



# IT's in Us



Maulik Jasubhai

In a lecture on motion and gravity, our bespectacled physics lecturer once taught us about Escape Velocity—the exact speed required for an object to "escape" earth's gravitational pull so that it does not fall back. This velocity—around 25,000 miles an hour—is one of the most important constants in rocket science.

I remembered this figure because India is now on the threshold of a different kind of escape velocity, a constant that will either put India on the growth curve, or push it down a spiral of technological oblivion.

The next 12 months, therefore, could well define the future of technology penetration and usage in India.

For long, India's march on the technology battlefield has been held back, not by its brain power, but by its sheer lack of collective will. It does show up, but in spurts—like when Nasscom lobbies to prevent outsourcing from being banned in the US, or MAIT influences the government to bring down duties and taxes to encourage hardware sales growth.

To be sure, Nasscom and MAIT will only be minor catalysts in our technological advancement—it will be people like us who will drive the engine.

A caveat, though—is technology usage the only measurement of growth?

Former Andhra Pradesh chief minister Chandrababu Naidu, may have known Bill Gates on first name basis, but he did not know what the person on the street wants. Even as Hyderabad bid for a Formula 1 racetrack—which incidentally uses so much technology that the engineers at MIT would be proud—Naidu lost track of what real development means. Here is a simple thing that Naidu forgot—technology is only a tool for development, not development by itself.

Award-winning journalist Thomas Friedman, in his perceptive column for the *New York Times*, recently wrote where India is truly shining—in a village near Bangalore where armyman-turned-software scientist-turned-social worker Dr Abraham George is bringing about a quiet revolution by building a school called Shanti Bhavan for underprivileged children who get to work on PCs every day, and build a life through education and self-respect.

When Friedman met the students there, he played a typing match on the PC keyboard against an eight-year-old girl. He lost.

India's future as a technological powerhouse, you'd realise when you visit places such as Shanti Bhavan, is not rooted in how many outsourcing contracts we win, or how many million cellphone connections we have, or how much percentage of the population can access the Internet.

It is rooted in us. And unless we collectively achieve the escape velocity my physics teacher so passionately talked about, we will be grounded. For life.

Maulik Jasubhai

Publisher and Executive Director, Jasubhai Digital Media

# It takes 50



Every year, the 50-plus-strong *Team Digit* makes a resolution — to continue to bring out the best technology magazine in India. This year, we reinforce that commitment.

Meet the team who will keep that promise



# Cleaning the e-mail mess

German university recently became the first organisation to publicly surrender the fight against spam and virus-loaded e-mail. The administrators turned off all filters and let through all e-mail, even though they knew 98 per cent of it was bad. Their filters just couldn't keep up.

Ever since the innocuous-sounding Melissa hit the Internet in 1999, e-mail has been the most popular, and the most effective way to deliver viruses. You can stop junk mail on your PC, but that doesn't account for all the damage that they do. E-mail viruses can usurp all available bandwidth to spread. Junk mail accounts for a huge chunk of the bandwidth available to ISPs, and if you have spent time cleaning out your Hotmail or Yahoo! account, you know how much it costs you in terms of bandwidth and productive time. The ideal goal, is to stop the junk from ever reaching your modem connection, not just your screen. E-mail is a clogged channel that desperately needs to be cleaned.

The problem is the e-mail system was designed as a simple personal communication channel over the fledgling Internet. Its trusting nature makes it too easy to spoof the system. It is trivial to manipulate the records in the e-mail to make it seem like the mail you send, was actually sent by, say, the CEO of your company. And there is little chance you will be discovered. Spammers can hide their tracks easily, because there is no way to accurately determine where in the world an e-mail was sent from.

That could be the first problem to be fixed. Yahoo! just published a proposed modification to the e-mail channel called DomainKeys. It will definitively associate the server that sends the e-mail, to the message itself, stripping away the layer of anonymity protecting spammers. After all that talk by Bill Gates about spam, Microsoft also released its own proposed solution to the same problem called Caller ID. Yahoo! and Hotmail are probably the world largest e-mail service providers, and this is the first concrete step to combat malicious mail.

The new problem, of course, is will these two work together to create a common solution, or are we facing a DVD-wars-like split in technology that will leave a hole wide open for spammers to drive through?

sumod\_hajela@jasubhai.com



**Sumod Hajela** Assistant Editor

E-mail is a clogged channel that desperately needs to be cleaned

# **FEATURES**

# Adios, BIOS......38

It's time for the familiar BIOS to go byebye. What will we see in its place?

# Business.Net ......46

The Net's not all fuun, you can use it for work too! Build your business contacts online, and watch your money grow

# TEN TO WATCH.....50

10 things and people it will pay to keep an eye on in the coming year

# **TEST DRIVE**

# Share 'n' Surf......65

One dial-up line is enough to run your office on... if your PCs know how to share!

# HAUTE GEAR

Meet the better than the best hardware, learn how to pick them, and then play with them

# **INSIGHT**

### Thank you for the Music .....144

The Net's got enough music to get you

groovin' at your desk, if you know where to look

# All the Graphic Details......148

All you wanted to know about the next-gen graphics cards, and more...

# Melodies from Afar ......152

You can list to your music as you hop across and music...And change volumes and playlists too

### Don't Junk that PC ......154

There's still a lot of life in your old PC. Look at these options before towing it away

### Be a Smart-ass @ Work......158

Productive and boss-proof methods on looking busy! Don't thank us for it!

# Rescue Me .....166

It may happen: Your Linux may die...
Take a crash course in first aid

# **1001 FACTS**

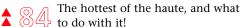
What does Yahoo mean? What did John Sculley do before joining Apple? Whats Ada Lovelace's geneaology? Just three of the 1001 things we want to tell you



**158** 

Sure you know how to spruce up your productivity, but do you know how to maximise not working?







Sing, tap and play!

# index ■ magazine



NEWS FEED ......22 DROOLMAAL ......44 UNDERCOVER .....142 **TIPS & TRICKS .....177 OFF THE SHELF .....192 DIGIT DIARY . . . . . . . . . . . . 195** QUBIT .....196

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50

Ten things to look out for this year

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Technology trends that will define the next 12 months

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> We show you how to buy, use and preserve the coolest gear available

# **Reviewed** this month

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Altec Lansing AHS-502 headset BenQ FP991 Brother MFC-8820D Fujitsu LBP 1120 Gainward Ultra 1100 XT Gigabyte FX5950 Ultra GT

Edition Intel Prescott 3.4 GHz

Kodak CX7300 Orite Music Cookie Pinnacle PCTV Stereo Umax X4 LCD monitor X800 PRO

X800 XT Platinum

# **SOFTWARE**

# Internet-sharing .....65

software AnalogX Avirt Ğateway Bandwidth Controller DU Meter Squid SyGate Office Network WinGate WinProxy Pro WinRoute Pro

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# **WEB SPECIAL**

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Get Yahoo! on your Outlook Office

ZoneAlarm 4.5.594.000

Secure your PC against network related attacks **System** 



# **101 FREEWARE**

This month, you can feast on a collection of some of the best freeware software spread across various software sections.

Be it to securing your PC with ZoneAlarm against network threats, checking your Yahoo! Mail with Outlook, listening to the your music with the latest Winamp player, or creating feature-rich installer for your VB applications—we bring you a plethora of free applications to choose from.



HTML-Kit

**GAIM 0.77** 

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# news feed

# hypethesis

# Domain Keys

■ What is it?

An e-mail standard proposed by Yahoo! that embeds an encrypted signature on outgoing messages.

### ■ How does it work?

It uses a pair of signing keys. The domain owner first sets up a key pair, and publishes a copy of the public key on the DNS. The private key is installed in the outbound e-mail servers. On receiving it, the public key for the domain name in the 'From:' field is obtained from the DNS. Using this, the private key's signature is verified. If it doesn't match, the e-mail is dropped; if it matches, the mail is delivered.

### ■ How will it help?

If all companies enforce rules that need all e-mail to be signed using DomainKeys, then spam could fall drastically. Spammers would need a valid domain address, and wouldn't be able to spoof addresses.

# snapshot

Online groceries worldwide will see sales of 2.4 billion dollars in 2004, which is 0.4% of the total grocery market of 570 billion dollars

Source: CNN

# Yahoo!: 100 not out. Hotmail: Still on 2. Lycos: Already 1 GB

Google shocked the world with their 1000 MB free email announcement on April 1. And no, it was not an April Fools' joke. With Google threatening to wrest the world's most visited Web site status from Yahoo! and MSN, the former had to do something, quick.

So, it came up with a 10 per cent me-too solution—Yahoo! will soon upgrade all its users to 100 MB of free e-mail space, along with Yahoo! Photos and Yahoo! Messenger. Yahoo! may have a headstart, though, thanks mainly due to the leader in the 1000 MB free space, Spymac.com, showing signs of glitches, and



Illustrations: Mahesh Benkar subscribers are getting disillu-

sioned too soon.

But guess who won the race for the most reliable 1 GB inbox. The almost forgotten Terra Lycos network that breasted the tape.

Hotmail, meanwhile,

continues to be arrogant. It has not budged from its 2 MB free inbox service for years, and announced recently that it will open its inboxes to "friendly marketing communication", which essentially means more spam.

The question, then, is: With so many sites offering hundreds (and now, thousands) of MB of free space, can Hotmail afford to stay behind? Our guess is that it will have to shape up, or ship out. Soon.

By the Way, which is your favourite free e-mail service? Post your comments on the Forum on www.thinkdigit.com.

# Not now, honey. I am playing my video game

And so we thought only kids play video games. And so, we were wrong.

In a survey carried out by the US-based Entertainment Software Association (ESA), it was found that a typical hardcore gamer is not your neighbourhood teenager, but his 12-years older brother.

The survey, based on a sample size of 1400 US families, and released at the recently-concluded Electronic Entertainment Expo (E3) in Los Angeles, said that the average age of gamers was 29, while most



buyers are aged around 36. Not surprisingly, however, men make up for 59 per cent of the playing audience.

Which leads us to ask: Did the recent Time magazine cover feature on failed marriages miss out on an very important reason for the failure?

But the mother of all musical wars is yet to begin. With Sony announcing the download service called Sony Connect for uses of Sony Mini

Discmans, MTV might be a sweating a bit under the collar, even if it reaches 80 million homes world-wide.

Video may have killed the radio star. But surely, the online ring has place only for a few fighters.

■ Sony cuts down PS2 prices to US\$150. HP to start offering customised gaming PCs ■ Japan's eAccess to buy over AOL Japan from AOL Time Warner Inc.

# Alzheimer's patients, take heart. Intel's inside

Intel claims that it can employ wireless sensors to track the lifestyle of 11 patients in the early stages of the Alzheimer's disease.

In its new project, Intel will place off-the-shelf sensors that wirelessly transdata to computer—in kitchens, bathrooms, phones and computers in households The data will then be crunched to measure the amount of time a patient spends on the phone, talking to visitors or e-mailing. Intel will then formulate a 'sociability index', primarily to gauge cognitive decline.

Intel pledged \$1 million when it created a consortium with the Alzheimer's Associa-

tion last July called Everyday Technologies for Alzheimer Care. ETAC is now reviewing 40 applicants from academia



and hopes to raise a total \$4 million (Rs 18.5 crore) in June from other technology companies.

If the system works, the technology will be placed in 200 US households by 2005.

# How cheap can a down-load be?

Sony recently launched the its Connect online music store in the US with the promise of "a better selection than any other legal download service". However, the Washington Post slammed what it called an "embarrassment to the parent company" and its "control-freak behaviour".

It has only 5,00,000 titles, compared to Apple iTune's 7,00,000. Like iTMS, Connect supports a limited array of portable music players, in this case Sony's MiniDisc machines. Connect encodes songs in its own 132 Kbps ATRAC 3 format, offering them for 99c a track, or at \$10 an album.

Sony is not going to find it easy in Europe, though, especially since it's likely to merge with another music giant, Bertelsmann Music Group (BMG). A Sydney Morning Herald reporter, incidentally, has discovered a Russian site that offers downloads for as little as 5 cents a track (or Rs 3 per song).

# redalert

# W32/Lovgate.ab

This worm attempts to reply to all messages in Microsoft Outlook. It scans files for email addresses, and uses its own SMTP engine to send itself to the address it finds. The 'From' line of the e-mail is spoofed. It also attempts to copy itself to KaZaA shared folders, and all computers on a local network and terminates processes belonging to anti-virus programs.

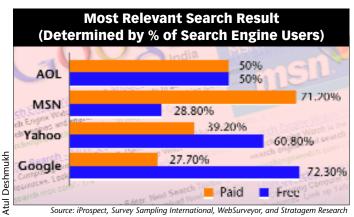
Version 1.1.6 of the W32.HLLW.Lovgate@mm is available for downloading at the Symantec Web site www.symantec.com

### **Sasser Scare**

W32.Sasser.B.Worm is a variant of W32.Sasser.Worm. It spreads by scanning randomly selected IP addresses for vulnerable systems. Interestingly, no more than one instance of the worm can run on a computer at any time. Symantec's removal tool is available at <a href="http://security response.symantec.com/avcenter/FxSasser.exe">http://security response.symantec.com/avcenter/FxSasser.exe</a>.

# statattack





# Let the air in; open the Windows!

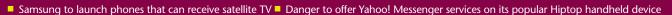
Microsoft has, for obvious reasons, been on the forefront of the oppose-opensource campaign. Not anymore. If officials of the Redmond-headquartered software giant are to be believed, Microsoft will let the world peek into the world's highest selling desktop operating system. Last month, Microsoft posted the Windows Template SourceForge library at (www.soundforge.net).

This is the second time that Microsoft has shared bits of

Windows. Earlier in April, the company revealed the source code for its Windows installer XML software, WiX.

WiX builds installation packages for Windows software using XML (eXtensible Markup Language). Of course, in typical Microsoft Janus-faced approach, it has revealed quite a bit of Windows to countries such as China, to assuage thier security concerns.

The current program includes only a few countries, only after signing of confiden-



# Google presents: The new, improved world

It wouldn't be an exaggeration to say that Larry Page and Sergey Brin changed the way we use the Internet. But are they gonna change the world, too?

The company's pre-IPO document specified the setting up of Google Foundation, an institution that will strive to "make the world a better place". The document was meant for stock market regulators to be introduced to many undisclosed details.

Google informed potential investors in the document sent to the Securities and Exchange Commission (the American counterpart of SEBI) that they "intend to contribute significant resources to the foundation, including employee time and approximately one per cent of Google's equity and

profits in some form."

The two Stanford PhDs wrote: "We hope someday this institution may eclipse Google itself in terms of overall world impact by ambitiously applying innovation and significant resources

to the largest of the world's problems." Noble intentions ooze from Google all the time (remember "We don't do evil"?), besides a foundation would also add another level of public disclosure to the world's largest search company, which has, for the last six years, enjoyed the relative secrecy of a privately held corporation. Google earned nearly \$106 million last year. For the three months ending in March 31,



2004, they earned \$64 million on revenue of about \$390 million, 30 per cent of which was derived from outside the United States.

Which is not bad for a company that put Sherlock Holmes to shame with its search algorithms.

Do you think Google should stick to search, or should they heal the world? Tell us at www.thinkdigit.com

# heroes

### E-mail users

Web portal Lycos has followed Google and Yahoo! in the race to provide e-mail users huge storage. Lycos is upgrading its service in the UK to give consumers 1 GB mailboxes. But users will have to pay a monthly fee of Rs 275.80.

While Google's Gmail is still in a test phase, Spymac, a Web-hosting company for Macintosh aficionados, has also announced a free 1 GB.

### Fedora RedHat

Fedora Beta 1.92, release 3, has a fundamentally different security model. Fedora Core now includes Security Enhanced Linux. SELinux is disabled by default. To enable, type 'selinux' at the Boot prompt.

Before doing that, it is imperative to memorise the Fedora Core SELinux FAQ.

# I want my MTV online!

Popular television network MTV is now girding its loins and getting ready for the big battle. And this time, it WILL be big.

Right now, as industry pundits would tell us, the biggest music battles are being fought not in the studios, but on the Internet. After the super-successful launch of Apple's iTunes, it was only a matter of time before others got into the ring. With television industry leader MTV tying

up with RealNetworks and three other labels, the share for the music downloads pie may get smaller by the day.

The partnership is called MusicNet, and the service will charge \$1 per song, while a month's usage will cost \$10.

# Hum Aapke Hain Clone

Normally, movies create a stir because of excess sex, or violence, or even racial abuse. But a Web site meant to promote the film *Godsend* has raised the heckles of those opposed to human cloning.

The film stars Oscar nominee Greg Kinnear and Rebecca Romijn-Stamos (whose exhusband John Stamos starred in *Full House*) as a couple who lose their son. With the help of fertility expert Dr Richard Wells (played by Robert De

Niro), they try to clone their son. The Web site—*godsendin-stitute.org*—promotes a fictitious fertility clinic. The confusion arises because it

does time

not mention the movie.

Web sufers have petitioned on the grounds that it is insensitive to those who have lost a

loved one, and are seeking to clone.

Tom Ortenberg, president of film releasing for Lions Gate Entertainment claims, "Everyone who goes to the site thinks it's real, but by the time they leave, most have it figured. Some even applaud it."

# 📛 zeroes

### **Net-banking**

At an online survey, 75 per cent said they were less likely to shop online because of phishing. Over 65 per cent expressed fears about their bank's online service. Only a third of the 650 respondents felt they could distinguish between a real e-mail and a fishy one.

# Corel WordPerfect 12

Corel's new WordPerfect 12 update is hardly worth the \$150 price it demands. It has a cluttered interface, non-intuitive menu structure and an extremely buggy compatibility feature that fails to handle Microsoft Office and HTML.

■ CISCO source code leak; sample code posted on IRC. FBI and CISCO to investigate ■ Microsoft releases Office 2004 for the Mac platform

# Let sleeping slobs lie

OK, it was only a matter of time, so we are not surprised. A group of 2,000 cellphone owners have formed an "Excuse and Alibi Club" in the US, where one member lies on behalf of another. The club is modelled after its German founder, known only by the name 'Numbrrrs'.

Here's how it works: Cellphone users download background noise of traffic jams, and then play them when they call their bosses, or spouses to say that they're late. While someone close to the club admitted the ethics surrounding that application is a bit dubious, the software's creators, a company named SounderCover insist that people are only having fun.

The software is compatible with certain Nokia phones, which mainly run on the cellular-phone networks in Europe. In India, where numbers of mobile phones are increasing by the day, mobile phone ethics are a serious problem. The scenario will get further aggravated with sophisticated technology. Will the user wait for stringent legislation, or will we be ethical while there's time?

Time Magazine, as mentioned in a story earlier, missed one more reason for failed marriages!

# <u>snapshot</u>

By 2009, 43 million handheld gamers will be generating revenues worth 2.7 billion dollars

Source: Jupiter Research

# Goodbye Wi-Fi, says Microsoft

 $M^{
m icrosoft's}$  affair with Wi-Fi has ended.

In what is considered to be a total U-turn on its wireless policy, Microsoft has decided to discontinue its entire line of Wi-Fi gear. Microsoft had a complete line of Wi-Fi products including base stations, laptop cards, and USB and PCI add-ons for desktop machines.

It had entered the Wi-Fi

market only last year and notched up an impressive No 2 position. But soon other wifi manufactures caught up and MS 's delay in delivering for the "g class routers" resulted in its fallen market share.

Although Microsoft claims to have accomplished its goals of using wi-fi on security, ease-of-use and performance, the real reason may somewhere lie in "G Products".

# Godfather@spammers.com

Spammers of the world unite—the Mafia is now after you. But the Mafia being the Mafia, it won't bump the spammers off (damn!); instead hire them to write viruses to enable them to send spam.

If Eugene Kaspersky, head of anti-virus research at Moscow-based Kaspersky Labs, is to be believed, the advent of forthcoming laws that make spamming illegal has increased criminal interest in spamming. "If you have a profitable, illegal business, sooner or later, you pay taxes to the Mafia," said Kaspersky.

Though there is little to support his theory, Kaspersky reckons that if organised crim-



inals take control of spamming, they may reduce in number. However, the odd attack may be leathal.

Kaspersky has word of consolation, though: "It is unlikely that criminals would take over anti-virus and antispam companies, as the family "needs effective anti-virus and anti-spam too."

# Have a virus? Call Dr Bill

Microsoft India has announced a tool to help organisations automatically remove the Sasser worm (W32.Sasser.A, and its variants). The tool is available free of cost, and can be downloaded from www.microsoft.com/india/security.

Microsoft also informed

customers that they can protect themselves against these attacks by first ensuring that their firewall is in place, and then installing Microsoft Security Update MS04-011.

Customers can alternatively call Microsoft India's Free Virus-support Helpline at 1901-333334.



# Married, lonely and now poor

The US Federal Trade Commission (FTC) has filed charges against a spammer in the US and his associate in the Netherlands who used spam to drum up business for an adult site called 'Married But Lonely'. The defendants are to pay \$112,500.

However, they could not be tried under new anti-spamming regulations since the spamming occurred before the legislation came into effect.

In its complaint, the FTC pointed out that the consumers were not expecting adult related content with such subject lines, and that work place rules could have been violated.

# **Spam Warnings**

A US court quashed a restraining order passed against SpamCop.net that prevented the anti-spam service from warning ISPs of spam originating from their networks. SpamCop, now owned by IronPort Systems, is a service that has worked actively with ISPs warning them misuse of their e-mail services.

An online marketing company called OptInRealBig. com filed a case saying that with SpamCop squealing away, OptInRealBig lost contracts with ISPs and customers. The courts initially passed a restraining order against SpamCop, and after reviewing SpamCop's reply to it, the order was dissolved.

# <u>snapshot</u>

82 per cent of all US e-mail is Spam

Source: MessageLabs Inc



Opera v7.5 released, new features include support for RSS feeds The FBI is looking into child pornography file-sharing over P2P networks; has made several arrests

# Add noise to combat Net pirates

Downloading music, movies or software illegally might become less appealing, if every third song or film scene was suddenly interrupted by white noise or announcements urging "next time, pay for what you take!"

This technique—circulating flawed, or reproving digital copies of songs on the Internet—has been tried by a few pop stars hoping to thwart online music piracy. Two weeks ago, a University of Tulsa professor—John Hale and a former graduate student of his-Gavin Manes-won a patent for software that analyses and monitors illegal music swapping on file-sharing networks, and then systematically inserts decoy files into the mix.

The music industry in India, which is plagued not just by piracy issues, but copyright wrangles seems to be the ideal place for low-cost, foolproof technologies such as this, rather than the sophisticated, technology intensive ATRAC, AAC or DRM-protected WMA files used by big MNC players such as Sony or Apple.

The time seems just right for a measure such as this.

# snapshot

World-wide Internet Population 2004: 945 million Internet Population in India: 39.20 million

Source: Computer Industry Almanac

# Dragon burns over 8,600 cyber cafés

China has shut down more than 8,600 cyber-cafes in two months, fearing that it will corrupt young minds. The government claims it's a crackdown on unlicensed cyber cafes that spread "unhealthy online information".

Authorities also ruled that Internet cafes are not to operate in residential areas, or within 200 meters of primary and high schools.

Big Brother is surely big in China. As the Pink Floyd song goes: "Mama's gonna make all of your nightmares come true...Mama's gonna keep you right here, under her wing, She won't let you fly, but she might let you sing, Mama's gonna keep baby cozy and warm."

# Thank you for calling, Have a nice day!

Little does Kavita who becomes Karen at her call-centre job know about the bumper stickers declaring "Opportunity Indiana", "Keep Jobs in Colorado Act".

Indian politicians and executives of companies that provide offshore services are surprisingly sanguine about the controversy. But it's election time in the US, and every trivial issue is raked up. Economics dictates business, and for every dollar spent on outsourcing, the US economy receives \$1.12

to \$1.14 in return.

And, if Gary Endelman, a lawyer at BP America is believed, 3 million outsourced jobs in the next 15 years represent only two per cent of total US employment, this year.

The best way to counter all backlash is to provide accurate information according to most Business Processing Outsourcing (BPOs). This only means one thing—it would be business as usual for India. So, keep smiling

# tomorrow's technology

# **Bendable Computing**

Bendable PCs with OLED displays that could be as thin as 0.2 mm—the size of credit card—are just about five years away, according to Sony researcher Carsten Schwesig.

Sony's Gummi Project is a testbed using a TFT display, with no buttons: You hold it with both hands and twist. In place of clicks and drags, are five states—neutral, up, down and two transition states.

Gummi enables you to select an object, follow a hyperlink, or start playback, with a transition down mapped to a zoom. Because the zoom is so natural, navigating large hyperlinked documents is faster, and selecting objects doesn't require precision. Clever use of opacity allows users to blend different maps together, or leaf through discrete, but overlaid Web pages.

# quoteworthy

"It's a bug."

Google spokesman Nathan Tyler, denying rumours that Google was offering Gmail users one terabyte of storage space. Testers of the free email service discovered on Wednesday that their accounts claimed to have one million megabytes of storage space.

"I was using Minix when I wrote Linux, but that's in the same sense that you are using Windows when you write your columns. Do your articles contain Windows source code because you use Windows to write them?"

Linus Torvalds, in an e-mail interview to CNET
News.com, refuting claims made by a report from a 14-person Washington DC think tank, that he may have gradually replaced Minix code with Linux

"There's been an endemic problem with people logging in with unpleasant or racist names. Also blokes chatting up girls. Not bad in itself, but some are doing so in a profane and very persistent manner."

Stephen Goddard, co-editor of Ship of Fools, the webzine behind the online chapel, Church of Fools. The Internet church, launched last week, is funded with £5,000 by the Methodist Church in UK.

Security firm Secunia announces critical weaknesses in Mac OS X US based Wi-Fi pioneer Cometa suspends operations following financial problems

# New Arrivals

'New Arrivals' is an advertiser-sponsored section that showcases the latest launches in the Indian market.

All product specifications featured here have been obtained from the contacts listed, but have not been verified by the Digit Test Centre. You can look forward to reviews of some of these products in our Test Drive section soon.

# Toshiba's 1.8" HDD

### Small yet powerful

Toshiba has introduced its latest 1.8" HDD Removable Storage Compliant with PC Card Type II Standard. It has a 5.0GB capacity with a dual-interface PC Card ATA and 68-pin ATA. It has an average seek time of 15 ms and a latency of 7.52 ms. It comes with a warranty of one year.

Phone: 022-24328586/24328686

E-mail: neesan@vsnl.net

# Plextor PX-708UF DVD±R/RW Drive

Zeta Technologies Pvt Ltd and Plextor have announced the launch of PX-708UF-the first DVD+R/RW CD-R/RW 8-in-1 external IEEE 1394 and high-speed USB drive that offers all the advantages of Plextor DVDRW drives, along with dual format capabilities. The PX-708UF supports 40X CD-R write, 24X CD-RW rewrite and 40X CD-ROM read speeds. Users can create a 4.7 GB disc on DVD media in about 8 minutes flat!

Plextor is also offering a one-year warranty on parts and labour and unlimited technical support.

Contact: Shubhendu Nath Phone: 022-33495276, 98925 92597

# **ASUS Motherboard**

### **Enhancing Intel**

ASUS launched the P4R800-V Deluxe Motherboard that supports Gigabit LAN, Serial ATA and RAID 0,1,0+1 functions. It also enables an 800 MHz system bus, and a dual-channel DDR 400 memory design for the future Intel Prescott processor. It has flexible input/output features for an excellent home entertainment system. It comes equipped with one IEEE 1394 port behind, and another onboard for highspeed digital data transfer. It comes equipped with the exclusive Wi-Fi slot which supports the ASUS Wi-Fi@HOME platform. The motherboard also incorporated the revolutionary ASUS Intelligence (AI) features of Net and BIOS. Contact: Mr Pankaj Pamani Phone: 98200-10267

# +ONE PC

The least expensive way to add more PCs

If you feel the need to buy a second PC, you should first consider +One PC—the most effective way to add more PCs to your existing PC. With +One PC, two or more users can work simultaneously and independently on any application. Both can access all attached peripherals and share an Internet connection. This also results in low maintenance costs. +One consists of a PCI card, connector box for connecting keyboard, mouse, and easy-to-use +One PC software. It also contains a 15 foot extension cable to let you work from a distance. +One PC

is compatible



with both Windows XP and Windows 2000. Adding users is limited only by the amount of free PCI slots you have. +ONE PC is the perfect product for offices, schools, Universities, cyber cafes, SoHos, stockbrokers, etc.—wherever there is a need for more PCs at minimum cost.

Contact: Adline Systems Price: Rs. 6,500 +Taxes

Phone: 011-25720911, 011-51547279,

Fax: 011-25720441

E-mail: adline@del6.vsnl.net.in

# HP Officejet 4255 all-in-one printer / fax/ scanner/ copier/ phone

Next generation 5-in-one from HP.

Hewlett-Packard India Pvt. Ltd., the leader in inkjet all-in-ones, have launched a new revolutionary all-in-one armed with printer, fax, scanner, copier and a phone. The OJ 4255 all-in-one promises an end to conventional faxing and comes packed with innovative features. Capable of 6-ink colour printing, the OJ 4255 with a high speed fax-modem allows colour faxing and has a 100 page fax memory. It also comes with upto 72 hr backup to ensure that

your incoming faxes stored in

the memory are not lost in case of a power failure. Priced at Rs 9,999, this ultra-compact all-in-one with well-integrated multifunction capabilities is a steal for any customer.

Contact: Hewlett-Packard India Pvt. Ltd. Price: Rs 9,999 (taxes & levies Extra) Phone: 1600-444 999 (toll free) e-mail: in.contact@hp.com

# Digi Giga Systems - Gigabyte Chipset

Empowering AMD Athlon 64

Digi Giga Systems Ltd. has introduced the SiS 760 chipset Gigabyte GA-K8S760M motherboard, the very first integrated solution supporting the AMD Athlon 64 processor. The GA-K8S760M is equipped with a new Mirage 2 Graphics engine and world leading Local Frame Buffer (LFB) design. The high speed Fast Ethernet interface is equipped for

establishing the efficient broadband connection to the internet, with up to 150MB/s data transfer rate making it an ideal choice for multi-functional system used in home and office environment.

Contact: Digi Giga Sytems Ltd. Phone: 022-26526696 / 56902210 Web site: http://www.digigiga.co.in/

# The HOTtest Keyboard

his stunning beauty from Tech Com is a sure heart stealer. This multimedia keyboard offers a choice of three colours—white, black & silver-black. To add to its looks, this power-packed keyboard comes with 18 hotkeys which are sure to make web surfing smoother, movies turn into a new experience, and all those MP3s are all the more fun.

The ergonomic looks are complemented by ease of key access. All special keys are grouped by their applications—Internet, multimedia and office applications. The keyboard comes

ready for all versions of windows and has a PS/2 interface. At Rs. 395, this is one sure buy for anyone who needs a good keyboard, be it at home or office.

Contact: Mr Amit Kedia

Distributor: Shree Sagarmatha Distribu-

tors Pvt. Ltd.

Phone: 011-51618545

Price: Rs 395

E-mail: techcom@touchtelindia.net Web site: www.techcomindia.com

# ZYXEL- Wireless Networking At Easy Prices

dmit it—you'd love wireless Anetworking if it's affordable. Yep, its possible without looting banks. Thanks to Simple Marketing, we have ZyAIR B-1000 v.2 wireless LAN access point and ZyAIR B-220 wireless USB adapter combo, which delivers a highly secure, reliable, and easy-to-use wireless LAN solution for residential and business applications at a very modest rate. The features include powerful security mechanisms such as IEEE 802.1x user authentication and Wi-Fi Protected Access (WPA), which allow users to communicate and access data with efficient link quality and high-level network security. Additionally, Wi-Fi certification ensures interoperability between the ZyAIR B-1000 v.2 and any Wi-Fi 11b compliant wireless devices. The ZyAIR B-220 802.11b Wireless USB Adapter/AP, works as client and AP(Dual mode, Wi-Fi certified to ensure

interoperability, WHQL certified to ensure compatible with Microsoft Windows, adapter for USB-compliant notebooks and computers. 802.1x client software embedded, Wi-Fi Protected Access(WPA)support,128 bit WEP support. Uff, heavy stuff. In spite of all the features, it's a truly Plug-and-Play device and the good thing is that the whole combo costs Rs 5,999.One word—Wow.



Price: Rs 5,999

Contact: Simple Marketing Pvt Ltd Phone: 011-26431795, 0-98102 90962

E-mail: simple@vsnl.com Web site: www.onlinesimple.com

# CoolMaster

yber Space Abacus Pvt Ltd, the National distributors for ANTEC, is now launching the CoolerMaster range of products at India. "The Cooler Master all Aluminum "Wave Master Mid-Tower Case". This is truly in a class by itself. It is the flagship of the Cooler Master range of well-designed quality aluminum cases. Wave Master breaks traditional square casing design

to bring you a more sensational experience. The durable lightweight aluminum alloy greatly reduces its weight (34% in comparison to casings made of iron). It comes with a stylish curved front plate design. It has a sophisticated machine processing for an exotic smooth finish and removable motherboard tray for fast and easy assembly.

Contact: Shunmugavel Yogan Phone: 044-24917667 /24917675

Fax: 044-52154188

E-mail: sales@theitdepot.com Web site: www.theitdepot.com

## Zenith Launches 'Topper', India's First Education PC

Zenith Computers has launched the 'Topper Desktop' for students, in association with Intel, the world's largest chip manufacturer.

Topper, priced at Rs. 23,000, is a multimedia PC with a CD-writer, modem, speakers, free Internet connection and a Topper 18-CD pack. The CDs include 'Career Launcher', and other software such as Vedic Mathematics, Learn to Speak English, Programming languages, Webster's Encyclopedia, Chess, Hutchinson Library and many more.

To encourage academic excellence, Zenith will also gift the 'toppers of major certified Indian exams,' a Zenith Topper each. Highscoring students will also receive scholarships, awards and higher recognition from Zenith.

Zenith Topper is available at over 780 dealers, at 140 exclusive 'Zenith PC World' retail outlets at convenient locations across the country.

Contact: Devita Saraf Executive Director, Marketing Zenith Computers Limited. Tel: 91-022-28377300 E-mail: dsaraf@zenith-india.com

# For any new product announcements in this section, vendors / manufacturers can get in touch with

- BANGALORE: Bibhor Srivastava, E-mail:
  - bibhor\_srivastava@ jasubhai.com, **Phone:** 5325670/88, 37629285
- CHENNAI: Sahayaraj Prabhu, E-mail:
  - prabhu\_sahayaraj@ jasubhai.com, **Phone:** 28235186/89, 33629282
- KOLKATA: Jayanta Bhattacharyya,
  - **E-mail:** jayanta\_bhattacharyya@ jasubhai.com,
- Phone: 22345100, 33629284
  MUMBAI: Saurabh Pandey,
- **E-mail:**saurabh\_pandey@ jasubhai.com,
- Phone: 56310515/14, 33629278
- NEW DELHI: Arvind Prabhakar, E-mail:
- arvind\_prabhakar@ jasubhai.com, **Phone:** 51608658/59, 33629279
- PUNE: Vinayak Inamdar, E-mail: vinayak\_inamdar@ jasubhai.com,
- Phone: 24482059

  SECUNDERABAD: Vinayak
  Inamdar.

