ship with only 128 MB of RAM. We asked for the Zenith laptops to be upgraded to 256 MB, since that is a pre-requisite to run Windows XP, at least in our opinion. The prices quoted in this category for the Zenith models include the cost of upgrading to 256 MB RAM. Acer was the best of the lot, and offered 512 MB of RAM.

Zenith's Strategist model stood apart from the rest with its 15.4-inch wide-screen TFT display—wide screens are really helpful when working with applications such as Excel. Four of the notebooks had 14-inch displays—the IBM R50, the Compaq 2514AT, the Toshiba Tecra M2V and the Zenith Director. The rest had 15-inch displays.

The quality of the display screens on the Toshiba Tecra, Compaq's V1040AP and IBM's R50 were the best—noticeable when watching fast action videos.

All the laptops offered three or four USB ports. A port that seems to be gaining in popularity is the Firewire port, making it easy for imaging professionals to connect their digital cameras and other high-end digital imaging stuff.

Infrared (IR), though outdated, is still the preferred wireless communication protocol, and is found on a lot of laptops. Though great to sync your mobile phones, handhelds etc, it is a definite no-no when transferring large files. Only the MSI and Zenith notebooks lacked an IR port.

With the wide acceptance of Bluetooth in

1/2 Pg H AD

Nowadays, most workhorse notebooks are equipped with combo drives that allow you to back up data and watch DVD movies while travelling

From The Horse's Mouth

"Laptops help people who are on the move"

Neeraj Roy

Neeraj Roy, CEO of Hungama.com, has been a notebook user for the past twelve years, and now uses a Compaq Presario 80XL550. He travels ten days a month on an average, and his laptop is the lifeline that helps him stay connected with work. He feels battery life on the move is the biggest challenge for a notebook user, and is a primary factor in making purchase decisions. He also rates performance and wireless connectivity as important criteria.

Harsh Vardhan Roongta, CEO of Apnaloan.com, is a chartered accountant and has over 18 years of experience in financial services and consultancy. Roongta has been a notebook user for the past three years. His business trips—twice or thrice a month—see him using his IBM ThinkPad R40e, and a Reliance mobile phone for Internet access. He feels that computing on the move is the best thing in favour of a laptop. Of course, there are a few uncomfortable things to adjust to-the smaller keyboard, for example.

H V Roongta

In his opinion, good battery life, a large screen, and ruggedness are the most important criteria when buying a notebook. Performance and weight, he feels, are secondary factors to consider.

MSI MegaBook M510C

handhelds and mobile phones, notebooks with inbuilt Bluetooth adapters are cropping up. The Acer and Compaq's V1040AP were the only notebooks with inbuilt support for Bluetooth.

With the Centrino platform comes Wi-FI. Acer and MSI offer the faster 802.11g capable of 54 Mbps, while the rest offered 802.11b adapters capable of reaching 11 Mbps. When put to the test, only MSI's Megabook M510c returned good results, while the Acer was a bit of a letdown.

Hard disk capacities hovered around 40 GB. However, Acer Travelmate 8005LMi outdid the rest by providing an 80 GB hard disk.

Combo drives are standard on workhorse notebooks, and almost every notebook had one, except for the Toshiba Satellite A60 and the Compaq 2514AT—they came with separate DVD and CD-ROM drives. The Acer 8005LMi again excelled by providing a DVD-writer.

A notable feature of the IBM R50 is that it senses movement—if you move the laptop, it locks the hard disk's head to prevent damage to it, just like in the ad you would have seen on TV. The Acer 8005LMi offers a Media bay—a bay that can accept either an optical drive or an additional battery for prolonged life.

Nothing beats the Acer 8005LMi in terms or features; the Compaq V1040AP came second.

Usability

The IBM R50, Toshiba Tecra M2V, Compaq V1040AP and Acer 8005LMi sport sophisticated design and elegant looks. The MSI M510C, Toshiba Satellite A60, and Zenith's Director and Strategist look good and should attract the younger executives.

The Toshiba Tecra was the lightest and most portable notebook in this category. The MSI, Compaq 2563AI and 2514AT, and the Toshiba Satellite A60 are slightly bulky, but manageable.

The painstaking attention to the ruggedly designed IBM R50 is clear when you notice the grip that helps you lift the upper lid, or the small lamp that helps you find keys in the dark.

Compaq's V1040AP and the Toshiba Tecra take second place in terms of functional design, followed closely by Zenith's Director and Strategist models. The Tecra was slightly better than the Compaq in day-to-day use. The smaller touchpad surface on the Compaq can get really irritating.

Zenith's Director and Strategist were very similar to each other in terms of design and practical usability, except for the 5X's larger proportions.

MSI's M510C closely resembles Apple's iBook design with very few flaws, except for the way too tiny touchpad buttons.

The speakers on almost all these laptops sound dull. Only the Compaq V1040AP's speakers are acceptable, and can add that little extra to your presentation. The MSI's speakers were loud, but lacked depth. The IBM R50s speakers were the worst, but this is the only chink in its armour.

Overall, the IBM R50, Compaq V1040AP and Toshiba Tecra offer the best user experience. The MSI 510C, Zenith's Director and Strategist models, and the BenQ 5000U form the second tier of products in terms of usability.

You get three years' warranty on Acer, BenQ, IBM, and Toshiba Tecra products, whereas Compaq, Zenith and Wipro offer the standard one-year warranty.

Performance

The king on the performance arena was the MSI Megabook M510C. It simply blew the competition away—including the well endowed Acer 8005LMi and Zenith 5X.

In the system test, the Acer won, obviously

Save Power

Battery life is an important aspect of any mobile device-be it a cell phone, PDA or a laptop. Given below are ways in which you can save and prolong battery power:

- Decrease the brightness of the screen if there's ample light around you.
- Do not disable processor-specific technologies such as Intel's SpeedStep and AMD's PowerNow technology. These help run processors at lower speeds. Smarter management of CPU cycles enables longer battery life, lower heat dissipation and near-noiseless operation.
- If your laptop is WiFi and/or Bluetooth-capable, switch these off when not in use. Both are power-hungry and consume a lot of power.
- Use the Standby mode instead of turning the screensaver on. This mode cuts off power supply to the hard drive and the monitor. Pressing a key or moving the mouse restores the power supply.

When it comes to good looks, in the Lifestyle category, Apple notebooks lead the pack

due to the faster processor and the 512 MB of RAM. Similar results were seen in the video encoding test. The MSI M510C wasn't far behind the Acer in all these tests, and even beat it in the display, battery life and wireless tests.

The screen quality on the MSI was better than that on the Acer in all the parameters that we laid down. The Toshiba Tecra, the IBM R50 and the Zenith Director have better displays than most.

The MSI M510C also had the longest battery-life, and hence took a good lead over the Acer, which sacrifices battery life for performance. The Compaq V1040AP came had the second-longest battery life, and was followed by the Zenith Director.

Despite its 802.11g Wireless adapter, the Acer notebook failed to return the expected scores—even after repeated attempts. The MSI, on the other hand, did extremely well, and we could stream a movie on the wireless link—it played without a jerk. Wipro's Little Genius CP also came out with flying colours in the wireless tests.

Wipro Little Genius CP

Conclusion

Considering scores on performance, features, usability and price, the MSI M510C emerges as the winner—it gets the Best Buy Gold award. Wipro's Little genius won the Best Buy Silver award, because of its all-round abilities.

However, you shouldn't ignore products such as the IBM R50, Toshiba Tecra, Compaq V1040AP or Acer 8005LMi. The only reason they lose out is the price; but then again, the designs they sport, the features they offer, the name of a trusted brand, etc., come at a premium.

LIFESTYLE COMPANIONS

Notebooks that blend looks, appeal, style and functionality fall into the Lifestyle category. These products reflect the personality of the user, and may have the latest technology or just look elegant and sophisticated. These products are meant for a buyer who wants to stand out in a crowd.

The category consisted of nine notebooks from Samsung, LG, Compaq and Toshiba; all cost above Rs 1 lakh.

Features

Fancy features were the norm here. Samsung offers an inbuilt biometric security solution with their laptops. Samsung P30 and X10 models have in-built biometric security solution.

LG's LS40 is rated to provide 10 hours of battery life. However, it provided just four hours in our test.

Compaq's X1237AP was the most feature-rich laptop, offering a Bluetooth adapter, DVD-Writer, and 15.4-inch wide format screen—truly useful features as compared to other fancy stuff provided by others.

Every notebook in this category was based on the new Centrino platform. The processors were mostly Pentium M running at either 1.5 GHz or 1.4 GHz. Samsung's X05 was the only exception—it had a Celeron M processor.

The Toshiba Satellite M30 comes with a breathtaking 15.4-inch wide display that is crystal clear. The sheer brilliance of this screen, combined with the Harmon Kardon speakers, takes multimedia to an unmatched level.

Barring Samsung's X10 and X05, the others supported either of the two legacy ports—serial

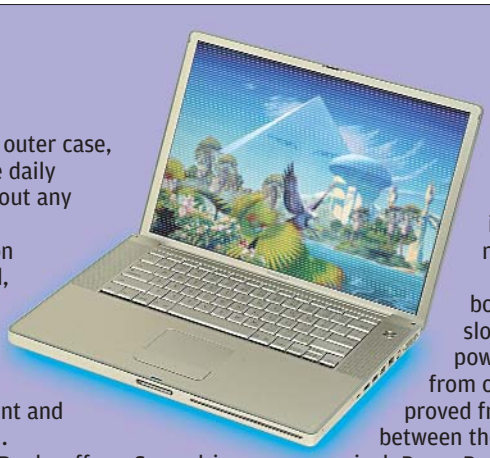
Lapples Anyone?

Notebooks that give you a feeling of being different, notebooks that will have people look at you with wonder; yes, we're talking Apple here. Notebooks or desktops, Apple computers are always desirable. The iBooks and PowerBooks have a charm of their own.

Apple leads the pack when it comes to meticulous details on the appearance. Minute details such as rubber padding on the top lid for better grip, a LED in the power socket that changes colour to indicate battery charging, retracting latches that hold the upper lid, etc., are enthralling.

For the comparison, we got one 12-inch iBook and three PowerBooks in the increasing size of their display—12, 15 and 17 inches. The essential difference between the two classes of Apple notebooks is self-explanatory, the PowerBook as the name suggest are powerful and are priced higher, whereas the iBooks are slightly low on power, features and price.

The milky white 12-inch iBook has a polycarbonate outer case, which can take daily thrashing without any problems. The PowerBooks, on the other hand, offer a brush finished Aluminium casing that is scratch-resistant and looks beautiful.



The PowerBooks offer a Superdrive that is capable of burning DVD's, Gigabit Ethernet ports, a Firewire 800 port that is capable of nearly double the data transfer rate of a standard Firewire port, inbuilt Bluetooth, a 54 Mbps WiFi adapter, and the latest in graphics—ATi's Mobility Radeon 9700.

Apple's Mac OSX Panther is the OS used in all the notebooks, and is simple to use and understand. Mac OSX comes with all the necessary applications, such as an e-mail client, a PIM software and Web browsers. Microsoft's new Office 2004 for the Mac platform takes care of the Word processing and spreadsheet needs.

G4-based notebooks are slightly slower than Centrino-powered notebooks from other brands, as proved from the comparison between the Dell D800 and 17-inch PowerBook—we ran the PSbench action script on Adobe Photoshop CS. Dell's D800 took 195 seconds to complete the script, whereas the 17-inch Apple took around 305 seconds for the same task.