**E-mail:** vinayak\_inamdar@ jasubhai.com,

Phone: 55221051, 3362980

# pulse | letters

# **star struck**

I am a 17-year-old college student, and I must admit that though your magazine stands out in the market place, there is still an igglywiggly complaint about

you guys. The wallpapers, movie trailers and numerous games that feature on your Playware CD are indeed superb. But really, why don't you guys include wallpapers of Hollywood superstars on your CD? I am sure that pictures of Cameron Diaz, Leonardo Di Caprio, etc, would look better on the desktop.

Poornima Menon Mumbai

Dear Poornima

Wouldn't we love Tom Cruise or Penelope Cruz on our wallpaper, too! We will try and incorporate your suggestion soon.

# Kissa Kursi Ka

I live in a small city, and a magazine like Digit is the only reliable source of technology information to me. But surely, be it for big city guys or small city denizens, the one big problem that is common for both is the question of which chair to buy while working on the PC. Wrongly selected, the chair could be nothing less than hell. So what should be the right chair to buy?

Tarun Shrivastava

Illustrations: Mahesh Benk<mark>ar</mark>



Dear Tarun,

There are three ways of tackling this problem: a) Improve your posture

- b) Select the chair has good lower-back sup-
- c) Keep moving out of your work area as often as you can

The straight-back posture is the best because the human vertebral column is not geared to bend for long periods of time, which is how most people sit while working

di9it The lower part is always the worst affected when it comes to back problems. The human back requires the most support in the lower portion, and any chair that gives you enough lower-back support should be a good one.

Try and move out of you work area a bit. Bend down, stretch a bit every half hour, or take a five-minute walk every couple of hours.

Believe us, your back problem would be cured just by doing these little things.

# Fast, but serviceless

Yo Digit! In a previous edition of Tips and Tricks, I saw the several tips that would make my PC work faster. Now, here is the problem: I tried your suggestions one by one, and boy were my games fast! But (and there is always a but) ever since then, I have had a real tough time trying to start the services all over again, in order to use dial-up networking.

digit

There is a sequence in which you have to start these services (I haven't figured it out yet, but trial and error worked for me) as most services are dependent on each other. How could you guys not give the correct tip?

Arun Thilak

Dear reader.

digit

The box 'At Your Service', in the May 2004 Tips and Tricks article, details how to go about creating hardware profiles for each specific use of your PC. If you notice we had specifically asked you to "Use different hardware profiles for different service configurations."

# **Gmail for mail**

I was astounded to see the response to the May 2004 survey question. Majority of the participants have shown preference for Hotmail or Yahoo! over Google Mail. I feel that there will be a big variance if the question is framed this way: "Taking into consideration the overall features and the underlying technology along with 1 GB space, which e-

I am sure that Gmail would then get more points. I also doubt if the users know about the complete features announced by Gmail.

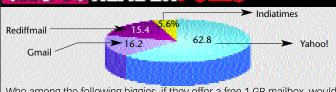
I feel Gmail will be preferred more, because of its underlying technology and its obligation to perform well, especially after Google has announced its firm plans to go public.

I might sound very optimistic here, especially since only a few people have seen the e-mail service yet, but I am confident that there will be no goof ups by the Google team with regards to their service. The only minus point with Gmail is Google's announcement of not launching its e-mail service with a POP3, HTTP or IMAP support.

Surya Prakash Pasupaty

Dear Surya Prakash

Gmail's 1000 MB service in itself will be a point of attraction for several email users. Imagine having 1000 MB of mails with search capability! Yes, the lack of POP3 support may be a drawback, but the success of Gmail does no just depend on just its features, but its reliability. In case you were not aware, www.spymac.com already has a 1000 MB free e-mail service, and yet, it is yet to be even talked about because of its unreliable e-mail engine. Hence, for those unlucky people who have not been allotted a Gmail account, it will be still be a wait and watch strategy.



Who among the following biggies, if they offer a free 1 GB mailbox, would you prefer the most Responses: 7046

# Your vote counts

# This month's auestion...

Which of these five technologies do you think will make it big in the next 12 months?

- □ Computing Convergence □ E-paper □ Bayesian Spam **Filters**
- ☐ Sub-15.000 PCs ☐ P2P V0IP

Log on to www.thinkdigit.com and vote

di9it

# Pick a TV

Hi, I have a peculiar problem. We want to buy a television for our house. I want to buy a Samsung Megabass, but my dad wants to buy a Sony 3-D Woofer model. So now, we are quarreling. To solve the problem, we decided to accept whatever Digit says? What should we do? I want you to send me a letter so that I can show it to my father as proof.



digit

Sachin Vadnere

Hi Sachin,

Your problem is not peculiar. Thanks to the enormous amount of choice the Indian consumer has these days, these situations are not rare anymore.

In the good old days, the lack of choice worked towards keeping familial harmony. Alas! Not any more. At Digit, unless we test the product thoroughly, we refrain from recommending any particular brand to our readers.

We suggest that you and your father resolve your argument using the old-fashioned, time-tested way-by talking to each other!

# Safe before sorry

If you ask me, most spam is a result of our own mistakes. We type our e-mail IDs at every flashy site we see. We sign up for offers such as "Win a 40inch plasma television", without realising that it has spam written all over it.

Internet users should make it a point to read the privacy policy of any site before signing up. Any decent Web site has an ethical privacy policy. Try using a different e-mail ID for posting at forums, or guestbooks, or signing up at unknown sites.

It's easy to keep spam away with a little logic. Karan Prasad

Dear Karan,

We are pretty sure most of our readers know this at the back of their minds. But rarely do we ever implement these thoughts. We hope this little bit of prodding on your part will go a long way in stopping spam hitting our inboxes.

# Goof Ups

- The price of the CMV CT529 (Pg 61) is Rs 20,000, and CMV CT722A (Pg 66) is Rs 27,000, and not Rs 16,500 as mentioned in the May issue.
- We missed out providing the contact details for NEC. They are: Shiba Comp Pvt. Ltd. Tel: 011-26413437 E-mail: nkjain@ shibacomp.com

Web site: www.necmitsub ishi.com

■ Regretfully, we goofed up on the price of the inkjet cartridges on page 130. Here are the real figures:

A colour refill cartridge costs Rs 310, and the original cartridge costs Rs 1.100.

A black refill costs Rs 110, while an original black cartridge costs Rs 800.

That's a total (colour + black) refill cost of Rs 420, as compared to Rs 1,900 for both original cartridges.

Notice any goof-ups? Write to goof@jasubhai.com

# From the Forum (www.thinkdigit.com/forum)

capacity fight.

## cyberator Ioined: 15 Dec 2003 Posts: 69

Location: Cybershire

ietru Joined: 19 Mar 2004

Posts: 28 Location: Bangalore, India

## Posted: Mon May 17, 2004 8:18 pm Post Subject:

"virtually" unlimited. Not "practically". They'll probably use compression. Text can compressed very nicely. Atleast 50 to 75% And better algorithms can do atleast 80%. But you still gotta pay. I'm not going to pay US\$ 50 for unlimited space. I'll do fine with even 20 to 30MB. I don't get much e-mails. Its quality that we want, not space. Of course, business dudes might need space...

Posted: Mon May 17, 2004 7:53 pm Post Subject: Google offers 1 GB mail

wow! wat a news! i hope tum fenk nahi rahe! but i don't understand how r they

goin 2 give virtually unlimited capacity, r they goin 2 use the hard disks of the

subscribers 2 store msgs?! neway, google has certainly revolutionized the mail

cyberator Joined: 15 Dec 2003 Posts: 69

shire

Location: Cyber-

Posted: Fri May 21, 2004 1:29 am Post Subject:

Hotmail takes a lot of time 2 load. I'm waiting 4 gmail 2 b opened 4 public. but I don't think it'll b b4 next 1 or 2 months

E-mail: readersletters@jasubhai.com Send your letters marked 'Readers Letters' to the Digit office: D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul, Navi Mumbai 400 706 Phone: 022-27629191/9200 Fax: 022-27629224

# Adios, BIOS!

The familiar beep you hear when you turn on your computer may soon **B.I.O.S** be gone. Here's its new incarnation TERVENING

he Basic Input Output System (BIOS) has been around for quite some time, and you have probably seen it on every PC you have powered on. Press [Del] or [F1], and there it is—the blue screen with all those exciting tweaking options. You probably know what the BIOS does—it makes your computer evil.

No, seriously, the BIOS does things such as checking the hardware, checking if the RAM is functional, and so on. But as just another piece of software, it's seriously limited in features, according to industry experts. And the same experts also say we've lived with it long enough, and it's time to move on.

# **Enter Microsoft and Intel**

Extensible Firmware Interface, or EFI, is the new framework that Intel and Microsoft have worked on. It will perform all the functions that the BIOS does, and pitch in some more. The two companies will start an industry forum this year to officially murder the BIOS as we know it, and cause the impending birth of EFI. The first PC with the EFI interface—a Gateway PC—has already shipped, in 2003.

Essentially, the EFI specification is a pre-boot environment, which allows a computer to run diagnostics, scan for viruses, etc.

If the BIOS is an interface between the OS and the platform firmware and hardware, the EFI specification defines a new model for this: It comprises data tables holding platform-related information, as well as boot and runtime service calls available to the OS and its loader. These provide a new, standard environment for booting up an OS and running pre-boot applications.

Intel believes that promoting the specification as a standard will help PC manufacturers and please PC users—by making computers start up more quickly; by improving the ability to manage PCs and servers remotely; and by helping hardware makers cut manufacturing and support costs. For example, EFI PCs will be able to run diagnostic utilities before loading their OSes.

### Why EFI?

To quote Mike Richmond, of Intel's Software and Solutions Group: "In the long run, we can bring boot time down, because the EFI framework

# features technology next

# We've been through four OS generations and multiple bus generations, but we're still on the first version of BIOS. It's become, increasingly, a barrier to innovation in the industry.

MIKE RICHMOND

Manager of platform software in Intel's Software and Solutions Group

only has to touch the things it needs to boot. It also helps the overall reliability of the computer. In the PC world, we put up with that stuff, and we shouldn't."

Long ago, the BIOS was relatively straightforward in its design, but over the years, it's morphed into a tangled mess, being changed and updated as and when new technologies came up. The BIOS hangover is causing more and more problems, feels Mark Doran, Intel's principal engineer behind EFI.

There are no standards for how a BIOS is created or configured. An example of the chaos that exists is that it's not uncommon for extension boards from different manufacturers to clash in their use of the BIOS. And if people do use the BIOS to change configurations or diagnose a problem, there's often not much help: Even experienced support staff are often perplexed by the BIOS.

EFI promises to change all that. It's a tiny OS in its own right. The first difference you'll see is in the splash screen: Unlike the BIOS, EFI supports high-resolution displays. It can run with a proper graphical user interface, rather than the text-only, DOS-like interface. And EFI also has its own networking, so it can be used for remote diagnostics.

There's a significant change from the coding point of view as well. The BIOS is the last place on the PC where programmers have to code in assembly language. EFI is almost entirely written in C, and allows additions to be created using standard programming tools. Such additions can include much more detailed and useful diagnostics, self-configuration programs, and ways to sort out problems even if the OS has hung. For example, if the OS hangs, you can look at the state of the machine, change the configuration, load a different driver, and restart.

And naturally, there will be legacy support: EFI can behave exactly like a BIOS, if required.

# **Intel's Framework**

Intel recently introduced an innovative concept in BIOS: the Platform Innovation Framework for EFI. This is a modular, platform-independent architecture that performs boot and other BIOS functions. The Framework allows PC makers to write

pre-boot software modules, similar to Windows drivers. When used with the EFI, the Framework eliminates the need for a BIOS. Intel thinks of this as a key boot architecture that will be modular, flexible, and scalable enough to last for the next 20 years or so.

### **BIOS vs the Framework**

Components have changed several times since the BIOS was first developed. Processing power has increased 600 times, and hundreds of new peripherals have been introduced. Over the years, the BIOS has grown to deal with new components, larger and more complex chipsets, add-on cards, and so on. As it grew, it became increasingly unwieldy. The humble BIOS simply cannot handle the demands of cutting-edge architectures.

Intel's answer to BIOS limitations has been EFI and the Framework, a modular architecture based on low-level drivers. It sits beneath the EFI, and performs boot and other BIOS functions in a faster, modular, more flexible way. It's stored in firmware, so it's more secure from viruses and other types of attack than past BIOSes.

# Stop, Thief!

On 27th May 2003, Phoenix Technologies and Softex unveiled anti-theft software that uses BIOS-based technology to disable stolen machines, wipe data and trace the thief remotely via the Internet.

TheftGuard is software developed by Softex, and certified by Phoenix to work with its FirstBIOS chips and Core Managed Environment (CME) software. It aims to give computer makers—and their PC buyers—a more secure choice of anti-theft technology.

Unlike other, though somewhat similar anti-theft solutions, TheftGuard resides both in Phoenix's FirstBIOS and in the host-protected area (HPA) section of the hard drive. Removing and replacing the

hard drive, a tactic that can be used to circumvent some anti-theft concepts, doesn't get the thief anywhere with Theft-Guard in place.

Another trick that can eradicate antitheft software—running FDISK to reformat the drive—is also foiled by TheftGuard's place in the HPA section of the hard drive, which is immune to such reformatting tools.

After a TheftGuard-equipped machine is reported as stolen to a special Web site, the stolen PC can be detected when it next connects to the Internet. At that time, the computer can be disabled, all data on its hard drive wiped clean, and an IP trace put on the connection to determine the physical location of the system. And

because TheftGuard is integrated with the BIOS, it can cripple the computer by not allowing it to boot.

In addition, a simple re-flash of the BIOS would not thwart TheftGuard: One would have to be extremely tech savvy to remove TheftGuard. So much so that most people who would know how to do this work for Phoenix! The part of the BIOS where TheftGuard resides is not updatable through a flash upgrade.

There are, of course, the privacy concerns of companies and end-users over putting a tracer on their machines. Theft-Guard, however, is optional, and is not included with every BIOS that Phoenix produces and ships.

And, it is platform-independent.

Intel's goal in creating the Framework for EFI was to help BIOS vendors support the speed, power and innovations of today's system architectures. This solution offers full legacy support through the use of a compatibility support module, or CSM. For systems that do not as yet have EFI, the support module takes the place of EFI so that the Framework can communicate with the traditional OS.

The Framework has obvious benefits over traditional BIOS. It:

- Improves the reliability of the boot architecture
- Shortens boot times
- Offers full legacy support
- Eliminates VGA dependency
- Can be used with any Intel architecture

Because the Framework has a modular, driver-based architecture, developers can create each BIOS more quickly, and with fewer errors. Each new BIOS can be built with modules that are already tested and verified.

A side benefit to being modular is that the Framework reduces BIOS size and improves boot reliability. This is accomplished through firmware. With the Framework, settings are no longer stored in the CMOS map. Instead, new settings are stored on the firmware chip. Extra or additional drivers and code functions can be stored on the hard drive, and accessed there. This makes it easier for OEMs (Original Equipment Manufacturers) to add systems features that can differentiate them from other products.

Some of the interesting benefits of the Framework are that it:

- Breaks through fundamental BIOS barriers. For example, pre-boot RAM can now be greater than 1 MB, which means developers can control how RAM is allocated, and the Option ROM space crunch is resolved
- Allows a developer to compile pre-tested modules into a working BIOS that is more likely to be efficient and error-free

# InsydeH<sub>2</sub>O

Insyde Software, a leading global provider of BIOS firmware and software services, announced its next generation PC firmware technology. Insyde also announced a product line aimed at replacing the traditional BIOS. Using 21st century software engineering techniques and tools, Insyde's software, which is based on the driver model, eases the difficulties encountered by PC designers in adapting and advancing their platform-level firmware. And further, because the software is written in C, PC makers will have a wider pool of software engineers to draw upon (BIOS software has always been written in assembly language).

Based on the EFI, this new product line from Insyde debuts under the brand name, InsydeH<sub>2</sub>O, representing the next generation 'Hardware-2-Operating System' firmware interface. InsydeH<sub>2</sub>O is aimed across a range of market segments, including Desktop, Mobile, Server and Embedded computing. Amongst the benefits that InsydeH<sub>2</sub>O provides to ODMs (Original Design Manufacturers) and OEMs are:

- Compatible firmware and development environment across an OEM's entire product line
- A streamlined method for testing and qualifying PCs in manufacturing line
- Greater productivity and lower costs to developing and maintaining firmware technology

# 1/2 Page V AD

■ digit 41 JUNE 2004

# features technology next

- Allows OEMs to add pre-boot features
  Because the Framework is flexible,
  BIOS vendors can also use it to support
  pre-boot features for implementations:
  For example, BIOS vendors can add different types of application that run before
  the system boots. Consider what these
  could include:
- A shell feature that can be used for a system test
- A shell feature that boots from shell to Web browser, directly to an intranet support page, so that developers have instant access to information about solving problems while building the current configurations
- A pre-boot Web browser that automatically goes to a port site and downloads the latest upgrade files for that server or system

In the future, the Framework could allow:

- Self-configuration of systems using the Web
- Call-home-after-crash capabilities
- The instant-on feature

# **Phoenix's TrustedCore NB**

Phoenix is not enthusiastic about EFI, and says it will wait until it becomes a standard. Meanwhile, Phoenix has its

# ?

# **Jargon Buster**

Booting: The process of starting up a computer by loading the operating system. This takes place under the control of the boot loader program, usually located in a ROM chip.

Firmware: A term for software embedded in hardware. Such software cannot be modified.

CMOS: The part of a PC where permanent, un-erasable data resides. Identity theft: The act of stealing someone's personal items, such as laptops and credit cards, and then masquerading as that person for personal gain. **Digital Rights Management: This** refers to the control of who has access to what digital content. For example, when you download an e-book to read in Acrobat, Acrobat's DRM module checks whether you have the necessary permission to read that e-book. Digital signature: A code used to verify that someone is indeed who he or she claims to be. This can be used in an encryption scheme to send and receive messages.

# The Impending Change | In the County of the

The transition will be from a relatively dumb blue screen to a cleaner, friendlier environment, where virtually everything pre-boot can be managed effectively and more powerfully

own plans: The biggest maker of BIOSes has released the first entry in a line of next-generation products that it promises will:

- Drive utility computing
- Make PCs more secure
- Prevent unauthorised users from misusing protected intellectual property

Phoenix believes that rather than serving just to boot the operating system, the BIOS of the future should do much more than just recognizing hardware components.

"The BIOS was designed for standalone devices", said Michael Goldgof, senior vice president of marketing for Phoenix. "Today everything is connected. Now there are new requirements. This is why created the Core System Software initiative."

In addition to trusted computing, Phoenix plans to build new features in the software, which is loaded when a computer system is turned on. CSS, which extends and replaces the BIOS we know today, will serve as a component for network, security, authentication and system management features.

The Content Management Engine (CME) TrustedCore NB for notebooks and tablet PCs is the first product in the CSS category, designed to extend the BIOS utility. TrustedCore NB is designed to allow businesses to keep their mobile computers safe from identity theft, unauthorised network access and unintentional data loss. Future versions hope to target servers, desktops and embedded systems such as consumer electronics, with plans to introduce digital rights management (DRM) and integrate the BIOS closer to Windows.

Phoenix's Core System Software (CSS) is a next-generation BIOS with a more sophisticated integration of OS and hardware—for example, it'll be easier for

system administrators to remotely monitor hardware configurations. It's built on a framework that Phoenix calls Device-Networked Architecture, or D-NA, and is part of a trend on the part of Microsoft and Intel to introduce 'trustworthy computing' into their products at a more basic level.

A cryptographic engine is inbuilt in the TrustedCore NB. It can be used to authenticate digital signatures and protect the Core System Software, while the BIOS allows manufacturers to create a protected area for the secure execution of inbuilt applications, which is protected from attacks by malicious code.

"Through our Core System Software, Phoenix is making a dramatic change that will become the basis of networked computing for the next two decades," said Phoenix chief executive, Chairman and President Albert E Sisto, in a statement. "Today, nearly all digital devices are connected to a network, whether to conduct global commerce, or just to access regular e-mail. This requires an advanced foundation for implementing an extensible and flexible architecture designed specifically for the age of networked computing."

Manufacturers will be able to protect system recovery and virus protection applications from malicious code. Selfmanagement and self-authentication can be built into devices and servers at a basic level.

In a controversial turn, manufacturers will now be able to prevent users from tampering with areas of the system used for copy protection. And Phoenix recently said it is planning a BIOS with inbuilt DRM technology.

Phoenix has emphasised that the D-NA architecture is designed to fit neatly into Microsoft's plans for 'trustworthy computing', part of which is the contro-

# Who needs a Boot?!

On 19<sup>th</sup> March of this year, Phoenix announced a software that enables notebook users to access their Outlook data without booting their PCs. FirstWare Assistant is an example of how the company wants to extend the features of the traditional BIOS and replace it with its CSS.

It's installed as an Outlook plugin. Before exiting the e-mail software, the software saves the most recent status of contacts, calendar and e-mails in a file that can be accessed in pre-boot state. So instead of booting the system, you will be able to launch the FirstWare Assistant upon system start and access the file within a few seconds. versial 'Palladium' s c h e m e — n o w renamed Next-Generation Secure Computing Base—for building copy-protection and security features tied directly to computer hardware.

The company is marketing the Trust-edCore NB BIOS to laptop system designers and contract manufacturers, and it's expected that IBM is a likely customer. Fujitsu and Samsung, too, have endorsed the technology.

# The next evil empire?

If EFI-based software is accepted broadly, it

could prompt the first major change in pre-boot software in the history of the PC industry—even though some critics say the transition may take a while, or may not even happen at all. But Microsoft will support EFI in Longhorn. Intel will support the technology in future chipsets.

However, not everyone is jumping on the EFI bandwagon. Historically, PC makers have been reluctant to change. Also, some companies might see EFI as a way for Intel and Microsoft to push their own ideas for the future of PC design.

Intel says such suspicions are unfounded—companies that decide to go with EFI will be able to use it any way they like, by picking and choosing different features. EFI users don't necessarily have to work directly with Intel, either. They can work with companies such as Insyde, for example, or use technology developed by the forum, once it gets started.

In the meanwhile, Phoenix's plans have been criticised as crippling PCs' capabilities, solidifying the Microsoft OS monopoly and even, in cases where DRM is introduced, extending copyright holders' power into areas that have traditionally remained under the control of consumers.

Although EFI may take several years to get up to speed, Intel chipsets will offer the Framework as an alternative to a BIOS in 2005. The company's chipsets will support BIOS software for many years longer. However, as time passes, some chipset features may be accessible only via EFI.

"After 23 years, it was time to start from scratch," said Intel's Richmond. "There's a certain life-span

for every technology. You can expand it and grow it, but at some point you will have to start over."

RAM MOHAN RAO ram\_mohan@thinkdigit.com



# 1/2 Page V AD

# features droolmaal

# **Gizmondo from Gizmondo Europe**

At the heart of this neat gadget is a 400 MHz ARM9 processor running Windows CE, along with a 64-bit graphics accelerator. This pager-sized gadget provides 3D Mophun™ gaming, multimedia messaging, MPEG-4 movie playback, a digital camera, and a GPRS network link for wide-area network gaming. Additionally, it contains a GPS chip for location-based services, Bluetooth for multi-player gaming, and accepts MMC card accessories. The pocket-sized game can play on five continents, thanks to its GSM tri-band capability.

Price: US\$ 351.88



Face the five gladiators in the hand-held gaming arena

# **◄** Sony PlayStation **Portable**

The build-up to the launch of the PlayStation Portable widescreen has reached fever pitch. And with the demo of its capabilities with Gran Turismo 4 (GT4) at the Electronic Entertainment Expo (E3), held in May, the PlayStation is out to take all gamers for the ride of their lives. With 32 MB of main memory, 4 MB embedded DRAM, a 4.3 inch, 16x9 widescreen

TFT LCD and 480x272 pixel (16.77 million colours) display, it flexes some serious brawn.

Price: US\$149





# Tapwave Zodiac wireless gaming console

In terms of performance and looks, the Tapwave Zodiac gives the competition quite a chase. The 480 x 320 screen powered by the ATi Imageon graphics accelerator delivers advanced 2D hardware graphics performance. And the FatHammer X-Forge 3D graphics engine delivers advanced console-quality 3D games, and other rich 3D content. Tapwave Certified or Tuned titles, such as *MicroQuad*, *Hellfire: Apache vs Hind, Orbz* and *Acedior* are available.

Price: US\$ 299.99

# Nokia N-gage QD Mobile Game Deck ▶▶

The Nokia N-gage QD is Nokia's attempt at wooing gamers away from PlayStation and Nintendo. It comes with all the features of a high-end mobile such as SMS and MMS, etc. The e-mail client can handle the POP3, IMAP4, SMTP, and MIME2 formats. It comes with WAP XHTML, a 176 x 208 pixel screen with 4,096 colours, and a four-way keypad for gaming that also doubles up as an eight-way keypad, depending on the game.

Price: US\$ 199



# **◄** Nintendo DS Metroid

The closest rival to the PlayStation Portable, if ever there can be one, is the Nintendo DS Metroid. With the sounds turned off, it can actually pass off as a PDA. One of the two screens is touch-sensitive and can be written on with a stylus. This, combined with Wi-Fi features, enables you to play such games as *Hangman*. Demonstrated recently at E3, this neat device with its bland design, camouflages seriously high-tech features. The DS, by the way, means Developer's System! Price: NA

# Business.Net

he Six Degrees of Separation theory, by sociologist Stanley Milgram, declares that you are just six steps away from any person on Earth. Mahendra Sonje, an entrepreneur, experienced it recently. As the CEO of a software company, he was seeking an expert in Assembly language ZAT for his embedded design project. He met Ram Rao, another businessman, who fit the bill—not at a cocktail party, or a corporate luncheon—but on Ryze, a social networking Web site.

Welcome to social networking, where business deals are clinched through an online profile and offline meetings. Ryze (www.ryze.com), Linkedin (www.linkedin.com), Spoke (www.spoke.com), Friendster (www.friendster.com), Tribe (www.tribe.net), etc, are just some of the popular Web sites fuelling this communication exchange.

In the Bible, the Tower of Babel never got constructed, but contact, communication and cooperation have been the buzzwords for centuries. Social networking is the process of connecting individuals via a one's 'personal network'. These networks then branch out, and allow friends to connect with people inside their accepted circle.

These Web sites are merely putting this need to practical use. Big players such as Google.com and Ebay.com have also joined the networking bandwagon, and set up Web sites that allow people to build contacts online without the fear of Has the Web
netted you
friendship,
love, and
possibly
marriage?
Why not
spread the
Net for
business too!

misuse—Google started Orkut.com. So then what is their *modus operandi?* 

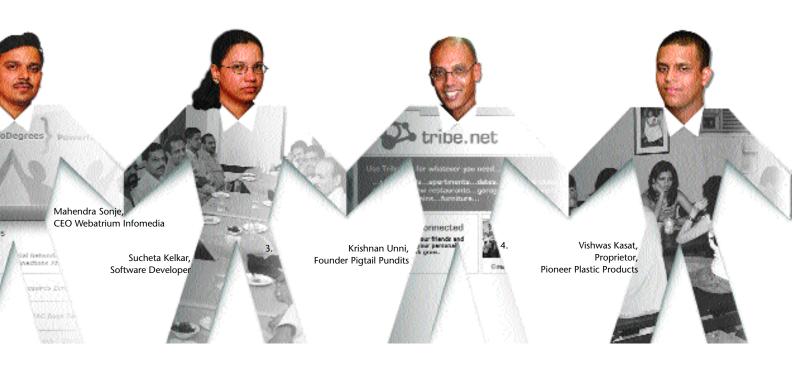
# How they do it?

Social networking Web sites build on the belief that everyone has a network bigger than they assume. This means that if you have 10 friends, and each in turn has 10 more, you know 1,000 people indirectly.

Basic membership is free, and you are given a Web page to describe yourself and provide basic information. Ryze allows you to state what you have and what you want, while Tribe classifies it into personal and professional information. Once you register, you can view the details of a person, and decide on adding him or her as a friend on your page. When your invitation is accepted, mutual contacts are automatically added as a part of your network.

There are a large number of affinity listings on each Web site. Ryze calls it its 'networks', while Tribe simply calls it 'tribes'. Web sites such as Friendster and Emode (www.emode.com) have dating as their primary agenda, whilst Ryze and Spoke are mainly for business purposes.

So you'll meet small business owners and SoHo workers, with whom you can share diverse interests as drama or Reiki. Register with a group, and widen your network. The bulletin boards of networks has posts about jobs, house and product sales, as well as new venture start-ups.



These Web sites also offer classified services, so you need not scan the newspaper for a great deal on a second-hand car, or a job listing by your dream company. Ryze also has an offline meeting called the Mixer. Such meetings capitalise on online introductions and, with frequent interactions, develop the beginnings of a long business relationship.

Premium membership offers the advantage of your own network and the ability to manage your contacts.

Ecademy (www.ecademy.com) offers a whole range of services, right from managing your meetings, to overseeing your schedule. Indeed, social networking Web sites provide just the very platform to widen contacts that might be the key to your success. But, are they successful?

# **Professional benefits**

Debjyoti Das, Founder, CEO and President of Zytes Inc, California, US, and a Linkedin member, shares his experience, "Suppose I wish to meet Venture Capitalists (VCs) to help fund my startup—Zytes. Normally, I would start asking friends and colleagues if they would introduce me to VCs. With online social networking sites, I can simply look up VCs, research them, make my plans and then find out who in my network can help me reach them."

Business networking sites are a boon to entrepreneurs and freelancers. Samir Jhaveri—an industrialist from Mumbai—swears by Ryze. He's a member since October 2003, and is already reaping benefits. "I have generated reasonably big business, especially from offshore clients. The network has no geographical boundaries," he emphasises. Ditto for Prashant Poladia of Mumbai, who has



RAM GOPAL RAO, Managing director, Argosy, Inter Search India Ltd

I have access to **three** important people through just three phone calls—the **US President**, the **Russian President** and the **Pope!** 

bagged five big projects for his software company, Blue Spot Technologies, through online networking.

Konstatin Guericke, Vice President Marketing Linkedin, California, says, "We are business-only, and have 5,00,000 members who have uploaded a total of 20 million qualified business contacts into the network."

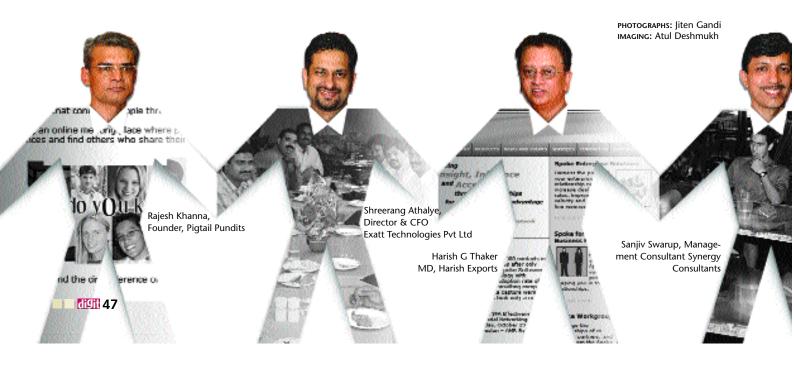
Linkedin boasts of over a million users in software development, telecommunications and IT industries. Adds Mehul Patel, Director, KIPL Net, Mumbai, "Social networking makes sense for so many small, mid-sized and SoHo companies to advertise. They can have their ads running, for one-tenth of what they would spend on a search engine, portal, contest Web site, etc." Does that mean that these Web sites are a sure-shot means to procure instant business?

Krishna Unni, Founder of Pigtail Pundits, (www.pigtailpundits.com) a Webbased company, and head of the Mumbai Business Network Mixer, vehemently denies this. "An online introduction is just the beginning—it's not like you register today, and expect crores of business tomorrow." Even offline meetings cannot guarantee instant riches. "One has to build a relationship and only then can one expect potential business."

Sucheta Kelkar, a freelance software developer from Mumbai, agrees, "You never do business with strangers, and the online profile is just a way to reduce the strangeness." She makes it a point to be in touch with the message boards, and be present for as many gatherings as possible.

There are many who still haven't made a business deal through these Web sites, but this does not deter them. Rather, they are confident of the long term gains, and that's what keeps them inviting more friends and acquaintances to such networks.

Headhunters also frequent these Web sites. According to Patel, "Name the industry, and you have freelancers ready to work at affordable prices." Vishal Verma, CEO, Innovision, a Gurgaon based company into Web designing and multimedia services, also posts regularly on networking Web sites, when in need of skilled people. Guericke believes, "Whether you are hiring an employee, or closing a business deal, introductions are key.



# features firsthand

However, without an online business networking tool such as LinkedIn, it's hard to know who to ask for an introduction, and it places a burden on the connector, which in turn makes it less likely that you get an introduction."

Companies have realised the effectiveness of such Web sites for job listings over conventional job Web sites. The advantages are obvious—both the recruiter and the applicant are spared the harrowing task of going through innumerable pages of listings, and the person is also known to someone or the other in the network. A certain headhunter claims to have generated business worth lakhs just through Ryze. But this does not sound the death knell for job Web sites—in fact, these have begun to form groups within their Web sites for effective searching.

# Value to self

Ramgopal Rao, Managing Director, Argosy InterSearch India Ltd, a global recruitment firm, declares on his Ryze page, "I have access to three important people with just three phone calls—the US President, the Russian President and the Pope! I am confident of reducing the phone call to just one." Before you begin to be awed about the person's address book, you too can be like him. Surprised? That's an additional advantage of social networking—the six degrees of seperation can be reduced dramatically.

All networking Web sites let you regis-



Krishna Unni, Founder, Pigtail Pundits

An online introduction is just the beginning—it's not like you register today, and expect Crores of business tomorrow

ter your personal interests and hobbies. Ramrao, a businessman, met Abhijit Bam, another budding entrepreneur, and discovered a mutual passion for cars. The Ryze Mumbai Business Mixer has an eclectic mix of a florist, a social activist, IT professionals, marketing consultants, as well as people with small businesses. And they are not the sole such mix. Sridhar Krishnan, Founder

and Chief Technology Officer at Encover.com, California, also has friends from India on his network.

The Bangalore Business Network also boasts of professionals working in India, as well as from abroad. Says Deepa Thomas, a PR professional at Marico, "As a communications person, I view these Web sites as a quicker way to reach many diverse people at the same time—something that even a concrete association might not offer."

Verma finds it easier to approach people online, and is confident of the support of his fellow networkers for his new venture.

# The business rationale

Business Developer 2.0, a Fortune Group magazine, hailed social networking as the 'Technology of 2003'. That says it all. Friendster reportedly received \$14 million as venture capital, whilst Spoke was in for \$9 million. Google,the world's favourite search engine, has also jumped on to the bandwagon by launching its social service engine—Orkut.com.

LinkedIn has almost four million registered users, while the San Fransisco based Tribe has 1,40,000 registered users according to its Public Relations Manager, Valerie Garing. Ryze has over 200 networks constantly interacting with each other. Amazingly, the founders of Yahoo!, eBay and Netscape are all users of LinkedIn.

# It's happening...on your cell phone

Mobile phones may be the answer to enhance social networking. According to Ashwyn Kumar Attarwar, Executive Director, Gametrix Entertainment Pvt Ltd, Hyderabad, mobile phones offer anytime interactivity, and hence, they will become an important tool to manage contacts.

With technological advances in both mobile handsets and network capabilities, data services are expected to grow exponentially.

Gametrix is already engaged in developing games, animations and related media content for wireless and Internet-capable devices. So the next time you network with a friend in Delhi, you can invite him to play chess on your cell phone!



Introduced online, meet offline—the Mumbai Business Network Mixer meeting

But is business fool-proof in chat rooms that run amok with fake and multiple identities?

According to Verma from Innovision, "One loophole that is emerging on Ryze is fake identities. People put up fake information and pictures, and derive some kind of vicarious pleasure from the responses they get. Another issue is that several members—especially women—are getting a lot of unwanted, and at times, lewd messages from people who use a business Web site, such as Ryze, as a dating forum. That is causing them to take their pictures off their page, and not participate as much as they would have liked to."

Rao also talks of networking spam that floods his mailbox. So, how do Web sites maintain privacy and prevent spam?

Most Web sites have a strict privacy policy, which states that the user information will not be shared with any private party. Business networks, such as Ryze and Spoke, see to it that information isn't misused. Spoke, for example, checks a participating company's e-mail archives, contact lists, address books and calendars to create a detailed map of the organisation's internal relationships, as well as those emanating to other companies.

However, sceptics say that the day won't be far when Web site owners will be tempted to share that private information.

# More sites to visit

### www.zerodegrees.com

ZeroDegrees aims to bring people closer and emulate social behaviour. It plans to charge its users in the near future.

### www.konnects.com

Founded in 2002, Konnects allows you to network industry-wise. Your profile here includes both, your skill sets and your expectations of future business partners.

### www.entremate.com

Founded in 2003, EntreMate is the premier online resource that connects entrepreneurs to start up businesses. Like a dating Web site, EntreMate lets you post one or more profiles and search the database for others that share your business interests.

### www.privinfo.com

A one-stop-shop that you can use as a navigator through various business networking Web sites. Privinfo classifies these as corporate, business contacts, job hunting, etc.

The Register (www.theregister.com) talks of a dangerous similarity between the privacy policy of Orkut and Microsoft, which allows the Web site to share, publish, or use a user's information as deemed by the company. Is this the harbinger of a new invasion of privacy, where our professional, as well as personal details, become publicly accessible?

## **Present and future**

According to Tribe's Valerie Garing, "Social networking can capitalise on a quick and easy process to uncover new information from one's social circle, by leveraging personal and affinity networks to get things done in their daily lives. This is where we see the future of social networking—a key ingredient to a local, online classifieds service."

Das from Zytes affirms, "My value derivation from Linkedin has crossed a point where I can even pay for this kind of service." Some cynics have termed social networking as a one more Internet bubble. How long the Web sites will sustain, is a question worth considering.

Patel is concerned that the growing popularity of these Web sites might result in them restricting replies and providing exclusive services to paid members. Krishnan perceives a threat of fragmentation—when there are two many functional or regional groups that crop up and people tend to gravitate towards the most subscribed. Rao is also worried about this kind of online balkanisation—the confrontation of technology and communication would be inevitable.

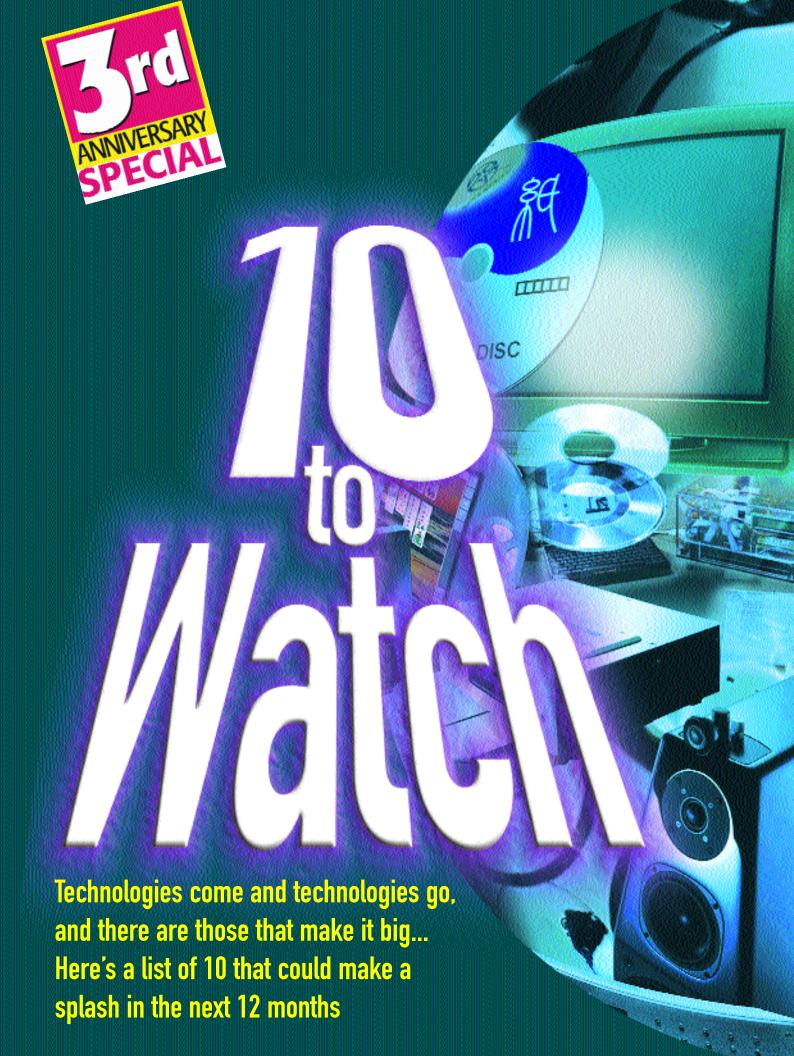
Another likely problem would be managing contacts. After registering, you will observe that you suddenly have more than 100 contacts—including your friends. How will you manage to keep in touch with so many? Does this mean that we need something more to help us sustain a network of this stature?

Thirty years ago, e-mail invaded our lives. Today, we chat across continents with ease, and write our own blogs. Now, the Internet goes a step further by helping us make use of our relationships for business growth. Social networking helps establish a global contact which would make relationship guru Dale Carnegie proud.

So, give your business a shot in the arm, and make sure you don't get left behind by your competitors. Start networking now!

APARNA KRISHNAKUMAR aparna\_krishnakumar@thinkdigit.com

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# **Digital Desi Music**

Costamise was Customise your own CD!

Saregama India is set to be India's version of iTunes

Welcome to HamaraCD

Indian music going digital

If you swear by Hindi music, and want to

download digital versions of Indian music, there's good news for you—downloading your favourite music will soon be easier. Music company, Saregama India has tied-up with Loudeye, a Seattle-based provider of media services, to distribute its music catalogue to online music stores globally.

And that's not all. More such tie-ups with US portals are likely to happen in the

coming months, to offer digital downloads of Hindi music. The Indian Music Industry (IMI), the apex body of the nation's music companies, is also planning a Web site dedicated exclusively to Indian music.

## **How it works**

Napsterism has been

with us for some time now, even if the original Napster hasn't been around. Since 2003, pay-per-download music is big. Web sites such as Apple's iTunes have tie-ups with record labels—these labels share their catalogues to be displayed online. One-song downloads at iTunes cost less than a dollar, and the money is shared between music companies and the artists. Royalties are based on the number of downloads a particular song sees. There is tremendous business potential here—Sony, Wal-Mart, and even MTV have jumped on the onlinemusic pad.

### Why online music?

How many times you have bought an entire music CD, or cassette, just for one song? That's a major advantage of online music—you only pay for what you want. Web sites also allow you to burn CDs, share your playlists via e-mail, and import music to Windows Media Player, Music Match, and any other application that uses MP3, WMA or Advanced Audio Coding (AAC). And, as in the US, the cost for downloading a song in India will soon be far less than that of an audio cassette.

# The Indian music industry

Vijay Lazarus, President and Managing Director of Universal Music, feels it's an encouraging trend for the Indian music industry to gain international accessibility. Shridhar Subramaniam, MD, Sony Music India, believes this would be a demonstration of the global appeal of Indian music. Even Narendra Kusnur, music reviewer with *Mid Day*, a Mumbai-based daily, feels that availability of online Hindi music is a

good sign for an industry riddled with piracy and free music downloads.

Online
music is almost
10 per cent of
business for all
global music
companies.
Sony has already
made its interna-

tional repertoire available to a number of content providers, and is available on a number of sites. The next phase is to digitise and make its global repertoire available. The Indian repertoire will be officially available by the end of 2004, on at least two networks, according to Subramaniam. Similarly, the IMI also plans on having an iTunes-like Web site that will be a one stop shop for a whole bunch of Hindi songs.

The IMI estimates that non-physical formats of music sales contribute five per cent to the bottom line of the music companies, and is likely to increase to as much as 30 per cent in the next three to five years.

### The future

The online Hindi music industry is in a nascent stage. But everyone is optimistic. As Subramaniam says, "The key task will be to get consumers to start paying for music online. This will come with only with a combination of the right pricing, ease of download, the right experience, and consumer awareness." With increased broadband penetration, online music seems all set to sing some happy tunes.





## **PEOPLE TO WATCH**

In a company that indexes 4.5 billion Web pages, and employs hundreds of software engineers, you'd never expect to find a smiling Indian PhD with a penchant for news and journalism. However, India-born and Georgia Tech educated, Krishna Bharat is not an ordinary programmer. As Google's principal scientist, he developed Google News in 2003, a service that is as popular as the world's favourite search engine itself.

His latest assignment, however, is a lot closer to home—Krishna will head Google's first offshore development centre in Bangalore, which begins operations soon. India can now officially claim to be on the world's search algorithm map.

Krishna Bharat, HEAD, GOOGLE INDIA

digit 52 JUNE 2004



# **The Great Search Engine War**



Is Google's dominance under threat?

When you think

search, you think Google! Though Google has undoubtedly ruled the roost thus far, they may have to fight for dominance soon—if Yahoo! and MSN have their way, that is. Both Yahoo! and MSN are taking this war seriously.

US-based market researcher WebSide-Story recently rated Google as the best search engine, ahead of its rivals. According to the survey, as of March 23, 2004,

Google accounted for 41 per cent of all Web referrals—up from 36 per cent in March 2003. Yahoo, launched in 1994, and the Web's oldest directory, came in second at 27 per cent, down four percent from a year ago. MSN was placed third at

just under 20 per cent.

WebSideStory claims to have sampled 25 million unique browsers on March 23, and that the one-day results are indicative of search activity for the entire month.

Earlier this year, Nielsen/NetRatings reported that in January, 39 per cent of active Internet surfers—that's about 59.3 million unique viewers—used Google search, while Yahoo and MSN attracted approximately 30 per cent each.

SearchEngineWatch.com rates Google as numero uno, based on reader reviews. Google's additional features such as cached links, spell checks, access to dictionary definitions, stock quotes, maps, telephone numbers, etc., have made it popular among netizens. Yahoo! ranks second again.

In October 2002, Yahoo! shifted to crawler-based listings for its main results—these came from Google until February 2004. Like Google, Yahoo sells paid placement advertising links through Overture, a company it purchased in October 2003. Overture, combined with Inktomi—another Yahoo! subsidiary—developed the current Yahoo crawler.

Yahoo! recently unveiled the Yahoo! search platform—YST. Yahoo! representatives claim that use of their search engine had increased dramatically due to the new technology. And Yahoo! has also tied up with Macromedia to use Flash content in its search results.

Keep an eye on MSN Search as well. Previously powered by LookSmart, MSN had its own team of editors that monitored the most popular searches being performed to hand-pick the most relevant sites. Today MSN has developed its own crawler-based

technology, and plans to enter the search engine market in a big way.

The Surface and the Deep
The Internet is a

lot more diverse,

and its volume considerably larger, than is commonly believed. Most people are aware only of the content presented to them via search engines, or directories such as *About.com*. The largest growing category of new information on the Internet, the 'deep Web', is a massive collection of databases, schedules and research data—about 90 terabytes of data that don't find their way onto a typical search results page.

Yahoo! recently introduced its Content Acquisition Program, to index the billions of documents on the deep Web. It's collaborating with the Library of Congress, the University of California at Los Angeles, the University of Michigan, and Project Gutenberg, amongst others, to begin populating its index with fresh, searchable, thus far, unavailable material.

Google isn't resting on its laurels, either. They're said to be working on a project called 'Puffin', which will bring Google's search technologies to your desktop. This move will put it at loggerheads with Microsoft, rivalling the Windows file system search—ensuring Google.com remains your default search engine, and not MSN.com that Microsoft would connect to. Wait and watch as the search superpowers battle it out for world domination.

# WAITING IN THE WINGS

# **64-Bit Computing**

AMD fired off the first salvo by getting the Athlon FX—the first desktop PC 64-bit processor.

Intel doesn't seem to be following suit, but Microsoft has announced that they will be launching a 64-bit version of Windows XP.

Early days yet, but gamers can rejoice—upcoming games will have support for 64-bit processors. Apple's G5 is a 64-bit processor, and MacOS 10.3 supports 64-bit computing. PC software will move to 64-bit as well, over the next couple of years. It's a step into the future.

IN 1991 54

# 10 Watch

# PieCIng an Express

This year, bits and bytes are in for some lane driving...



Sunday, 9th May, 2004: "ATI readies

PCI-Express versions of X800 Pro, XT." 13th May, 2004: "SiS has announced that several motherboards based on their SiS965L chipset, which features PCI-Express technology, will be available in June." It's all happening for PCI Express, and 2004 will be the year when it

really takes off. But what is PCI-Express anyway?

Think of PCI-Express as an 'evolutionary' upgrade to the PCI bus. The PCI bus has been with us for a long time, since the early 1990s. In terms of I/O, your PC hasn't progressed much since the 486. All the data that is passed by and

between your LAN card, hard drive, PCI graphics card, sound card and so on, still uses the same I/O system—the PCI bus. And all traffic between these devices must share the same bandwidth.

Why does this need to change? It's because of emerging technologies, and the need for more flexibility in component design. The patience of the SCSI, RAID and Gigabit Ethernet data transfer technologies is being tested by the PCI bus, which typically operates at 33 MHz, and transfers a maximum of 133 MB of data per second. There are different standards for the PCI bus, but these speeds are typical. And the aforementioned technologies can transfer data at much faster speeds than that, but they aren't being allowed to.

PCI-Express was approved as a standard in April 2002, introduced by Intel in partnership with companies such as Microsoft, IBM, Dell, HP and others. It is fully backward-compatible with the old PCI bus standard. Data on the PCI-Express bus will travel in packets, like it does on Ethernet. The bus will not be a parallel bus connecting everything like a single highway, and through

which all data of all kinds passes at one, fixed rate, which is what happens on the PCI bus. PCI-Express will consist of an assembly of serial—not parallel—lanes, wired from point to point, and clocked individually depending on device. Each lane will consist of two pairs of data lines, and each lane will be capable of 32X data transfer rate in each direction—1X is 2 Gbps. Slots for

graphics cards will be modular—16X slots will replace the AGP 8X standard. You'll be able to plug in a 16X card into a 32X slot, because of the modularity of the standard.

What does this mean? Try and imagine it this way: whereas previously your computer was

a fixed-speed highway with homes all along the way, it'll now be a town with homes, and roads of different widths between them. To go from one house to another, you wouldn't need to traverse the highway, coping with other traffic—you could take a shortcut. You could choose a less clogged road. You could drive at different speeds, too.

This translates to more flexibility, more bandwidth, more speed—all of which stem from the basic architecture of the standard. Intel has even hinted at a futuristic vision for servers and desktops—one that would separate the computing unit from the monitor, interface devices and external drives using PCI-Express cable connections as a gobetween. Think of this as a computer more like a stereo system, with components stacked one on top of the other, with cables going between them.

Intel's Grantsdale chipset supports PCI-Express. So will Longhorn. In fact, graphics cards, chipsets, motherboards, operating systems, you name it—they'll all be jumping on the PCI-Express bandwagon, because it simply will be the PC bus standard for some years to come.



# PEOPLE TO WATCH

Indian-American Tapesh Yadav,
Founder and CEO of NanoProducts
Corporation, Longmont, Colorado,
has 28 patents in nanotechnology,
and more than 30 pending. Dr Yadav
obtained his PhD from MIT; his thesis
in carbon nanotechnologies and
related deliberations provided the
inspiration for NanoProducts
Corporation (NPC). NPC offers a
wide range of nanoscale powders
and nanoscale powder-derived
products, manufactured using
patented processes.

"The first generation of nanotechnology will just be performance enhancements to existing micro-materials, but it's the second generation, in about three years, that will start employing nano-materials in much more significant quantities," says Yadav.

Tapesh Yadav
CEO, NANOPRODUCTS CORPORATION

digit 55 June 2004

# **10**Watch

# **Bayesian Spam Filters**



Analyse, learn, evolve

The issue of spam has been get-

ting bigger over the years, with more legislation, more discussion, and more solutions. Suggestions range from strict antispam legislation, to Bill Gates' penny-amail proposal. Whatever turn the issue may take next, it's certain that spam filters will play a role in the much-talked-about battle. And in spam filtering, Bayesian seems to be the way to go.

Spam filtering is ideally suited to Bayesian methods in general, which use past knowledge to predict future events.

Bayesian spam filters are radically different from other filters in several ways.

An example of the this would be a pure keyword-based filter, which only looks at the occurrences of words in emails to determine if a sample is spam or not. In contrast, Bayesian spam filters see causal connections, amongst other things. Thus, for example, even if the word 'debt' is evi-

dence of spam, and the phrase 'get out of' is not, a Bayesian filter would learn from experience, without human assistance, that the phrase 'get out of debt' is indeed indication of spam.

Another plus is that Bayesian filters evolve with spam, which means they won't be outdated even as spammers devise newer techniques. And they are robust—they learn both from positive examples, as well as negative ones. Thus, the fact that 'Bayesian' hardly occurs in spam, which is a 'positive' example, makes as much difference as the fact that 'debt' frequently does.

An example of a simple Bayesian filter is a Naïve Bayes Classifier (NBC). An NBC takes just two factors into account while filtering spam. The first is the number of spam e-mails you receive. The second is

the ratio of probabilities of a given word being a 'spam' word to it not being one. For example, if the word 'debt' occurs in spam with an 80 per cent chance, and in genuine e-mail with a 2 per cent chance, this second factor would be 40.

Surprisingly, NBCs are pretty effective, even though their working is as simple as this! PopFile, an open-source spam filter, uses an NBC. There are Bayesian filters that use more advanced techniques, and also combinations of techniques, but they're all based on the same premise—that of learning from the past, that is, learning from spam and non-

spam e-mails that have been analysed earlier.

On level, it may seem intuitive Bayesian that methods would be the most effective against spam: we learn to delete spam quickly from our inboxes only because we've seen such emails in the past. We learn from the subject

lines, which are typical, and the senders' names, which are not. And Bayesian methods do something of the sort—learning from past experience. Of course, they analyse the entire message, not just the subject lines and senders' names, so they have a lot more to draw upon. As a matter of fact, certain Bayesian spam filters are actually better than humans at detecting spam.

From many indicators, it's clear that Bayesian spam filters are here to stay. And probably the best testimony to this is the fact that Paul Graham, designer of the Arc language, and a major crusader in the battle against spam, has this to say: "Of all the approaches to fighting spam, from software to laws, I believe Bayesian filtering will be the single most effective."



The Reverend Thomas Bayes: the Church minister behind Bayes' Theorem

# WAITING IN THE WINGS

### Longhorn

The much-hyped next generation of Windows will come with a hefty hardware requirements tag, but offers several improvements.

Better access to infomation with the search-focused WinFS, and a central Contacts service that recognises the primary role of PCs as communication tools are the most significant.

A prettier interface based on 3D technology and organised around Tasks is likely to be the most visible update.

Longhorn promises to change our idea of how useful an operating system can be, but by the time it debuts in 2006, it's innovations may already be available elsewhere.

digit 56



# **Computing Convergence**

How long will it take for every device we own to be able to communicate with each other?

t had to happen, of course. Over

the past couple of years, all the hype about bringing computers 'closer' to you has led companies to realise a couple of things. First, the PC is a very important part of family and personal entertainment. Secondly, PDA and smart-phone sales are skyrocketing, which shows

that people want to be connected on the move.

For a couple of years now, shelling out big money for high-end PDAs will get you a device that works as a handheld computer and doubles up as an entertainment device-playing music and videos from flash memory. Now, it's

getting even better. Devices, such as the Archos AV380 Jukebox, come with full-fledged 80 GB drives, a large clear screen and the ability to play hours of high quality MPEG-4 video, or DivX movies. For example, Sony's VAIO Pocket, with an inbuilt 20 GB drive and a 320x256 LCD display can store all your music and even display your pictures. The Thought personal video player with a 20 GB hard drive can give you three hours of nonstop movie playback.

Add a camera, and it becomes a personal camera recorder; add an adapter, and you can rip video straight from a VCR. Needless to say, you could also enjoy hundreds of hours of music in several compressed formats, or store thousands of pictures.

Even the big boys have got into the act—Microsoft's Portable Media Centre idea has been eagerly adopted by the likes of Creative. At CES2004 the Creative Zen Portable Media Center received rave reviews, and won the Best of CES award. Bill Gates featured it in his keynote address as well.

So what does it offer? Portable Media Centers are designed to give you easy access to video, music and pictures on the go. You can add album art, playlists, content ratings...the works. The really inter-

esting thing is OS compatibility—all versions of Windows XP support the Media Center Edition. You'll also get the familiar Microsoft interface though it's the Portable Media Center Platform edition. Beyond the hype, the Creative Zen will fea-

ture a 20 GB or greater hard drive, a 3.8-inch TFT colour LCD, rechargeable Li-ion batteries and support for most audio, video and image formats. Convergence? It's already here! Keep an eye open for the Zen Portable Media Center device, releasing soon.



# **PEOPLE TO WATCH**

Watch Lord of Rings: Return of the King, as you wait in the admission queue, or visit an Apple store to create a home movie. Sounds farfetched? If Steve Jobs has his way, then that day isn't far away. iTunes and the iPod have revolutionised the global music industry. Jobs has moved beyond computers, and now thinks of a converging digital world.

Steve Jobs
CEO, APPLE COMPUTER

# High-Definition-Television

While digital television delivers a picture that is clear and sharp, without the reception problems associated with analog TV, High-definition Television (HDTV) offers you the best in both visual and audio quality.

The NTSC format's resolution of 480 x 440 (2,11,200 pixels) is miniscule in comparison to HDTV's resolution of 1,920 x 1,080 (20,73,600 pixels)—nearly 10 times the resolution.

Television networks select particular Digital Television (DTV) formats, used by their respective networks to transmit HDTV broadcasts. The data is transmitted by digitising and compressing the images, which are then decompressed when they reach the TV.

Though HDTV offers betterthan-DVD quality moving images, it hasn't made much of an impact on the consumer segment, primarily because of price barriers. Let's hope that changes soon, so we can really being to enjoy our movies.





# **Modern Talking**





S Skype - john\_smith 🔲 🔲 🔀

Calling pamela

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Elle Yew Iools Help

ster, and you've seen a lot of them, as well as P2P clients, over the past few years the Gnutella network, eDonkey, KaZaA, Shareaza, Morpheus, to name a few.

However, VoIP (Voice over IP) never really got off to a start. The reasons cited for its failure range from poor sound quality, to calls not lasting long enough. From systems unable to get calls past firewalls to the big NAT problem.

Dubious as it may sound, Network Address Translation (NAT) renders over a whopping 50 per cent of home PCs unable to communicate with older VoIP software.

Then there is Skype, a brainchild of the people behind KaZaA—Janus Friis and Niklas Zennstrom. It's VoIP over P2P now. The revenue reduction that has iolted the recording industry may have the same impact on

telecom companies, if everyone with a just a computer and a modem began talking to each other!

"Best of all, Skype does not require you to reconfigure your firewall or router-it just works!", boasts the Skype Web site. Imagine the magnitude of repercussions. As you are reading this, you could be downloading Skype for free, and within a minute, be talking to anyone else who installed Skype, anywhere in the world! And Skype even promises that voice quality is "better than your regular telephone." So the bells are tolling for the telecom industry, right?

That is, admittedly, too drastic a conclusion, since there are several other things that need to be weighed. However, three things are for sure: P2P is here to stay; Friis and Zennstrom's new idea may be more revolutionary than their first; and, of course, the telcos aren't breathing easy since Skype entered the scene.

So how exactly does Skype work? It works on the same principle as KaZaA, and similar clients do. No single server

maintains a database, or is responsible for the collection and broadcasting of data. It's all distributed. Your voice data gets carried to a computer close to you-a neighbour. Immediately, this machine finds another neighbour closer to your destination and transmits the data there. The relay carries on until your data packet gets to the Skype user you are calling.

Actually, it is not as simple as that, of course. There are issues to be tackled, such as Firewall and NAT traversal, hurdles to be dealt with. In this case, Skype uses 'The

> Global Index' technology, which is a multi-tiered network. It works around supernodes, a special type of nodes that communicate in such a way that every node in the network has full knowledge of available users resources. So one major problem, that of a user knowing that another is online, is done away with. Within seconds of your logging on, the activity is propagated all over the network.

There are other concepts involved too, such as the fact that as more users are added to the network, the computational and bandwidth resources of the system increase proportionately.

Interestingly, while you fear privacy and security concerns, every packet on the Skype system is encrypted end-toend. It effectively nullifies chances of eavesdropping.

Well, the story does not end with Skype. VoIP competitors are about to join in the race as well. Voipster, an Amsterdam-based company, is all set to launch a corporate competitor to Skype this month-end. Apart from targeting business users, the company will charge a monthly fee for unlimited calls, four-way conferencing, voicemail and sharing documents.

So, will Skype live up to its hype? Probably, yes. As of now, the Skype Web site reports close to 12 million downloads. In fact, Skype is the self-reported "fastest-spreading software on the Internet." Whether it will pass the test of time—only time will tell. d





# How broad is your band?

Broadband: (Adjective) A data transmission technique allowing multiple high-speed signals to share the bandwidth of a single cable via frequency division multiplexing. Bandwidth: (Noun) A data transmission rate; the maximum amount of information (bits per second) that can be transmitted along a channel.

Now you're probably wondering why Digit is telling you the meanings of these two words. Because no home-user in India has ever experienced this elusive thing called 'broadband'.

Cable operators and ISPs shamelessly display this prominently, on hoardings, on the flyers, everywhere. The truth of the matter is that not a single ISP, so far, is offering speeds that would rival what even dial-up users in the US take for granted. If the US is the bandwidth capital of the world, then we're a remote village on the outskirts of civilisation.

Does this mean there's no bandwidth in India? No, it means that there's no such thing as 'affordable bandwidth' here. Stop dreaming of streaming video, and consider yourself lucky to be able to download that 200 MB game demo in two days—there are people worse off you know, and all of them in a small town near you!

The only hope we have is that MTNL's flat rate Internet scheme forces other ISPs to give you your capped 'broadband' connection for even cheaper.

Welcome to bandwidth hell!



# Think Small, Dream Big

Four mini-gadgets following that line of thinking...

nce upon a time, making a

call required the use of a grandfather of an instrument called the telephone; watching a movie meant the theatre, or patiently waiting for good old Doordarshan to show one; and for reminders, you circled your calendar.

Companies have always wooed customers by introducing features

that would compete with our age-old devices. The future seems to be very different though. The emphasis is on tinyness, and the shift is towards multi-tasking. All devices target the individual, who has grown up with technology, and is willing to pay to talk, touch, hear, see and sense at the same time.

Giving you a glimpse of what's in store for you are four devices that will change your life forever.

# **PDAs**

Personal Digital Assistants (PDAs) are digital diaries, albeit a much superior version. PDAs come with processors, RAM and also add-ons such as modems, wireless keyboards, expansion cards, etc. They manage your address book, remind you of important tasks, do necessary calculations, and have a ready notepad for you to take notes. The high-end PDAs enable you to access your Outlook e-mail, browse the Web and chat. If you are bored, some PDAs have MP3 players and 3D games. Palm OS, an old horse at handhelds, has many options suitable to the varied needs of economics.

### Personal entertainment devices

The Apple iPod can store upto 10,000 songs and it fits in your palm. Marvellous, isn't it? The days of Sony Walkman and MP3 players seem *passé* as companies such as Samsung and even Microsoft vie to bring out pocket-sized audio and video. For the entertainment and music industry, these are important innovations as they will influence the manner

in which entertainment companies sell their music and movies.

### **Smart Phones**

Mobile phones have invented the need-tostay-connected professionals, and they just got smarter. Check out Nokia's 6600 or Sony Ericsson's P900, and you'll never settle for less. All smart phones work like mini PDAs with e-mail, Internet and the Internet Messenger using such technology as Mac iSync software, WAP 2.0 and html browser. The Symbian Operating System allows you to add other third-party software of your choice. These innovations have affected other industries such as PCs, gaming and Web Services, who will now make devices and applications compatible with cell phones. Does this mean a PC less future? Let's wait and watch.

# Gaming Machines

According to Jupiter Research forecast, the audience for portable

gamers will grow from 23 million in 2003, to 43 million in 2009. This means gaming companies have to incorporate newer technologies for their loyal fans. And no one wants to lag behind. Nintendo has already unveiled a prototype for its next generation DS hand-held model, which will include additional capabilities such as dual screens and voice recognition, intended to make game play more compelling. Sony, on the other hand, believes that high screen resolution and fast processors in its upcoming PSP (PlayStation Portable) will attract players beyond the age range of children and adolescents—currently the largest users of portable video game players.

There is also Nokia's handheld and Microsoft's Xbox. Today's gaming platforms are already realistic and these interactive gaming consoles are all set to usher in a gaming community that's up and running, blowing away their next target as they travel to work.



# **CHEAPLIST**

### **LCD Screens**

LCD price are falling! Today, an entry-level 15-inch LCD costs about Rs 18,000. Though much higher than CRTs, at least they're within reach of the Indian PC buyer.

### **MFDs**

94,000 inkjet-based MFDs and 20,000 laser-based MFDs were sold in India in 2003. Today the entry-level inkjet-based MFD costs as little as Rs 5,000. However, most laser-based MFDs are still out of reach of the Indian buyer.

### **Digicams**

A two mega-pixel digital camera costs about Rs 5,000—pretty affordable. It's no wonder that the Indian consumer bought 1,05,000 units in 2003, and this figure is expected to nearly double this year.

digit 61 JUNE 2004



# The Store Age

Upcoming storage technologies to keep an eye on





The Super Audio CD (SACD) manu-

factured by both, Sony and Philips Electronics, can accommodate more than four times the information of the current CD format. The extra capacity provides space for two-channel stereo data, an area for up



to six-track multi-channel data, storage capacity for text and images, disc variations, copyright protection, et al.

Launched in 1999, SACD is a new approach to audio recording and reproduction. The extra storage capacity and better sound quality are likely to make SACDs a rage among music aficionados, in the coming months.

SACD uses Direct Stream Digital (DSD) recording technology to record and playback results, at a frequency response of over 100 KHz, and a dynamic range of over 120 dB across the audible frequency range. DSD increases the resolution of music by following its original waveform more closely. This results in music reproduction that's astonishingly true to the original.

Super Audio CD players can playback SACDs and all the current CDs. However, normal CD players can only play hybrid SACDs-those containing a CD layer.

SACD captures sound at the full DSD bit rate, with DSD quality. Producers may also use the additional channels to faithfully reproduce the precise acoustic signature of the performance space.

# **Dual layered DVDs**

HP, Dell and Philips will start marketing their double-layer DVD recording devices in a few months. Discs on these systems are expected to hold 8.5 GB—that's four hours of DVD-quality video, or 16 hours of VHS-quality video. These companies are

also working on dual-layer recording, which involves writing data on two separate surfaces of a DVD.

Single-layer recordable DVDs can hold up to 4.7 GB of data. Retail DVD movies have the data written on two layers, but the discs are stamped, not burnt with a laser, as DVD-Writers do.

Dual-layer recording has not been available to the average consumer in the past. Philips' Optical Storage division has announced that their dual-layer DVD recorders slated for PC use will hit the markets later this year, along with dual-layer recorders targeted at the consumer electronics market.

### **Paper Discs**

Storage has gone from floppies to zip discs, CDs, DVDs and now, paper discs! Sony and Toppan Printing have announced a 25 GB Blu-ray disc—51 per cent of the disc's weight is paper. Data can be printed directly on the disc, and it can store more than two hours of high-definition video.

The paper discs are easily disposable—you can shred them with a scissors. They are also environment-friendly, as they use an easily recyclable resource.

The Blu-ray disc format uses a blue laser, and is considered the current red laser technology's successor. Blu-ray discs store more than five times the capacity of current DVDs—that's 25 GB of data!

Discs using organic materials are also being developed by other companies: Sanyo's MildDisc, launched in early April, is made from polyactic acid derived from corn kernels. The disc is currently only available as a CD. This method has

been developed to replace the polycarbonate used in most discs today. Also, polycarbonate discs aren't biodegradable.

According to Sanyo, their MildDisc can be broken down into water and carbon dioxide by micro-organisms in the earth.

They also claim that no harmful

dioxins are released during incineration, which can be achieved at much lower temperatures than for polycarbonate discs.

PAPER DISC



# **PEOPLE TO WATCH**

At 29, both Larry Page and Sergey Brin, directors of Google Inc, have the Web revolving round them. After having changed the way the world uses the Internet, they have finally decided to go for the kill with a series of new business techniques and an Initial Public Offering (IPO) worth \$2.7 billion (Rs 12,150 crore).

In a letter to the Securities and Exchange Commission, they said, "The standard structure of public ownership may jeopardise the independence and focused objectivity that have been most important in Google's past success, and that we consider most fundamental for its future. Therefore, we have designed a corporate structure that will protect Google's ability to innovate and retain its most distinctive characteristics." In effect, subscribers to the IPO will be offered Class A shares that carry a single vote per share, while insiders to the company will retain a right of ten votes per share.

Though a serious search engine, Google is notorious for its sense of humour, visit <a href="http://www.google.com/intl/xx-piglatin">http://www.google.com/intl/xx-piglatin</a>/ to get an idea.