However, it's not the performance that matters here; it's the user experience that is the driving force. Our stints with these notebooks convinced us that they are simply the best. Migrating from the Windows platform does pose some problems initially, but the simple Mac OSX interface can be grasped easily.

The Toshiba M30 matches the Apple notebooks when it comes to aesthetic appeal. It promises great performance too

or parallel. All models had at least two USB ports and one Firewire port.

All notebooks offer Wi-FI access via 802.11b adapters. Only the Compaq X1237AP provided Bluetooth. All the notebooks provide an Ethernet port and inbuilt modem. The Compaq X1237AP, the Toshiba Satellite M30, the LG LM40, and the LG LM50, provided an SD card reader, while Samsung's X10 and P30 offer Memory Stick, and SD/MMC support.

An ATi Mobility Radeon 9200 graphics powers Compaq's X1237AP and the LG LM40, while the LG LM 50 offered the better performing Mobility Radeon 9600. Samsung had GeForce 440 Go and Geforce FX-5200 Go for their X10 and P30 models respectively. The rest used Intel's Extreme Graphics 2 for their display requirements. The Radeon-powered notebooks offer better graphics performance as compared to the Intel chipset-powered notebook.

Except for Compaq's X1237AP, which had a DVD-Writer, the rest came with Combo drives to write CDs and read DVDs. Windows XP Professional was the chosen OS for most of these laptops, but Compaq, Toshiba and Samsung X05 offer the Home edition. Compaq was the only vendor to bundle a carry case.

Usability

Samsung X10 and X05 were the only notebooks in this category to weigh below 2 kg. Unmatched in their portability, these two notebooks should be on your list if you are looking for a slim notebook.

LG's LM 40 weighs over 2 kgs, and is as slim as the two Samsungs. Toshiba's satellite M30 and Compaq's X1237Ap are the heaviest at 3 kgs, due to their 15.4-inch wide screens. All the other notebooks weigh in at between 2.3 and 2.7 kgs.

Ergonomically, Samsung and Toshiba win hands down with the perfect placement of keys, and superb touchpad implementation—especially the Samsung models. The Compaq X1237AP model is a delight to use, but its touchpad spoils the experience somewhat. All the LG models are decent, nothing extraordinary.

How To Buy A Good Laptop Bag

A leather bag that carries the laptop and protects it from jerks and scratches is a useful accessory. Here is what you need to look out for while buying one:

- Choose a top-loading bag whose zip can be drawn halfway through. This might make it a bit tedious to pull the laptop out, but it reduces the chances of it falling accidentally—which is what happens often with standard cases.
- The bag should have cushioned pads at the bottom as well on its sides. Without them, the chances of damage are higher as leather cannot bear that much weight for long.
- Make sure the bag has pockets for PCMCIA cards, CDs, business cards and pens.

Compaq and Toshiba notebooks are covered by a 1 year carry-in warranty, and claim turn-around times of 24 hours. LG and Samsung provide 3 years of carry-in warranty. Samsung products are covered by a replacement warranty, and the claimed turn-around-time is 48 hours; LG claims 24 hours for its notebooks.

Performance

LG's LM 50 topped the PC Mark 2004 results, displacing Samsung's P30 and the Compaq X1237AP to second and third position respectively. The PC Mark results tell us that the LG LM50 provides the best overall performance.

In the system benchmarking test, Samsung's X10 posted the highest score, thanks to advantage of an extra 256 MB of RAM. The next best scores were posted by the Toshiba M30 and the LG LM 40.

The video encoding test saw the LG LM 50 churn out the maximum frames per minute, followed by Compaq's X1237AP and the Toshibas M30.

On the gaming front, the Compaq X1237AP ruled the roost, followed closely by the Samsung P30. The others are mediocre performers, but this doesn't say much as most laptop users don't buy laptops to play games. The point is, the Samsung P30 and Compaq X1237AP have great graphics sub-systems that might come in handy.

On the wireless front, Samsung led the pack—all their models cruised through most of the tests that we put them through. The Compaqs and LGs also returned impressive performances.

Overall, LG's LM50 is the best-performing notebook, but only beating the Samsung's X10 by a small margin of just one point.

Conclusion

Based on overall performance, features, warranty coverage and usability, LG's LM50 comes out top to clinch our Best Buy Gold award for this category. It was too hard to choose between the Toshiba Satellite M30 and Compaq X1237AP for the Best Buy Silver award, so we decided that both deserved it.

However, the cool looking Toshiba Satellite M30 garners more flaunt value than the sedate,

mature look of the Compaq X1237AP. The Samsung X10 nearly won the top honours in this category, and deserves a worthy mention. This notebook is a great product, especially if you are looking for a light-weight solution that fits your image. Other products that deserve a mention are the Samsung P30, X05 and LG LM 40, which offers the best battery life of them all.

DESKTOP REPLACEMENTS

Notebooks that perform as well as a desktop, and are also mobile, fall in the Desktop replacement category. Their mobility is limited due to their bulk and weight.

However, workhorse notebooks are getting better, and the line that separates these two categories is getting thinner. Hence, many vendors have stopped offering them as a performance alternative. This was evident from the fact that the category has only three products.

Two notebooks from ACi—the Emerald M10 and the Ultima—and a Dell Latitude D800 formed this category.

Features

Both the ACi notebooks were powered by desktop processors from Intel. The Dell Latitude D800 had the latest 2 GHz Pentium M processor with 2 MB of L2 cache as against the 512 KB found on the other two.

The D800 offers 1 GB of main memory, while both the ACi models have a relatively modest 512 MB of main memory—enough for most system-intensive applications.

With a 17-inch display, the ACi Ultima is way ahead of both the notebooks in terms of viewable real-estate offered. The Dell D800 makes up for the smaller 15.4-inch display by providing a higher resolution screen that is both crisp and brilliant. The ACi Emerald M10 just has a standard 15-inch screen—no match for the other two.

USB ports were in abundance, legacy ports such as Serial and parallel were also present, and all had Firewire ports. The usual Ethernet, modem and Infrared ports are also standard. The Dell D800 has a Bluetooth adapter. The Emerald M10 has a memory card reader that can read all six available types of cards.

Both the ACi models come with 40 GB of hard disk space—too little for a desktop replacement. The Dell offers 80 GB of space. nVidia's GeForceGo FX-5650 powers Dell Latitude D800, whereas the ACi offers an ATI Mobility Radeon 9600 on the M10 and a 9000 on the Ultima. The Dell offers a DVD-writer, while ACi offers just a combo drive and a vanilla CD-ROM drive on the M10 and Ultima respectively.

Securing Your Laptop

It's quite easy to buy the costliest and top-of-the-line laptop; protecting it from thefts is well, not that easy. Universal security slots are available on almost all available laptop models. These slots use a variety of locking devices, which keep your laptop attached to a solid base. Moreover, there are a number of other devices ranging from motion-sensing PCMCIA cards that set off alarms in the range of 110dB to biometric fingerprinting devices that secure your laptop and render it useless if no proper authentication is provided.

If your laptop contains critical data, use devices such as smart cards and automatic IR-access locking devices. These ensure that data stays where it ought to be.

Increasingly, many laptop manufacturers are paying special attention to security needs. Acer and Samsung, for instance, provide security options, which thwart any attempt to steal data.

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Usability

All three notebooks were huge and heavy; however clever design hides the bulkiness of the Dell D800. The ACi Ultima is a monster, weighing 4 kg, thanks mainly to the 17-inch screen.

Ergonomics is a non-issue with the D800; the keyboard is well laid-out with good spacing between the keys. The touchpad buttons are large and hard to miss, however the tactile feel isn't the best. Dell also provides a pointing stick for lazy fingers.

ACi's Emerald M10 and Ultima can't match the Dell D800 on ergonomics; nevertheless they offer the best for the price one pays for them.

Dell Latitude D800

ACi Emerald M10

Heating issues are omnipresent in all notebooks, and it is compounded in notebooks that use desktop processors due to the higher thermal envelope that they are designed with. All the three notebooks in this category were no exceptions -their under-surface heats up after a while. For the ACi's, the palm rest and the keyboard heated up—very uncomfortable. The D800 has great ventilation and doesn't face these problems.

Performance

ACi's Emerald M10 and Dell D800 were on par in almost all the tests except for the *Call of Duty* game, where the M10 beat the D800 hollow. The better performance of ACi's M10 is quite evident, since the M10 uses a Hyper-Threaded processor with a difference of almost 1 Ghz in clock speeds. The Pentium M processor in the D800 matches the M10's desktop variant.

System intensive tests, such as ZDBench, video encoding, etc., saw the ACi Emerald M10 slip ahead of the Dell D800 by a small margin, and similar results were seen across all the tests that we put these two laptops through. The ACi's Ultima proved to be a mediocre performer when compared to other two notebooks in this category.

The Dell D800 offers twice the battery life as compared to both models from ACi. This is one of the advantages that the power optimized Centrino platform offers without cutting out much on the performance aspect.

All three notebooks are supported by three years of warranty. While ACi offers a carry-in warranty, Dell offers on-site warranty coverage, additionally due to its global presence, one also gets an international warranty.

The claimed turn-around-time is 48 hours for ACi laptops, and 24 hours for Dell.

Conclusion

Riding high on features, usability, equally impressive performance and excellent service and support, Dell's Latitude D800 takes the crown. However, its high price will be a stumbling block for many potential buyers.

If you don't give much importance to brand value, and want a powerful notebook, then ACi's Emerald M10 is the best solution on offer at a reasonable price.

ULTRA-PORTABLES

Ultra-portables offer computing power in the smallest possible form-factor. The bonsai act leaves them crippled on the performance front, since most of them use low-power processors to squeeze out the most from the tiny batteries.

Reliance GTRAN Card

The sole purpose of Reliance Infocom's GTRAN card is to provide Internet connectivity on the go. All you need to do is plug it into the PCMCIA slot. This card works on CDMA 1x technology and theoretically provides 153 Kbps of peak data throughput. Your mobile phone gets tied up when you use it for a dial-up connection. GTRAN solves this problem by providing Internet connectivity. Reliance offers the GTRAN card for Rs 14,700 with 3 tariff plans. You pay 40 paise/minute flat in the first plan. The second and third plan offers 100 MB and 500 MB of data exchange for a flat fee of Rs 500 and Rs 1000, respectively. You shell out an extra Rs 10 for each additional MB of data exchange.