Sergey Brin and Larry Page FOUNDERS, GOOGLE.COM





# **Natch**

# Next stop: 10K!

PCs have just gone below the 15K mark and plan to go down further...

You can buy a simple TV for less

than Rs 10,000, or a music system with a DVD, MP3, VCD and CD-R. Seems like the day of sub-Rs 10,000 computers isn't far.

A few months ago, Raj Saraf, MD, Zenith Computers, commented in an interview given to *CRN*, the magazine, that the 'sub-10k PC' is, in fact, a not-too-distant reality. With hardware prices plummeting and the government's go-ahead to massive duty cuts on imports, the market was conducive for entrepreneurs such as HCL, Zenith, Wipro and Bitsy Infotech to target the middle-class consumer base. And it told on NASSCOM numbers and MAIT projections.

The cheap PC, however, is not anything new: the average PC offered by the assembler next door has shown a steady dip in prices since early 2000. It might not have undergone rigorous performance tests and quality checks, but it

# **Black Box, White Box**

The trouble was with the software, especially the OS. For branded machines, the OS needs to be licensed, while in India, the assembled PC market runs almost entirely on pirated versions. PC manufacturers devised a clever solution: companies such as IBM and HP decided to migrate to Open Source OSes such as PC DOS and Linux. The Express series from IBM, for example, offer Pentium 4 machines with 128 MB of DDR RAM and the Intel 845GV chipset, running Windows XP, at prices less than Rs 40,000. The corresponding multimedia models with slightly slower processors are even cheaper. A 2.4 GHz ThinkCentre A30 with PC DOS bundled comes at an offer price of Rs 26,900. What's more, these machines come with three-year limited warranties.

But these are still expensive compared to what home-grown companies have to offer: Bitsy launched its sub-16K PCs a few months ago, and Zenith is currently

offering its PCs at below Rs 15.000.

They all decided to go without the OS altogether. This 'white box' experiment has succeeded in bringing the prices down to seriously affordable levels. The elusive 10K wall, however, is proving difficult to breach. Says Devita Saraf of Zenith Computers, "We've done a market survey, and it (the 10K PC) is not possible, at least this quarter." So what will be the configuration of such a PC, if it comes out? "I have no idea," she says. "We will have to work on it. I can give you something for about Rs 12 - 13,000 right now."

# The day is nigh

The change in government at the Centre has brought along a note of caution among PC resellers. It should not be too long, however, before we see PCs being sold alongside televisions and stereo decks. That will be the day to look out for. Meanwhile, let's keep our fingers crossed.

We have done a market survey, and it (the 10K PC) is not possible, at least this quarter...
I can give you something for about Rs 12 - 13,000 right now. \*\*\*

Devita Saraf
ZENITH COMPUTERS



worked, and no matter how many times the vendor had to be called up, after-sales service was always there.

The problem with branded PCs was that they were focusing on quality, rather than price.

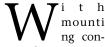
■ 1991 63 JUNE 2004



# **Back to Paper**

The future might resemble the past





cern over the depleting rain forest cover in the equatorial regions, a significant number of researchers, corporate entities and scientists all over the world, have been working towards developing a viable alternative to conventional stationery.

In the early 70s, Nicholas K Sheridon, then a researcher at the Xerox Palo Alto Research Center, envisaged flexible computer screens made out of flexible materials such as paper. His contention was that bendable screens would have sharper, clearer displays, and consume less power. The idea

At Gyricon's Ann Arbor, Michigan plant, Engineer Mark Edmond is working on a 'display board'. image The product under development by this Xerox subsidiary is SmartPaper thin and flexible polymer sheeting that can behave

precisely like a computer screen.

On April 8, 2004, IXYS Corporation announced that its Micronix division had unveiled the industry's first standard product driver for electronic paper displays based on E Ink Corporation's electronic ink technology. The new display driver IC, the MX834, is targeted at the emerging market of displays that are easy to read and consume less power at the same time.

The commercialisation of electronic paper technology is the result of a collaboration started in 2001 between EInk Corporation, Toppan Printing and Philips, together with Sony. EInk uses a process similar to Gyricon's, and has been focusing on the consumer electronics market.

Philips has come up with something that uses a form of electronic ink devised in 1998 by a team at MIT. Their e-ink consists of hollow, transparent plastic capsules containing black and white pigment powders. Accordingly, they set up a company, Polymer Vison, to turn their approach into an industrial process. Polymer Vision is now setting up a pilot production line, and hopes to be soon producing more than 5,000 e-paper displays a year.

Sales of flexible screens would be about US\$ 18 million by 2010 as opposed to US\$ 311,000 last year, a 60-fold increase, according to California-based iSuppli Corporation. However, this pales in comparison to the 29 per cent compound annual growth rate (CAGR) of LCD revenues to over US\$26 billion by the end of 2005, according to DisplaySearch, the FPD market research and consulting firm.

### Market turnstiles: Whose tables will turn?

According to an American survey, the most promising market for these new-age prod-

> ucts is the sign-painting market. E-paper could also enable dailies to save on publishing expenses. Digital newspapers may never get to broadsheet or even tabloid size, reports Newsweek, the magazine: "Costs would be too high. Initially, digital newspa-

pers would merely receive data from a PC or a wireless hotspot."

On a different note, EInk Corp introduced an electronic book reader with Sony in March, the Sony Librié. This has the ability of reflecting natural light—the most important characteristic of paper—and its surface texture has a semblance to newsprint.

Innovative use of electronic paper and ink will help ease the predicament of the publishing industry, now thoroughly dependent on pulp paper, and dangerously at loggerheads with powerful environment groups.

Companies such as Xerox, Eastman Kodak Co, Royal Philips Electronics, Sony Corp, etc, have already launched ventures to get their share of the e-paper pie. Researchers from Stanford University and MIT have also expressed interest.

As Bruce Rutledge, President, Chin Music Press, Seattle, suggests, the simple pleasures of life will still retain their appeal—it would be quite some time before electronic books unseated printed ones from libraries. Bookworms need not begin digging burrows as yet.





# PEOPLE TO WATCH

The Affordable Solutions evangelist and IIT-Bombay KReSIT (Kanwal Rekhi School of Information Technology) Head Deepak B Phatak, is spearheading a move to get viable computing solutions for Indians.

Computing is a big part of this and Phatak has just started on his dream project—that of getting final year engineering students to work on developing useful, quality open source applications.

However, open source isn't everything in such solutions: "I'd work with Microsoft if it means a more affordable solution", says Phatak, who was appointed to the prestigious Subrao Nilekani Chair in the KReSIT School. Here's to more of computing for the common man.

> Prof. Deepak B Phatak, HEAD PROFESSOR, KRESIT

Contributors: Meera Vankipuram, Suprotip Ghosh, Ram Mohan Rao, Aparna Krishnakumar, Srinivasan Ramakrishnan

Update: In the 'People to Watch' box on Page 52, Krishna Bharat's designation has been given as 'Head, Google India. Unfortunately, Google clarified after the page went to print that Krishna Bharat is, in fact, one of the leaders of a team that is setting up the operation in Bangalore. His official designation is Principal Scientist, Google.



Nothing brings a few PCs together like Internet sharing software

# **CONTENTS**

AnalogX	34
Avirt Gateway	34
SyGate Office Network	3
■ WinGate	3
■ WinProxy Pro	30
■ WinRoute Pro	3
• Squid	3
■ Bandwidth Controller	3
DU Meter	3
■ MRTG	3
■ Workshon S	20

PHOTOGRAPH: Mexy Xavier LOCATION COURTESY: Le Royal Meridien

# test drive software

t's your daily grouse. You need to send off an emergency mail, and your kid, significant other, sibling, or other annoying co-habitant is using the PC for a far less important task. We will not recommend you use your fists to win this battle, instead, we recommend using an Internet connection sharing software to stretch the Net to your laptop.

If you have an always-on broadband connection, you need software with advanced features such as Network Address Translation (NAT), shared cache, users and groups, an IP list, etc., since the chances of your system being hacked into increases.

If your work involves applications that deal with streaming audio and video, online accounting, up-to-the-minute stock exchange status or telephone conferencing, you need SyGate, WinGate, or WinProxy, which provide NAT—so many computers can connect to the Internet, using a single public IP—as well as the facility to proxy any port.

# **AnalogX**

Home or small office users don't use the Internet for anything but surfing and downloading e-mails, and for them we present... AnalogX.

AnalogX is the simplest software we've seen. This is indicated by the interface, which can be worked without documentation—although documentation is provided. There's a red and green



The 'Check if proxy is in open mode' button, in conjunction with proxy binding, helps you bind the software on the local interface

with no auditing, nor history viewer.

There is a hitch, though. You need to configure the e-mail settings into the Internet sharing aspect. This may be a good feature for system administrators, but for a home-user, it can be irritating if you have several e-mail accounts to configure.

The proxy binding feature reduces the possibility of misuse by external users on the Internet to an absolute zero—the server listens to requests only on the interface specified, which is unavailable to external users.

Just like the interface of the program, configuring client-side settings is simple too. You just need to specify the proxy settings in your browser with the IP address and default port.



AnalogX				В
Performance	-		•	<b>&gt;</b>
Features	-		•	<b>&gt;</b>
Ease of Use	-	•	•	•
Overall	•		•	<b>&gt;</b>

signalling system. Green

means everything's fine,

and red means the proxy

has stopped working for

of the six services— HTTP, FTP, SMTP, POP3,

NNTP and SOCKS-by

clicking the appropriate

On or Off buttons. The

logging feature, however,

is simplistic to a fault—

there's only a text log,

You start or stop any

some reason.

Suppose connection speeds drop in a largish network, say your office, which has around 20 computers. You wouldn't know whether a colleague is clogging up the pipe, or if you're getting less bandwidth from the ISP. Then you need software that monitors bandwidth, and also has the capability to restrict usage by individual users. Two such are DU Meter and Bandwidth Controller. Bandwidth monitoring and management tools can help you towards making important decisions regarding the packages you use—these software could provide you insight on bandwidth utilised or unutilised.

Imagine yet another scenario: you've taken the initiative to set up a small network, shared amongst your friends, in your apartment building. You want to distribute an Internet connection amongst all users. Here, too, you could use SyGate or WinGate.

The point is, whatever your scenario, you'll find software specifically designed for the purpose. Keep reading...

# **Avirt Gateway**

Unlike AnalogX, this software can be run as a service under Windows NT, 2000 and XP. Security enforcement is based on the whitelist concept. Avirt Gateway is wizard-oriented, and has wizards for each operation, right from installation, to starting and stopping the server. Everything is taken care of in the elaborate installation process: enabling and disabling of services such as HTTP, FTP, POP3, SMTP, HTTPS, SOCKS, NNTP, Telnet and even IRC proxy. There's support for audio and video streaming.

In the advanced settings, you can enable and disable any of the 20 ports supported. What's more, you can change the default ports on which the service runs. If you use a port

number of your own choice, you reduce the possibility of hacking via known vulnerabilities. You can set up proxy cascading in the installation. Settings may be customised after installation.

This software provides installation for the server and for the client. The advantage is two-fold—you don't have



You can specify either a single IP or a range of permissible IPs

to worry about the nitty-gritty of the settings, which are taken care by the client installer; and when you have a client installer, you need to explicitly set up a client, so an unknown user can't misuse Internet access.

+ Client installation - Lacks auditing as well as history viewing capabilities	

Price: Single user – \$139.95 Web site: www.avirt.com

Avirt Gatew	ay				В
Performance	-	•	•	•	<b>\</b>
Features	-		•	<b></b>	<b>&gt;</b>
Ease of Use	-			•	<b>\</b>
Overall	•			•	•

# **SyGate Office Network**

SyGate Office Network (SON) is one of the best network management software you'd come across. SON's mixture of features, as well as the simplicity of the interface, gets it our Best Value award. The software has features a system administrator would love, and it has more features than on any other software on the board.

The 'Disconnect Client If Idle' feature is particularly useful: the server keeps constant track of users, and if one of them is idle for a certain time, the connection is freed up for someone else to use. This indirectly helps reduce dial-up costs.

In the bandwidth management aspect, the enforcing system

To 10 Section | Decoration | De

Looking at the top three of the Top 10 is an excellent way to know who's using up bandwidth

provides creation of groups, each with different priorities for applications, such as e-mail, Web, Telnet, newsgroups and so on. Groups can be created based on need, and prioriassigned according requirements.

Backup Inter-

net provision is yet another useful feature. If, for some reason, your broadband connection fails, the software switches to the dial-up connection, thus providing service with as little interruption as possible. In a similar feature, the software dials the backup connection if traffic exceeds a threshold. This feature is important for people who need up-to-the minute information.

The software supports client installation, and you can also create a client-install floppy. However, client configuration is limited to setting the gateway IP to that of the server.

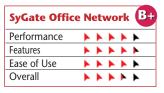
Coming to security, you can install SyGate Personal Firewall (SPF) with SON for free. SPF features Access Rules functionality, by which you can enforce restrictions: you can add any or all of the 40 rules defined, ranging from FTP, to access to games such as *Quake*, and access to IM programs. You can also custom-define rules.

The activity log is the best across the board, with real-time monitoring and a history viewer in addition to auditing. The auditing feature provides lists such as top 10 Web surfers, top 10 traffic users and top 10 sites visited. The activity log is the best we've seen, with real-time monitoring and a history viewer, in addition to auditing. The auditing feature provides lists such as top 10 Web surfers, top 10 traffic users and top 10 sites visited.

With a range of abilities such as disconnecting idle clients, provision for a backup Internet connection, bandwidth management, etc., this is a true professional network management software.

- + Great features
- No caching; no proxy cascading

Price: \$199.95 Web site: http://smb.sygate.com/ products/son.htm





# **WinGate**

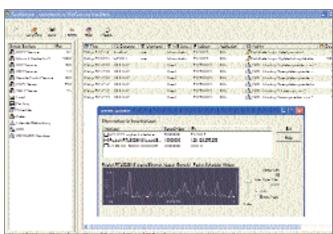
The most eye-catching aspect of WinGate is the clean layout. With its monitoring features, it could be useful for small offices. WinGate provides services under two categories—system and user. System services are programs that provide services such as DHCP, DNS, GDP, SOCKS, remote control and Web server. User services do not provide a service of their own; instead, they forward requests to other servers to get the work done—such as WWW, POP3, FTP, Telnet, Streamworks and RTSP proxies.

The software doesn't have bandwidth management, but it does provide excellent monitoring. Its assumed-user feature lets you assign full names based on either the machine name or the IP address, so all activity is logged under the person's name, rather than under the computer name or IP address.

WinGate also provides Traffic Monitor—a graphical interface that shows traffic in real-time. This provides a bird's-eye view for the system administrator to monitor current usage. It also has a history viewer, which helps track usage histories of individual users. An administrator can administer the proxy server from a remote location as well, using just a web browser.

The software brings along quite a number of goodies, such as an integrated mail server and integrated VPN. Additionally, plug-ins for virus scans and content filtering are available separately.

A whole bunch of maintenance activities are pre-defined within the software. With an in-built scheduler, scheduling events such as 'Roll over logfiles', 'Roll over audit files', Purge history database', 'Purge cache', etc. is a piece of cake.

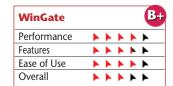


Traffic Monitor provides a real-time picture of bandwidth usage

Though it lacks a few features such as proxy cascading and doesn't have a shared cache, it performs decently. The bundled accessories are a bonus, making it a decent solution for your office.

+ Traffic monitoring; free firewall; integrated mail server - No proxy cascading; no shared cache

Price: \$149.95 Web site: http://www.wingate.com/ product-wingate.php



# **WinProxy Pro**

The unique aspect of WinProxy Pro is that in the implementation of shared cache, it provides the administrator control over the size of the cache for each of the proxies separately. There are separate limits for cache size, as well as for TTL for HTTP, FTP and Gopher servers.

Security enforcement can be applied by creating users and groups with each user having a username and password to access the Internet. To extend security functionality, WinProxy Pro supports an IP list, similar to the whitelist. This is a much better approach towards limiting users, as Internet access will be available only to the IPs specified in the list.

The software records details of failed login attempts. This

information can be used



WinProxy lets you configure the time intervals depending on day of week for demand dialling by the system administrator to watch out for people trying to break in. A slightly tweaked demand-dial is a great management tool. Here, you can specify the time intervals during which demand dial is enabled.

However, WinProxy Pro doesn't allow a P2P application on the client to get connected—which means most ports are blocked. This could be troublesome to companies relying on special programs that need some ports to be open.

- + User and group creation, mail servers, time interval for demand dial – No bandwidth monitoring and management, no client-install
- Price: \$99
  Web site: www.winproxy.net



- In port mapping, packets arriving at a particular port are forwarded to another IP address, in conjunction with the configured destination port. The configuration comprises five components: a protocol, the listen IP, the listen port, the destination IP and the destination port.
- Network Address Translation (NAT), an Internet draft standard protocol, is used for hiding your private network behind a single address or multiple addresses. A similar technique known as IP masquerading has been extensively used in the Linux world.

# **Squid**

**S**quid is an Open Source project that supports HTTP and FTP proxying and caching, as well as SSL ports, ICP, HTCP, SNMP, Gopher, etc.

Like most Linux-based daemons, there's no GUI for configuration. Configuration is difficult, but the feature set is exhaustive. Couple this with the inbuilt features of Linux such as 'iptables', and you get an extremely powerful and secure Internet server.

There are parameters such as 'http\_access' for security. This particular parameter allows or denies access based on defined access lists. The access list (or ACL) consists of a list of allowable or not-allowable rules for users connecting to the server. There are even parameters to restrict the passage of internal network details to the outside world while proxying requests. By default, a forwarded request has a header that exposes the internal IP address to the external world. You can restrict this by modifying parameters; in this case, the *forwarded\_for* parameter.

Squid provides an effective-user feature, similar to that WinGate's assumed-user. By specifying the effective-user or group in the *conf* file, you can reduce privileges, thereby reducing the chances of a hacker receiving root privileges if some Web application is hacked into.

Squid gives you ultimate control over all the aspects of Internet connection sharing; you can manage details down to the micro level, including details such as *cache\_mem*, *cache\_swap\_low*, *cache\_swap\_high*, etc.

To get Squid running easily, you have to change or add in a couple of paramerters—define the visibile\_hostname paratmeter and set up a list of internal IPs on an ACL, then allow access via the http\_access paramter. Thats about it to get it runing,but we'd recommend a more thougrough customisation of the config file, to ensure that Squid cannot be misued. You could also set quotas for users, and cap their bandwidth consumption with squid.

Using Squid on a Linux box along with *iptables*, an inbuilt DNS server, MRTG and more will give you all the functionality you need, but at the cost of configuration time.

+ Free, provides a lot more control, add-ons available for free
- Time-consuming configuration

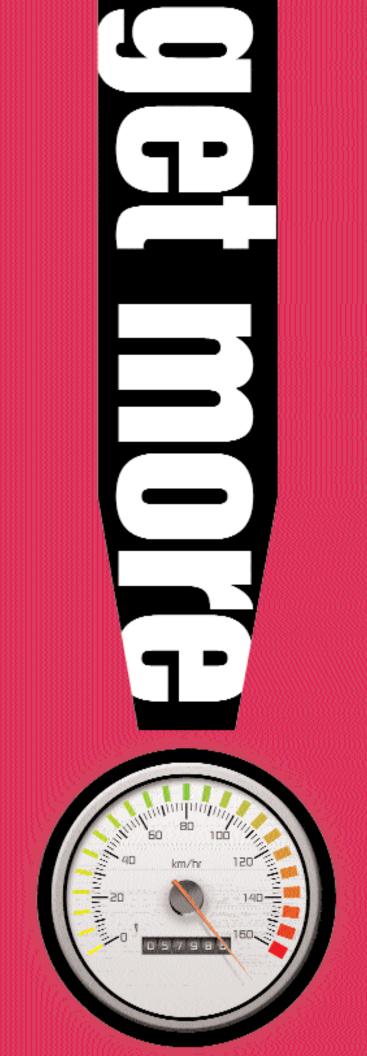
Price: Free
Website: www.squid.cache.org

Squid					В
Performance	•		•	•	•
Features	-		•	•	<b>&gt;</b>
Ease of Use	-		•	•	<b>\</b>
Overall	•	•	•	•	•

# **Maintain your own DNS**

The shared cache feature helps boost performance. So does a DNS server. First, a DNS server keeps a cache of DNS entries, thereby reducing DNS lookup time. The second thing is that with a DNS server, you can create and manage your domain or sub-domains. This could be useful for companies that have more than one branch location: one could create sub-domains such as *mumbai.mycompany.com*, *delhi.mycompany.com*, etc., without needing to register each separately.

Simple DNS Plus is one of the simplest DNS software. You don't need to configure anything, just set up the client nodes to use the DNS service.

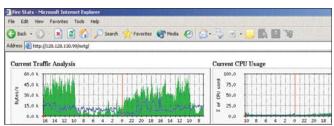


# test drive ■ software

# **MRTG**

MRTG is freeware, and is available for both Windows and Linux. As with many freeware, you need to invest time configuring. However, if the pre-requisites—a Web server and PERL—are configured and working properly, the task is easy.

Once the program is configured as a service, it keeps on updating an HTML file in a specified folder. The HTML file shows two graphs, one for network traffic and one for CPU load. MRTG does not provide any kind of management or controlling.



MRTG shows, in graphical format, the current Internet bandwidth usage, as well as the CPU usage of the server

+ Easy to configure if you have a
Web server and PERL installed
<ul> <li>No kind of management or control</li> </ul>
provided

Price: Free
Web site: http://mrtg.hdl.com/
mrtg.html

MRTG					В
Performance	-			•	•
Features	-	•	•	<b></b>	<b>&gt;</b>
Ease of Use	-	•	•	•	<b>&gt;</b>
Overall	•		•	•	•

# 1/4th AD

# **?** Jargon Buster

Network Address Translation (NAT): With NAT, you get to communicate with the external world, without revealing the internal details of the network. The fewer the details available openly, the more work a hacker needs to do. Shared Cache: A shared cache can save recent site visits in its internal buffer for some time. If another user visits the same Web link again within this period, the software serves the page from its own buffer, thereby reducing Internet traffic and at the same time providing a performance boost. DNS: Humans and computers refer differently to a Web site location. So when you enter a web address—say, www.thinkdigit.com—the browser converts it to a numerical string like 207.68.171.233, which can point to the appropriate host. This name-to-number mapping is referred to as DNS. FTP (File Transfer Protocol): The language used by computers to download or upload file via the Internet, without the need for an intervening browser.

**POP3 (Post Office Protocol 3):** The language used by computers to receive e-mail.

**SMTP:** The language used by computers to send e-mail. **SNMP:** Simple Network Management Protocol; a standard for gathering statistical data about network traffic and the behaviour of network components.

**Tunnelling:** The process by which a request on one machine is forwarded to another. It helps you secure your main server behind a firewall.

Client install: The software module in some internet connection sharing software that helps a user configure clients. Assumed-user: Using the assumed-user principle, Internet connection sharing software display client names instead of the client's IP, just as cellphones can display the caller's name instead of the telephone number.

**Proxy cascading:** If you need to set up one Internet connection sharing software running under another, you need to 'cascade' the second. This means the second software does not have a direct Internet connection; it depends on the first one.

Whitelist: A whitelist generally consists of names of servers, clients, senders, etc., who can always be trusted, and allowed access to the Internet.

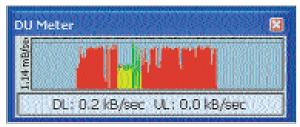
- A Proxy acts as an intermediate agent—it forwards requests from the internal user to the external Web site and then forwarding the reply back to the appropriate user.
- HTTPS stands for 'secure HTTP'. It is responsible for transferring data on the internet securely—encrypted.
- Small Network and diagnostic utilities such as PingPlotter provide you with graphical statistics that help you identify problems associated with your network. This software is in turn dependant on common tools such as 'traceroute', 'ping' and 'whois'.
- Such a enchmarking tool as NetCPS can help you perform a rigors test of the network infrastructure.
- A Forensic tool such as Netintercept can help you know how information travels, or why it doesn't, on your network.

# **DU Meter**

DU Meter (DUM) is a small, simple utility that can help you keep tabs as well as set usage thresholds. It's basically a metering application for small office users who wish to keep a tab on available bandwidth and used or unused bandwidth.

DUM keeps an eye on the amount of data going out or coming into a computer. Apart from logging usage statistics, it provides for a whole range of reports. It also gives you a projected report.

DUM alerts the administrator if traffic reaches a certain limit or falls below a threshold, or if the dial-up time crosses a certain threshold.



This meter shows downloads in red, uploads in green, and both in yellow



download.php

DU Meter	В
Performance	***
Features	<b>* * * * *</b>
Ease of Use	4444
Overall	***

# **Bandwidth Controller**

This software is a great tool to split bandwidth into equal pies for users of a shared connection. The essential element of Bandwidth Controller is filters. Once you create the filters, you can view the statistics over that filter, and also set data transfer rates.

Each filter comprises six components—direction, maximum data rate, protocol, source IP, source port, destination IP and destination port. If, by some chance, the filters overlap, the software

Mercuria Antiques Lacid Acid Correction

Dissolator

Dissolator

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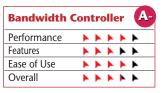
You can restrict the amount of data that flows either in or out

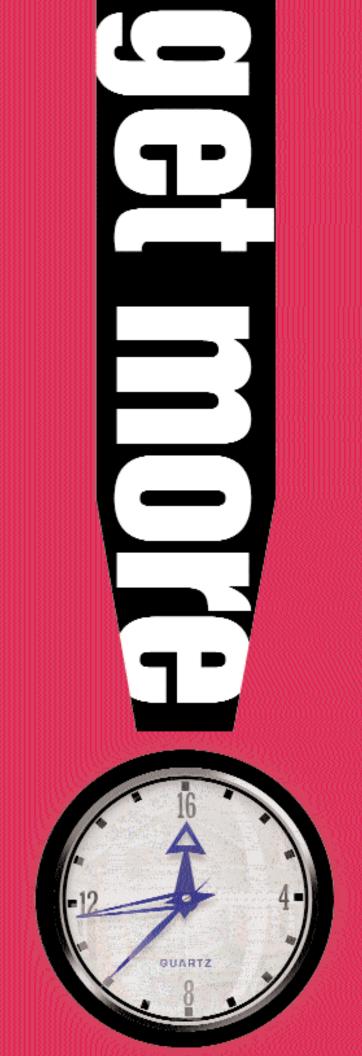
indicates a conflict as well as a way out. You can then follow the advice provided, or make your own rule.

The only disadvantage here is that all restrictions on data transfer and viewing of statistics can be applied on the IP, and nothing based on type of application used.

+ Precise rate control, detailed sta-
tistics, intuitive user interface
- Restrictions can be applied only
on IP

Price: \$49.95
Web site: www.bandwidthcontroller.com





# WinRoute Pro

WinRoute Pro (WRP) provides excellent NAT functionality, and it's a strong contender for the title of 'Most Secure Software' for people with an always on broadband connection.

System administrators would love the control they get over the dial-up connection. The connection can work on a



WinRoute gives you full control over the parameters related to caching such as size, TTL, etc.

demand-dial basis, or it can be persistent; it can also be manually operated. It could even be customised by time intervals.

To restrict Internet use to be work-specific, you can set up the Web sites that are allowed by the management to be accessed by

users. You can create groups and specify different sets of sites for each group.

The proxy server bundles along a full-fledged mail server module with anti-spam capabilities. The software allows for cache size and TTL to be specified separately for HTTP, FTP and Gopher. There's a history viewer as well as half a dozen different logs—Debug, Error, HTTP, Mail, Security and Dial log.

- Lists of allowed sites, mail server
   No bandwidth management and monitoring
- Price: NA
  Web site: http://www.kerio.com/
  kerio.html



By default, proxy software binds itself to all the TCP/IP interfaces present on the machine. The disadvantage of this is that it will also service requests coming in from the Internet. This could lead to misuse. By forcing the proxy to bind to one of your local IP addresses, you can avoid undesirable side effects.

# **OSES**If you have Windows 2000 Server, you don't need proxy

**Inbuilt capabilities of Windows** 

If you have Windows 2000 Server, you don't need proxy or gateway software: Windows 2000 has inbuilt support for Internet connection sharing.

By default, when you install Windows 2000 Server, the routing component is automatically installed. However, the Routing and Remote Access service is installed in a disabled state. To set it up, start Routing and Remote Access, right-click on the server and click 'Configure and Enable Routing and Remote Access'. Now, follow the wizard to set up Internet sharing. Open Routing and Remote Access by going to Start > Programs > Administrative Tools > Routing and Remote Access.

If you want to set up just Internet sharing, with no routing, right-click on the connection, within dial-up networking, which is to be shared. On the Sharing tab, select the 'Enable Internet connection sharing for this connection' checkbox, and you're done!

Windows XP, too, provides ICS functionality, but the difference is that in Windows 2000, ICS will get enabled only on dial-up connections; so if you want to share the Internet connection on two IP addresses or two Ethernet cards, you'll need to set up a routing protocol, either IGMP or OSPF. But in XP, you can enable ICS on the Ethernet card, although you need at least two Ethernet cards, or alternatively, a pair of dial-up connections and an Ethernet card.

Additionally, Windows 2000 Server has integrated DNS, Telnet, FTP, SMTP, POP3 as well as DHCP servers, thus providing you with everything that you require to set up a small Internet server.

1/4th AD

# **test drive** shareware software

Which one is right	for y	ou?					
Features/Software	AnalogX		SON	WinGate		WinRoute Pro	Squid
Backup Internet Provision	×	×	~	×	×	×	×
Bandwidth Management	×	×	~	×	*	*	×
Installs the client	*	V	~	V	*	×	×
DHCP	×	V	V	V	×	<b>V</b>	×
DNS forwarding	×	V	V	V	<b>V</b>	V	×
E-mail proxy	V	×	×	×	<b>V</b>	×	×
Integrated Firewall	×	V	×	V	×	×	×
integrated mailserver	×	×	×	V	V	V	×
Limits and control user access	×	V	V	V	<b>V</b>	V	V
NAT	×	×	~	V	×	V	×
Shared cache	×	V	×	×	V	V	V
Tunnelling	×	×	×	×	V	V	×
User/Group-wise access	×	×	×	V	V	V	V
History viewer	*	*	~	~	V	V	×

# The last word

Whether it's security for your home computer, or just a question of sharing a single Internet connection in your office, the software mentioned in this article can do the job perfectly.

The problem is deciding what to use, depending on your requirements. Each software has specific and specialised uses, and to help you make an informed decision, we've made a table of the features that each software offers—the table 'Which One is Right for You?', on the left.

We suggest you read through the table, try and identify your requirements, and choose one or a combination of two or more of the software to take care of business.



# **Eight steps to shared Internet**

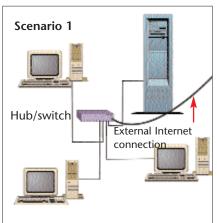
We used SyGate to set up an Internet server in eight easy steps

While installing SyGate, you need to remember that there's installation for both the server side, and for the client side. After installing the client and the server, the rest of the installation is a breeze. In the last step, you can manually configure the software.

The settings here vary according to need. We considered a couple of scenarios.

Scenario 1: You have a broadband connection wired directly to a hub, and at the same time, the server machinehenceforth, the machine that would act as the Internet server—is also connected to the same switch. This is called Single NIC mode.

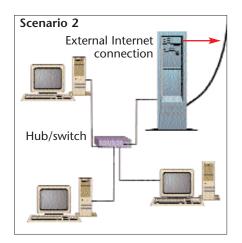
To establish Internet sharing, enable the settings for 'Use Single NIC mode'. As soon as you do this, you get a warning message. Click OK.



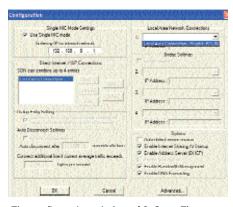
Scenario 2: If you have two separate connections, one each for connecting to the external network and the internal network, then keep the 'Use Single NIC mode' option unticked. SyGate will show the appropriate connections in 'Direct Internet/ISP Connections', as well as '1.' in 'Local Area Network Connection'.

The 'Direct Internet/ISP Connections' would have a 'Local Area Connection' if you have more than one LAN card or dial-up connection. To share a dial-up connection, you would first have to set up one in Windows, and then add it in SyGate.

Select the LAN card that connects your PC to the LAN in '1.' within 'Local Area Network Connection'.



Once Step 3 is complete, your configuration is done. But there are further settings to look at, for better optimisation of Internet bandwidth and system resources.



The configuration window of SyGate. The most common and the most important settings are specified here

If you have more than one connection, you need to specify the order in which they will be utilised, using the [Up] and [Down] keys. The ones appearing first will be used first, and so forth.

Dial-On-Demand and Auto Disconnect are two settings that will help you keep your dial-up costs to a minimum. If Dial-On-Demand is enabled. then each time a user wants to access the Internet, one of the connections will be activated depending upon precedence. Auto-disconnect will keep a tab on noactivity periods, and disconnect the call.

If you wish, you can configure the software to set up additional connections if bandwidth exceeds a certain threshold, by

enabling and specifying the threshold level for 'Connect additional line if...'

In the options section, 'Enable Internet Sharing At startup', 'Enable Activity Log', 'Enable Bandwidth Management' and 'Enable DNS forwarding' are recommended. Finally, if you have set up your network with a static IP for each PC, untick the 'Enable Address Server (DHCP)' option. A static IP means that no other machine in the world has the same IP as yours, which makes your machine uniquely addressable. If you've manually assigned IPs to each machine, you don't need a DHCP server.

You can modify some of the advanced settings for DHCP server or DNS forwarding by clicking on 'Advanced' in the configuration window.

If DHCP Server is enabled, you can specify the IP range that should be used while allocating IPs. This is particularly useful if some machines have static IPs and the others don't.

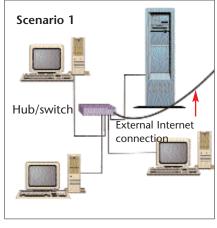
If DNS Forwarding is enabled, you need to specify one or more DNS server addresses for forwarding to work. Here, you can either use the DNS server your ISP has provided—use the ISP's helpline, or look up the documentation. Alternatively, you can use some of the most commonly used ones, such as those of VSNL-202.54.1.18 and 202.54.1.30. You need not specify any settings if you want to host a DNS server yourself.

The server-side setup, configuration and optimisation ends here. Now, you need to configure the clients to be able to use the server. On all machines that should have Internet connectivity, specify the gateway as the IP of the Internet server you just set up.

In Windows XP, go to Start > Control Panel > Network Connections. Here, right-click on the local area connection, and click Properties. In Properties, click 'Internet Protocol (TCP/IP)' from the list, and then again click Properties. Now specify the Default Gateway IP as that of the server IP.

Go to Start > Settings > Control Panel > Network. Here, click on 'TCP/IP', and click Properties. Go to the Gateway tab, and specify the server's IP. 1

> MUSTALI KACHWALA mustali\_kachwala@thinkdigit.com



# Bazaart

We test the latest and the best hardware and software products available in the market

# **Intel Prescott 3.4 GHz**

This is the latest from Intel Prescott line, and comes with a 200 MHz boost. Apart from the frequency increase, it also comes with revised stepping—hardware revisions—to iron out the few chinks that the 3.2 GHz Prescott had. However, this doesn't change thermal

thermal ratings, and it still dissipates more heat than the Northwood CPUs.

The 3.4 GHz also comes with 1 MB of L2 cache, 800 MHz FSB and a new heat sink. It still retains the 478-pin configuration, making it compatible with most Prescott-ready motherboards.

We plugged the CPU into an Intel 875PBZ motherboard, with Corsair 512 MB DDR 400 MHz RAM, a 120 GB Seagate Barracuda SATA hard disk and a Gigabyte 5950 graphics card, running Windows XP.

In the business benchmarks, such as Content Creation and Business Winstone from Ziff Davis, the processor posted 30.2 and 24.2 respectively. The 200 MHz increase gives

Price: Rs 23,990 Contact: SES TECH limited Phone: 022-26824141 Email: kp@sesindia.com Website: www.intel.com the processor a 4.8 and 1.2 per cent boost respectively, as compared to the Pentium 4 3.2 EE. This clearly indicates the advantage when running applications such as Photoshop, Maya, etc.

The gaming edge was pretty close—it outperformed the older Pentium
4, including the 3.2
GHz
Prescott.
However, the performance boost isn't much to write home about.

In *UT2003*, the 3.4 GHz gave a frame rate of 256 at a resolution of 640 x 480. The older 3.2 GHz ran dry at 242 frames. It was the same with *Sam* 

was the same with San Second Encounter.

Overall, the 3.4 GHz Prescott is a good performer, but doesn't justify the price hike. Why pay Rs 10,000 more for just a little more performance, especially with the new 915 chipset, made specially for the Prescott, just round the corner.

# **SPECIFICATIONS**

800 MHz, FSB, IMB, L2 Cache, 478 pin, 125 million transistors

Intel Prescot	t 3	3.4	G	Hz	z B
Performance	•	•		•	<b>\</b>
Features	•	•	•	•	<b>&gt;</b>
Build quality	•	•	•	<b> </b>	<b>&gt;</b>
Value for money				•	•

# BenQ FP991



The BenQ FP991 19-inch LCD monitor is worth its price tag, considering its features and performance.It offers the highest possible resolution in the 19-inch category—1280 x 1024. The display has both D-Sub and DVI-D interfaces, along with the necessary data cables.

The bezel is just 18 mm thick, so when you wall-mount it, it looks like a futuristic frame. It also has landscape and portrait modes—all you need to do is tilt the screen about 30 to 45 degrees upwards, and rotate it. The Portrait PivotPro utility bundled along adjusts the display so you can view your

Price: Rs 47,000 Contact: BenQ India Pvt Ltd Phone: 022-25705231 Fax: 022-25705235 E-mail: SalesEnquiryIn@beng.com

Web site: www.benq.co.in

documents when you rotate it.

The BenQ FP991 performed wonderfully, especially in the colour scale test, where a slide displays different shades of a colour. It managed to differentiate between all blocks—a difficult task for most LCD panels. It also passed the 16-colour intensities test, displaying all of them.

However, the test that involved coloured text on a coloured background saw it lag.

Magenta text looked terrible on most coloured backgrounds. The reddish text was not crisp enough to be read on magenta and yellow backgrounds—Web designers and graphic artists, stay away!

A couple of minuses are that the panel doesn't have an in-built power adapter. Nor does it have integrated speakers, which are, these days, considered standard accessories.

### **SPECIFICATIONS**

0.294 mm pixel size, 25 ms pixel response time, 300 cd/m² brightness, 700:1 contrast ratio, 76 Hz vertical and 82 KHz horizontal scan rate, 8.5 Kg, 40 W power consumption

BenQ FP991				A	\- -
Performance	•	•	•	•	
Features	•	•	•	<b>&gt;</b>	
Build quality				•	
Value for money	•	•	•	•	

# **Pinnacle PCTV Stereo**

s long as the absence of FM Stereo doesn't have you complaining, the PCTV Stereo is a good buy. The new Pinnacle PCTV Stereo is an entry-level TV tuner, with a universal tuner: it can tune to PAL, SECAM and NTSC signals. It is a sleek, siliconbased card, which, unlike others, doesn't interfere with the adjacent PCI slot during installation.

The Pinnacle PCTV Pro, with its FM Tuner, still remains one step ahead; this one is cheaper, though, and provides similar quality.

Hardware installation was a breeze: all we had to do was plug in the card and make the necessary connections. The software bit was just as easy—the wizard hand-holds you throughout. The card scanned channels perfectly—manual finetuning to increase clarity was not needed.

PCTV has its own proprietary software, plus a trial version of Studio8 that

Price: Rs 3,500 Contacts: Pinnacle India Phone: 011-26445915 E-mail: mgupta@pinnaclesys.com Web site: www.pinnacle.com



lets you fiddle around with captured content.

Performance was on par with the other Pinnacle cards we've reviewed—content capturing was almost as good as that of the Pinnacle PCTV Plus and Pro, and no frames were dropped. The highest resolution supported for capturing is 720 x 576, which is MPEG-II high-quality.

### **SPECIFICATIONS**

PCTV Stereo low-profile PCI board, max resolution captured: 720 x 576, audio cable, IR remote control

Pinnacle PCTV	St	ere	90		(
Performance	•		•	•	•
Features	•		•	•	•
Build quality	•	•	•	<b></b>	•
Value for money	•		•	•	•

# **Brother MFC-8820D**

The enormous Brother

MFC8820D is competitively priced.
Looking at its unique features and good performance, it's best suited to busy office departments such as accounts, Public Relations and sales.

Apart from the usual functions, the unit can also do duplex printing, scan 50 pages using the ADF (automatic document feeder), and broadcast fax to as many as 390 locations.

The MFC-8820D is supported by a 250-sheet cassette, with an option to plug in another. The output tray holds 150 pages.

The scanner turned out decent images. It was quick too—at 600 dpi, the test image scan took just four minutes; other MFDs took

Price: Rs 41,000 + taxes Contact: Godrej & Boyce Mfg Co Ltd

Phone: 022-55961609 Fax: 022-55961526 E-mail: nad@godrej.com Web site: www.brother.com well over six minutes. The scanner can scan legal-size documents at 600 x

2,400 dpi resolution.

Fax is sent and received at 33.6 kbps. The copier scans at 1,200 x 600 dpi, and can print 99 copies. You can also make copies of multiple documents using ADF, adjust contrast,

set quality and also enlarge or reduce document size.

The copy function also returned good results when dealing with text-based documents, but images weren't copied well at all. This is probably the biggest minus for the unit.

### **SPECIFICATIONS**

2400x600 dpi print resolution, 250-sheet paper cassette, 1,200 dpi resolution scanner, 50-sheet legal-size ADF unit, 33.6 Kbps fax modem, 40-speed dial, 32 MB memory, 18.1 Kgs



# HP Business Inkjet 1100D

umongous! That's what pops into your head when you see the new HP Business Inkjet 1100D printer. Though recent times have seen low-profile printer designs, the 1100D distinguishes itself by



digit 78

being the opposite.

This is certainly an expensive printer, but business pedigree sets it apart. Buy it if your office prints about 5,000 pages a month.

Performance-wise, the 1100D was blazing fast and displaced most of the printers in our recent comparison. Its unbeatable speed in most of the tests saw it coming on top. As far as quality goes, it wasn't the best, but managed to give professional-looking prints.

The HP 1100D carries with

it all the features essential for a business environment. The printer has four ink cartridges, and the print head for each comes separately, for maximum flexibility. These, however, might add up to the overall cost, increasing the total cost of ownership.

You get 8 MB of memory enough for most print jobs.

Price: Rs 14,299
Contact: HP India Ltd
Phone: 1600-444999
Fax: 0124-2566112
F-mail: seema dawar@hp

Fax: 0124-2566112

E-mail: seema.dawar@hp.com

Web site: www.hp.com

The printer is network-ready and can be hooked up to HP's JetDirect print servers that support many network operating systems, not just Microsoft's suite of OSes.

### **SPECIFICATIONS**

1200x1200 dpi resolution, 8 MB RAM, 150 sheet paper tray, USB and parallel ports

HP	Business	Inkjet	1100D	
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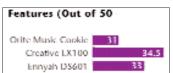
Performance	•		<b></b>	•	
Features				•	
Build quality			•	•	
Value for money		•	•	•	

JUNE 2004

**Orite Music Cookie** 

Phe Orite Music Cookie **I** packs the functionality of an MP3 player, voice recorder, FM radio and USB storage into one tiny ovalshaped glossy-red device. With a reasonably good set of features, jazzy looks and an affordable price tag, the Music Cookie can be considered as an option by youngsters. However, the FM radio performance and menu navigation need improvement, and should be considered before purchase.

Playback quality is average when headphones are used; Hindi tracks play reasonably well, but the player lacks bass. Voice recording quality is decent. The FM radio had problems catching signals even in





open areas. The 128 MB solid-state memory is sufficient for about 23 160 Kbps MP3 tracks at an average of 5 MB each. Tranfer rates are fast, and battery life is quite good. Music Cookie can display lyrics inserted into the tracks using the 2.91 version of Winamp and Lyrie121. But here's a bummer—you can't create playlists! You can create folders, but only MP3

Price: Rs 5,450 Contact: Mediatech India Phone: 022-26361111 Fax: 022-26312222 E-mail: sales@mediatechindia.com

tracks stored in the root can be played.

The voice-recording function uses the in-built microphone to capture audio in WAV format. The FM tuner can scan the entire frequency range, and you can store eight channels.

Downloading music on to the Cookie is simple. Plug into the USB port on your PC, and it's automatically recognised as a removable drive on Windows 2000, Me and XP. You can use Windows Explorer to manage files.

### **SPECIFICATIONS**

128 MB flash memory, supports MP3 format, voice recording, FM radio, USB storage, 1.5 V AAA battery

Orite Music Co	ok	ie			A
Performance		•	•	•	<b>&gt;</b>
Features	•	•		•	•
Ease of use	•	•	•	•	<b>&gt;</b>
Value for money	•	•	•	•	<b>&gt;</b>

# Web site: www.orite.com.tw

**Altec Lansing AHS-502 headset with microphone** 

he AHS-502 is a headset caters to the multimedia enthusiast. It comes in a gorgeous metallic and black colour

combination with a cushioned headpad and closed-cup earpads.

First off, this is not an option for audiophilesdon't compare it with Sennheiser et al. But it's a good option for the general listener who wants good sound-quality with a microphone.

The closed cup earpad design helps in eliminating ambient noise to give you

clear and rich quality. The cushioned headpad is a welcome feature.

The headset remote control is attached to the main cord. It has sound and microphone controls.

We ran our usual battery of tests, connecting the AH5-502 to a P4 3 GHz system with an Audigy2 Platinum sound card. It did not disappoint.

The bass reproduction was nice, but at high volumes, it overpowered everything else, and sound quality suffered. Otherwise, the bass is thumpy and ambient, rather than just all

Price: Rs 1,600 Company: Trifin Information Technology Ltd Tel: 011-26236061 E-mail: ashish@trifintech.com Web site: www.altecansing.com boom. Ideally, it could have been a little less prominent. Gamers though might like this kind of bass.

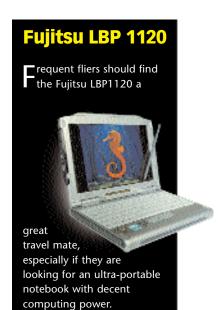
With Hindi songs, both classical and film songs were rendered faithfully without any distortion, and even at high volumes, the quality did not suffer.

The microphone is good quality, and showed good sensitivity.

### **SPECIFICATIONS**

Frequency response: headphones-20 Hz~20 KHz; microphone-100 Hz~16 KHz, microphone sensitivity: -40 dB V/Pascal +/- 2 dB

Altec Lansing	AH	S-5	502	2	В	J
Performance	•	•		•	•	
Features	•			•	<b>\</b>	
Build quality				<b></b>	•	
Value for money				•	•	



Measuring just 1.4 x 9.1 x 6.3 inches, and weighing just 1.1 Kg, the LBP1120 is light and ultra-compact by any standards.

The LBP1120, as expected, performed below par on our tests. But the focus here is portability and not computing power. The battery dies after continuous usage for two and a half hours.

The LBP1120 is expensive. But If you can put up with the niggles, and just need a small notebook that fits in your suitcase, then this one fits the bill.

### **SPECIFICATIONS**

Transmeta Crusoe TM5800 800 MHz CPU, 256 MB SDRAM, 30 GB hard drive, two USB 1.1 ports, one VGA port via adapter, 802.11b integrated adapter and one compact flash slot

Price: Rs 1,10,000 Contact: Aci Infocom Ltd ne: 022-2826 6031/32 Fax: 022-28250674 E-mail: desmond@aciinfo.com Web site: www.fujitsu.com

Fujitsu LBP 1	В-				
Performance		1	•	•	•
Features		•		•	•
Usability			•	١	<b>&gt;</b>
Value for money	•	•	•	•	•

# Gigabyte FX5950 Ultra GT Edition and Gainward Ultra 1100 XT

looks cool in its metallic

PCB background. The

cooling fan runs at two

green colour over the blue

↑7e tested two cards based on nVidia's latest chipset. The Gigabyte FX5950, as the name suggests, is based around the NV38 core, and is a top-of-

speeds—it's slow in the 2D mode, but speeds up as you use a 3D application. As compared to the FX-5800 cooling system, the cooling system here is barely audible. However, the massive

> adjacent PCI slots. The Gainward card has a polished aluminium heat sink with a two-step regulated fan in the middle.

The Gigabyte package was much better than Gainward—a welcome move considering the price. You also get a Video-In/Video-Out connector module with the Gigabyte, while Gainward makes do with just a cable.

The Gigabyte card falls a tad short of winning the crown from our

performance winner, Gainward's FX-5950Ultra card (refer to the graphics card shootout, 'In Graphic Detail', in February 2004).



Gigabyte FX5950

the-line model that a gamer could die for. On the other hand, Gainward's Ultra 1100XT model of graphics card is based on nVidia's FX5900 XT chipset, which in turn, is a souped-up version of the NV 35 core.

The massive heat sink on the Gigabyte card forms the bulk of its design, and it

PC Mark 2004	(graphics)
Gainward FX 5950 Ultra	4998
Gigabyte FX 5950 Ultra	4960
Gainward Ultra 1100XT	4821

Specs at a Glance

	Gainward 1100XT	Gigabyte FX-5950 Ultra						
Core speed	450	475						
Memory clock	780	950						
Onboard memory	256 MB DDR	128 MB DDR						
Outputs offered	D-Sub, DVI and VIVO	D-Sub, DVI and VIVO						
Bundled Package	WinDVD, Arx Fatalis	Tomb raider AOD, Rainbow Six						
		Raven Shield, Arx Fatalis, PowerDVD						

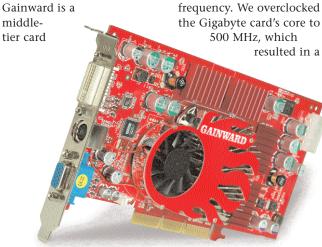
Price: Rs 36.000 Company: Digi Giga Systems Ltd Phone: 022-26526696 E-mail: sales@digigiga.co.in Web site: www.gigabyte.com.tw

# Gigabyte FX5950 Ultra **GT Edition** Performance Features **Build quality**

Value for money **> > > > >** 

The Gainward FX-5950 belts the Gigabyte card in most of our benchmarks. The Gigabyte card hardly managed to reach within a hand's distance of Gainward's performance.

On the other hand, the FX-5900XT card from Gainward is a middle-



Gainward Ultra 1100 XT

that tries to offer the best of both worlds. Although the core and memory are underclocked compared to the FX-5950 cards, the Gainward does offer good performance.

We played games right from the good ol' Quake III, Serious Sam 2, to the more recent Call Of Duty, Deus Ex: Invisible War and UT2K4, at all possible resolutions up to 1,600x1,200. The game play was great—no jerks, no jagged edges—just pure fun. Even at

1,600x1,200, all games ran smoothly. Turning on effects to enhance the

12 per cent boost in its score, and it was quite stable when we did this.

quality does take a toll on

cards were no different, but

even then the frame rates

were above playable rate.

Overclocking utilities

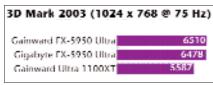
come with both cards, and

they allowed for an

incremental increase in

any card, and these two

Priced at Rs 15,875, the Gainward 1100XT offers the highest bang for your buck, offering good performance at a terrific price. Gigabyte's offering burns a hole as large as Rs 36,000 in your pocket, but makes up by offering terrific performance, superb overclocking capabilities and good availability across the country.



Price: Rs 15,875 Company: Mediatech India Phone: 022-56396696 Fax: 022-22014083

E-mail: sales@mediatechindia.com Web site: www.gainward.com

Gainward Ultra	a 1	10	0 2	ΚΤ	В+
Performance	•	•	•		<b>•</b>
Features	•	1		•	•
Build quality		•	•		<b>\</b>
Value for money				•	•

**Umax X4 LCD monitor** 

The X4 is a 14-inch monitor targeted towards those who want the pleasure of LCD, at as low as Rs 15,000. The price may be low, but given the average performance, opt for it only if you are hell-bent on an LCD.

Black and silver grey in colour, the panel can be tilted and swivelled. Soft touch menu buttons are on the right-hand side, but the speakers are at the last place they should be—the bottom. And this is only first step on its ladder of inadequacy.

We tested it using different slides of the DisplayMate Video Edition, and the results were mixed. In the colour and greyscale test, as well as in the streaking and ghosting test, results were good. However, in the white and black level shift test, the edges appeared

Price: Rs 15,500
Contacts: Neoteric Informatique
Phone: 022-24172600
E-mail: sales@neoteric-info.com
Web site: www.umax.com



blunt: a red tinge formed due to the level-shift problem. The colour purity test didn't impress either—red appeared more like a shade of magenta, and was darker at the corners. Also, the brightness varied between the upper and lower half of the screen when we weren't sitting upright in front of it.

### **SPECIFICATIONS**

1,024 x 768 resolution, 0.297 pixel size, 30 ms pixel response time, 2 W x 2 speakers, 42 W power consumption, weight: 4.5 Kg

Umax X4 LCD	В-				
Performance	•	•	•	•	<b>•</b>
Features	•	•		•	•
Build quality	•	•	•	•	<b>&gt;</b>
Value for money	•	•	<b></b>	•	<b>&gt;</b>

# Scansoft's OmniPage 14.0

At US\$ 600—Rs 26,400— OmniPage 14.0 is not worth it. First, it's too much of a hassle to get documents recognised properly. And second, it's extremely sensitive to minor scanning errors.

We used images of a variety of types to be OCRed: a regular Word



OmniPage failed to recognise simple words such as the one in this example

document, a fax printout, a magazine page, and so on. We found that without manually setting almost everything, OmniPage got thrown off almost everywhere.

The newspaper scan was a total mess: the formatting was askew, and the text in the output was mostly

junk. The magazine scan, too, was disappointing. In fact, the only document OmniPage recognised properly was the laser printout, which consisted of plain text in Courier—a fixed-width font. The software even showed up minor errors with

simple documents that contained only text in Times New Roman. Such errors are not acceptable, given that you have a choice—ABBYY FineReader, which also happens to be much cheaper.

Price: US\$ 599 (approx Rs 26,400) Contact: HCL Infosystems Phone: NA

E-mail: seigell@hclinsys.com

Web site:

www.hclinfosystems.com

# Kodak CX7300

The price of the CX7300 puts it within reach of most budget buyers. However, given the image quality, we suggest you loosen your purse strings a little bit and get a decent quality camera.

This entry-level digital camera from Kodak has a 3.2-megapixel CCD capable of generating images with a resolution of 2,096 x 1,560. It lacks optical zoom, but the 3X digital zoom helps you get close-ups. However, the zoom is practically useless, as the focus gets completely lost, and so does the colour reproduction and crispness.

We were also disappointed by the image quality of indoor photos. There was a prominent green tinge all over, and in spite of ample light in the room, the image was dark. To work around this, we set the exposure setting first to 0.5 EV, and then to 1.0 EV to get a brighter and detailed image, but there was just a marginal improvement.

Night mode yielded almost the same image quality as the 0.5 EV setting, leaving us with no other finetuning option. You'll have to

Price: Rs 8,700
Company: Neoteric Informatique
Tel: 022-24172600
E-mail: sales@neoteric-info.com
Web site: www.kodak.com

### **SYSTEM REQUIREMENTS**

Intel Pentium III, Microsoft Windows 98 SE or higher, Internet Explorer 5.01 Service Pack 2, 128 MB RAM, 135 MB free hard disk space, 800 x 600 pixel colour monitor with 16-bit colour or greater video card and a compatible scanner with its own scanner driver software

Scansoft's Omn	iPa	ıge	14	4.0	C+
Performance	•	•	•	•	<b>\</b>
Features	•	•	•	<b></b>	<b>&gt;</b>
Ease of user	•		•		<b>&gt;</b>
Value for money	•	•	•	•	•



manually set a higher exposure setting to get a bright image.

However, the CX7300 returned viewable images of outdoor shoots. The image quality was much better, but when viewed at actual pixel size in Photoshop, it had red and green spots all over.

The CX7300 has an inbuilt memory of 16 MB, and runs on two AA batteries. You should be able to pack as much as 30 to 32 images of the 500 to 600 KB range on the internal memory.

The camera also has an SD/MMC card expansion slot—useful for those vacation photographs that might just be too much for the default memory to handle.

### **SPECIFICATIONS**

3.2 megapixel CCD, 3X digital zoom, 16 MB internal memory, ±2 EV exposure setting, two AA batteries, 10 seconds self-timer, weight: 147 gm

Kodak CX7300					
Performance	•	•	•	•	•
Features			•	•	•
Build quality	•	•	•	•	•
Value for money	•	•	•	١	•

# **Attaboy ATi**

# We got our hands on the hottest new graphic scorchers from ATi, and here is how they fared

Ti has launched their X800 series of video cards, putting to rest the long awaited anticipation of their sequel to the Radeon 9700 series. New technologies such as GDDR3, codeveloped by ATi and Joint Electron Device Engineering Council (JEDEC), along with massive changes and improvements in the R300 graphics core, have already been implemented in this new series, bringing real-time cinematic effects closer to consumer desktops.

ATi sent us engineering samples of the X800 XT Platinum and the X800 PRO. These engineering samples are premass production cards, sent to various reviewers to test and give users an insight into the their architecture. Remember, there may be differences in the performance of engineering samples and the end product you'll actually buy—not necessarily worse, the end product could actually perform better!

The X800 XT features 16 pixel pipelines, while the PRO version has 12 pipelines. The R420 core contains approximately about 160 million

Call Of Duty 221.6 (800×600) 221.3 (1024x/68) 157.6 212.1 (1280x1024) 109 100 150 200 352.4 (1280x1024) 379.4 393.1 (\$\rho s\) 330 340 330 360 370 380 390 400 3DMark2003 (1024×768) 10032 (fps) 0 2000 4000 8000 8000 10000 12000 Halo 51.49 (1280x1024) 39.79 40 60 80 (fps) o ■ ATI X800PRO R420 ■ Gainward GeForceFX5950 Ultra ■ ATI X800XT R420

\*These games were run at highest quality settings with 32-bit colour

transistors, and uses the 0.13 micron  $m\,a\,n\,u\,f\,a\,c\,t\,u\,r\,i\,n\,g$ 

process.

The power consumption of this card is on par with the older 9800 XT and PRO models. The core clock speed of the XT and the PRO models are 525 MHz and 475 MHz respectively.

MHz respectively.

Both use 256 MB of GDDR3, running at 560 MHz (1120 MHz DDR) for the X800 XT, and 450 MHz (900 MHz DDR) for the X800 PRO.

Beastly beauties: the

The number of VertexShaders in the X800 has gone up to six, from the previous four available on the 9800XT, and it supports VertexShader 2.0. The memory interface is divided into four channels of 64 bits (total 256 bits) that read and write data to and from the memory at the same time—controlled by a sequencer logic circuit for optimum throughput.

nVidia's offering, the 6800 or NV40, introduces shader model 3.0 features (DX 9.0c)—missing in the ATi X800 series. ATi claims that since current generation games are yet to implement PlayStation 2.0 features, it will take over a year for PlayStation 3.0 to be implemented. This seems feasible, but we feel nVidia is a better future-proof solution.

Also, the 6800 is a gigantic chip, with about 222 million transistors, and requires a hefty SMPS to power it. The original NV40 runs at a core clock speed of 400 MHz, with approximately the same memory clock speed (1.1 GHz) as the R420.

We tested the X800's on both the latest games, as well as older ones. Our test-bed was an Intel D875PBZ motherboard with a 3.2 GHz Pentium 4, 512 MB of DDR 400 RAM and a 120 GB Seagate SATA hard drive. We used the latest Forceware 56.72 drivers for the 5950 Ultra.

We started with an amazing game called *Far Cry*. Putting together a PC that can shore up to its system requirements costs as much as buying

a car. We ran the default fort time demo at both, maximum and minimum

details. This game is one of the first to implement DirectX 9.0 features such as PS2.0. Even the X800 couldn't keep up when everything was turned on.

We also tested *Halo* and *Unreal Tournament 2004* with



the default benchmarks. One major problem is that the CPU seem to become a bottleneck—evident from the fact that when we changed the resolution from 800 x 600 to 1024 x 768, in *Call Of Duty*, the difference in frame-rates is negligible, but *Halo* and *Unreal Tournament 2004* show a drop in frame rates.

In the *Halo* tests, the X800XT stood out with a stellar performance, as compared to the GeForce FX 5950Ultra, which struggled at lower resolutions. *Call of Duty* uses a heavily modified *Quake III* engine. This game gave frame rates upwards of 200 with both the X800 cards, while it languished at 109 fps with the 5950—the X800XT out performed it by 88 per cent at the highest tested resolutions.

ATI has a winner on its hands with the X800 series. The X800 XT and the X800 PRO are two of the fastest cards we've ever tested. Both cards performed similarly, but you'll need a high-end machine to enjoy these cards to the fullest, since the CPU and the system RAM can easily become bottlenecks.

Other mainstream models are in the offing, and the pricing of the cards will vary as mainstream and performance cards will have different specifications. ATi has once again set the bar with their X800 series. For now, we're dying to see the nVidia 6800 do battle with ATi's X800!

BHASKAR BANIK
bhaskar\_banik@thinkdigit.com



# Inkjet MFDs Ha

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If you're
expected to
multi-task,
why shouldn't
your devices
do the same?



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# Why MFDs?

typical office has a fax machine, copier, printer and scanner, all in different locations—often the first available space. Your daily excercise routine probably involves scanning a picture, going back to your PC to print it, picking up the printout, marching to the fax machine to send it off to whoever needed it and then huffing and puffing your way back to your chair. It's time you got yourself an MFD (Multi-Function Device).

A regular MFD is a sort of all-inone, with a scanner, copier, and printer in one package. Mid and high-end ones also have a fax. An MFD could have an inkjet or laser printer unit.

A mid-range inkjet printer costs around Rs 8,000, a scanner about Rs 6,500 and a new fax machine will cost about Rs 12,000. You do the math! Instead of spending Rs 26,500 for three units that use more space and resources, you can buy a mid-range MFD for about Rs 18,000.

If you're looking for a colour copier, you should opt for an inkjet-based MFD. High end laser MFDs offer highquality copies, but are expensive.

An MFD is very often a viable solution, but the amount of work done each day needs to be considered. You can't think of an MFD as a workhorse for one particular type of work. It can never match up to a dedicated device it's a compromise, but one that could be worth it.

# There's a Risk Involved

There's a definite disadvantage associated with an MFD: if one component of the device fails, you'll have to do without all of its functions while it's being repaired.

Another downside is the upgrade option. You can't upgrade just the scanner unit or the printer unit. So you're stuck with it-either sell the MFD and buy a new one, or look for a buy-back deal from the manufacturer.

Here are some instances where buying individual peripherals would be a better option.

The Printer Unit: Though the quality of printing units in MFDs has improved



a lot over time, business users, and professionals in specific fields such as Web designing and publishing, will find that an MFD lacks the quality of a stand-

Also, most MFDs only support A4 size paper—so for A3 printing, you can't bank on an MFD.

The Scanner Unit: The same applies for the scanner unit. An MFD's scan quality is comparable to a standalone entry-level scanner. However, users who need the quality of a prosumer scanner may get a raw deal.

The Copier Unit: The cost for a copy taken on an inkjet MFD is higher than that of one taken on a regular laser copier. Also, an MFD takes longer for a copy. If your work demands include a large number of copies, it's wise to invest in a regular copier.

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# What to look for when you go MFD-shopping

# HP INVENTED the FIRST INKJET all-in-one in 1994

# **First Things First**

**Remember:** if any component of the MFD fails, you're going to have to send the entire unit for repair. Check the warranty and repair policies.

# **Printing**

MFDs are available in both the laser and inkjet varieties. The laser option is only available in monochrome. So, if you will primarily use the MFD as a printer, with the fax and scanner as secondary peripherals, opt for an MFD with a laser printer sub-unit.

# Copying

When copying documents, speed is important, and the copying quality should be acceptable. Copying a document involves

both the scanner and the printing unit, which makes it important that they both operate fast enough to make for fast copying. Also, make sure that the MFD can copy without involving a PC.

If you're buying a colour inkjet MFD, make sure it can scan in either 24-bit or 30-bit colour. Other copying features should include a range of reduction and enlargement settings, the ability to print 50 to

100 copies at a time, and one-touch single copies.

### **Faxing**

Most mid-end and high-end MFDs offer fax capabilities. Opt for one that offers a separate telephone handset. Also check the capacity of the ADF (Automatic Document Feeder), the memory presets it offers, and whether it offers speed-dial. Can it broadcast

to different locations successively, or does it need someone to manually do the task? Is there a buffer where incoming faxes can be stored until paper is fed back into the tray? Also, on high-end MFDs, check if the unit supports features such as caller ID and voice mail.

### Resolutions

You need to look at both the printing and scanning resolutions. An MFD scanner unit isn't meant to replace a high end scanner, so a scanning resolution of 200 dpi should do fine. A printing resolution of 600 x 600 is preferred, though 720 x 360 should suffice.

Don't fall for scanning resolutions such as 1,200 x 1,200 dpi, which are mostly interpolated, meaning that the image size is adjusted in software. This results in disk space wastage and slows down scanning.

# Ink/toner configuration

If you're opting for a laser printing sub-unit, check the rated life of the toner cartridge, since this varies. Opt for an MFD that has separate tri-colour cartridge, and a separate black one. It would be great if the MFD lets you replace the colour cartridge with a black cartridge, as and when required.

### Speed

Check rated printing speed for black documents in pages per minute (ppm) since it will affect copying as well as the receiving of incoming faxes. Since black-ink documents will be more frequently printed than colour documents. Scanning rates may or may not be available, but if the printing speed is fast enough, it's safe to assume that the scanner will function at a respectable speed. Always keep in mind that colour printing will be slower than black printing. Also, the copying speed should be almost equal to the printing speed.



Another aspect is the path the document is put out through. If the MFD has two separate scanning and printing output trays, then it can print the first copy while the original is being scanned. MFDs that share an output path must wait for the original to be ejected before outputting the copy. Also, make sure the device can handle enough paper for your workload.

# **Cost Per Page**

The cost per page is a hidden factor when you purchase an MFD. The point is that you cannot accurately determine this until you begin using the MFD. However, you can correlate; the cost per page mentioned by the manufacturer will always be somewhat lower than the real figure.

### **Memory**

Memory can be used to store fax numbers and to save fax pages when the MFD has run out of paper, and also during broadcast faxing. Also look for options such as memory cards that can be read by the MFD. Compare the claimed number of phone numbers and

fax pages the manufacturer advertises that the MFD can store.

# Optical Character Recognition (OCR)

An Automatic Document Feeder (ADF) will come in handy in situations where you want to copy or OCR, say, 10 different documents without manning the device. The ADF should be able to handle at least 10 pages.



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# Advantages and disadvantages of MFDs

# **Advantages**

- You free up office real estate.
- MFDs usually have hotkeys and special software that make them user-friendly.
- Since all the functional units are combined into a single machine, you require only one USB port on your PC, freeing up other ports and reducing wire clutter.
- You have lower running costs compared to individual peripherals, where you need to buy consumables for each machine.
- High-end MFDs allow you to place the device on the network without the need for an intervening PC.

### **Disadvantages**

- All the components cannot be used simultaneously, so if two people need to use two different functions, they'll have to go about it taking turns.
- If the printer or the scanner unit malfunctions, you won't be able to use the copier and the fax functions.
- Professionals may well turn a blind eye to these devices as they don't supply the kind of print and scan quality they need.
- These devices are generally fragile, and proper handling becomes an issue. Remember that if you drop this device you risk losing three or more functional devices.

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# HP ALL-IN-ONE

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in 2000,

BUILT-IN NETWORKING

in 2003.

# Workshop: The fax of the matter

hough Microsoft Fax comes bundled with Windows, but it's not installed by default. To install it in Windows XP, go to Start > Settings > Control Panel > Add or Remove Programs, and then click on 'Add/Remove Windows Components' to start the Windows Components Wizard. In the Components list, tick 'Fax Services', and then click Next. If you haven't installed the MFD yet, it starts up the Add New Hardware wizard so you can do so. When prompted, insert the Windows XP installation CD and click OK. Finally, close all Windows.

If you're running Windows 98, you can install Microsoft Fax from the Windows 98 installation CD. Browse to 'Tools\OldWin95\ Message\US' and run Wms.exe first, and then Awfax.exe. Configure Microsoft Fax by going to Start > Programs > Accessories > Communications > Fax > Fax console to bring up the Fax Configuration Wizard. Click Next on the Welcome screen, and fill in the Sender's Information

only to send or to receive faxes, or both. If you choose to receive as well, you will have the option of manually answering the call, or answering it automatically after a certain number or rings.

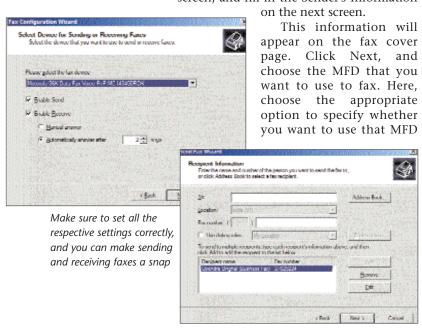
Click Next and type in the Transmitting Subscriber Identification (TSID) that usually consists of the sender's fax number and name, and appears in the header area of a received fax. In the next screen, type in the Called Subscriber Identification (CSID) that appears on the sender's machine and helps ensure that the fax is sent to the correct recipient.