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Score Board

Brand	Model	Basic Specifications	Score	Price (Rs)
		BUDGET CATEGORY		
Aci	Ethos V (ECS G320)	Via C3 1 GHz, 256 MB, 40 GB, 14", CD-ROM	45.83	31,200
Aci	Emerald C	Pentium M 1.4 GHz, 256 MB, 40 GB, 15", CD-ROM	47.04	50,990
Aci	Emerald Pro	P4 3.06 GHz 256 MB, 40 GB, 15", CD-ROM	47.63	50,990
IBM	R40e	Celeron 2.2 GHz, 256 MB, 30 GB, 14", Combo Drive, IBM Utilities	40.79	52,990
Mercury	G550	P4 1.8 GHz, 256 MB, 20 GB, 15", Combo Drive	43.67	49,500
Wipro	Little Genius 4000D	P4 2.6 GHz, 256 MB, 30 GB, 15" ,CD-ROM	47.34	56,990
Wipro	Little Genius 1000D	Celeron 2.4 GHz, 256MB, 30 GB 15", CD-ROM	47.46	43,990
Zenith	Performer	P4 2.8C GHz, 256 MB, 60 GB, 15", Combo Drive	47.32	47,500
		WORKHOUSE CATEGORY		
Acer	TravelMate 8005LMi	Penitum M 1.8 GHz, 512 MB, 15", 80 GB, DVD-Writer, Bluetooth & 802.11G	54.31	1,35,000
BenQ	Joybook 5000U	Pentium M 1.5 GHz, 256 MB, 15", 40 GB, Combo Drive, 3-in-1 Memory Card Reader	53.15	79,990
Compaq	2514AT	Celeron 2.8 GHz, 128 MB, 14", 30 GB, CD-ROM, Touch Pad Off switch	48.64	64465
Compaq	2563AI	P4 3.06 GHz, 256MB, 15", 40 GB, Combo Drive, Touch Pad Off Switch	51.58	74,470
Compaq	V1040AP	Pentium M 1.5 GHz, 256 MB, 15", 40 GB, Combo Drive, Bluetooth	49.96	1,26,179
IBM	R50	Pentium M 1.4 GHz, 256 MB, 14", 30 GB, Combo Drive, IBM Utilities, Keyboard Light, IBM Active Protection System	52.64	89,990
MSI	MegaBook M510C	Pentium M 1.5 GHz, 256 MB, 15", 40 GB, Combo Drive	57.41	74,990
Toshiba	Tecra M2V	Pentium M 1.5 GHz, 256 MB, 14", 40 GB, Combo Drive	51.19	1,19,990
Toshiba	Satellite A60	Celeron 2.8 GHz, 256 MB, 15", 40 GB, DVD-ROM	47.17	79,990
Wipro	Little Genius CP	Pentium M 1.5 GHz, 256 MB, 15", 40 GB, Combo Drive	56.66	73,990
Zenith	Director	Pentium M 1.5 GHz, 128 MB, 14", 30 GB, Combo Drive	51.03	58,990
Zenith	Strategist	Pentium M 1.7 GHz, 128 MB, 15", 30 GB, Combo Drive	52.56	68,200
		LIFESTYLE CATEGORY		
Compaq	X1237AP	Pentium M 1.5 GHz, 512 MB, 15.4" (Wide), 80 GB, DVD-Writer, Bluetooth	52.9	1,59,990
LG	LM40	Pentium M 1.5 GHz, 256 MB, 14", 40 GB, Combo Drive	49.14	1,35,000
LG	LM50	Pentium M 1.5 GHz, 256 MB, 15", 60 GB, Combo Drive	51.63	1,40,000
LG	LS40	Pentium M 1.4 GHz, 256 MB, 14", 40 GB, Combo Drive	53.23	1,05,000
LG	LS50	Pentium M 1.4 GHz, 256 MB, 15", 40 GB, Combo Drive	49.58	1,10,000
Samsung	X05	Celeron M 1.4 GHz, 256 MB, 14", 30 GB, Combo Drive	50.25	1,09,000
Samsung	X10	Pentium M 1.5 GHz, 512 MB, 15", 40 GB, Combo Drive, Biometric Security	52.26	1,42,490
Samsung	P30	Pentium M 1.5 GHz, 256 MB, 15", 80 GB, Combo Drive, Biometric Security	51.93	1,24,990
Toshiba	Satellite M30	Pentium M 1.5 GHz, 256 MB, 15.4" (Wide), 40 GB, Combo Drive, Harmon Kardon Speakers	52.92	1,09,000
		DESKTOP REPLACEMENT CATEGORY		
Aci	Ultima	P4 3 GHz, 512 MB, 17" (Wide), 40 GB, CD-ROM, PC camera	51	79,990
Aci	Emerald M10	P4 3.06 GHz, 512 MB, 15", 40 GB, Combo Drive, 6-in-1 Memory Card Reader	59.27	84,990
Dell	Latitude D800	Pentium M 2 GHz, 1 GB, 15.4" (Wide), DVD-Writer, Extra Battery	63.78	2,37,918
		ULTRA-PORTABLE CATEGORY		
Acer	TM 372TCi	Pentium M 1.5 GHz, 512 MB, 12", 60 GB, External Firewire Combo Drive	58.43	99,999
Aci	Ethos Lite D12	Pentium M 1.5 GHz, 256 MB, 12", 40 GB, DVD-ROM (Built-in)	53.05	79,990
BenQ	Joybook 6000u	Pentium M 1.4 GHz, 256 MB, 12", 40 GB, External USB Combo Drive	56.98	1,10,000
Dell	Latitude X300	Pentium M 1.2 GHz, 384 MB, 12", 30 GB, External USB Combo Drive, Docking Station & Extra Battery	64.69	1,39,973
Fujitsu	LifeBook S2020	Athlon XP-M 2100+, 256 MB, 13.3", 40 GB, Combo Drive (Built-in), Port Replicator	61.12	79,990
Fujitsu	LifeBook P5020	Pentium M 1 GHz, 256 MB, 10.6", 40 GB, External Combo Drive, Port Replicator	51.84	1,24,990
Samsung	Q20	Celeron M 800 MHz, 256 MB, 12", 30 GB	53.89	1,44,490
		LAPPLES		
Apple	PowerBook G4 17-inch	Power PC G4 1.5 GHz, 512 MB, 17" (Wide), 80 GB, DVD-writer, Firewire 800, Bluetooth	NA	1,71,400
Apple	PowerBook G4 15-inch	Power PC G4 1.5 GHz, 512 MB, 15.2" (Wide), 80 GB, DVD-writer, Firewire 800, Bluetooth	NA	1,52,200
Apple	PowerBook G4 12-inch	Power PC G4 1.2 GHz, 256 MB, 12", 60 GB, DVD-writer, Bluetooth	NA	1,02,800
Apple	iBook G4 12-inch	Power PC G4 800 MHz, 256 MB, 12", 30 GB, Combo Drive	NA	70,990

Note: For full details, visit **www.thinkdigit.com/fromthemag/200409.** Also see the **Digit CD**

Dell Latitude X300

Features

Most current ultra-portables use Centrino platform, with its apparent advantages such as longer battery-life and good performance. Except for the Fujitsu S2020, which uses an AMD Athlon XP-M 2100+ and Samsung's Q20 with Celeron M processor, all the others had Pentium M processors of varying speeds.

The ACi Ethos, BenQ Joybook 6000U and the Fujitsu P5020 offered a wide-screen format. The Fujitsu S2020 was the odd one out, offering a 13.3-inch screen. In terms of display quality, Dell, Samsung, and Fujitsu offer better displays than most others.

The Dell Latitude X300 comes with a docking station, which also has an additional battery compartment in which you can charge a backup battery. The Docking station also provides additional serial and parallel ports that are missing on the laptop. All the notebooks, except the Samsung Q20 had Wireless adapters. This is very convenient, as wireless hotspots are sprouting up everywhere. The Dell latitude X300 was the only one to go one-step ahead and offer Bluetooth. Except for Fujitsu S2020 and ACi Ethos Lite D12, all other ultra-portable have

nVidia MXM

nVidia has come up with a specification called MXM (Maximum graphics Module) that enables manufacturers to incorporate the common graphics subsystem design into their laptops. These modules will sport a PCI-Express x16 interface. It takes away the hassle of having custom-design graphic boards for each model and also enables the end user to update the graphics subsystem as easily as it is done with the desktop PC.

Contact Sheet

Brand	Company	Telephone	E-mail	Web site
Acer	Acer India Pvt Ltd	080-25219520-23	ailenquiries@acer.co.in	www.acer.com
ACi	Allied Computer International (Asia) Pvt Ltd	022-56407000	support@aci-asia.com	www.aci-asia.com
Apple	Apple Computer International	080-25550575	indiainfo@asia.apple.com	www.apple.com
BenQ	BenQ India Pvt Ltd	022-25705230	SalesEnquiryIn@BenQ.com	www.benq.com
Compaq	Hewlett Packard India ltd	1600 444 999	seema.dawar@hp.com	www.hp.com/in
Dell	Dell Computers Asia Pte Ltd	1600 338 044	anil_srinivas@dell.com	www.dell.co.in
Fujitsu	Aci Infocom Ltd	022-28266031	sales@aciinfo.com	www.fujitsu.com
IBM	IBM India Ltd	080-22063000	sanmenon@in.ibm.com	www.ibm.com/in
LG	LG Electronics India Pvt Ltd	0120-2560900	rajeevsaxena@lgezbuy.com	www.lgezbuy.com
Mercury	Kobian India Ltd	080-25566626	rohit@kobian.com	www.kobian.com
MSI	Maxtone Electronics	022-23011919	-	www.msi.com.tw
Samsung	Samsung Electronics India Information & Telecommunication Ltd	011-51511234	notepc@samsungindia.com	www.samsungindia.com
Toshiba	HCL Infosystems Ltd	0120-2544534	notebook@hclinsys.com	www.toshiba.com
Wipro	Wipro Limited	1600 333 312	littlegenius@wipro.com	www.wipro.com
Zenith	Zenith Computers Ltd	022-28377300	laptops@zenith-india.com	www.zenith-india.com

external Combo drives that attach to the notebook via USB ports.

Usability

In terms of portability, the Dell Latitude X300 and the Samsung Q20 were easy winners. Weighing around 1.3 kg, the Samsung Q20 is the lightest notebook we have tested yet. The Dell followed, weighing in at 1.4 kg.

The ACi Ethos Lite and Fujitsu S2020 are categorised as ultra-portables, but are thicker than the others due to the integrated optical drives. They're still easy to carry about, of course, and are good for people who constantly use optical drives.

Except for ACi and Acer, all the others were covered with a three-year warranty. Dell was the only one to provide an on-site warranty. As for turn-around-times, Acer claims one of 12 hours, while all the rest are either 24 hours or 48 hours.

Performance

The ACi's Ethos Lite posted the best score in the system benchmark; it was closely followed by Fujitsu's S2020 and Dell's X300. Acer, for some reason, failed to deliver, despite all the hardware it carries; it performed badly compared to the other notebooks.

Fujitsu LifeBook S2020

In most other tests, ACi dominated, and was followed by the BenQ Joybook 6000U, the Dell X300, and sometimes the Acer 372TCi. The Samsung Q20 fell far behind the competition due to the lower powered Celeron M processor.

The Fujitsu's had 802.11g wireless adapters, and offered the best wireless experience. The Dell, BenQ and Acer TM 372 TCi were good, but limited by their 802.11b adapter.

Conclusion

The Dell Latitude X300, with its ultra-thin size, low weight, good features and impressive performance takes the Best Buy Gold award. The Acer TM372 TCi also presents itself as a commendable buy, but falls behind the X300 in terms of features and usability.

The Fujitsu S2020 gets the Best Buy Silver award for its excellent pricing. This ultra-portable was the best all-rounder due to its screen-size, performance and pricing.

The BenQ Joybook 6000U is the best performer, but weighing 1.6 kg with a wide screen, it lost out to the competition. ⊠

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1/4 Ad

Alagu Balaraman
Head, IT,
Godfrey Phillips India Ltd

We use video conferencing for two reasons: To increase the frequency of contact between remote teams and to reduce the cost of travel. We changed the layout of the conference room for this purpose and saw to it that lighting was appropriate. We had to install a power supply to shoulder the additional power needs and got an IP-based Wide Area Network in place. As part of basic infrastructure, we got an ISDN line, too. A Polycom camera was the preferred device for image and audio capture. As a result, it has helped cut national and international travel costs. Apart from allowing meetings to be held in a short timespan, it also allows face-to-face interaction with our colleagues as well as business partners. We did a cost-to-benefit analysis before implementing it and found that the savings on travel alone have been enough to offset the equipment costs, and more.