Click Next, and you're asked what to do when a fax is received. Choose 'Print it' if you want the fax to be printed automatically. You can also choose to create a local copy of the fax by clicking 'Store a copy in a folder' and specifying the folder. Click Next, review the settings you chose and click Finish to complete the configuration.

You may change the settings anytime by going to *Tools* > *Configure Fax* in the Fax Console.

Once you complete the Configuration Wizard, the Fax Console opens up. The Incoming folder in the Fax Console contains faxes that are currently being received; the Inbox folder contains faxes that have been received; the Outbox folder contains faxes scheduled to be sent; the Sent Items folder holds faxes that have been sent successfully. To create a new fax, click 'New Fax' on the toolbar, or go to File > Send a Fax. This will start the Send Fax Wizard. Click Next on the Welcome screen and enter the recipient's information, and click Add to add that entry to the recipient list. You can add multiple recipients and build an address book.

Click Next, choose a template and enter the subject and note for the fax, to prepare the cover note. Specify the priority of the fax, and when you want to send it, on the next screen. The final screen shows you the fax summary and also gives you the option





to preview it. Click Finish, and voilà! You've just sent your first fax.

What if you need to fax an MS Word document? Use the Fax printer that's installed along with Microsoft Fax. To fax a file from any application, go to *File > Print*, select the Fax printer in the Print dialog box and click OK. This starts the 'Send Fax wizard' that lets you specify the receiver as mentioned above. Coming to the receiving part, if you have configured the machine to receive faxes automatically, then you don't need to do anything. Click the Receive Now button on the toolbar of the Fax Console, if you have configured it to receive the fax manually. Alternatively, activate the Fax Monitor by going to *Tools > Fax Monitor* and click Answer Now.

# **Network faxing**

Though quite comprehensive, Microsoft Fax lacks features such as network faxing. You will need powerful software such as Symantec's WinFax Pro 10.0. The setup is straightforward. Once it's complete, the first screen asks you to enter the CSID (Called Station Identification), your fax number and your phone number. The second screen asks you to choose MFDs and other devices that you want WinFax Pro to use to send faxes.

Next, the chosen MFD is tested to determine speed and other parameters. Once this is done, specify whether you want WinFax Pro controller to start up with Windows. You can receive faxes via e-mail by enabling that option in the next screen.

All you need to do is choose the e-mail program and enter a password. If you wish to skip the registration step, click Cancel. Finally, Live Update starts to update WinFax Pro—this can also be skipped by clicking on Cancel. That's it!

## Sending a fax

Bring up the WinFax Pro Message Manager the centre point for all of your fax related tasks—by going to *Start > Programs > Symantec WinFax Pro > WinFax Pro Message Manager*. Go to Send > Send New Fax..., or click Send on the toolbar to bring up the WinFax Pro dialog box. Here, click on an address book entry to insert the name and fax number (or enter them manually), and then click 'Add to List'.

Also, schedule the send time for individual recipients by clicking on Schedule. Next, to create a cover page, choose '(Other...)' from the drop-down list that's located just below the subject field, to bring up the 'Select Cover page' dialog box. Choose from the many predefined templates here, and add the note and the subject that appears on the cover page of the fax. Finally, click Send.

You can view the status of the fax—whether it failed or was sent successfully—by clicking Send Log in the Message Manager. If you want to send a fax as an e-mail, click Send on the Message Manager window to bring up the Send dialog box. Here, click 'Email' on the

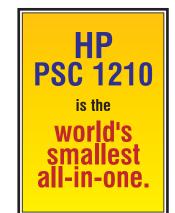
toolbar. A new dialog box opens where you specify the address of the fax recipient, the subject and the message. Next, click Insert to insert files, and click Send when you're done. This fax will be sent the next time you open your e-mail client.

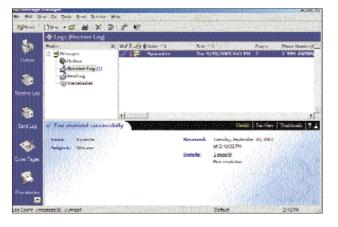
The advan.

tage of sending a fax to e-mail is that your Word files, etc., can be viewed by anyone, even those who don't have Word installed; secondly, it gets sent in an unalterable format. When you send fax to e-mail, it is sent as a self-executing file that can be viewed on any Windows PC.

# Receiving a fax

Check whether automated fax receiving is enabled by right-clicking the fax icon in





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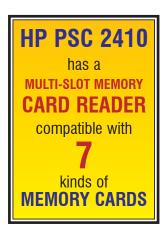
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33.6 kbps, up to 50 pg mannery lox<sup>3</sup>
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To chart you, town with Fig. 1900 aptimated day when and 1900 spaces of Fig. Squared species and again to the Space of Fig. 1907 and the Space of Fig. 1907



your System Tray to show the controller menu. If 'Automatic Receive' is enabled, faxes will be received automatically. If it is unticked, you'll have to right-click the System Tray fax icon, and click 'Manual Receive Now' or go to Receive > Manual Receive Now in the Message Manager window to receive the fax.

You can customise the fax receiving settings even further by going to *Start > Programs > Symantec WinFax Pro > Program Setup > Receive* and then selecting Properties. Use the options in the General tab to specify the number of rings after which the call should be answered. Specify the time when you want calls to be answered automatically by clicking on Schedule.

Decide the action that has to be taken after a fax is received, such as playing a

sound or printing it, in the 'After Receive' tab. In the 'Junk Fax' tab, you can specify what to do with junk faxes—faxes with a missing or incorrect CSID. In fact, there are lots of features that can be customised in WinFax Pro. For this, you will have to go to the Program Setup located in the Start > Programs > Symantec WinFax Pro group.

Here, you will find options for backing up and restoring your faxes and logs, and other things. That's the way you get your PC to double up as a fax machine. You can also try setting it up using faxing software that comes with the MFD driver installation CD.

These software have made faxing less of a tedious job. So the next time the boss needs to send something urgently, all you have to do is use the PC!

# **Workshop: Batch OCR using ADF**

Scanning multiple documents and running them through OCR software one at a time can

be time consuming. To speed up this process, you can get OCR software that has a batch feature. Using this feature, multiple documents can be scanned and OCRed without wasting time.

To use this feature, the MFD must have an Automatic Document Feeder attached to the scanner. The capacity of the ADF will decide how many copies can be scanned in one shot without user intervention. We used ABBYY FineReader 6 CE for this workshop—it has the batch feature. Here are the steps to get the batch feature work for you.

Scan all documents as an image into a folder using the ADF. Go to File and click New Batch. Now, create a new batch on the hard drive.

Open this batch by going to File >

*Open Batch,* and in the dialog box that opens up, select the batch folder from the location. Now click 'Open Image' and click 'Open Image' again. This will open up the dialog box from where you can browse to the batch folder where the images were saved.

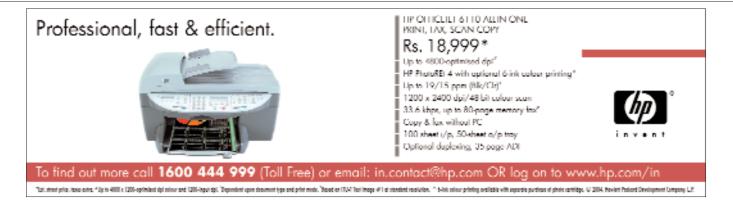
Select all the images to be OCRed. Once the files are selected, open them all—they will show up on the left of your. Click the 'Read all' button, and sit back while the images are read by FineReader.

Once the recognition part is over, click Save, which will present you with the option to save the document as Microsoft Word, Excel, or text. Choose the file format, and all documents will be saved accordingly.

If you have fewer documents—10, for example—then there's a feature called Scan and Read Multiple Images. Using this feature, you can scan the documents in the ADF, and FineReader will read the scanned images.



The Save Wizard lets you choose the format in which you want the file to be saved



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# **How to Get the Best Quality Printouts**

- Set the printer driver settings correctly.
- The best results will be achieved by matching the printer, printer settings, ink and paper.
- Handle inkjet papers like photographic papers, by the edges to avoid oil deposits and fingerprints.
- Be sure that you are printing on the 'right' side of the paper, that is, the coated side.
- Best image quality (sharpness and colour saturation) is usually obtained at the printer's maximum dpi setting.
- Set your printer for the proper paper type and weight. Fine art papers are heavier than ordinary inkjet or bond papers. If possible, set printer to thicker paper settings, or use the 'envelope' setting.
- Feed heavy/stiff paper one sheet at a time. Placing a sheet of plain copier/bond paper behind a heavy sheet sometimes improves the feed.
- Media settings on your printer



determine how much ink will be applied to the paper. Thinly coated glossy films require less ink, while plain paper soaks in more. Coatings are designed to control ink absorption and spread, producing brilliant, sharp images with less ink.

■ Allow ink to dry completely to avoid smudging. The time it takes to dry will vary based on the ink and paper quality used as well as the temperature and humidity conditions.

# **PictBridge**

# Who needs a PC to get a digicam print out?

Well, that is exactly what the PictBridge is here for. Developed by Camera and Imaging Product Association (CIPA) in Japan, the technology connects digital cameras directly to the printer, doing away with the PC.

PictBridge cameras and printers can be connected over a USB interface and images printed directly. You can even tweak the image settings from the printer itself. Earlier, some printers

could print directly from a camera, but they were compatible only with specific camera models.

With PictBridge, you can even select a portion of an image and print it. You can also define the size of the print from the printer itself, before printing it out.

Canon, Sony, Sanyo, Samsung, Fuji, Nikon and Olympus have their products PictBridge-certified. Visit http://www.cipa. jp/pictbridge/CertifiedModels/PictBridgeCert ifiedModels\_E.html for a full list of PictBridge-certified products.

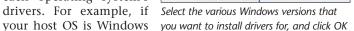


# **Installing additional drivers**

If you are sharing your printer over a local area network (LAN), you probably want all Lusers, running any version of Windows, to be able to use it, right? If you are running Windows 2000 or XP, you should install additional drivers, so that Windows 98 users don't have to look for drivers to use your printer.

Go to Control Panel > Printers, right-click on the printer icon and choose Properties. In the Sharing tab, click on the 'Additional Drivers...' button.

Now you need to select each operating system's



XP, and you wish to share the printer for Windows 98 and Me machines then select Windows 98/Me. now all you need to do is insert the driver CD and wait for the installation to finish. You might have to select the exact path for each additional operating system that you selected. Once done, any-

one running any of the OSes that you installed drivers for, can justdoubleclick on the printer to install it. Do this by going opening Network Neighborhood, browse to the computer connected to the printer and double





# **Buying Tips**

- Opt for a printer with a USB interface, which offers higher data transfer speeds. There is nothing like a printer offering both USB and parallel connectivity.
- Consider the total cost of ownership (TCO), not just the price. Vendors tend to sell printers dirt-cheap. Prices of cartridges, though, are skyrocketing. If you have tons to print, even a minor difference in the cost per page will save you a lot over the printer's lifetime.
- Check whether the printer supports extra features such as ink status determination via software, so that you can be sure of when to change the cartridge.
- Inkjets that use pigment-based inks are better than those using normal dye-based inks. Printouts taken with the former are smudge-proof, water-resistant and last longer.
- Choose a printer based on the kind of print quality you actually require. Inkjet printers offer excellent quality as far as images and graphics are concerned,

whereas laser printers offer better quality text printouts.

click on it.

- If you're planning to buy an inkjet printer, make sure to check the page per minute (ppm) speed. Manufacturer-rated speeds are always in accordance with the printer's fastest mode of printing, and you're more likely to be printing in Normal or Best mode, which is much slower.
- If you intend to share the printer over a network, or print heavy images, look for one with higher buffer memory.
- If you are buying a printer for photo printouts, always take a test print to check for quality. Some printers require a separate ink cartridge for photo quality printouts, while some don't. Check for this, as it affects the TCO.
- Check the manufacturer's Web site for the type of support they offer, whether they offer regular software updates or patches for new operating systems.



# Do-it-yourself: Printing on your T-shirt



Select the image file that you wish to transfer onto your t-shirt. To print the file, set the printer setting to Best quality and paper type to Transfer Paper. You also need to check the Mirror option. Before you print the image on your costly transfer paper, print it on a normal paper in order to ascertain the colour and size of the image.

Take a T-shirt and place it on a flat surface, so that the under surface does not bend and provides even heating to all parts of the paper.

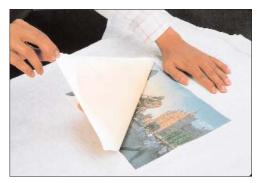
Place the Iron-on transfer paper with the printed side down on the T-shirt and arrange it properly, so that the edges are parallel to the Tshirt's edge.



Make sure you iron the shirt on a flat even surface, and check to make sure there are no wrinkles, or you'll end up ruining the print

Set the iron to the maximum heating possible and move it over the iron-on transfer paper, such that it receives even heating across the entire area.

Take care not to over heat the paper. Stop ironing



Peel the sticker from one corner using a sharp blade

slightly dark the paper turns in colour. Start peeling the paper from one edge.

As you peel one edge off the paper, check if the transfer has taken place. Continue to peel slowly, with one hand holding the T-shirt in place.

After peeling the paper you will see a plastic coating over the printed surface. Don't try to remove it; it will go once you wash the T-shirt.



Don't remove the plastic covering on the image this protects it till the first wash



Canon

The intelligent and iZSS gives you like-like prints with 5 pl small ink draplets, using its revolutionary

# **Direct printing**

Some of the latest printers provide you with a special slot for the memory card of your digital camera. You can download your pictures to the printer, preview them on the printer's LCD, choose the ones that you want printed, make adjustments, and then print them. Quite a few vendors have come up with printer models that provide you with this functionality.

Some printers do not require a memory card to be inserted; the camera is directly attached to the printer via a cable. Canon's Powershot series is one such example. You can





camera controls and the LCD, and print directly to the printer.

# Jargon buster

**Bleed:** The outer region of the page that falls outside the printing range of the printer. **Buffer:** The memory within the printer that stores data from the PC until it is printed.

Currently, this varies from 16 KB to 16 MB. The greater the buffer, the better is the handling of large print jobs.

customise photographs by using the

PostScript: This is a page-description language. It instructs the printer about where to place ink. PostScript was invented by Adobe. Currently in version 3, it supports complex page layouts and provides excellent quality. PostScript has become the de facto standard in imaging technology.

**Colour Balance:** This term refers to the correct combination of cyan, magenta and yellow required to reproduce the colours of the original scene or object.

DPI: Dots per inch is a measure of the number

of dots printed per square inch. For example, a 300 dpi printer produces 90,000 dots on a square inch. Higher dpi values produce sharper printouts. The minimum dpi supported by any printer today is 600.

**Duplexing:** This process helps you print on both sides of a page, thus, reducing wastage of paper. These days, many printers come with this utility.

International paper sizes: The International Standards Organisation (ISO) categorises paper into three sizes: A, B and C. Series A is used for general printing, Series B for posters and charts, while Series C is used for envelopes and stationery. A detailed report on paper sizes is available at <a href="http://www.cl.cam.ac.uk/~mgk25/iso-paper.html">http://www.cl.cam.ac.uk/~mgk25/iso-paper.html</a>.



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# **Tips and Tricks**



# Martridges

If you are installing a new cartridge in your inkjet printer, keep it in an upright position for a few moments before fitting it in. This ensures that the ink will be at the nozzle when you are ready to use the printer.

Also, store the cartridge in an upright position, in an air-tight plastic container. If you feel that your prints are not as crisp as they should be, run the printer's head-cleaning utility. This is necessary if you are using your printer after a long time.

# **W** Using the Right Paper

The regular paper that you use for printing, ILU, is good enough for day-to-day print jobs. However, at times, you may want to print on special types of paper. Different types of paper are available for different printing needs.

# Marie Photo Paper

This is similar to the paper used by film devel-

| Company | Comp

Selecting the correct photo paper from the list can give amazing results especially while printing images

opers, and is designed to produce high-quality images. They come in both matte and glossy finish, and in standard photo sizes. Use photo paper studio for quality photos.

# Printing marked selection

When printing selected text, say on a Web page, select the text, and go to *File > Print*. If you're using Internet Explorer 5 or higher, choose to print 'Selection' in the dialog

box that pops up. Most of the newer browsers have the Print Preview in the File menu.

This feature can be very useful if you want to print only selected pages. Use the Print dialog box in Internet Explorer to choose what you want to print. Decide upon the pages that you want to print in the Print Preview dialog box, and then click 'Print...'.

Now in the Print dialog box, enter the page numbers and click OK. This procedure is practically the same for most browsers, including Netscape.

# **22** Page setup

Most printing software provide you with a 'Page Setup' feature. This lets you determine how your page is going to print. The first thing that you can set is the margin. This is the distance of the printed material from the edge of the paper. When printing formal documents, you should leave a bigger margin-especially on the left.

If you want smaller margins, remember that you can't set it to zero because your printer just isn't capable of printing from the corner of a page. Thankfully, most applications are smart enough to warn you if you try to do so.

Next, you can set the gutter width—a blank space on the paper that will be trimmed off, or be lost while binding a book. Set this option only if you plan to bind the pages. You can set it to be on the top or on the left of the page.

You can also choose the Page Orientation-landscape or portrait, depending on the orientation you want. Landscape is when a document is wider than it is longer, and portrait is the format that this page you're reading is in—height more than width.



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### **MAINTENANCE**

# General Cleaning

If the printer is printing in streaks, and is smearing, it means there is excess ink in the carriage area. Follow these steps: Open the printer and remove the cartridges. Fold a letter-sized piece of paper in half, and then in half again, so that it is quartered.

Insert this paper into the regular feed slot. Gently move the paper to the left and to the right to remove excess ink under the carriage. Once the ink is removed, the printer should resume printing normally.

Call your technician at least once a year to get your printer cleaned thoroughly. There are parts that are impossible to get at without disassembling the machine. These need to be attended to only by a professional.

# Printing Images

There are a few general rules that should be followed to print high-quality photographs. The first rule is to use specially designed photo papers. HP, Kodak and others have their own brand of reliable photo papers.

The second rule is to use a photo cartridge, provided your printer supports it.

The third rule is to choose the correct settings in the 'Print' dialog box. For this, click 'Printer properties', and set the print quality to the highest possible value. Choose 'photo paper', if you are using one as the paper type.

### TROUBLESHOOTING

# Inkjet Printers

If horizontal or vertical lines appear on your printouts, run the print head-cleaning utility three or four times, one after the other. Check the paper if the printouts appear faint. The paper might be damaged, old, or loaded incorrectly.

If you use special paper, such as photo paper, make sure you are printing on the correct side. Check the printer's manual for information regarding the compatibility of the paper.

To unblock a cartridge's print head, place the print head in a shallow bowl of hot water for 20 to 30 minutes. This will soften the dried ink so that it flows through the print head. You should see the ink bleed out. If this doesn't solve the problem, repeat the procedure once again.

Next, insert the cartridge into the printer, and run the print head-cleaning utility. If soaking the cartridge in hot water hasn't cleaned and dissolved the dried ink, you should place the print head of the cartridge in a shallow bowl containing an equal mixture of very hot water and bleach—just enough to cover the print head. Keep the head in this mixture for two or three minutes.

This hydrates the dried ink, making it flow through the print head and you should see the dried ink flow out. Now, you can insert the cartridge into the printer, and run the printer's print head-cleaning utility. This should solve your problem.

# Economic printing

To save toner or ink, it's a good idea to keep your default print settings to Draft, or EconoMode—especially for those of us who don't need high-quality prints all the time. To do this, go to Control Panel > Printers, and choose the printer properties by rightclicking the printer icon.

You can always change these settings temporarily through the Print dialog of the application that you are printing from. For example, when printing from Microsoft Word, just click on Properties and change the mode to Normal or Photo.

You should also save paper by printing on both sides of the page. If your printer doesn't support two-sided printing, feed the paper manually, and flip it over to print on the other side. You can also use software such as FinePrint (www.fineprint.com) for double-sided prints. Don't forget to set the page margins to the least value supported. It allows more matter to be printed on fewer pages.





# haute gear >> inkjet printers



# **Caring for Your Printer**

- Align the ink cartridge after you've installed it. Use the software bundled with the printer for doing this.
- Always store cartridges in their factorysupplied containers or in a small, zip-lock bag in a cool and dry place.
- To avoid paper jams, clean the inside rollers with alcohol. Set your paper guides carefully when placing paper in the in-tray. Never mix paper types in the same tray. Fan through the sheets to separate them before loading the paper tray.
- Use the paper recommended by your printer manufacturer. Use good quality paper even for printing drafts as it prevents paper dust from clogging the printer.
- Always use your printer's power switch rather than the switch on a surge protector to switch off your printer.
- Over a period of time, the prints you get will become faint and there will be lines running across the page. To restore the original print quality, many inkjets come with a nozzle clearing function



that blows ink through the nozzles to unclog them. Use this feature regularly, especially if the printer has been unused for weeks.

- If you find a leak, don't try to fix it yourself. Call the authorised service centre.
- Air bubbles in the cartridge can cause your printer to shut down. Never shake your ink cartridge as that creates bubbles
- If you remove a part of your ink system such as the print head or ink reservoir, remember to replace it. Opening the system for even a few hours allows the ink to dry out and clog the print head.

# Selecting the Right Paper

The paper you use greatly determines the print quality. Standard quality paper doesn't provide as crisp and bright an image as paper made specially for a particular inkjet printer. The main factors that affect paper quality are:

Brightness of paper: This is normally determined by the smoothness of the paper. A coarse sheet of paper will scatter light in different directions, whereas smooth paper will reflect more of the light back in the same direction. This makes the paper appear brighter, which in turn makes images on the paper appear brighter. The finish may be described as high gloss, gloss,

soft gloss, or semi-gloss, each reflecting the amount of shine.

Absorption: When the printer sprays ink onto the paper, it should stay in a tight, symmetrical dot. If the ink is absorbed too much into the paper, the dot will spread out in an irregular fashion and the result is fuzzy images and text. The coating on photo papers gives the printed photos the look and feel of photographic prints. Because the coating keeps the paper from readily absorbing the ink, some glossy papers dry slowly. However, quick-dry gloss finishes are common today.



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# Laptops

Haute gear ANNIVERSARY SPECIAL

Here's a brief look at the one portable device everyone either has, or wants to have



# Laptops, over the past 3.5 x 10<sup>-1</sup> centuries

In the 1970s, Alan Kay of the Xerox Palo Alto Research Center, California, built the Dynabook. It could handle most computing needs and had wireless network capabilities.

1979: William Moggridge designed the Grid Compass. It had 340 KB of bubble memory, a die-cast magnesium case, and a folding electro-luminescent graphics display.

1981: An India-born book publisher, Adam Osborne, came up with the Osborne 1. This gadget had a 5-inch screen, a modem port, two 5.25-inch drives, Battalion software and a battery pack. It weighed almost 11 Kgs (some laptop!) and cost \$1,795—about Rs 18,000 at

that time. The Epson HX-20—a battery-powered portable computer, with a 20-character by 4-line LCD display and in-built printer—was also released.

1983: The Gavilan Computer was released. It had 64 KB of RAM, ran the Gavilan OS (also ran MS-DOS), had an 8088 microprocessor, a touchpad mouse, a portable printer, and weighed in at 4 Kgs. Radio Shack released the TRS-80 Model 100. Microsoft wrote its ROM programs—Bill Gates wrote a few himself! It used standard AA batteries. 1984: IBM announced the IBM 5155 Portable Personal Computer, equipped with 640 KB of RAM, two double-sided 5.25-inch drives, and an amber mono-



chrome monitor. Apple, the same year, launched the Apple IIc model—a note-book-sized computer that had a 65C02 microprocessor, 128 KB of memory, an internal 5.25-inch floppy drive, two serial ports, a mouse port, a modem card, an external power supply and a folding handle.

1986: IBM introduced its IBM PC Convertible. It used an 8088 microprocessor, and had 256 KB of memory, two 3.5-inch floppy drives, an LCD, parallel and serial printer ports, and space for an internal modem. It came with its own application software, weighed 5.4 Kg and sold for \$3,500 (about Rs 45,500 at the time).

# **Laptop Accessories**



External mice: It's quite tiresome to work long hours on a laptop, especially if it involves a lot of cursor activity. Keep an external USB mouse for such sessions. Optical mice for laptops are small, and fit into your carry case with ease. They are slightly uncomfortable, but still better than the touchpad.



Carry cases: Laptops come with reasonably good looking and sturdy carry cases. These usually have a pocket to accommodate

the power adapter. However, if you're a frequent flier, and carry other accessories along, look out for specially-made laptop bags. Elegant leather bags with special pockets for the power adapter, external optical drives, etc., are more durable than the resin bags provided by manufacturers. Use hard-case bags to protect your laptop from wear due to bumpy roads, rain, snow, sleet, hail, etc.

**External laptop coolers:** The use of desktop components in entry-level laptops reduces costs. However, these components dissipate a large amount

of heat, and strangely, hardly any laptops have efficient-enough ventilation systems. You might think of purchasing an external cooling system. Antec's laptop cooling solution has a plastic base with a brushed perforated aluminum surface that makes contact with the laptop body. Two high-rpm fans between the plastic base and the aluminium surface draw heat away from the laptop.

**External lights:** You can use USB-powered light sources that you can clip on to the top of the screen.

**Standby batteries:** Laptop batteries usually last about 3 to 5 hours. So it makes sense to carry a charged standby battery along when travelling.

We recommend you purchase batteries from the manufacturer, rather than from a third-party vendor at a lower rate.

Other accessories: A Kensington lock is a wire lock that can be used to secure a laptop to a desk. Protect your LCD screen using a screen protector. These are thin plastic sheets that can be stuck on to the LCD to prevent scratches. Use lint-free fabric to clean the screen.



# Workshop: Lap Sync

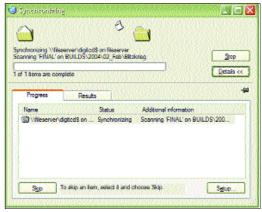
**7** ou've just returned from a business trip, and you start the process of transferring files from your laptop to your PC. With fingers and toes crossed, you pray that everything goes well. Even as you sit and search through folders to see which files aren't already on the PC, you contemplate quitting your job. Fortunately for you, we've got a simple solution. All you need do is let Windows XP's Offline files feature help you out of this predicament.

### **Enabling offline files**

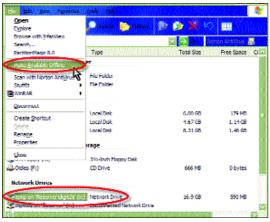
First, go to Control Panel > User Accounts > Change the way users log on or off and uncheck 'Fast User Switching'. Next, open Drives available offline are synchronised once you plug the My Computer, and go to Tools > Folder laptop into the network Options. Switch to the Offline Files tab, and ensure that 'Enable Offline Files' is ticked. Here, you'll also find options that let you decide about synchronising while logging on and off. Note that these affect all the network drives you set for synchronisation.

### Map network drives

It's time now to create a network drive. Map a shared folder over the network using a drive let-



The Synchronisation Manager gives details of the process



ter. On the laptop, open My Computer, and click Tools > Map Network Drive, choose a drive letter, and enter '\\computername\\sharedfolder', where 'computername' is the name of your desktop PC, and 'sharedfolder' is the folder you've shared on the desktop computer. This folder should have read and write access in order to synchronise.

## **Networking offline**

Click on the networked drive in My Computer and go to File > Make Available Offline. A wizard lets you set further options when you do this for the first time. This option is available only by going through the aforementioned path. To disable synchronization for a mapped drive, select the drive in My Computer, and go to File > Make Available Offline and remove the checkmark.

#### **Synchronising**

When you first make a network drive available offline, all the files are downloaded from your laptop to your desktop PC. Whenever you replug the laptop to the network and log on to Windows, the network drive is synchronised.



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Synchronisation is done based on the date the file was last modified. Say you created a file in offline mode, named 'somefile.txt,' on May 13, 2004, which was not accessed thereafter. Say another user created a file with the same name in the target folder on the desktop on May 16. If you plug your laptop into the network after this, the file on the desktop replaces the one on your laptop.

#### **The Synchronization Manager**

Access the Synchronization Manager by going to *Start > All Programs > Accessories > Synchronize*, or just enter *'mobsync'* in the Run dialog box. Here, you'll see a number of network drives, as well as Offline Web pages to be synchronised. Select an item and click Setup. There are three

tabs where you can specify when to synchronise. The Logon/Logoff tab lets you decide about synchronising while logging on or off. Use the On Idle tab for synchronising when the computer is not in use. In the Schedule tab, set the time at which synchronisation should start automatically.

#### The third-party way

Third-party software such as Second Copy (www.centered.com), Folder Match (www.foldermatch.com), etc., also help you orchestrate harmony between your laptop and desktop PC. They also throw in some nifty features such as mass file renamers and duplicate file finders.

With synchronisation, you can say goodbye to those backbreaking data transfer days.

BUYING

## Be sure to look at this before you get a laptop!

**BATTERY USAGE:** Be cautious, as several manufacturers indicate the battery usage time at the lowest possible power settings. **LEGAL SOFTWARE:** Make sure your laptop comes with legal software. Some vendors who assemble or sell laptops may not provide you with legal copies of the software. Verify that the software that comes with your laptop is on an original CD, and has a software licence or registration number. **UPGRADABILITY:** This may not occur to you when you purchase a laptop, but it's important all the same. Here are some options to look for when upgrading your laptop—the RAM, the CPU, the hard drive, etc. Are the upgrades something you can do yourself, or do they require visits to a service centre? **LOCATION:** Make sure you can easily return the laptop to the dealer if it proves unsatisfactory. Also check if the dealer can service your laptop. If he can't, where's the nearest place your laptop can be serviced? HARD DRIVE: Capacities range from 6 GB to 50 GB. Most users should find 12 to 20 GB enough. In any case, you won't save much

by buying a smaller capacity drive, and will pay a lot more for a larger drive than the one bundled.

PORTS: Most peripheral devices connect to a USB port; make sure there are at least two USB ports. You will also need parallel, serial, and PS/2 (for keyboards and mice) ports. **SIZE AND WEIGHT:** Weights range from 1.5 to 4 Kgs, and thicknesses could be as little as 1 inch. Many laptops offer large screens and can work as desktop replacements. The larger the screen, the more bulky your laptop becomes. External power supplies and peripherals can add considerably to the weight. Lightweight portables can become as heavy as regular laptops when you add up the weights of all of the components. **DISPLAY:** This will require a compromise if you decide on an ultra-portable model. Most displays now support resolutions of 1024 x 768 pixels, and a 14-inch notebook display is larger than most 15-inch desktop CRTs. PROCESSOR: The Pentium III M, Pentium 4 M and Athlon mobile processors are available for the laptop segment.

# Do-it-yourself: Secure your laptop

### It's a big bad world

Whether you lug your laptop all over the world, or just from home to work and back, the fear of physical loss of the laptop is everpresent. Not all laptops are stolen and sent to the local chop-shop to be re-sold; smart thieves will target laptops to pick up data that is otherwise inaccessible from workstations behind company firewalls. Third-party software tools that will restrict logins and encrypt drives are your best bet against data thieves.

The Bill Gates' of the world probably have a posse of security men guarding their laptops. There are hardware locks available that will let you secure your laptop as you would your bags on a train. Also, using commonly available tools, you can ensure that even if your laptop's stolen, your data remains safe.

#### Hardware paranoia

Securing your laptop is best achieved by locking it down... literally! Laptop manufacturers provide a little slot where you can attach a lock. This slot is connected to a steel rod within the chassis; taking apart the rod is as good as breaking the laptop. The slot can be identified by a little lock icon, with the letter 'K' on it. Hardware security devices available in India range from the simple to the sophisticated. At the bottom of the list are ordinary devices that lock into the security slot and have a tough steel cable to wind around a table leg, or some permanent hook-like fixture. This prevents a crook from just picking up your laptop and walking away with it. We looked at a mechanical device that has a combination lock and comes with 1.5 m of tough steel cable around it.

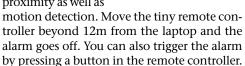
Setting it up is simple: attach the device into the security slot, wind the cable around a table leg—or use the supplied steel hook that can be mounted on a wall—and lock it. This device works great if you tend to be less

mobile. Short of sawing through the thick steel cable, the table leg, or trying to break the code on the combination lock, you can't steal a laptop with this device protecting it.

There are more sophisticated devices available that work with inbuilt motion sensors. We found that Targus's DefCon 1 systems (www.targus.com) allow you to set sensitivity levels on a motion sensing equipped device; one particular model, the PA 400, lets you connect a clip-like device into the security lock, loop a steel cable through it and lock it into the motion sensing device. Shake the laptop, or the motion sensing device, and an ear-splitting alarm sounds.

This should be enough to grab the attention of everyone who isn't already deaf, and also give the potential thief a good scare. You can only turn it off by unlocking the three-

digit combination lock and undoing the cable. An even more sophisticated DefCon 1 product, the PA 430B, comes with a motion sensing device, cables, a clip and also a remote control that lets you trigger the alarm by proximity as well as



This device is ideal for travellers, who can secure their laptops whilst travelling in highrisk public areas such as airports. Neither of these security devices will allow you to access the battery compartment until you unlock the device, so somebody intent on stealing your laptop cannot disable the alarm.





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Keep in mind that while these devices are relatively secure, there's still nothing like total security; at best they provide a deterrent.

#### **Secure the insides**

Corporate espionage is a growing problem; the data on your machine may of immense value to the competition. Even ordinary email can be a source of information. Your only shield here is making sure that the computer cannot be accessed by anyone but yourself, and that the data is still unreadable, should someone try to swap drives—BIOS and Windows passwords are not adequate security. Use a relatively more secure OS such as Windows 2000 or Windows XP, and patch the OS with the latest service packs. Then use commercial tools to further secure and limit access. To this end, we tested SafeBoot Solo.

To run this tool, you'll need a Windowsbased laptop and formatted floppy diskettes. You'll be prompted to create rescue diskettes at installation, which can be used to recover from hard drive failure, or from a corrupted setup. These diskettes can be used to log in to your machine, so store them securely.

#### SafeBoot Solo

SafeBoot Solo (www.safeboot.com) is simple, easy to use and is shareware—after the trial period expires, SafeBoot will delay boot-up by a minute. Installing SafeBoot is a two-step process—installation and configuration. Once SafeBoot is installed, you are prompted to reboot, after which a simple configuration process starts. You'll be prompted to enter a username and password, which you will use to authenticate, as well as change SafeBoot's settings. Now you can opt to encrypt all, or some of your drives-you can choose either partial or complete encryption. A partially encrypted drive has 10 per cent of its drive volume encrypted. Ideally, encrypt the entire drive. After this, the installer starts copying all the additional setup files.

If you chose to encrypt drives, SafeBoot will conduct the drive encryption operation imme-

diately. You can choose to either reboot, or continue working with SafeBoot in the background; you can also stop and restart it later. To view the encryption status, just right-click on the SafeBoot icon and choose Show Status.

With SafeBoot installed, you are presented with a login screen when the computer is turned on. On the login screen, you'll find additional options to boot from either hard drive or floppy. Once you authenticate, Windows boots up normally.

While you work with Windows, doubleclicking the SafeBoot icon in the system tray launches your screensaver and locks your computer. You need to re-enter your Windows password to continue working.

While SafeBoot forces you to authenticate before Windows loads up, you should encrypt your hard drives to safeguard your data. This will prevent someone from just removing your hard drive and reading your data on another laptop. SafeBoot's encryption works on a real-time basis—files read from an encrypted drive are encrypted and decrypted on the fly. SafeBoot uses the AES algorithm



Encrypting drives using SafeBoot

(the Advanced Encryption Standard) implemented with 256-bit security. If you didn't encrypt your drives during installation, you can do so by right-clicking on the SafeBoot icon in the system tray and choosing Configure. You will also be prompted to re-use the rescue disk you created earlier.

# Optical Storage

Data about slim media that belie the amount of data they stuff in...



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# The Story of Storing

Initially, we used the floppy disk to carry home every important presentation, office document, etc, that was left pending at the end of the day. It held just 1.44 MB of data and stopped working randomly after a few rounds of usage. Then came the CDs that stored more data and were reliable too. With CD-Writers getting cheap, CDs just about replaced floppy disks as portable media.

However, a few years down the line, storage companies were at it again as they tried to break through the 700 MB limit. And along came the DVD. Today, CDs and DVDs are treading the path of co-existence. So, we have combo-drives that cater to both. The ones currently available read and write both, CDs as well as DVDs.

So, what started as a mere 1.44 MB has now reached 4.7 GB and this is not the end. Some models, such as those from Lite-On, are dual-layer DVD-

Writers. This writer, when used with the correct media, write twice the amount of data that's normally written to a DVD. Thus you will be in a position to store hundreds of MP3s and movies on a single disc. For the business user, it translates to approximately 10 CDs worth of backup on a single disc.

Speeds have increased too. From a slow read speed of 1X to 52X for CD-ROM and 16X for DVD-ROM, it's been taking significant strides. The same is true for the write speed of CD and DVD-Writers—what took half an hour to burn can now be accomplished in under three minutes.

External drives is another interesting category meant for laptop users and people on the move. Their initial installments were heavy and bulky, but design improvements have made them light and slim, hence carrying them around is not a problem any more.

# 8 easy steps to burn that perfect CD

- Turn the screensaver off while burning a CD, so that it does not hamper the flow of data to the CD-Writer.
- Defragment the hard disk before burning a CD.
- If you have a speedy CD-Writer but a slow processor and hard disk subsystem (ATA 33), it's safer to burn the CD at a speed lower than the maximum possible.
- Use 'Track At Once' instead of 'Disk At Once' to burn an Audio CD. This makes the Audio CD look more professional since a 2-second gap is inserted between each burned track and the CD can then be mass produced error-free.
- Always 'finalise' a burned Audio CD to ensure that it plays on your home music system.
- Use branded CDs to burn critical data—cheaper media are prone to damage and do not hold data for long. Moreover, there's no guarantee that they will burn everything perfectly.
- Shut down all other applications while burning CDs. Avoid using the PC for any other tasks while a CD is burning.
- Try to simulate a burn process if the writer has just presented you with a coaster. Most CD-Writing software allow for this.







All I inconverses are available in Black colour also

# **Workshop: Of Boot And Sound Burns**

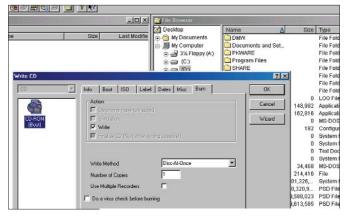
Only a strong CD Writer can survive in duplicators used for Mass copying. **Liteon is the no.1 choice** of Duplicators in India and worldwide.



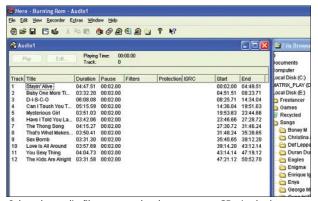
# Make music CDs using Nero

- Click on Start > Programs > Ahead Nero > Nero Burning ROM.
- Select the Audio CD option and click Next.
- Use the Finish button to confirm all the details.
- Select the songs you wish to burn on the CD from the File Browser on the right side of the screen. Drag them to the compilation window on the left by holding down the left button on your mouse.
- Once you have dragged all the files across, you are ready to save (or 'burn') to a CD. Go to File > Write CD... to launch the Burn CD Wizard.
- Click the Burn button to start the writing process.
- Once your CD has been written, click Discard. Retrieve the recorded CD from the drive.
- Select *File* > *Exit* from the menu bar to exit Nero, once the burning process is over. Click No when asked to save the session.

#### **Burn the boots**



Choose the Disc-At-Once method to burn the bootable CD



Select the audio files you need to burn on your CD via the browser

- Get the bootable CD or the floppy of the operating system.
- Start Nero v5.5 and select the CD-ROM (boot) in the main window. The windows that opens gives you the option to select the drive in which the bootable floppy/CD is located. Here, make sure the bootable floppy is in the drive, otherwise the drive letter will not be highlighted.
- Put the blank media in the writer and leave the ISO and Misc tab as it is.

Give the appropriate name in the label section for the bootable CD. Select the Burn tab and check 'Write and Finalize the CD'. Select the Disc-at-Once write method and click on the New tab.

The bootable CD will be left with lots of unused space, it can be utilised to burn drivers and updates for your PC.

- Switch to the Write tab and select the safe writing speed, according to your system's configuration.
- You are now ready to write the CD. Typically, the size of the bootable CD for Windows 98SE will be around 125 MB and it will take around four to five minutes to complete the process.
- Check the CD by booting the system with it.



# What does this mean?

**Back-up:** The essential job of saving and storing data on a tape, CD-R, etc.

Copy Protection: Both discs and players come equipped with hardware mechanisms to prevent the illegal copying of DVDs. You will not be able to copy the movie to a VHS tape, your computer's hard drive or any other data-recording device.

**DAT:** Digital Audio Tape is a compact, high capacity form of data storage, suitable for archiving or backing up large amounts of data.

DVD: Digital Versatile Disc is a high-density format for playing full-motion video. It provides a vast data storage capacity. Although popular within the home market, DVDs can also be used to hold computer data.

**Hybrid DVDs:** Nine leading consumer electronics manufacturers have jointly issued the basic specifications for a next-generation, large-capacity optical disc video recording format

DO COMB\*

called Blu-ray disc. These DVDs can hold six times the data held by those of the current standard. The new format will store more than 13 hours of film, compared to the current limit of 133 minutes.

High Density-DVD is the enhanced form of current DVD format. Blue lasers have a much shorter wavelength than the red lasers used in current DVD players, allowing for much greater disc capacity. The new high definition format allows a capacity of 4.7 GB to 15 GB on a single-sided, single-layered disc and a capacity of 8.5 GB to 30 GB on a single-sided, double-layered disc.

This provides a cost-effective upgrade path for media vendors and a backward-compatible solution for all those who've already built DVD libraries. Current DVD players use 650 nanometre (nm) red lasers, while CD players use 780 nm diodes. It will not be possible to play Blue-ray discs with existing DVD and CD players, since these don't use 405 nm lasers. Blue-ray drives need to contain 780, 650 and 405 nm lasers in order to be compatible with CD and DVD discs.

Packet writing: Packet writing is a technique by which a normal CD-R or CD-RW can be used like a floppy or zip drive. Normally, when a CD is burned, the table of contents (ToC) is generated first, then the burning begins, and finally the ToC is written onto it. This allows the OS to retrieve the files from the CD the way it is meant to be, but once the ToC is burnt in, more data can't be written onto the CD.

The idea behind packet writing is that if one need not worry about the TOC, and write data to a CD-R in blocks or packets. By writing an appropriate set of functions into the OS, a vendor can provide packet capability for writers with suitable hardware and firmware.

However, since the ToC will not be present, its information has to be conveyed to the OS in

Litcon writers
feature fastest ever
80 millisecond
access time compared to
120 millisecond access
time of competing products





Innovator of Optical Technology



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Liteon DVD-writers
not only feature fastest
8x DVD burning speed
But also, the fastest
CD read/write speed of
40x compared to
24x in other DVD-writers



some other manner. This is done by including a header along with each packet that contains the information on the file it represents, including its length. This also tells the OS where the next packet begins. In this way, the OS can read the CD contents. However, adding this additional information decreases the disc's capacity.

Cross-talk: A measure of the amount of interference coming from neighbouring pit tracks on a CD. As track pitch is tightened (when tracks are packed closer together to put more data on a disc), cross-talk increases. A maximum value of 50 per cent is allowed by Red Book specifications.

Mastering: The process of creating a stamper or a set of stampers to be used in the injection moulding stage of manufacturing compact discs. A digital signal from a PC is used to guide a laser beam, which etches a pattern of 'pits and lands' (in the case of CDs) or a continuous groove (for CD-Rs) onto a highly polished glass disc coated with photo-resist.

This 'glass master' is then cured (developed) with ultraviolet light and rinsed off, and a metal (nickel or silver) mould is electroformed on top of it. This mould is removed and then electroplated with a nickel alloy to create one or more stampers to be used in the injection moulding machine to press the data into

the polycarbonate substrate of CDs, or the guiding groove into the CD-R substrate.

Media or 'blanks': CD-R media are the discs used to record digital information with a special recorder and pre-mastering software on a computer. These discs are made of a polycarbonate substrate, a layer of organic dye, a metalised reflective layer, and a protective lacquer coating.

Some discs also have an additional protective coating over the metalised layer, while others have a printable surface silk screened on them.

Organic dye: The data layer of CD-R discs is made from either cyanine or phthalocyanine dye, which is melted during the recording process. It then becomes opaque or refractive, scattering the reading laser beam so that it does not reflect into the reader's sensors. The difference between reflected and non-reflected light is interpreted by the player as a binary signal.

Pits and lands: In a 'pressed' or mass-replicated CD, the bumps and grooves that represent the binary data on a disc's substrate are pressed into it during manufacture. CD-R discs do not have true pits and lands, but the un-melted, clear areas and melted, opaque places in the dye layer fulfill the same function as pits and lands on a pressed disc.

# **CD-ROM FIle System**

To access any file, a computer's operating system needs to be able to locate the file. A file system facilitates the storage and retrieval of hundreds or even thousands of distinct files. Every operating system uses a different file system and therefore, there are a number of CD-ROM file systems in use on Windows, Macintosh, Unix and others. The most common file systems for CD-ROMs are the ISO 9660 and Joliet extensions. ISO 9660 is the international standard and is

designed for the PC and MS-DOS. The Joliet specification was designed to resolve certain deficiencies of the original ISO 9660 file system, such as a limited character set and file name and path lengths. CD-ROMs that are to be used on Macintosh computers are usually created in the Hierarchical Filing System (HFS) format. This format features support for sub-directories, up to 31 characters per file name and up to 27 characters for volume names.



# Your shopping checklist

#### **CD-Writer**

- Make sure that the drive has a high spin speed and fast access times. If you need to read non-sequential data such as a game, then access time should be your point of concern.
- Does it support over-burning?
- Does it support Multi-Session and Incremental Packet Writing?
- Does it support RAW writing?
- Does it include a CD-burning software?

#### **DVD-ROM drive**

- A DVD-ROM drive should be able to read dual-sided DVD media.
- Opt for a 16X—the fastest speed available.
- Also, ask for the warranty period and the parts covered in the warranty.
- Make sure you buy a DVD-ROM drive that has at least 512 KB as buffer memory.
- Opt for a slot DVD-ROM, rather than the

one if you are a home user.

- Till date, due to their interface, external writers were slower as compared to their internal counterparts. However, with the arrival of FireWire and USB 2.0, this is no longer a problem.
- The greatest advantage of an external USB CD-Writer is that it can be hot-plugged to the PC (i.e., there's no need to shut down and restart).
- External writers come with the added baggage of SCSI/FireWire/USB 2.0 cards that add to the budget.
- Internal CD-Writers tend to hog a great deal more of the system's resources.
- Buffer underruns used to be a big problem with internal drives, but that's been solved using buffer underrun protection technology.

Liteon optical drives can read/write 99 minute cd's compared to limitation of 81 to 89 mins of others brands





one with the tray, since they last longer.

■ Ensure that a good DVD playback software such as WinDVD is provided along with the drive.

#### **External vs internal writers**

Choosing between an external and an internal drive depends primarily on your requirements.

 $\blacksquare$  Internal drives are usually cheaper. Opt for

# Taking care

- Never use poor quality detergents and sprays for cleaning. Clean the drives using a soft, dry fabric.
- Keep the tray clean. Use a duster for thorough cleaning.
- Use an uninterrupted power supply (UPS) for your PC. This protects your system from any drastic power surges.
- Do not push the tray to close it; use the eject button instead.
- Never force the tray out, if it doesn't eject automatically. Use the pin provided with the drive to remove it manually.
- Use a good quality lens cleaner to keep the lens clean, as this is one of the most important parts of the drive.







# haute gear >> optical storage

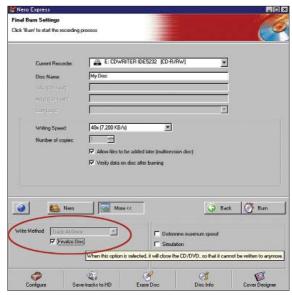
# Half-Height Optical drives from LITEON (17cm only), giving more space in cabinet for better air circulation and system stability. Best for Prescott.

# What is Finalising?

Inalising is the process of closing a session on a disc. An open disk is one on which you can add data. A single-session disk has three areas: the lead-in, the program area and the lead-out. The lead-in contains the Table of Contents (ToC), the program area holds the data and the lead-out is used to pad the remaining portion of the disc with zeroes.

When the session is closed, the ToC is written to the lead-in area, which enables all CD-ROMs and CD players to read the ToC and access the data. However, the disc cannot be opened again to write more data onto it, and so the remaining space is wasted. However, if the data is written to the disc, and the session is not closed, the ToC is not written to the lead-in area; instead it's written to a separate area called the Program Memory Area (PMA).

CD recorders are capable of looking into the PMA to find the ToC of the open session,



Use the Finalise Disc option to close the session for the CD

and then continue to add more data in a new session. Thus, to make a disc multi-session, the burn process should not be finalized.

# Copy protection

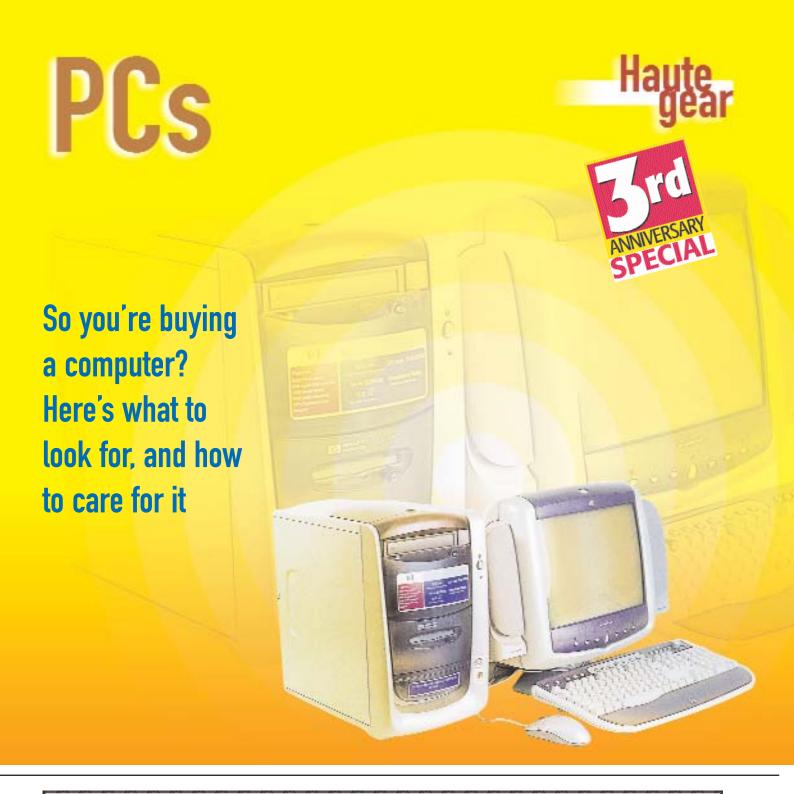
Copy-protection is the technology that has been devised to protect media content—be it streaming or static, from being copied. Although, it's okay to make a personal backup copy of any media for archival purposes, media companies are taking no chances and are aggressively using different copy-protection techniques to protect their content. Some popular techniques in use by game publishers are SafeDisc from Macro Vision and SecuROM from Sony. Audio CDs use Cactus Data Shield by MidBar Technologies.

SafeDisc 2 is the latest incarnation, and consists of three main features—an authenticating digital signature,

encryption that protects the content and anti-hacking software

SecuROM is a copy-protection technique made by Sony and is employed by game publishers. The process consists of adding a unique electronic SecuROM key to the CD-ROM using special glass-mastering equipment, also manufactured by Sony DADC. The electronic key is the important element in the process. This key is not that easy to copy to a CD-R. These protection techniques can be worked around using certain copying software. CloneCD is one such one-to-one backup CD software that is commonly used.





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# Tweaks for your Brand New Machine

hen your brand new computer is delivered to you, in pristine condition, your applications load blazingly fast and run smoothly. However, as you use your computer, it tends to become progressively slower and applications do not run as responsively as they used to. To counter this, there are a number of little tasks and housekeeping settings that you can run on your computer to ensure that it remains running as smoothly as when you first booted it. Also, there are a plethora of settings that you can run on your computer to push it a little extra, and utilise all the power that is hidden inside, making it a faster machine than it ever was before.

## **Restrict your startup files**

Go to the Startup folder in Windows and remove any applications that are unnecessary during startup. This

includes download managers, the Office Start bar, Chat clients, etc. These applications take up precious resources such as memory and processing power, and are invoked when you start your PC. Therefore, launch them only when you need them and you'll be freeing your computer's resources for applications that actually need it.

#### **Load the latest drivers**

Your new computer will most probably come with a pre-installed operating system, or at least with the setup CDs that contain the drivers for the various hardware in your system. You are likely to have outdated drivers on your system, and while your system would work, it won't operate to its full potential. Remember to load the latest drivers for your hardware, especially the video card, motherboard chipset and soundcard.

# ...to Keep the Doctor Away

Regular cleaning and maintenance of your PC is necessary. Here are some tips on how to go about this:

- Scan your hard disk for errors regularly. This will nip any problems in the bud.
- To ensure that the space on your hard disk is well utilised, you should defragment it regularly. This arranges the files in contiguous clusters, and improves performance.
- Update your drivers frequently for a smooth-running system. The same logic extends to patches for software

applications such as your operating system, office suites and anti-virus packages.

■ Keep your system in a clean, cool and dry place. Make sure to keep dust out of it, but don't block the fan vents by covering the cabinet. Cover your system only when it's not running, and make sure to keep all the various fans clean. Dust can cause any one of many moving parts in your system to lock up or slow down. This could cause a noticeable drop in performance and may even damage some critical components.

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# HP Pavilion Desktops for the Complete Digital Experience

# **Keyboard Shortcuts**

### **Special shortcuts**

- Display Windows Help Press [Windows] + [F1]
- Open the Start menu

  Press [Windows], [Ctrl] + [Esc]
- Open the System Properties dialog box Press [Windows] + [Pause Break]
- Open the Find Computer dialog box Press [Windows] + [Ctrl] + [F]
- Open Windows Explorer Press [Windows] + [E]
- Open the Find All Files dialog box *Press [Windows]* + [F]
- Minimize all open windows Press [Windows] + [M]
- Expand previously opened windows, and go back to the window you were working in last

Press [Windows] + [Shift] + M

- Display the Run dialog box
- Press [Windows] + [R]
- Select and cycle through the taskbar buttons

Press [Windows] + [Tab]

■ Set focus on a notification (only in Windows XP)

Press [Windows] + [B]

### **Keyboard control for Desktop**

Ever thought of browsing your desktop using only the keyboard? Here's how you can do it:

- Press [Windows] + [D] to show the desktop
- Press the [Windows], to bring up the Start menu
- Press [Esc] to make the Start menu disappear, but keep the taskbar active)
- Press [Shift] + [Tab] once to toggle between the taskbar and the desktop. Your desktop will now be active, although you may not notice any visual indication of it
- Press [Down Arrow] to see which desktop icon is active, and continue to use the cursor keys to move to the icon you want to use
- Press [Enter] to run the icon, or press [Shift] + [F10] to see the context menu for that icon

# **Buying Tips**

- Have a clear idea about your requirements, so that the PC you buy matches all your needs.
- If your new computer has Windows XP, we strongly recommend at least 256MB of RAM. In case the PC doesn't have it, add more memory.
- Choose a configuration that is future-proof. Look out for maximum expansion options such as PCI and AGP slots, and USB ports.
- With new PCs offering fast processors and the latest graphic cards, thermal dynamics is very important. Get more cooling fans in the cabinet.
- Choose a monitor that is at least 17-inch in size. Don't settle for anything less than an 80GB hard disk, running at 7,200 rpm.
- If you plan to run multimedia on your PC, such as, games and 3D creation, make sure you have a decent graphic card. It will give you optimal performance.
- Check all the finance schemes available, but don't fall prey to the free gift schemes. Instead, take a look at the packages offered.
- Make sure there is an authorised service centre close to you.

Enjoy blockbusters from the best septe in the house. With the HP Povilian 15601 Desktop.



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Lin John D. Da'r, See Hard April 1984 (1984)

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# Workshop: Searching by bar

Touldn't it be easy if you could search the Web directly, without waiting for the Web page of a search engine to load? It is, given the right tools. You can set the toolbar of the search engine of your choice (Google, Opera, Netscape, etc.) on your desktop, and search from there.

Download and install Google toolbar from http://toolbar.google.com/. Double-click the Internet Explorer icon on the desktop to load IE.. Next, right-click on any of the toolbars, you will see additional options such as Links, Addresses, Standard Buttons, etc. Click on 'Google' to load the toolbar. The toolbar has a text field, and buttons—'Search the Web', 'Navigate the Google News site', a graphical button to block pop-ups, an Autofill tool for Web forms, a blog updater and a button that enables or disables the highlighting of search words on the resultant page.

To search, just enter the search string into the text field of the Google toolbar and hit [Enter]. You can also specify Boolean text searches in the same text field area.

### The Google deskbar

The Google Deskbar (http://toolbar.google. com/deskbar/) is an add-on to your taskbar from where you can initiate any search directly. It displays the search results in a small window on the desktop itself. The results window retracts after short periods of time. To amend this, right-click on the taskbar and select Toolbars > Google Deskbar. A small text search field appears on the right-hand corner of your Windows Taskbar. You can also configure it to open the search link inside a separate browser window. Click on the arrow beside the binoculars, and in the menu that pops up, click on Options. Here, under the Mini-viewer tab, check the 'Display search results within miniviewer' box. Check the 'When clicking on results, open a browser' box, to open results in a separate browser window. Enable the 'Auto-

matically close the mini-viewer when you leave it' option to close the Deskbar search pop-up when your mouse cursor leaves the pop-up window area. Uncheck 'Use animated open and close' for disabling animation displays.

#### Other tools

Copernic Agent is another popular search tool that integrates into search engines and produces results available to them.

Download and install Copernic agent from http://www.copernic.com/en/products/agent/download.html. Start Copernic Agent, click on the lefthand pane and select Advanced. A small window pops up for you to enter your search. Click on 'Modify search engine settings' to open a small window that lists all the search engines it uses as reference engines—AltaVista, AOL, etc. Select all for more results, or deselect those you do not want to use. Click OK to exit.

Copernic spreads a wide array of search engines at your disposal. The results are listed relevance-wise, which is indicated in percentages.

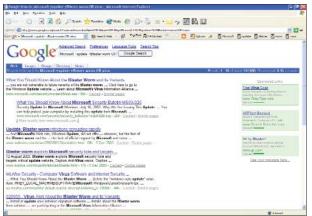
Click on the link displayed on the right-hand bottom half of the pane to browse through the results. This loads the Web site in the default browser.

Change the

default browser by going to Tools > Options > Browser. Here, you can also specify a browser of your choice by clicking on Alternate, and specifying the path to that browser. Click on OK to close the window.

With so many search tools at your disposal, it shouldn't be difficult to find the information you require!

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# HP Pavilion Desktops for Thrilling Digital Gaming

# Workshop: Remote controlling your world

t's something that's happened to all of us at some time. It's a Friday and your eyes let you see nothing more than to-do lists for the weekend. There's the date whose grown tired of your thousand and one excuses, and the party that demands your presence...You waltz away home, memorising the sequence in which the list has to be executed, and then the symphony throws up a flat note from real life! You just forgot to finish that document that nearly finished you off mentally!

Sprinting back to office is not an option you would like to look at! Now, if only there was a way of doing the damned thing from home!

It's the same scenario when asking for help on a lengthy phone conversation with the so-called help desks. If you could only let them access your

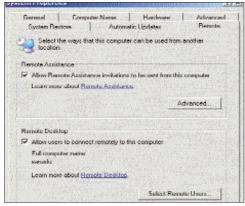
> desktop for a while and let them fix it remotely, indeed life might actually be worth living, for a change!

> Here's the solution—simple remote access tools that let you do just that—access your PC remotely.



Windows XP has a nifty little tool called Remote Assistance that does what its name states—troubleshoot computer problems from a distance.

Remote Assistance is easy to use and secure—no one can take control of your PC unless you send an invitation, and give the person proper authorisation. Along



Enable Remote Assistance in the Remote tab of the System dialog box to send invitations from your PC

with Windows XP and an Internet connection, you need Windows Messenger 5.0 (which is available, by default, on XP), or greater installed on both the PCs.

## **Enabling Remote Access**

To enable the Remote Assistance services, go to *Start > Settings > Control Panel*, and click on the System icon. Alternatively, you can use the *[Windows]+[Pause/Break]* keyboard shortcut. Under the Remote tab, check the 'Remote Assistance' box. Click on Advanced and ensure that the 'Allow this computer to be remotely controlled' checkbox is ticked. Let the default setting for the amount of time the invitation can remain open stay as 30 days. Keep clicking on OK till you exit the menu.

## **Inviting the expert**

Initiate a Remote Assistance session either using Windows Messenger or e-mail.

Log on using your standard MSN .NET ID, which is the same as the one you use for MSN



Turn on remote services on the Windows XP Professional host computer in the Remote Tab of the System Properties Dialog



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Messenger. Right-click on the expert's ID in the main window and select 'Ask for Remote Assistance' to send an invitation to the expert.

#### Running a Remote Assistance session

A dialog box informs you if the expert has accepted the invitation and is ready to connect to your computer. If you do not get a response after awhile, send an invitation again since your Internet connection might be weak. Click 'Yes' to let the expert view your desktop and chat with you. The expert will have to click on 'Take Control' in case you wish to let him or her have access to your desktop to solve the problem. Accordingly, Remote Assistance will prompt you on your machine. Choose 'Yes' to let the expert take control. Now, both you and the expert have control on your PC. You can disable access to the expert by pressing [Esc]. The expert can also hand back control to you by clicking on 'Release Control'.

Send and receive files while using Remote Assistance by clicking on 'Send a File'. This can be done by both parties. The receiver is notified of the file transfer. You can also start a conversation by clicking on 'Start Talking'.

#### Other assistance

Windows XP Professional has an in-built tool, called Remote Desktop that lets you operate on your remote desktop PC. Note that Remote Desktop services are available only for the Windows XP Professional version.

All you need is the host, i.e., the Windows XP Professional machine and the local PC—the client running on any version of Windows. The PCs could be on the same LAN, VPN, or connected over the Internet.

### Setting up the host computer

The host computer could be the one at your workplace or home. You would need to set it up before you can access it remotely. Log on as Administrator, since you will need to have

TiPS

Ensure that Terminal Services, Remote Procedural Call (RPC), Remote Access Auto Connection Manager, Remote Access Connection Manager and Telephony are running on your PC before using any of the remote services. Go to *Start* > *Run* and type '*services.msc*' to start the Services tool. Right-click on the service and click on Start to start it.

Also, click on Properties and ensure that all the associated services listed as Dependencies are activated.

Administrator rights to access the Remote options. Go to *Start* > *Settings* > *Control Panel*, and click on the System icon.

Flip across to the Remote tab and check 'Allow users to connect remotely to this computer'. Click on the 'Select Remote Users' tab. Here, click on Add to add users who intend to connect remotely. Either enter the usernames, or locate the usernames by clicking on Advanced. Ensure that the Location (computer name) is correctly set, and click on Find. Click OK, to get back to the Select Users menu. Again, click OK, and the user is added to the list. By default, the Administrator has access to the service. You can remove a user from the list by highlighting the username and clicking on Remove. Finally, click OK, and return to the Remote menu. Here click OK, and your system is set to receive the remote connections. You can now lock your Windows XP machine.

Note that you also need to have the necessary associated services turned on to connect remotely.

Also remember to leave your computer turned on, and connected to the network—the Remote Desktop service will not be able to physically switch on your computer!

# Setting up the client

You need to have the Remote Desktop Client software to connect to the host computer.

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# HP Pavilion Desktops for Hollywood Style Movie Creation

By default, it's installed in all Windows XP Professional and Home edition computers. You will have to install the Remote Desktop Client software separately for all other Windows editions.

#### Starting the session

Starting a remote desktop session is pretty simple. Go to *Start > Programs > Accessories > Communications* and click on 'Remote Desktop Connection'.

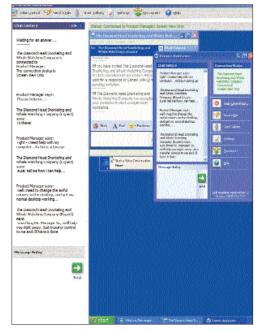
Click on Options in Remote Desktop Connection. Here, in General, set all the options

related to Logon settings. Save your previously entered sessions, along with the authentication details in Connection Settings, so that you can log on without entering a user name and password. Tweak the keyboard and sound options under 'Local Resources'. Programs lets you start programs when you connect, and Experience lets you set the kind of eye candy that's acceptable, considering your connection speed. Keep the eye candy to a minimum, and set the Colors options (within the Display tab), to a lower value if you have low bandwidth connectivity. Also, remember to change the resolution to an appropriate

value.

Now, specify the computer that you intend to connect to. Enter in the host's name or IP address, and click Connect. A logon prompt comes up. Enter the username and password.

During the session, the host is locked. Unlock it by pressing [Ctrl] + [Alt] + [Del], and the remote session is terminated.



This is the expert's view of your desktop

#### There's more

Remote Desktop can be used in full-screen mode, or as a windowed session. The default settings apply keyboard shortcuts for the full-screen mode. Hence, you get the feeling of physically operating your host PC. In fact, just about everything appears as though you are physically on that host computer—your disk drives, your mapped and network drives and network shares, and so on—all your PC's resources are literally at your fingertips, and you could start file transfers and send and receive e-mails or review documents.

Remote Desktop can also be used inside an office to collaborate over a project, or share an idea with the rest of your colleagues. Since most remote connections support text and graphics cutting and pasting through the clipboard, you can cut out or copy text from the remote machine and paste it to a local document as often as needed.



You can chat with the expert through this chat window



Use Remote Desktop to copy text across PCs, and more



# Storage Devices

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Storing bytes and bits is their job. Here's more on these huge technology godowns



# **Organising Files and Folders**

The number of files and folders on your hard drive increases as you keep installing programs. If the files are not properly organised, the performance of the hard drive degrades, and you will end up wasting valuable time searching for files. The best way to keep a check on this is to partition your hard drive, and allocate the partition sizes according to the number of applications that are going to be installed on the system, and the amount of data that will be stored. As far as storing files and folder goes, here are a few simple tips to follow.

- Always store all your documents and other working data on a secondary partition.
- Name a folder based on the data that is stored in it.
- File names should be such that they carry sufficient information regarding content, date created, etc.



- Keep separate folders for different kinds of files such as images, documents, and so on.
- Try not to install games, applications, and other system utilities on the main partition, since this will clutter the disk with data, and hence affect disk access time, and therefore performance.
- Over a period of time, as data gets stored and deleted, it becomes necessary to defragment the data.

# **Backup Strategies**

You need to formulate a backup strategy based on your requirements. One of the primary decisions is the frequency of backup. For home users, where there isn't much data generated, a manual backup, as and when required, should do fine.

For small firms with about 10 to 20 employees, this won't work. Here, a systematic schedule needs to be set to make sure that the data on each computer is backed up regularly.

Moreover, the data backup schedule should not interfere with a users' regular working schedule. The best option,

therefore, is to schedule backups at night, after office hours.

The next important aspect is the size of the backup. Almost all backup software provide at least two levels of backup—full and modified. The Full option backs up all data from a specified location, irrespective of whether the data is modified, or is in its original form. This form of backup is inefficient, and consumes lots of space. Modified backup is a more sophisticated method that can let you back up only the data that has been modified, thereby saving system resources.



# **Workshop: Maintaining your Hard Drive**

nvalid system disk. Insert system disk and press any key to continue."
That's the dreaded hard disk failure or file system corruption message none of us want to see, but chances are most of us will, at some point or another!

That's because most of us don't really take care of our hard disks; we install programs blindly, and dump all sorts of junk on them. In order to make a hard disk last and perform better, all that is needed is a little tender loving care (TLC).

The hard disk, by far, is the most important component of your PC. If your processor blows up, you get a new one. The same goes for the motherboard, RAM, or any other component. But if your hard disk crashes, you lose every last bit of data you ever cre-

ated and saved. Your PC comes to a standstill, and all your presentations, movies, music, documents and other valuable data is probably lost forever. Sure, you can try to recover it, but that's a tedious process. At best, you can format the disk and reload the operating system, and hope the disk will last longer this time.



Using Internet Options, delete all the temporary files created while surfing

#### Call in the sweepers

In order to keep your hard disk in shape, the most basic requirement is

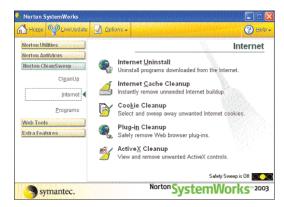
a thorough cleanup. To do this, go to the \Windows\Temp folder, and delete all the files there. Now, empty the Recycle Bin. The next step is to clear all useless Internet files from Internet Explorer. Go to Tools > Internet Options in Internet Explorer. Here, click on Delete Cookies, Delete Files (select the 'Delete all Offline Content' checkbox), and Clear His-

tory. Besides these basic measures, there are third-party applications, such as WindowWasher and Norton CleanSweep, that clean your hard disk for you.

Norton CleanSweep: This software lets you select the files you want to remove in order to clean your hard disk. Start the CleanSweep wizard by navigating to Start > Programs > Norton SystemWorks > Norton Clean-Sweep > Cleanup > Norton Fast & Safe Cleanup.