BUSINESS,

VIDEO CONFERENCING AS part of your business is no longer a futuristic concept—it is here, and it is now. Video conferencing not only helps bridge distances, it also helps bring down travel costs, cuts down on unutilised man hours, and brings a company face to face with domain experts at a nominal cost. Here's what five senior industry personalities have to say about video conferencing

Illustration Atul Deshmukh

Mohan U Deshpande
Professor-in-Charge, DEP,
IIT Bombay

IIT uses group-based videoconferencing to extend its classrooms to include geographically distant students wishing to pursue high-quality advanced engineering education. We use a full-fledged satellite uplink facility to capture audio and video inputs from live IIT classrooms with full digital imaging support to faculty. HCL Comnet manages the VSAT (Very Small Aperture Terminal) network. The infrastructure was built with donations from reputed alumni like Infosys CEO Nandan Nilekani and venture capitalist Kanwal Rekhi; grants from the Ministry of Communications and IT, and international agencies. IP-multicasting allows two-way audio and video interaction. This lets a student attending the lecture at a remote centre ask questions and get real-time replies. This facility is now the only one of its kind in educational videoconferencing in India, thus ensuring that IIT faculty can now reach a remote student, and also give him the feel of classroom participation. We were driven by the vision of bringing IIT education to students who are as capable, but have limited resources.

Dr D Lavanian
Business Manager
Apollo Group of Hospitals

We use video conferencing for telemedicine. Our doctors use it to interact with patients and the referring doctor. This supplements the patient's electronic medical record on Medintegra, our telemedicine application. These records help specialist doctors formulate opinions. They also specify a treatment regimen, which is then entered into Medintegra and carried out by the referring doctor. We seek the opinion of two specialists, each from a different city using video conferencing. Even our continuing education programmes are conducted using video conferencing from anywhere between three to ten cities. Our infrastructure includes a colour TV (20-inch flat, 29-inch flat and 42-inch plasma models), a good quality sound system, three ISDN lines (128 Kbps each) or broadband Internet—256 Kbps dedicated—with a public static IP address, VCR for recording certain cases, clean power with backup, computers with video-out to view images, medical equipment, Polycom Image and Audio Equipment, as well as Aethra. It lowers the total cost of treatment.

In Camera!

Sunil Buch
Head, Marketing and
Production Management
Reliance Infocomm

Video conferencing is a way of life at Reliance. Bundling video conferencing as part of the Reliance Web World network in 111 cities made business sense. They are connected with three T1 lines. Video conferencing is a business model because the enterprise client just has to pay for the services, while we take care of infrastructure and training. All you need to do is just walk into any Web World, and check in for the services. Our Churchgate Webstore, for instance, was used to record the statement of a witness for a court case. This is perfectly legal. Gillette did a product launch through our Web World network using video conferencing. It has been used by Bollywood, too. We ran a contest for *Kal Ho Na Ho* on R-World and had the winners speak to Preity Zinta and Karan Johar via a video conference. In the near future, we see enterprises as our biggest customers. We plan to push our services as a means to overcome distance, and for people to make their presence felt.

Yugal Sharma
Country Manager
Polycom

Video conferencing is no longer looked at by corporates and enterprises as a fancy way of communicating. It is now a necessity. Most enterprises have decentralised decision-making, and yet it is important for the head office to make certain strategic decisions. Video conferencing allows companies to make these decisions instantly. The technology has evolved over the years. It started out with large screens in conference rooms, but now we have desktop conferencing which denecessitates the setting up of a conference room, thereby reducing costs further. Small enterprises such as lawyers, consultants, exporters, etc, can use it to maximise their business revenue. Video conferencing has been around in India for more than 15 years, but it is only in the last five years that it has been accepted as a way of doing business. The National Informatics Centre has nearly 80 locations in Maharashtra connected via video conferencing. Our estimate of the Indian video conferencing market is about $50 million (around Rs 230 crore).

As told to Garfield D'Souza

126 Check Your TQ

127 Reviews of the Month

130 Stop Stealing Songs!

Touched by Tech

The Global Village

In a world shrunk by technology, an obscure hamlet in the Madurai district of Tamil Nadu is showing the way to harness the power of the Internet

Meera Vankipuram

Following the death of her husband in a construction accident while working in Jeddah, Saudi Arabia, Kannatha, a resident of Uranganpatti village in Madurai district in Tamil Nadu, ran into financial problems.

She was advised to seek compensation from her husband's former employers, but had no clue how to go about it. She sought help from the local Internet kiosk operator, who not only located the e-mail address of the Indian Consulate in Jeddah, but also typed out an e-mail and sent it on her behalf.

Two weeks later, she received a parcel containing the relevant documents, which were duly filled and sent out. A month after sending the original e-mail, Kannatha and her family received Rs 1.3 lakh in compensation—and all she spent was Rs 30 for a few hours of Internet access.

Thanks to SARI (Sustainable Access in Rural India), a pioneering project conceptualised by a professor from IIT-Madras, the Web now helps struggling farmers become successful entrepreneurs. The Web also gives people from villages across Tamil Nadu access to better medical facilities, higher education and solves agriculture-related problems, among other things.

The project, which draws on the research expertise of Harvard University Centre for International Development, IIT Madras and the Massachusetts Institute of Technology's Media Lab, seeks to harness Information and Communication Technologies (ICTs) to improve health, education and economic development in rural areas, by deploying innovative technologies and effective, economically sustainable, business models.

SARI is managed by the Telecommunications and Computer Networks Group (TeNeT), Department of Electrical Engineering, IIT Madras, led by Dr Ashok Jhunjhunwala.

It works in close association with the telecom and computer industry to develop ICTs such as the corDECT Wireless in Local Loop system, Fibre Access

Photograph Mexy Xavier Imaging Parag Joshi

Network, DSL Systems and several other solutions. TeNet then collaborates with R&D organisations to implement projects that develop versatile and low-cost projects beneficial to rural India, using these ICTs.

Logging On

Chennai-based n-Logue, a company incubated by TeNet, aims to install and operate telephone and Internet connections in every Indian village. n-Logue identifies and trains potential kiosk owners and also supplies them with the necessary infrastructure—hardware, battery backup, wireless Internet antenna, etc. The company also helps the kiosk owners arrange for loans, which are repaid with revenue from the kiosks. n-Logue makes its money from hourly connection fees.

Abdul Razzak owns two Internet kiosks in Melur, Madurai, and has been an entrepreneur for three years now. Says Razzak, "I teach computer courses such as Java, etc, at rates much cheaper than those in the city." A typical 'Office Tools' course, for example, would cost only Rs 300 at his kiosk, while it could cost four times as much in Chennai.

Shalini, from Pinjavakkam village, Tiruvallur district, Tamil Nadu, was introduced to n-Logue by her mother, a social worker. Shalini has done a secretarial course from a school in Chennai, and is currently pursuing a Bachelor of Arts degre throught a correspondence course. She is also in charge of the sole Internet kiosk in Pinjavakkam. This income helps support her family.

> **"Farmers are able to seek advice on crop-related problems... and on veterinary problems, using the Web cam and video conferencing facilities.**
> **Suganya, Melur**

In Tiruvallur, the Internet is mainly used as a tool for education; not just for children, but also for adults. "Now we don't have to go to the city to study. We can stay here and educate ourselves," says Shalini.

Through video conferencing, people address their problems directly to the District Collector.

Suganya of T Ulagapitchanpatti village in Melur taluka, has been a kiosk owner for two years now. She was part of a self-help group when she got onto the ICT bandwagon. She says the kiosks have helped farmers seek advice on crop-related problems from the Agricultural University, and on veterinary problems from the Tamil Nadu Veterinary and Animal Science University (TANUVAS), Chennai, using a Web cam and video conferencing facilities. Chat is popular at her kiosk too. "On Fridays we have a Dubai chat session, and on Sundays we have a Denmark chat session," she says.

Says Dr Jhunjhunwala, "The SARI model has grown to over 30 districts and is expanding quickly." He believes the Internet can be used to double the per-capital GDP of rural India.

Says Joseph Thomas, Project Manager, SARI (IIT-Madras), "Raising the GDP is brought about collectively by using the Internet to encourage micro-enterprise in the village, providing better marketing channels for village produce, getting expert advice on agriculture and veterinary sciences, and a lot of new financial services."

How SARI Benefits

Education is the primary area of benefit—children from the age of six to 16 are made computer literate. Computer courses are offered at cheap rates; vocational training is provided to write resumes, applying to colleges and jobs, and in improving language skills. TeNet has also developed an application that lets students take sample tests online, prior to board exams, and receive feedback.

Farmers growing perishable crops such as flowers, or groundnuts, obtain market prices and sell their produce via the Internet. They also get weather and soil-related information online from national agencies. Web cam and video conferencing facilities are also used to obtain health-related advice from leading medical institutions.

The Road Ahead

The Melur project has achieved 'self-sustaining' status, and SARI has now moved on to other districts in Tamil Nadu, and other states as well.

According to S Madhu, Manager (Marketing and Training), n-Logue, "We are working with the Gujarat government to connect 16 districts under the 'Gyan Ganga' project. We are collaborating with Gujarat Informatics Limited to connect all districts—five are already networked—and develop local language content."

IT for development may seem like a misnomer, but projects like SARI have attempted to harness technology to create better economic opportunities for India's rural populace.

Make way! ■

meera_vankipuram@thinkdigit.com

How SARI Works

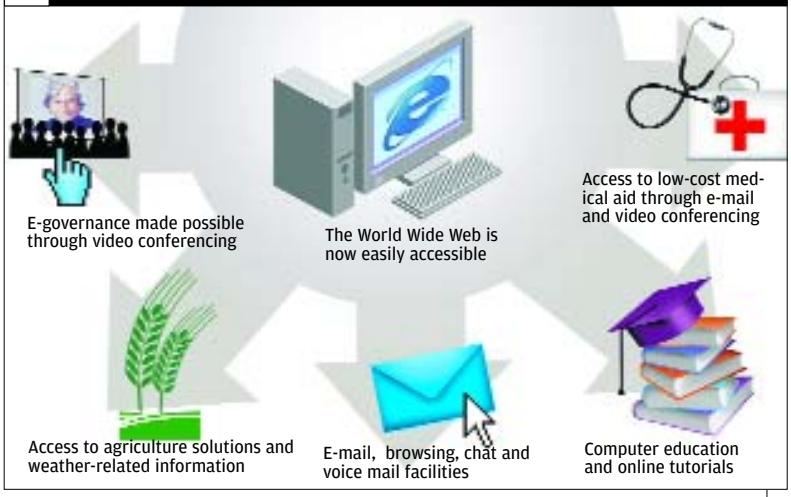
SARI was possible due to corDECT, a Wireless Local Loop technology, jointly developed by Analog Devices, Midas Communication Technologies, and the TeNeT group. corDECT provides cost-effective, high-quality voice and data connectivity, both in urban and rural areas: voice communication using 32 Kbps ADPCM, and Internet connectivity at 35 or 70 Kbps.

A fibre optic line is deployed to connect the local exchange with a central office terminal, which, in turn, is connected to a few remote terminals. Conventional copper wire is then used to link subscribers to the remote terminal near them.

The scheme supports star and ring topological networks, and promises high-quality voice and data transfer, with an ability to cater to nearly 8,000 subscribers per sq km. This scheme also supports advanced Network Management System features, and is compatible with emerging technologies such as high bit-rate and asynchronous digital subsrciber lines and of course, corDECT.

Source: http://www.tenet.res.in/

And This Is How The Villagers Benefit



Check your TQ

Of Bots That Crawl News Sites, People Who Get Knighted, And Robots That Replace Wives

1 EBay founder Pierre Omidyar and his wife, Pamela, contributed $1 million to the well-heeled campaign supporting Proposition 71, which would make available $3 billion for a research undertaking in California. What is it?

a. RFID for endangered species
b. Stem cell research
c. A new generation chip
d. AIDS

2 Name the Indian company whose *HamaraCD.com* service lets users create personalised audio CDs of their favourite songs from a database of over 25,000 songs in 12 languages.
a. T Series
b. Sony Music India
c. Times Music
d. Sa Re Ga Ma

3 Which software giant recently launched a 'Newsbot' that will crawl news headlines from more than 4,800 other sites, in an effort to counter Google's automated news service?
a. AOL
b. Yahoo!
c. Microsoft
d. Sun Microsystems

4 Which non-IT Indian company recently made a foray into the IT sector by signing an agreement with business software solutions provider, SAP India, for marketing and distribution of SAP solutions for the metals and mining industry in the country?
a. HLL
b. Maruti Udyog
c. Tata Steel
d. JK Group

5 Michael Herf and Lars Perkins founded Picasa Inc in 2001, which develops software that enables users to manage and share digital photos. Recently, Picasa was acquired by a California-based IT major to enhance its blogging service by adding picture sharing. Which biggie are we talking about here?
a. Hotmail
b. Google
c. Yahoo!
d. Rediff

6 Name the playwright whose 1972 novel, in which a group of men swap their wives for lookalike robots, inspired the Hollywood flick *The Stepford Wives*, starring Nicole Kidman.
a. Arthur Miller
b. Tennessee Williams
c. Ira Levin
d. Eugene O'Neill

7 On July 12, 2004, a new world computer chess champion was crowned in Israel after it defeated the defending software program, Shredder. This program places less emphasis on the value of individual pieces and more on factors such as mobility and positional advantage, which gives the program the ability to find unusual and daring moves. What is the program called?
a. Junior
b. Deep Blue Jr
c. Demolisher
d. Starter

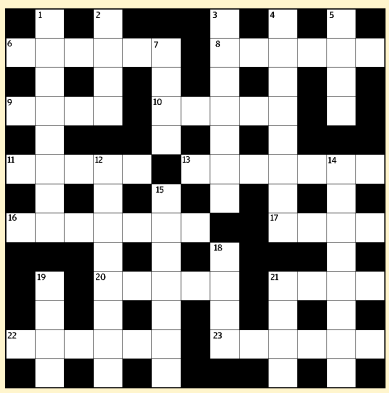
8 Recently, he was granted the rank of Knight Commander, Order of the British Empire in recognition of his "services to the global development of the Internet." The person in question is...
a. Bill Gates
b. Pierre Omidyar
c. Jeff Bezos
d. Tim Berners-Lee

Got an interesting question? Send it in with the answer to editor@thinkdigit.com

Crossword

Across
6. Entrap is confused by this main programme (6)
8. A Redwood Shores, California Company (6)
9. Solid, magnetic disk to store computer data (4)
10. Action taken by a programme when unable to run (5)
11. Radio Detection and Ranging (abbr) (5)
13. Graphical process of changing object size (7)
16. Intel Corp's trade name for it's family of Pentium II's (7)
17. Location on the World Wide Web rearranges ties (4)
20. Clock or switch deformsmiter (5)
21. A CRT terminal in a conduit (4)
22. Move up, down, sideways through a document (6)
23. Opposite of Digital (6)

Down
1 Electronic filing system rearranges a bad seat (8)
2 Computer geek (4)
3 A modem will ------- a computer to a phone line (7)
4 Method of computation in a special notation (8)
5 Search system is at the Lord's table endlessly (4)
7 Telephony Application Programming Interface (abbr) (4)
12 Message window (5,3)
14 Portable, self-contained computer (8)
15 Prescription for an equation (7)
18 Storage section in a domain (4)
19 Tool to write programme code? (4)
21 Group of workers upset mate (4)



Compiled by Nitaa Jaggi

Did you know?

Steve Jobs received a private jet plane as a bonus in January 2000 for his performance as interim CEO of Apple Computer.

Answers

Quiz
1: b, 2: d, 3: c, 4: c, 5: b, 6: c, 7: a, 8: a.

Crossword
Across: 6. Parent, 8. Oracle, 9. Hard, 10. Panic, 11. Radar, 13. Scaling, 16. Celeron, 17. Site, 20. Timer, 21. Tube, 22. Scroll, 23. Analog
Down 1. Database, 2. Nerd, 3. Connect, 4. Calculus, 5. Alta, 7. Tapi, 12. Alert box, 14. Notebook, 15. Formula, 18. Area, 19. Hack, 21. Team

Coping With Copyright Cops

THIS ONE IS for everybody who has ever hit a record button. Stop! Digital media is so pervasive that the Big Boys are taking notice, and they do not like where your finger is headed.

In the era of digital culture, little bits of ideas and creations leap across routers and through computers around the world—bits with money behind them. Here, control is vital, since it defines the economy. Lawrence Lessig's *Free Culture* is a frightening ride through the history of copyright law, which was designed as a shield to the intellectual property of large conglomerates.

Author Lawrence Lessig

As absurd as the Digital Millennium Copyright Act (DMCA) seems to the silent majority that does not wish to steal money from its favourite artists, the law has precedence. It paves the way for the absurd Induce Act. Once passed, the Induce Act will criminalise the act of inducing another to commit a copyright violation. It's like putting you in jail because somebody used your hammer to break into a house.

If you have ever listened to the radio, you should read this book. If you have ever recorded a song, you should read this book. If you have ever taped a favourite TV show or a vital cricket match, you should read this book. If you have thousands of songs sitting pretty on your computer while the original CDs gather dust in a remote cupboard, read this book. If you have ever felt thankful for the thousands before you who have inspired you with their music, moved you with their words, teased you with their art, read this book. And if you do not care about a law nor are in the least bothered where society is headed, you should most definitely read this book.

Download a free copy from *www.free-culture.org*. Ah yes, check the copyrights for that as well!

Ahmed Shaikh

Free Culture: How Big Media Uses Technology And The Law To Lock Down Culture And Control Creativity
Publisher **The Penguin Press** Author **Lawrence Lessig**
E-mail **lessig@pobox.com**
Web site **www.free-culture.cc**

BOOKS

A Few Glitches Aside, This Lord Lords You Over

THIS TIME AROUND, you finally get to play as the Fellowship, with eleven characters available, out of which four can be unlocked.

The Return of the King starts by putting you in the role of Gandalf. No matter how casually you play the first level, you win the battle. It's the Skill Points that you are actually playing for.

There are four grades to attain—Fair, Good, Excellent and Perfect. After the first level, you are given the choice of treading three different paths, just like in the movie. Ultimately, you have to take the Paths of the Dead.

All characters have excellent moves and combos. But you can't begin with outright combo action. Besides, the stylish combo moves need mastery. The great level design makes for some fun gameplay. But, the levels are arranged in order, difficulty-wise.

Overall, *ROTK* is a first-rate action game and is a must-buy. Once you beat the game, you get loads of bonuses, including DVD footage. There's a co-op mode for the PC version, where you can share your monitor with a friend. A few AI problems and an overfed camera are two hitches. Otherwise, *ROTK* lords you over.

SKOAR! Magazine

The Lord Of The Rings: The Return Of The King
Publisher **Electronic Arts** Developer **EA Pacific**
Web site **www.eagames.com/official/lordoftherings/returnoftheking**
System requirements **700 MHz CPU, 128 MB RAM, 32 MB video card, 2 GB free hard disk space**

GAMES

5 TOP SELLING GAMES

1. **Harry Potter: Prisoner Of Azkaban**
   Rs 1,299
   Gayatri Impex Pvt Ltd
2. **Need For Speed: Underground**
   Rs 1,299
   Gayatri Impex Pvt Ltd
3. **Driver 3**
   Rs 2,999
   Milestone Interactive Software
4. **FIFA 2004**
   Rs 1,299
   Gayatri Impex Pvt Ltd
5. **Jumpstart**
   Rs 699
   Express Interactive Software P Ltd

List Courtesy **Crossword Mumbai**

The Simpsons' Show!

THE GAME, LIKE any typical Simpsons episode, is way beyond wacky. Mysterious bugs of alien origin have been released into the unsuspecting town of Springfield. It's now left to Homer to save the day.

Gameplay-wise, *Hit and Run* is very similar to the *GTA* series. You have a large area to explore and seek out hidden goodies. You can also seek out and destroy all the Rigelian bugs present in that level to earn your coins. As in *GTA*, you set your own pace for completing the missions.

H&R has its fair share of violence too. Then of course, there's the Simpsons brand of humour.

There are seven levels in the game, that give you 42 cars, 21 outfits, and 49 cards. But only a handful of cars are of any use. Also, walking across a narrow beam with a cumbersome camera view isn't exactly enjoyable, especially if you lack analogue sticks on the gamepad.

H&R isn't a game you can play at a stretch. But if you are a Simpsons fan, this game is worth killing for.

Courtesy SKOAR! Magazine

The Simpsons: Hit & Run
Publisher **Vivendi Universal**
Developer **Radical Entertainment**
Web site **www.hitandrungame.com**
Price **Rs 999**
Distributor **Sony Music Entertainment**

Newsweek August 2, 2004

iCame, iSaw, iPod

MANY PEOPLE CALL the Apple iPod a sub-culture. They are wrong. It is a culture by itself.

Stephen Levy, *Newsweek*'s Chief Technology Writer and Senior Editor, chronicled the rise and rise of the iPod. This is also, in part, the story of Steve Jobs, the man behind the iPod and the revolution Apple is bringing about in the personal computing and entertainment front.

Excerpts from the article:

Steve Jobs noticed something earlier this year in New York City. "I was on Madison," says Apple's CEO, "and it was, like, on every block, there was someone with white headphones, and I thought, 'Oh, my God, it's starting to happen'."

Jonathan Ive, the company's design guru, had a similar experience in London: "On the streets and coming out of the tubes, you'd see people fiddling with it." And Victor Katch, a 59-year-old professor of kinesiology at the University of Michigan, saw it in Ann Arbor. "When you walk across campus, the ratio seems as high as 2 out of 3 people," he says.

They're talking about the sudden ubiquity of the iPod, the cigarette-box-size digital music player (and its colorful credit-card-size little sister, the Mini) that's smacked right into the sweet spot where a consumer product becomes something much, much more: an icon, a pet, a status indicator and an indispensable part of one's life. To 3 million-plus owners, iPods mean membership into an implicit society that's transforming the way music will be consumed in the future. "When my students see me on campus with my iPod, they smile," says Professor Katch, whose unit stores everything from Mozart to Dean Martin. "It's sort of a bonding."

Science & Technology
iPOD WORLD

Apple wasn't the first company to come out with a player, but the earlier ones were either low-capacity toys that played the same few songs, or brick-size beasts with impenetrable controls. Apple's device is not only powerful and easy to use, but has an incandescent style that makes people go nuts about it. Or, in the case of 16-year-old Brittany Vendryes of Miami, to dub it "Bob the Music Machine."

(Actor) Will Smith has burbled to Jay Leno and Wired magazine about his infatuation with "the gadget of the century." (Actress) Gwyneth Paltrow confided her Pod-love to Vogue (her new baby is named Apple—coincidence?).

People who actually create music are among the biggest fans. Couture maven Karl Lagerfeld's iPod collection is up to 60, coded in the back by laser etching so he can tell what's on them.

To read the entire story, go to **http://snipurl.com/ipodnation**

Wired August 2004

Ross King and His Fantastic Robot

A THINKING MACHINE is the stuff of science fiction. Never, ever, tell that to Ross King. The enigmatic professor of computer science at the University of Wales has devised his own, and this one, says Oliver Morton of *Wired* magazine, promises to change the world.

Excerpts from a brilliant article in one of the world's premier technology publications:

For a machine that's changing the world, the device on the lab bench in front of me doesn't look very impressive—it just goes back and forth, back and forth, back and forth.

A contraption about the size of a human hand moves from side to side along a track. At the far right end of its trajectory, a proboscis-like pipette pecks into a foil-covered plastic container and sucks up some liquid; the hand moves a foot or so to the left, and the pipette squirts out the liquid a few drops at a time onto a rectangular plastic platter covered with an array of 96 tiny depressions. Then it repeats the routine. Whirr, plunge, suck, whirr, plunge, squirt—a mechanical counterpoint to the cries of the seagulls outside the lab in this Welsh coastal town of Aberystwyth.

The effect is oddly hypnotic. Ross King, a professor of computer science at the University of Wales and the Dr. Frankenstein behind this most humdrum of monsters, watches me watching it with a wry amusement that might mask a touch of embarrassment. "It comes across better on radio than on TV," he says.

Indeed, King's robotic lab assistant is something of an ugly duckling. High-throughput screening—testing vast libraries of chemical compounds on various types of cells to see whether they interact in ways that might be useful—has become a routine function in modern bio labs, and at the high end machines that do it are positively telegenic. For instance, the Automation Partnership, based in Royston, England, offers one that bobs, weaves, shakes, and stirs like a possessed bartender. Such uncanny dexterity costs roughly $1.8 million—but if you're a pharmaceutical company interested in performing as many experiments as quickly as possible, it's money well spent.

King's humble robot is based on a Biomek 2000, a low-rent fluid-handling device that goes for only $37,900. But it can do something its more nimble cousins can't. Its components—the tireless robot arm, an incubator in which cells cultured on the platter either wither or thrive, and a plate reader that examines the little depressions to see whether anything is growing there—are linked up to a much more exceptional brain. The artificial intelligence routines in that brain can look at the results of an experiment, draw a conclusion about what the results might mean, and then set off to test that conclusion. The "robot scientist" (King has resisted the temptation of a jazzy acronym) may look like a mere labor-saving gizmo, shuttling back and forth ad nauseam, but it's much more than that. Biology is full of tools with which to make discoveries. Here's a tool that can make discoveries on its own.

Read the entire story at **http://snipurl.com/roboticarm**

Discover July 2004

Googlebombed!

GOOGLE, THE WORLD'S favourite search engine, is vulnerable. And ironically, this is because of its proprietary software that ranks pages based on their popularity, rather than any other parameter. *Discover* magazine wrote how the search engine's software could be manipulated to get your results on top. It is euphemistically called Googlebombing, and it is now fast becoming big business.

Excerpts from the piece:

Does Google have a favorite in the upcoming presidential election? Not Google's CEO or its charismatic young founders, not the shareholders of the company-Google, the search engine itself. Does it favor one candidate over the other?

This is not a preposterous question. Just type the words miserable failure as a search query, and see the top result. The document that Google thinks is most relevant is a biography of the 43rd President of the United States, George W Bush.

Before some of you write angry letters to the editor about the liberal bias infecting search engines, consider this: The results for "miserable failure" were not directly shaped by anyone at Google. Instead, Web users manipulated the rankings by altering their own Web pages. The practice is called Googlebombing.

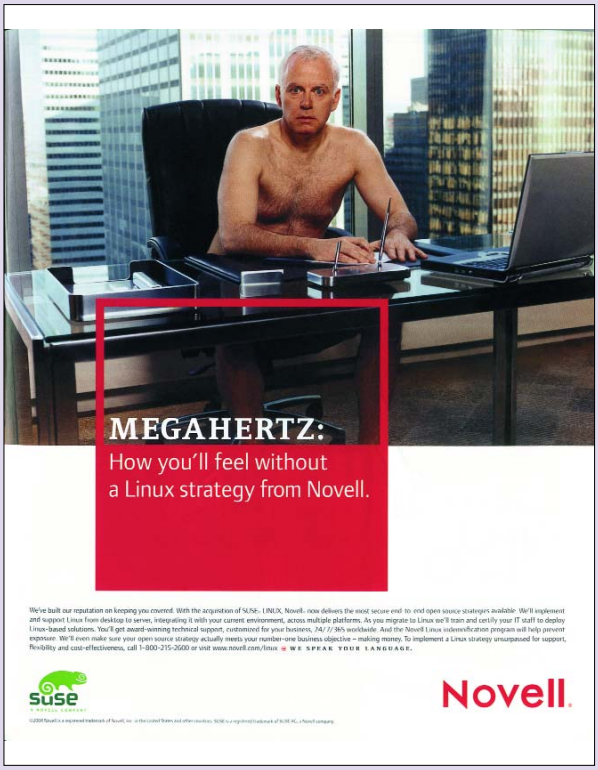
This kind of group intervention is possible because of the ingenious way that Google calculates its search results, a much-scrutinized system called PageRank. It involves two known variables.

If you search for a relatively common word like paleontology, you'll find hundreds of thousands of pages that contain the word. A search engine is not much use unless it finds the most valuable pages and returns them as the top results. Theoretically, Google could have hired thousands of humans to read all the pages in its index—instead, the company tapped the free labor of all the people in the world who were already creating Web pages.

Most Web pages have hypertext links to other Web sites. Google's software recognizes those links as votes. The PageRank system tallies all the votes for every page it has found on the Web. Pages that have attracted more links become more prominent in Google's rankings. When you query "paleontology" the top 10 are the 10 pages that have received the most links.

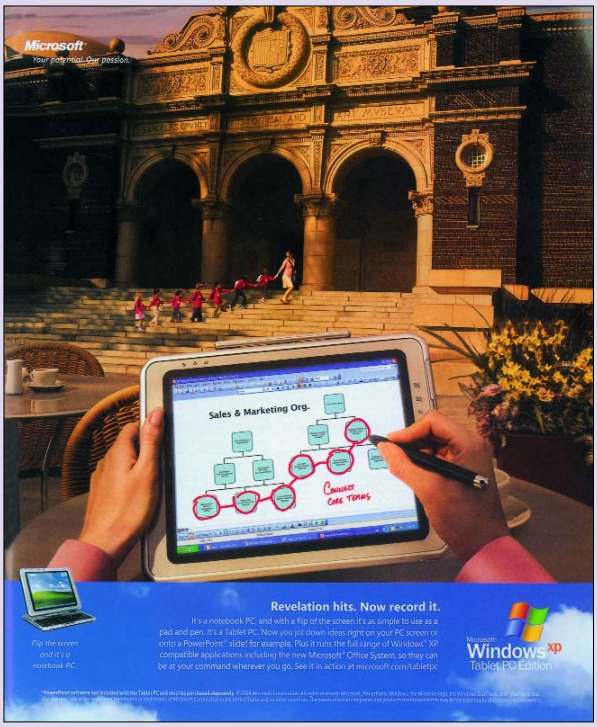
Apart from the votes system: let's say you create a link from your page to a site devoted to the life of baseball great Willie Mays. Google pays attention to the words you use to describe the site. If you link to the Mays site with the phrase "Barry Bonds's godfather," Google learns to associate the phrase with that site, even if it doesn't mention Barry Bonds. If enough people on the Web publish the same link with the same phrase, eventually Google will serve up the Mays site as the top result for "Barry Bonds's godfather."

Read the entire story at **http://snipurl.com/googlebombing**



The Emperor With No Clothes On

Is this message the naked truth? SuSE, a Novell company, does give us the creeps with this novel ad. It certainly makes Windows sympathisers sit up and take notice.



Chain Reaction

What better way to show off the Windows XP Tabloid PC Edition than this? With this flipover notebook, pamper yourself, and stretch your imagination like never before.

Big, big SMS goof-up
Marian Aliuta, Romania's top footballer, had to leave his club because he SMSed the wrong Victor - Victor Becali, his boss, instead of his friend. The message said the club's new coach was no good. Aliuta joined a rival club.

Man who spams gets slammed
A Canadian advertising an Olympic Web site written across his chest was sentenced to five-months in prison. The man disrupted a three-meter synchronised diving event by jumping from a springboard into the indoor pool. He was later fined and released.

Illustrations Mahesh Benkar

Escape

CHILDREN, THERE WILL BE A TEST

You Need Education. In Music

Not content with threatening 12-year-old girls with litigation and then squeezing $2,000 off them, the music industry is now taking its vigilance to schools. This isn't a play for their lunch money, but is instead aimed as a citizen-

Illustrations Mahesh Bankar

education programme. The message being, stealing songs is wrong, you little thieves.

The Music Manifesto is meant to promote music in UK schools. "We would like to see schools teaching copyright awareness so that pupils understand its importance not only to those contemplating music as a career, but to society generally," said EMI.

The message will be delivered via teachers who will be oriented on how to "explain copyright properly". The entire exercise takes on an even weirder tone considering that the Manifesto was meant to teach the virtues of music. How a lesson in copyright translates into future musicians is not explained: perhaps marrying the benefits of hit-singles to music lessons is aimed to create more well-rounded musicians—looking to the bread while playing the fiddle?

Or maybe British Music Rights is taking a leaf out of the book that the Motion Pictures Association of America threw at US schools a few months ago students were encouraged to role-play artists, producers, singers, etc, ruined by the evils of P2P file-sharing. That attempt prompted Wendy Seltzer, a lawyer for the Electronic Frontier Foundation to quip, "There's no balance; it's entirely corporate driven. If anything, it's an exercise in how efficiently you can brainwash students."

UNUSABLE!

BestIndianSites.com

Here's one Web site that can't feature on its own top 100 Indian Web sites list! Most of the links don't work—they ask you to sign up, but when you try to do so, you get a "404 Page Not Found" error. We tried random usernames and passwords and got the same error. Looks like the site's shut down; now only if someone could inform the hosting provider, and save them some bandwidth!

RECYCLING

Silicon-tagged Garbage

Building upon the view that it ain't worth it if it is free, the UK government is considering charging people for the trash they put out everyday. Today, UK households pay too little for trash disposal. So goes the thinking: increasing the amount they would have to pay would bring about greater discipline in trash-management.

Win!

My Desktop

Think you have the most beautiful, most innovative desktop around? Send it to **mydesktop@thinkdigit.com,** and Digit shall publish the most eye-catching of them every month.

The winning entry will win a KUSBDTI/128FE USB stick worth **Rs 1,300.** This month's winner is **Utpal Pande.**

Sponsored by Kingston

When Tux hooks up with a Mac—with all the eye-candy, how does he get his work done?!: by Utpal Pande

DigiPick of the month

The Keyboard That Hanged Itself!

"Installation Art" sent in by Abhisek Sarda and Viju, Dona Paula, Goa. Congratulations!

WIN!
An APUS Pen Drive worth Rs 2500 just by sharing an amusing picture which a tech angle to it.

Send your picture to **digipick@thinkdigit.com.** prize-winning picture will be published every month.

Sponsored by
UMAX

'How' is where the tech-wizardry comes in—with the power vested by silicon, dustbins will be tagged electronically. The chips would then talk to the collector bins. The reader will differentiate between bottles, cans and plastic. If you have been a good citizen, separating the recyclable from the non-, you would be let off easy, but mixing glass with plastic would raise silicon-hackles with costly consequences. The plan is to charge those who put all their trash in one basket more.

Under the Household Waste Recycling Act 2003, English authorities need to be collecting at least two types of recyclable waste by the end of 2010. The current proposal is meant to help fulfil that goal.

HOAX

Kill Ben

Following the US attack on Iraq, hundreds of hostages from two dozen countries have been seized. While most were released, some have been killed, beheadings being the most ghastly method of execution.

Within the volatile emotional atmosphere thus created, was released, recently, a video clip showing a beheading. This particular video turned out to be a hoax perpetrated by a US citizen.

A San Francisco computer expert was responsible for pulling the wool over millions of eyes that watch the Internet for such news. Benjamin Vanderford, 22, posted the film on a Web site used by militants in a format that was used by Al Qaeda ally Abu Musab al-Zarqawi. The video showed an American (Vanderford) being beheaded as a warning to the US to leave Iraq. The fake video was shot in a garage with a friend's help.

The video was shot in a friend's garage using dye as blood, a tape reading of the Quran, and mutilated bodies and sound effects from various Web sources. It was posted onto various P2P services such as KaZaA.

Vanderford intended to

People Who Changed Computing

Harvey Ball

Though it may not be any competition to the Mona Lisa smile, the smiley has made conversations light and sour pouts change to happy million-watt smiles. Meet Harvey Ball, the man behind the famous toothless smile that's so famously used in instant chats and e-mails. Ball sketched it up to pacify employees sulking about a merger. 1962 saw the State Mutual Life Assurance of Worcester, MA, buying up Guarantee Mutual Company of Ohio. Out of the merger sprung low employee morale, which was reason enough for the company to hire Ball to

draw up some graphic support for their campaign to turn the tide of the morale.

Within 10 minutes flat, Ball bowled them over with a smiling, rotund face, which found itself on buttons, desk cards and posters, urging employees to smile. By 1971, 50 million such smiley buttons were sold. The smiley had arrived.

Always the gentleman, Ball never ran after money. He did not apply for a trademark or copyright; neither did he sue Franklin Loufrani, who did just that. And neither did he regret it: "Hey, I can only eat one steak at a time, drive one car at a time."

Kudos From The South

Digit had been down south to meet Chief Minister of Karnataka N Dharamsingh. Digit's operations manager Shailesh Iyer and operations general manager Shivshankar Hiremath Manasivanagi presented the all-new redesigned issue of Digit to the new chief minister, who was so impressed with the content in the magazine that he read almost every single page.

Dharamsingh also briefed the *Digit* team on the steps his Government had initiated to promote the growth of IT in Karnataka. At present, his government's IT ministry is

DIGIT DIARY

working on the education module to promote information technology.

He said it was Digit's classy design that caught his attention. He went through the articles and found them informative. He then did something remarkable—he said he will try to read Digit every month to keep abreast of technology. He also hoped that technology magazines like *Digit* reached every corner of Karnataka. He also invited Digit to be present the prestigious Bangalore IT.com and Bio Tech, both of which are be held in November 2004.

We will be there!

Digit's general manager, operations, Shivshankar Hiremath presents the re-designed Digit to Karnataka Chief Minister N Dharamsingh

Bluff YOUR WAY THROUGH

Linux

Here are some bouncers from the vault of Linux jargon to help you leave your friends reeling.

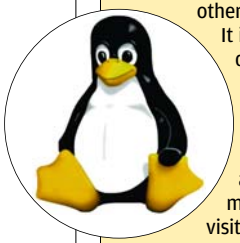
Framebuffer

The Linux framebuffer or fbdev is a graphics layer to show graphics on a console. It is hardware-independent and it does not rely on system-specific binaries. It is also lightweight, unlike the X Windows system.

It was originally developed for Apple Macintosh computers. These do not have a text-mode display, so it was developed so the text-mode could be emulated. It was later expanded to the IBM PC platform and became popular.

LSB

LSB is an acronym for The Linux Standard Base—a joint project by several Linux distributions. It was set under The Free Standards Groups, with the objectives of standardising the internal structure of Linux OSes. It is based on POSIX and several other open standards. It is sometimes disputed, as it promotes Red Hat's RPM format, so Debian does not accept it. For more information, visit linuxbase.org.



Staog

Viruses on Linux OSes are rare; however, many viruses for Linux have been found, and Staog was the first of them. It was found in late 1996. Some other Linux viruses are Bliss, Devnull, Ramen, Slapper, Adore, and Kork.

LAMP

An acronym for a set of free software to run dynamic web sites, it includes Linux, Apache, MySQL and PHP. These programs were originally not designed to run together, but they became popular because of low cost and easy availability. This term first appeared in a German computing magazine (- c't), in 1998. Lamp is also the name of an obsolete movie player software.

THE LAW IS AN...

My Lawyer Will Bury Yours

We will give away the ending to this one: Don't mess with lawyers. Here is a familiar story—you step onto an online message board and it is filled with flames, derogatorily condemning you and everything you stand for in front of the amused masses. All part of the Internet experience: you are expected to take it on the chin and move on.

Not if you represent a law firm, though.Stephen Galton, a California lawyer and partner in legal firm Galton & Helm was subjected to a "barrage of harassing, defamatory and abusive messages" and he came away with a class action suit! The messages were posted on boards supported by Yahoo!, criticising one of Galton's clients. When the lawyer in question signed up to the board and defended the client he was ridiculed by other users.

When Yahoo! refused to divulge the details of the users who allegedly harassed Galton, he sued the company for the information. A company when legally asked to do so is bound to release erstwhile confidential information of their users.

Galton also alleges that Yahoo! does not rectify the wrong people have suffered as abuse via its message boards. He would also like to see similar victims band together for the class action lawsuit. Like probably showing their support by handing in bags of money to his law firm. For a good cause, of course.

NANO WONDER

Metal Rubber!

Chalk one up for nanotechnology. NanoSonic in Blacksburg, Virginia, has successfully created a new substance that marries the strength of metal with the flexibility afforded by polymers. The process involved is deceptively simple. Two buckets, one filled with positively charged metallic ions and the other with negatively charged elastic polymers are involved. A charged substrate is taken and is first dipped into one of the buckets, which

whatwerethey thinking.com

What possesses people to blog? Why do we want the world to know what we do? Is it the inbred desire of our '15 minutes' in the limelight? We'll never know for sure, but what we do know is that 'being different' is the new karma that ran over the dogma.

As soon as you log onto **http://www.wibsite.com/wiblog/dull/**, you will notice the difference from other blogs. For one, here's a blog that has more comments than posts. The posts are short, sweet and to the point, and the comments often hilariously over-insightful. So what's the author's secret elixir of success? Be amazingly boring!

www.wibsite.com/wiblog/dull/

You can't help but laugh at a post that says, "There was an object occupying a space on my table. Using my hand I picked up the item from its place. Having considered my options for a moment I placed the object on a different area of the table."

Yes, the blog is full of such posts. Though we don't know what the author was thinking when he came up with this idea, we're certainly a tad irritated at not thinking of it first. If you have anything to say about "The dullest blog in the world," mail us at WWTT@thinkdigit.com.

causes ions to stick to it. The substrate is then washed under water to remove excess ions and then dipped into the other bucket wherein the other set of ions stick to the first set, forming a polymer-metal sandwich. The process is then repeated to add thickness and strength as desired. When done to taste, the substrate is removed to give "Metal Rubber." (They could have come up with a more imaginative name...) The cycle is handled by a team of robots and takes three days to create a 12-inch-square sample.

The properties of Metal Rubber is where the news is: Twist it, stretch it to twice its size, take it to 200°C, douse it with jet fuel - Metal Rubber lives on to strike another day, snapping back to its original form, never failing to conduct electricity. Uses ranging from aeroplane wings to wire coatings have been discussed, and companies with big money are lining up at NanoSonic's doors to test this miracle for themselves.

NETIZENS NEED NOT

Finnish Off Duty

In Finland, you don't need a big-shot daddy to shirk mandatory army service. Finnish youngsters are getting off battle duty by citing addiction to virtual battles, reports Reuters.

Some young Finns painfully longed for their PCs, which led military doctors to express concern over their mental condition. The Finnish Defence Forces, excused 'IP addicts' from their six-month duty, according to the report.

Commander-Captain Jyrki Kivela at the military conscription unit told the news service that people who play 'Net games all night, and don't have any friends or hobbies, often are in shock when they join the army. ⊠

Blog WATCH

Here's taking a look at a few riveting posts from the world of blogs. This month, we relive a first-hand experience of a dinner with Bill Gates. There's an interesting tell-tale timeline on Mozilla's chinks. Browse through a list of some favourite Mac OS X applications. Muse over the wonders of 3G phones.

Jeff Maurone
http://snipurl.com/869u

More on My Dinner with No.1 on the Forbes

Further and further you descend, past what seems to be an annex library, as it was certainly not the primary librarian that houses the Leicester Codex (Bill's original DaVinci notebook, for which he paid approx $30.8 million). Elegantly non-intrusive but screaming geekhood were sparsely placed digital canvases that, ever so often, changed the artwork on the wall. We passed the movie theatre, rumored to be the most advanced movie theatre in the world. Finally, we reached the bottom level of the entertaining portion of the home. To the left was a room with a design so powerful that it could only exist in the home of the richest man in the world.

Adam Sacarny
http://snipurl.com/7o8z

Mozilla Vulnerability Timeline

I've had many conversations lately about the security policies surrounding the Mozilla family of web browsers. The number of people fed up with the terribly vulnerable Internet Explorer has reached a critical mass. Now they want to know why Mozilla is better.

I suggest that those people who think "If IE is so bad, then Mozilla probably is too" take a look at this timeline. It tracks the identification, fixing, and notification of a potentially serious security hole affecting all of the Mozilla Organization's consumer applications: the Mozilla Suite, the Firefox browser, and the Thunderbird e-mail client.

Jonas M Luster
http://snipurl.com/8739

Indispensable Mac OS X products

In going with my last posting, why not start a list of my indispensable OS X applications et al for your enjoyment. I'll update this list as it becomes necessary—feel free to comment or yell if I am missing something or if there is something better out there.

The Major League is where the big things happen. Code and Applications I simply need to lead a fulfilling life. Well, not really, but it sounds better. The Little League is, where those small tools reside. Powerful and almost indispensable nevertheless.

Russell Beattie
http://snipurl.com/88vk

Possible, Powerful, Popular and Practical: Mobile Thoughts at 3 a.m.

This is the real problem: Finding that common denominator. Once you go from Popular and Practical to the Powerful and Possible, the numbers start to fade. Yes, companies like BlueLava has sold millions of Java games, and yes TextAmerica has 100,000 members, and yes verizon sold 34 million Brew apps in the first six months of the year. But as an app developer and business person, where to put your bets is a real dilema. Java? Right now it's write once, pray, and debug everywhere. MMS interop is pitiful, data services are relatively expensive and varied across carriers and countries, camera phones are super popular but still only represent about 15 % of the total phone base.

Rakee

Posted **Wed Aug 04, 2004 11:11 am**

Subject **August Digit 2004**

To tell you the truth, after the July issue, I decided to rent the issues hereafter instead of buying them. To my surprise, when I went on August 2 to borrow Digit, I was shocked to find that there would be DVDs for upcoming issues. I just bought a DVD-ROM last month for movies. I was not happy that I didn't get software on DVDs, and now Digit forces me to buy the magazine again.

Moreover, the magazine design was really amazing with a professional look and quality. Hats off to the Digit team!

****

KHUBBU

Posted **Mon Aug 16, 2004 8:00 am**

Subject **Upgrade-2-DVD offer by Digit**

I don't have a DVD drive, and I won't purchase one right now. Most Digit readers don't have one. I will stop subscribing to Digit as soon as my subscription ends. Maybe I can get my college library to subscribe. I will read only the magazine—no one can force me to buy anything. This is ridiculous. How can you take your customers for granted?

Why should I pay Rs 1,400 for a thing I am not sure I will get warranty for? Everyone doesn't live in metros. And the look of the "new" Digit is not at all great. And you think that if you give these short test reviews I am going to buy it? I won't. Most of us from small cities bought Digit for the CDs. Now, no CD, no Digit.

****

Quickfire

Posted **Sun Aug 08, 2004 4:29 pm**

Surprise! Surprise!

One fine morning, I just visited the forum and was surprised with the speed at which the pages were loading. I was really happy to see that. I thought there won't be anymore, but Digit proved me wrong. The biggest surprise arrived with Digit's August 2004 issue, when they announced they'll be giving FREE DVDs with every issue. Wow! That is great! I hope Digit will continue to bring more surprises in my life!

It's A Revolution!

The new *Digit* is revolutionary. I had decided not to renew my subscription after it ended in October 2004, but now I am being forced to continue. With this redesign, you have only cemented your place as India's No. 1 technology magazine, thanks to its user-friendly nature which makes it easy to read and share with friends.

Bundling a DVD was also a good idea; especially you are going to give it away free every month. The content was mind blowing.

Please do not go back to giving just two CDs, even if a lot of readers request you to do so. You have given everyone an offer of buying a DVD-Rom at a phenomenally low rate.

Tarunpreet Singh
Punjab

Waiting for SP2

The August issue was awesome. I loved the Free DVD, especially the XP2 RC2 beta release.

I hope you will bundle the XP SP2 Final release in the September issue DVD, along with a review in the magazine. SP2 is a must-install release for all the folks who have Windows XP.

I was impressed with the changes in the magazine, both small and big. *Digit* articles have become easier to understand for the common reader. The info about GMail working through a 260 KB java applet, which works on the client side and communicates with the server only for the e-mail contents, was very interesting. What an ingenious and simple way to make e-mail more user-friendly and faster. One can bank on Google to be imaginative and innovative in their initiatives, just like *Digit*.

Nirjhar Jain
On e-mail

A Complete Mess

I read *Digit* after six months, and coincidentally, it was the relaunch issue. The new-look *Digit* is more cramped than any computer-related magazine I have seen. There were too many ads. The choice of colours was garish, and the articles were an ordeal. I think *Digit* has gone overboard on the design aspect of the magazine and made a complete mess of it. If this is what the new day looks like, then please pull back the curtains. I am better off asleep.

Amit Saraff
On e-mail

Perfect Excuse for a DVD-ROM

I was blown away by the August 2004 issue. It is now more readable than ever before, and there are no longer articles just meant for people who graduated from the Massachusetts Institute of Technology. It is simple to view, and easier to read.

I feel that the new look has enhanced the magazine's stature in the technology media segment, but there are some things you can still improve—like the positioning of some articles.

The best thing about the new *Digit* is the free DVD. Now I really don't have any excuse not to buy a DVD-ROM.

Ashish Kumar Varun
On e-mail

Some Socks To Pull Up

Congratulations on the new design. The new cover layout of the magazine is great, and giving a CD along with the DVD is a great idea so that people without DVD-ROMs don't miss out on the action.

There are still some issues that *Digit* needs to take care of:

1) The Clutter: In various places, the positioning of the articles and the ads made it difficult to read.

2) Test Centre Reviews: The Test Centre reviews seem to have lost their incisiveness. For instance, where has the Suitability to Task index disappeared? A thumbnail picture of the product in the Score Board would also help.

3) Tips & Tricks: This is my favourite section of the magazine. In fact, I liked the old way of presenting this section

Write to the Editor

E-mail editor@thinkdigit.com

Snail Mail The Editor, **Digit**, D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul, Navi Mumbai 400 706.

Digit will publish the best letters on these pages. Letters may be edited for clarity

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Inbox

much better than this one. Also, where is the A-list?

Even if the overall impact of the magazine was good, and would have surely kept the competetion on its toes, I still feel Digit has a long way to go before it can be counted as one of the world's best magazines.

Visier Solo
On e-mail

The Wait Has Paid Off

The wait for the August issue paid off, and the optical media drives offer came at the right time for me. Imagine the surprise I got when I saw the *Digit's* special offer to upgrade to DVD. I immediately took the upgrade offer and also renewed my *Digit* subscription. Thanks to *Digit*, I got both deals at the price of one!

G Kumar,
Bangalore

Others Will Surely Follow

Do you ever fall short of ideas to surprise and pamper your readers?

I guess it is the constant urge to change and innovate that increases the number of *Digit* readers. With the redesign in August, you have just reasserted your position as India's top technology magazine. I won't be surprised if you make others follow your footsteps. I loved the new sections, especially Digital Passion, Smart SoHo, 30 days with..., First Hand, the two Visual Explanations, and Take a Crack.

The full version games, the mega software, and the e-books on the DVD were great, but it could have been better. Do keep up the good work of change and innovation.

Shravet Kumar
On e-mail

Better, Fresher, Colourful

The all-new *Digit* look and feel is better than ever before, and much fresher, too. The colours used in the layout were also nice. And if that is not enough, you are giving a DVD and a CD every month. Just how do you do it in one month's time-thinking of story ideas, collecting information, putting it all into words, the graphics, sorting, formatting everything, and then the CD and now the DVD as well.

Tigger Honeyz
On e-mail

Disappointing New Design!

Kudos for a content-rich August issue. All the new sections are much worth a mention. But the "much talked-about" new design, I felt, was disappointing. The imaging was much better than earlier, but was affecting the magazine's readability. Many other readers too felt the same. It was not a "disappointing" issue, but I think I loved the old feel.

Nithin Ismail
On e-mail

Goof ups

In the August issue, the Workgroup MFD scoresheet (*Page 122*) had the wrong scores for the 'Miscellaneous' field under Features. We apologise for the error.

The *Digit* Team

Notice any **goof-ups**?
Write to **goof@jasubhai.com**

Down Memory Lane

When the August 2004 issue reached me, it reminded me of all the good times I have had with *Digit*.

May 2001
A friend brought his issue to school, where I got my first glimpse of this magazine. I was in class IX then. It had a great impact on me.

June 2001
I pestered my parents in to giving me Rs 100 to buy the magazine. I bicycled 6 km to the buy a copy. I popped in the CDs, enjoyed the software and games, and revamped my desktop.

LETTER OF THE MONTH

December 2002
The free 'Tips and Tricks of MS Office' edition was unforgettable. I won a prize for a project I did in school based on these tips and tricks.

June 2003
Digit's anniversary, and another Tips and Tricks booklet free. I liked the book better than the CD.

August 2003
A Linux DVD for free. I first thought *Digit* has erred. But then I realised that India's No 1 technology magazine has to introduce us to new technologies.

December 2003
A collector's edition! Four CDs of software, a movie VCD (*Ice Age*), and an encyclopedia. That month I joined the Thinkdigit.com forum.

June 2004
A hyped issue on the *Digit* forum didn't reach to me till the eighth of the month. The PDF CD was amazing.

August 2004
The issue looked and felt great. It made me remember the first issue of Digit. The magazine now supports a DVD and a CD. Sure it will take some time before we get used to the new Digit but I hope Digit continues to give us great surprises, hoping to see it get better and better every month.

Best of luck, *Digit*.

Divyansh Agarwal
On e-mail

Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

What a novel idea!

The way people go around sending text messages, it was not going to be long before literature was available on SMS. That day has finally arrived. A novel by a Chinese author, Qian Fuchang, is now available as a series of SMSes. The novel is called *Outside the Fortress Besieged*, and has been described as "a steamy tale of adulterous love". For those who lv rdng novls lk ths,

Can you SMS that novel to me?

Fuchang's *Fortress* will have 60 chapters of 70 characters each. One small step for SMS, a giant leap for literature.

Sovereignty? Never heard of it!

"Sovereignty means...you are given sovereignty"

A long, really long time ago, the Americans made a movie called *The Gods Must Be Crazy* dedicated to the Bush People in Africa's Kalahari Desert. Were they seers? Because the Gods were definitely crazy when George Bush stood in line when they were doling out smarts.

Democracy Now *(democracynow.org)* has captured audio and video feeds of one more for the Bushism archives in which a reporter is seen asking Dubya: "Mr President, you have been a governor and a president. So you have unique experience looking at tribal sovereignty from two directions. What do you think it means in the 21st century?" The answer: "Yeah, tribal sovereignty means—it's sovereign. You have been given sovereignty, and you are viewed as a sovereign entity."

God save America! Not from al-Qaeda, but from their own President.

Cripplewareforsale

Bill Gates said earlier this year that hardware would be almost free.

But this week, Microsoft launched the 'Windows XP Starter Edition' for $36. More powerful? Nah. The announcement reads, "Users can have up to three programs and three windows per program running concurrently. Further simplification of the operating system includes the display resolution set to 800 x 600 maximum and no support for PC-to-PC home networking, sharing printers across a network or more advanced features such as the ability to establish multiple user accounts on a single PC."

A lot less than the full-price version, but a lot more than a pirated version. And, a lot more than the free version—the one you "borrowed" from a friend.

The Starter Edition was originally Microsoft's response to Thailand's government-initiated Linux PC project. Now, there's a lot of politics behind it, and Microsoft is doing this to win over Linux users and strike deals with governments. But we have our questions: is there a home user who would prefer this crippleware over the "free licensed version"?

Time to disappear

It's unfortunate. Just when we had SETI@Home, and were hoping to discover aliens and, perhaps, be discovered by them, comes the bad news. Scientist Frank Drake told a SETI workshop at Harvard that "the Earth is going to disappear" very soon, for aliens.

It turns out that the radio signals broadcast by traditional TV antennas are, for aliens, the strongest evidence of our existence on this planet.

Waiting for the aliens

If we are to have any hope of being discovered by aliens, SETI or someone else will have to start broadcasting radio waves into space, to advertise our presence here—at taxpayers' expense, of course.

Drake laments that most broadcasts now are on cable, and besides, satellites that relay TV do so with unforgiving accuracy, allowing little or no electricity to escape into space.

3-Easy-Steps to Freebies!

1 Log on to www.thinkdigit.com/digitpatron to register.

2 Enter this 16-digit code and score points (you will find your code at this place every issue)

3 Your points get added every month and can be redeemed for exciting gifts!

digit PATRON