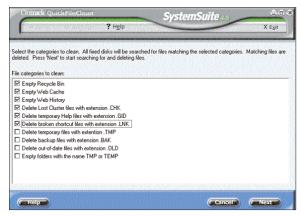
In the main dialog box, click on Settings, and select all the options present, including 'Temporary Internet Files'. Click OK, and in the main window, click on Clean Now. This will clean all the junk files, and show a report of the total number of bytes freed up. Close the window, and return to the SystemWorks window.

You can also go to *Norton SystemWorks* > *Norton CleanSweep* > *Internet*, and select the 'Internet Cache Cleanup and Cookie Cleanup' option. This will clean up the



The Internet Junk Cleanup option in Norton Cleansweep helps clear cookies

cookies you accumulated while surfing. You can also select the ActiveX Cleanup and Plug-in Cleanup options to remove outdated or unused plug-ins, or ActiveX controls that Internet Explorer downloads automatically.



Ontrack Quick Cleanup removes junk files, cookies and unnecessary files

Applications that do not have their own uninstallers can be removed using Clean-Sweep's Uninstall Wizard. You should use the Uninstall Wizard even for applications that do have their own uninstaller, because Clean-Sweep does a better job of uninstalling a program. Go to *Norton CleanSweep* > *Cleanup* > *Uninstall Wizard*, and you will see programs that do not have uninstallers.

Select a program you want to remove, and click Next. You are given an option to back up the program, in case you change your mind later and want the program back. Select Yes, and choose the directory to back up to.

Now, you will be offered the option of manually choosing which files to delete, choose No, and click Next. The last screen will show you the total amount of data, in bytes, that will be deleted, and a list of the selected files—you can choose to keep certain files by de-selecting them. Click OK to return to the main window, and Finish to uninstall the program.

Ontrack System Suite: With Ontrack System Suite, you can go to 'One Stop Solutions' and select Cleanup for a totally automated sweeping of the Registry, Temporary Internet Files and other unnecessary files from your system.

Click Next to see a log of the files cleaned. Click Done to close the window.

In the Cleanup section, you can manually select the files you want to remove-choose from Internet Cache, Internet History, Internet Cookies, ActiveX, Plug-ins and QuickFileClean. Click on QuickFile-Clean, and choose to empty the Recycle Bin, and delete the Web Cache, Web History, Lost Clusters, Temporary Help files and Broken Shortcut files. Clicking Next will start the scan, and you'll get a report of all files cleaned. Click Done to close the wizard and return to the main window. Similarly, run all the other wizards for a thorough cleaning.

Ontrack has in-built sub-applications, each performing a specific task. For example, the Uninstall module uninstalls applications, and other modules perform tasks as varied as moving programs to different folders, or even a different computer, backing up an application and archiving it. The archive feature creates a compressed backup of an application before uninstalling it

The first time you run the program, Ontrack analyses your computer and your files to create a log of files linked to specific programs. Once this is done, it'll show you a list of programs sorted by categories such



# **Data Destroyers**

The most common reasons for data loss are:

A virus attack: Many viruses are notorious for deleting files. Some try to delete or overwrite the partition table, which tells the OS about the start and end locations of the data partitions on the disk.

Accidental deletion of files: This is a very simple reason for data loss: the user deletes important files without moving them to the Recycle Bin first. The user may also

delete files from the command prompt, or through applications that do not utilise the Recycle Bin, for example, WinRar.

Physical problems with the hard disk: This is by far the most common reason for data loss, and also the most difficult to remedy. Hard disks can develop a multitude of problems, starting from faulty read and write head alignment, to a badly damaged head glued to the disk platters due to stiction (static friction).

INE 2004



as Desktop, Start Menu, Executables and Monitored. Clicking on a category scans all the files in that list, after which you can select a file or executable to be uninstalled. The program will run in the background, and find the related files and registry values. Then, it shows a screen containing a list of all the files pertaining to the application. Select the files to be removed, and click Next.

You will see an alert with SafeSelect enabled—this is a backup of all the files that are to be removed. Depending on whether or not you want to backup the file or program, select or de-select this option, and press Next. Click Done when finished. You can also remove files from other categories in a similar fashion.

#### In-house maintenance

The first thing you should do is create a swap file partition on a drive other than the one where Windows is installed. This way you'll ensure better performance, and also not risk corrupting your hard drive. Back up your data on another hard disk—if you don't have one, use a friend's.

ScanDisk (Windows 95, 98 and Me): Before running Scandisk, close all other applications using their 'close' commands,

and not through 'End task' in Task Manager. Now, open My Computer, right-click on your C: drive and select Properties. Go to Tools > Check Now, select 'Automatically fix file system errors' and 'Scan for and attempt recovery of bad sectors', and click Start. After ScanDisk is done checking the drive, reboot your PC and repeat the process for all partitions and drives. In

Windows XP, you will not be able to scan the boot drive while Windows is running. Instead, you can schedule error-checking for

the next time the computer starts. Reboot your computer, and let Scandisk run.

Disk defragmenter: After running Scan-Disk, you need to defragment your data. This makes your hard disk faster and more organised, and should ideally be done every 15 days.

To start this utility, go to *Start > Programs > Accessories > System Tools > Disk Defragmenter*, select the drive you want to defragment, and click Defragment. In Windows 98 or Me, set the utility to 'Rearrange files so my programs start faster' and 'Check the drive for errors', and set 'I want to use these options' to 'Every time I defragment my hard drive'. Windows will arrange your frequently used programs at the beginning of the drive, for faster access.

In Windows 2000 or XP, you get the option to Analyze or Defragment. Choose Analyze to see how fragmented the drive is, and you will be told whether defragmenting is required. If it is, click Defragment. You'll see a graphical representation of the process taking place. Do this for all your drives.

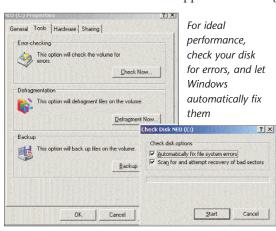
#### **Third party Tools**

Though heavy on your pocket, third-party disk utilities do a more precise job of maintenance than Windows does.

Norton Utilities: This is one of the most popular applications, and does a perfect job of hard disk maintenance. The suite features a module called Norton Disk Doctor that does a thorough job of correcting file errors.

Install Norton Disk Doctor, and start it by going to *Start > Programs > Norton SystemWorks > Norton Utilities > Find and Fix Problems > Norton Disk Doctor*. Press Continue, and select the drives you want to scan by ticking the boxes next to them. Click on Options; in the dialog that pops up, select 'Enable Free Space testing', and click OK. Finally, select 'Fix Errors' in the main screen, and press Diagnose to start checking your drives.

**Speed Disk:** Defragmenting using Speed Disk in Norton is easy. In Windows 98, start Speed Disk by going to *Start > Norton SystemWorks > Norton Utilities > Optimize Performance > Norton* 



Speed Disk. The first dialog box shows you a list of available drives. Select the drive which you want to defragment, and click on Settings. Click on 'Optimize swap file' to defragment the swap file. You can also arrange files by the file size, the date they were created, accessed, or used. These options should be selected only if you know which files should go where.

You can select specific files or use wildcard characters. This results in a customised and efficient defragmentation process.

For Windows XP, there are no direct options for setting such criteria, but you can manually add the filenames you want by

A Spend files

The file of the

Sort files according to how often they are accessed, when defragmenting using Norton Speed disk

clicking on Drive In Options. tabs the named Files First, File Last, Files at End and Unmovable Files, you can add the filenames with wildcards so as to place them accordingly.

Under Add File, an Open File

dialog opens asking for files to be added—you can select multiple files at once. Finally click OK and then Start, to begin defragmenting.

You can do the same for other partitions as well, such as your Games partition, where you need maximum performance.

Ontrack SystemSuite: This suite is advanced and very user-friendly. It offers a wide range of features, such as DiskFixer, which scans your hard disk for any errors. Start the DiskFixer Wizard and select the drives you want to scan. At the bottom of the window, click on the Settings tab. Select all the tests and choose Duplicate, from the Crosslinks option, and then select Delete,

from the 'Lost Clusters' option. Select all the scans under Surface Scan, and click OK.

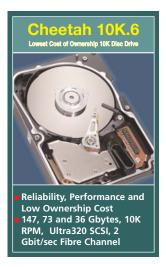
Back in the main wizard screen, select 'Automatically fix errors without asking me', 'Save Undo Information' and 'Scan disk surface for read errors'—this helps by doing a more thorough physical test of your hard disk. Click Next to see the screen where the fixer shows a complete map of your hard disk while it's checking. Since the disk surface scan has been selected, the time taken will depend on your PC's configuration.

Ontrack JETDefrag: Ontrack advises you to use DiskFixer before using JETDefrag. This is to ensure that no errors occur during the defragmentation process. Click OK, and select the drives you want to defragment. Click on Settings, and move the Space Consolidation slider to Maximum. This will eliminate slack space, and pack the files more tightly. Under 'Days until files become Rarely modified:' you can specify which files will be considered least accessed—if you specify the number of days as 60, then files not modified for 60 days will be considered as rarely used or modified.

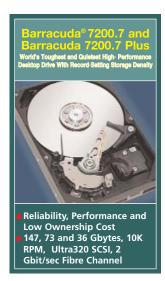
In the option 'Days the files remain Frequently modified:', set the number of days that specify which files are considered frequently modified. These files will be placed at the start of the drive so as to quicken access to them. Click OK, and then Next. In the Warning dialog box, click OK to start the defragmentation process.

Do not open or run anything while defragmentation is on. After it's over, press Done and close the main window. Shut down Windows, and leave it off to cool after the heat produced by intense hard disk activity.

Always remember to perform these actions, no matter what utilities you choose, as regularly as possible. Doing this every 10 to 15 days will prolong the life of your hard drive, and also make a noticeable difference in speeds and access times for your applications and games.



digit 131



# Workshop:Backing up Data

o protect against the growing threat of viruses, and the morbid fear that your hard drives might crash, backing up regularly is an exercise you can ill afford to avoid. But it can be a chore that even the most dedicated computer users procrastinate, often until it's too late.

So if a software eradicates this drudgery, and entices us into becoming committed 'backers', it's definitely worth a few hundred rupees.

Second Copy 2000 from Centered Systems (www.centered.com) is one such program. Add a list of the files you want to back up, and it copies these automatically to a destination of your choice. In networked environments, you can select to back up data to another PC. In a computer with two hard drives, you can mirror the data on the other drive, since it's highly unlikely that both machines and both hard disks will fail at the same time.

Second Copy organises your backup needs into profiles. Each profile defines the set of files or folders that you want to copy, the location where you want to copy these files to, and the frequency of backups. Click on the File

menu and select New Profile. This will bring up the New Profile Wizard window, from where you can select either Express setup or Custom setup. Express setup, as the name suggests, is really easy to use, and you need only answer three basic questions (What, Where and When). Once configured, Second Copy monitors the source folder (What) for changes or updates, and copies new or changed files to the destination folder (Where) automatically at the scheduled time (When). Alternatively, you can create a new profile by simply dragging the folder you want to back up into the Second Copy application window.



Second Copy's Profile Wizard eases the task of data backups

# Glossary

Tracks and sectors: A hard disk consists of platters on which data is stored. These platters consist of tens of thousands of tracks that are tightly integrated in concentric circles. Tracks are broken down into sectors. Hence, a sector is the smallest addressable unit on a hard disk.

**S.M.A.R.T:** Self-Monitoring Analysis and Reporting Tool. This system uses internal hard disk monitoring technology to analyse your hard disk, and prevent failure or data loss. **Bad sector:** A sector that cannot be used due to a physical flaw on the disk is called a bad sector.

**Clusters:** A cluster is a logical unit of storage on a hard disk or floppy drive. The size of a cluster varies from 512 bytes to 256 KB, depending on the file system and on the size of the

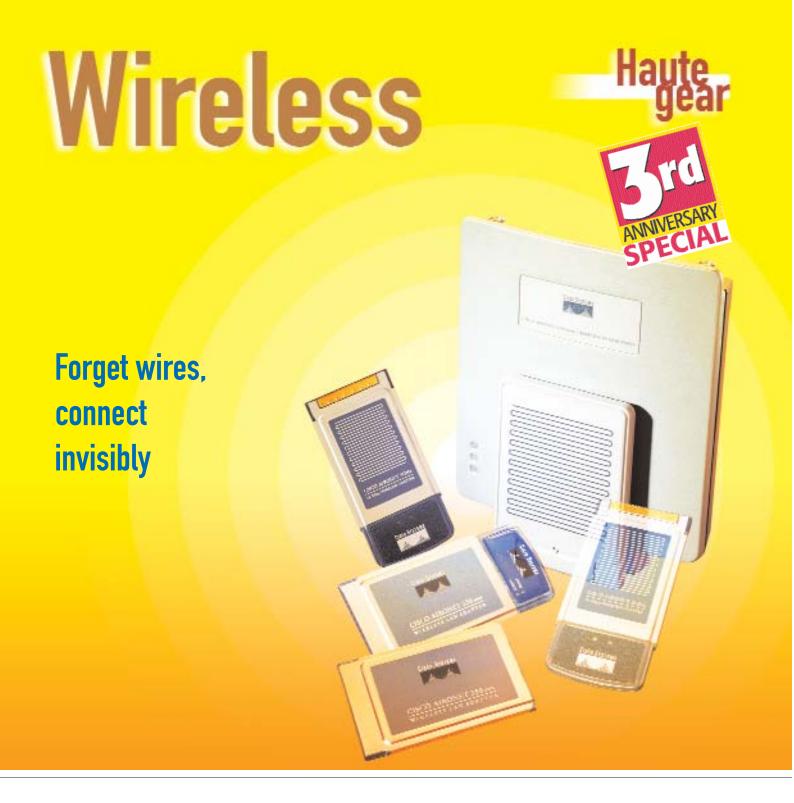
partition.

**FAT:** File Allocation Table. The FAT tells the OS which portions of the disk belong to which file. The FAT links together all the clusters belonging to each file, no matter where they are on the disk.

Partition: By default, when a hard disk is formatted, it has one partition. A partition can be considered a formatted section of a hard disk. Large hard disks can be formatted into multiple partitions, and each partition behaves like an individual, or separate, hard drive.

**Boot disk:** A special floppy, known as a boot disk, allows your PC to boot, even if it cannot boot from the hard disk. Such a disk is also known as a System Rescue Disk.

digit 132



# WiFi: How it works

The growing popularity of laptops necessitated the need for a wireless standard that would allow people to walk around with their laptops, while still connected to a network. WiFi, an abbreviation for Wireless Fidelity, is a wireless standard that offers mobility while offering data rates comparable to those of a wired LAN. It's actually a collection of standards ratified by the Institute of Electrical and Electronic Engineers (IEEE). In 1997, IEEE approved the 802.11 standard, which laid down the specifications for WLAN (Wireless LAN). Subsequently, revisions were made to this standard and these resulted in three other standards-802.11a, 802.11b and 802.11g. The entire family of 802.11 standards are collectively called WiFi. The letters appended to the standard indicate the task group that proposed the modifications: for example, task group 'b' put

forth the 802.11b standard.

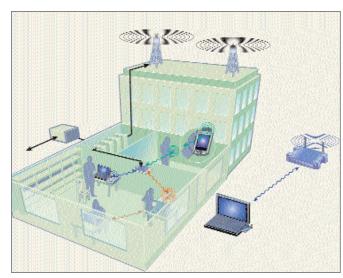
The name WiFi was first given to the 802.11b standard. Approved in 1999, 802.11b offered extensions to the original 802.11 that improved the highest datarate from 2 Mbps to 11 Mbps. It operated in the 2.4 GHz frequency range, like with the original, and had a range of about 300 feet. Range and speed are interrelated—as the wireless clients move further away from each other, the speed is bound to deteriorate.

802.11a operates at 5 GHz, and hence is incompatible with 802.11b. So, a laptop with an 802.11b card can't connect to an access point running on 802.11a. Also, the range of 802.11a is lower than that of 802.11b; hence, more access points are needed. On the bright side, it offers a much higher throughput-54 Mbps.

Interference is a problem with

wireless networks. Bluetooth devices and cordless phones are some sources of this interference compared to standards such as 802.11b.

To solve the limitations of the 'b' standard, and at the same time provide thespeed of the 'a' standard, 802.11g was introduced. 802.11g offers speeds of 54 Mbps,



Here's a typical Wi-Fi setup in an office environment

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while maintaining compatibility with 802.11b networks.

A wireless network can work in two modes—ad-hoc and base station. In an adhoc (also called peer-to-peer) network, several computers equipped with wireless hardware come together to form a network. All the computers communicate with each other directly. Unless one of the computers participating in the ad-hoc network is connected to a wired network, none of the systems can gain access to a wired network. Three friends meeting in a park and sharing files between their wireless laptops is an example of an ad-hoc network.

The other type of network involves the use of an access point, also called a base station. The access point acts as the central point of the network, and is the link between the wired and wireless networks. An access point can be a dedicated hardware system, or just software running on a system.

In airports and coffee shops, mostly in the US and Europe, access points are provided so that customers can walk into the shops and start using the Internet from their laptops. Of course, it may not be possible to cover an entire airport, or an office, with a single access point. All access points have a Service Set Identifier (SSID) assigned to them, as do all the clients connected to them. When an access point is installed, the default SSID must be changed to increase security, and to prevent users who intend to connect from some other spot.

WiFi has a basic level of security provided at the physical level-Wireless Equivalent Privacy (WEP). But as mentioned, vulnerabilities in WEP have been discovered, and one can't afford to use it as the only security mechanism. However, it is recommended that WEP be turned on. Additional levels of security can be provided at the software level in the form of firewalls. The level of security offered by WEP depends on the number of bits used for the encryption key; almost all WiFi products come with a 40-bit encryption key. A 104-bit encryption key is also available, and it is recommended that the largest available key be used.

# Around the World in a Wi-Fi

Wi-Fi networks have risen from IEEE networking standards. The 802.11 IEEE covers the wireless networking standard. Commercial wireless access points were promoted in early 1995.

Wayport, a pioneering organisation in the Wi-Fi space, based in Austin, Texas, set up wireless networks in early 1997. The same year also saw the IEEE 802.11 standards being finalised.

Back in 1999, Apple offered Wi-Fi support along with the necessary hardware. 2001 saw the emergence of many companies that worked on public Wi-Fi, but several have since disappeared. In October 2002, the emergence of WPA, which has now replaced WEP, ensured better security. Intel worked on

the Banias CPU architecture that led to the development of the Centrino platform in 2003. This platform works with a Pentium M CPU, the 855 chipset family, and a wireless network adapter that conforms to the 802.11b standard.

In the US, public Wi-Fi access has boomed. Starbucks, the coffee chain offers Wi-Fi services, as does McDonald's. Internationally, college campuses, hotels, airports and bookstores, such as the Barnes and Noble bookstore chain, are getting Wi-Fi enabled as well. There's a large laptop population in the student and white-collar community who actively use these services, both for work as well as leisure.

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# **Workshop: Settings Things Up**

etting up a WLAN is really easy. However, requirements change depending on your network type. There are two ways to go about this: either you have a pure wireless LAN, where every computer is freely portable, or you share a WLAN with wired computers, in a hybrid of a wired and wireless LAN.

To configure a pure wireless network, you need to install the cards and configure them to run in ad-hoc mode, which can be done from the network connection wizard



Status is fine, all systems ready to go wireless!

in Windows XP, or the utility bundled with the adapter card. After that, install a proxy server on the computer with the Internet connection (the master) and set the others to access the Net through it. That's it—your network should be up and running.

However, a word of caution: When buying wireless hardware, make sure it's compatible—802.11b (Wi-Fi) will not work with 802.11a/g hardware. Also, wireless equipment from different vendors may or may not work together. Buy all your wireless hardware from a single vendor to avoid such problems.

Setting up a hybrid LAN is a tad more complicated. Follow these steps to connect and configure an Access Point to set up your hybrid LAN:

Connect the Access Point to the existing LAN with a regular RJ45 cable, which costs around Rs 50 for a 5 metre cable.

Power up the Access Point and access the in-built Web server by entering its IP address—for exam-

ple, http://192.168.0.1, in the browser at the master. This will open a configuration page, from where the rest of the Access Point configuration can be done.

Click on the Wireless tab. There are default values assigned to various fields. Change the SSID to something else, such as Home or Wireless, and assign a network key. Set it to run in infrastructure mode and set the WEP to 64-bit from the drop-down menu.

The reason for not using 128 or 256-bit WEP encryption is that higher settings will lower the data throughput. Under the LAN tab, there's a default IP and subnet mask—do not change this. Click on the DHCP tab. Here, enable the DHCP server and assign a starting IP (say 192.168. 0.2) and ending IP, say 192.168.0.254, for the client adapter to automatically pick up IPs.

Enable DHCP only if you want the client PC to get its IP automatically, otherwise disable the DHCP server and manually assign the IPs for the client PCs.

Now, all you need to do is configure the

Install the adapter drivers, then shut down the PC and plug the adapter card into the PCI or PCM-CIA slot, and restart the system. Wait for the driver to initialise the adapter.

Once the hardware is initialised, double-click on the adapter card configuration icon in the system tray. This will launch the configuration util-

ity. Here the user doesn't have to do anything, as most of the settings, including the



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Place the Access Point such that the users get the optimal signal reception.

SSID and encryption key, are automatically picked up by the adapter card from the Access Point.

Check the signal strength available at the place the wireless desktop, or laptop is placed by double clicking the utility in the taskbar.

While setting up a wireless network, it is important to remember to place the access point in a proper place: metal tables, cupboards, and cabinets filled with clothes can cause a drop in throughput. Though a wireless connection is the best choice for a multi-storey house, there will be obstacles such as walls, flooring, metal tables and microwave ovens which might lower the data throughput. To avoid this, move the access point around to find the place where the clients get the maximum signal strength. The same process will have to be repeated for the clients' placement.

# **Tips And Tricks**

#### Clear to Fly

Window panels with a metallic coating, wooden stuff, etc. greatly contribute to signal disturbance, thereby resulting in connection drop outs. Careful planning is required while placing the Access Point. Sometimes, one needs to set up multiple Access Points.

#### Location of the Access Point (AP)

The location of the AP is of utmost importance. It depends upon parameters such as line-of-sight and height from floor level. To get broader coverage per AP, you need to make sure the AP is in the line-of-sight from many different directions at the same time. Similarly, the height at which the AP is placed can influence the coverage area. Depending upon the internal structure, the range will increase or decrease as you move the AP up or down.

#### **Reflective/Absorbing Materials**

Metal causes multipath issues due to reflection, and it could impede signals. The signal deterioration will depend on how well the container is sealed, and on the thickness of the metal. 802.11g has lesser problems because of OFDM (orthogonal frequency division multiplexing). Still, a given access point won't provide the same range where

there's a lot of metal, than it would in a typical office environment.

#### **Frequency Band Issues**

The band also plays an important role. The lower the band, the more tenacious it is (2.4 GHz vs. 5 GHz). Therefore, 802.11b or g is more reliable than 802.11a.

#### **Security**

Without stringent security in place, installing a WLAN is the equivalent of putting up Ethernet ports everywhere. Even if you use the default WEP security, it's not safe enough due to its dependence on a static encryption key. WPA (Wi-Fi Protected Access) is more preferred. Further, inline WPA2 with still better security is also coming up.

#### **Government Regulations**

As far as IEEE networking standards are concerned, the Indian government Wireless Planning Commission (WPC) has permitted unlicensed usage of the IEEE 802.11b wireless networking protocol that allows for WiFi connectivity at 11 Mbps. The same is not the case with the IEEE 802.11g standard: the regulations are not very clear, but vendors claim that implementation within a closed environment are possible. You should check the current status on the regulation.

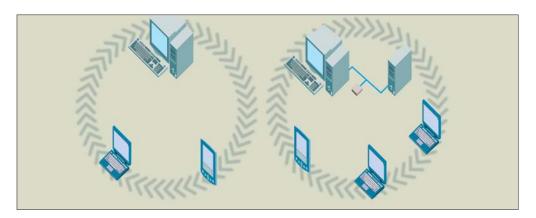
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# What's good and what's not about WiFi

- WiFi is best suited for corporates with several employees moving about the office with their laptops.
- Homes looking for a means to share a broadband Internet connection can also consider adopting WiFi.
- WiFi may be widely used for communication between computers, and there are PDAs that support it. It's also possible to add WiFi support to a PDA by inserting a WiFi card into the SD (Secure Digital) slot.
- In offices with lots of switches etc., WiFi can help the administrator. If these

- devices—the switches and so on—are Wi-Fi equipped, the administrator can monitor the devices remotely.
- A WiFi setup is more expensive than a regular LAN.
- The major problem with WiFi is the high power consumption, which some mobile devices just can't afford. WiFi drains batteries, fast. PDA users should avoid using it, especially if they have a Bluetooth option.
- Security is not very easy, since it is difficult to control access to the network.





# WiFi: What you need to know

For a system to connect to a WiFi network, it needs to have a WiFi network card, or an access point, connected to it. WiFi network cards are like regular network cards that plug into PCI slots, but have an antenna. It's also possible to plug an external WiFi adapter into a USB port. Once the network cards are installed and configured, the system can connect to any WiFi network.

Hardware access points can be connected to network equipment such as a bridge, or they can be connected to a system that has access to a wired network. It's also possible to install software that converts the system into an access point. Hardware access points are generally used in commercial hot spots, while software access points are used to share an Internet connection in homes and SoHos.

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# View Photos, Play MP3s. Anywhere in the home, Solven for the hom

# Wireless connection

The marriage of wireless and networks has seen the evolution of WLANs that have enjoyed a remarkable success in the LAN world during the last decade.

WLAN technology has been adopted at two levels. The first, and the most commonly deployed, form co-exists with the wired network at the workplace to give users mobility and ease-of-reconfiguration.

The second level is its large-scale deployment through the setting up of hotspots—geographic locations where an access point provides wireless broadband network services to mobile visitors.

While vendors are doing their bit to push wireless among potential users, there are still issues such as security, spectrum availability and above all, lack of awareness retarding its growth.

These hurdles notwithstanding, wireless is undeniably a technology that holds tremendous potential and resellers would do well to keep themselves abreast of its basics and the advancements in this area.

Another point in its favour, as far as India is concerned, is that there's no license



Plug these PCMCIA cards into your laptop to go wireless

fee on wireless LAN implementation. The headache of getting permission is taken up by the device manufacturer.

As far as IEEE networking standards are concerned, the Indian Government's Wireless Planning Commission (WPC) has permitted unlicensed usage of the IEEE 802.11b wireless networking protocol that allows for Wi-Fi connectivity at 11 Mbps. The same is not the case with the IEEE 802.11g standard: The regulations are not very clear but vendors claim that implementation within a closed environment are possible. You'd do well to check on the current status on the regulation.

#### Wi-Fi hacker alert!

Security is a critical issue with wireless transmission. Since the signal in a WLAN is freely transmitted in space, anybody in the vicinity has access to it. This can include a hacker sitting in a car parked just outside your home or office. SSIDs are used to identify the wireless adapters installed in a wireless environment, by access points. The SSID is broadcasted freely many times by an access point. A hacker with reasonable experience and the help of an 802.11 analysis tool, can sniff the network to get the

SSID, and hence, free access to the home or office network.

Wireless networks can enable WEP (Wired Equivalent Privacy), a form of encryption, available in 64, 128 and 256- bit that will keep amateur hackers away. However, an experienced hacker can gain access by monitoring the data transmission and decoding the WEP-encrypted information. WPA (Wireless Protected Access), a more secure encryption standard, is in under development, and will be available soon.

# Strip AD

# ty, spelt you-ess-bee

Slow uploads? No problem...Thumbs up to thumb drives

y eyes open slowly. There's a smell and chill in the air only happens every morning at exactly 7:13. I love waking up to the sounds of birds chirping outside my window, and feel the sun shining on my face, diffused through the light cloud cover. As my senses flow back into me slowly, the day seems full of promise!

BRRRING, BRRING, BRRRRRRING, screams my battered, old MTNL phone. AARGH! What an ugly ending to such a beautiful start! BRRRING, BRRRING, BRR... 'Oh shut up already!,' I scream, as I snatch at the receiver.

"Hello? Oh good morning sir. No, no, I wasn't asleep...I was, err...actually just about to start on some research for the project. Yes sir, on Monday it will be on your table. Now? No sir, no plans for today. Yes sir. I'll see you in the office at 12. All the data? No sir, I can't e-mail it. No, actually I can e-mail it, but uploading 30 MB on my Internet connection would take all day. Yes sir, not a problem. I will find a way to bring the data with me. Yes sir, see you at 12. Bye."

Disgusted for being such a pushover, and a yes-man to boot, I start getting ready. Damn! Another Saturday wasted at work. Now how do I get 30 MB of data from here to office with least effort? Still pondering, I look out of my window, and see the cyber cafe opening shop.

Aha! I pat myself on the back for having been able to save my skin again, and set off for the cafe. My friend owns it-or rather, he is a friend because he owns it, and I just happen to participate in the monthly Quake III LAN parties. He has a thumb drive that will hold my darned 30 MB of data.



Mahesh Benkar

At home, it takes no time to transfer the data onto the thumb drive. These solid state devices have such high readand write-speeds, I decided to get one for myself! After my meeting, or should I say

bottom-kissing session, my boss told me even he wanted one.

So I stopped by Lamington Road to get a feeler for the prices. The first shop was an authorised dealer for Transcend; Rs 2,050 for a 128 MB drive and Rs 4,250 for 256 MB. "Anything else?" I ask. He promptly pulls out a Samsung, a Billionton and a Lexan. I'd never heard of the last two, and was told that these are little-known Taiwanese brands. "The Samsungs are cheap (Rs 1,800 for 128 MB and Rs 4,000 for 256 MB), but are infamous. The other two are for low budget users, but not recommended," said the dealer. The Billionton would cost Rs 2,350 and Rs 3,500, and the Lexan would set me back by Rs 2,000 and Rs 3,250 for the 128 MB and 256 MB varieties, respectively. Impressed by his honesty, but depressed by his prices, I moved on.

The second guy I went to, had the same Samsung drives for just Rs 1,600 (128 MB) and Rs 3,400 (256 MB). He also had the Transcends for Rs 2,000 and 3,500. I feigned disinterest, so he promptly whipped out a credit-card-sized external hard drive. This USB 2.0 baby would cost me Rs 8,000, and hold 20 GB. I borrowed his calculator to work out the cost per MB ratio—Rs 2.56 per MB.

He also showed me another device from Xtec, which could hold 40 GB of data for just Rs 7,000. He told me that Transcend was also releasing a 40 GB model, but it would take a couple of months and cost a lot more. When I called my boss to tell him this, he was elated, but asked me to get it for less. Typical!

At last I settled on the product, so finding the best deal wasn't that hard. After browsing through four or five shops, I walked into a small dirty-looking store that was selling the Xtec. He wanted Rs 5,000 for the 20 GB and Rs 6,700 for the 40 GB. Well, all I could bring him down to was Rs 6,400 for the 40 GB, and Rs 2,500 for the Samsung 256 MB. I ended up buying the latter.

At least my boss was happy, and I don't have to sit around a cyber cafe waiting for slow uploads to complete.

- Look for security features such as read-and-write switches, biometric identification, or at least, software-based security features.
- The drive should have a key ring, or a hook to attach to a cord, for
- Data transfer speeds vary! Check this before anything else.
- Cost per MB is a good way to decide between smaller thumb drives and the larger external hard drives.

BUYING

#### insight **■** ■ netreturns

ou're sitting at home, looking out the window, enjoying your coffee. It begins to rain: the smell of parched earth quenching its thirst rises. Life is just perfect right now. You start humming your happy tune. The same, if you're depressed, elated, or even just numb.

There's a song for every occasion, and for every thought you've ever had. Some of us are actually gifted enough to make our own music, the rest of us have always wanted to learn—but never quite get down to it.

Always wanted to be able to strum while humming? As the ad campaign says, "Just do it!"

Ihank How's this for starters: wouldn't you love to be able to play an instrument, know how to record what you play, and finally, how to clean up your masterpiece, so that YOU for the it sounds professional? All you'll need is a computer, a connection to the Internet, and of course, the instrument you'll be playing. Very soon you could be serenading your sweetheart, strumming romantic tunes and all! Let's start with a little history of music. The Indian connection Sound of India (www.soundofindia.com) has a wide range of articles that describe the origins of the sur and taal of Indian

sangeet. ITC Sangeet Research Academy

(www.itcsra.org) is another Web site that

chronologically details the evolution of



# insight ■netreturns

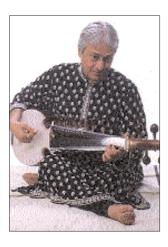
Hindustani classical music. MusicalNirvana.com gives you all the insight you need into the basics of *raag* and *ghazals*. It gets into the nitty-gritty of all you need to know about the history of these two forms of melody. The instruments section lists all the instruments used, with links to the artists accomplished in that sphere.

Cybersangeet.com does a good job of profiling artistes who've given their heart and soul to Indian classical music. It gives a detailed account of the likes of vocalist Mitali Banerjee Bhawmik, sitar player Joya Biswas, tabla player Subrata Gupta and their work in its Profile section. Surdhwani.com talks about the lives of Pandit Bhimsen Joshi, Ustad Bismillah Khan, and a number of members of the classical ilk in its Artists section. Its Indian Classical section, with its Tal, Raag and Vocal subtopics does not frighten you from delving into the intricacies of it all.

Get to know what Indian classical music is through the eyes of the maestro himself—Pandit Ravi Shankar, at his Web site, www.ravishankar.org. His appreciation of Indian classical music highlights the finer nuances of the entire genre.

Pandit ShivKumar Sharma's site (www.santoor.com) profiles the acclaimed santoorist in detail. It also lists his releases, and also reviews them with short clips from releases to complete the picture.

Ustad Amjad Ali Khan, the acclaimed sarod player, who likes to call himself "a slave to" (rather than "a king of") the sarod, bares his love for the instrument at www.sarod.com. The Web site also chronicles important events in his life, and also lets you in on his family tree. It mentions the Sarod Museum called the Sarod Ghar, located at Gwalior, that endeavours to preserve the traditions of Indian classical music.



"There is no essential difference between classical and popular music. Music is music." - Ustad Amjad Ali Khan



"Beethoven can write music, thank God, but he can do nothing else on Earth" - Ludwig Van Beethoven

#### Go West...

Essentials of Music (www.essentialsofmusic. com) is a Web site that will surely delight the western classical music lover. Whether it's Bach or Beethoven, each has been covered in just the right amount of detail—a few of their works are posted on the biography page to give a feel for their compositions. Its Eras section dissects the evolution that came about in compositional styles with time.

Another such Web site is Classical Net (www.classical.net). It lists information about when classical composers were born, the day they died, etc. There are also exhaustive links to other Web sites that provide detailed information about composers. The reviews and articles posted are concise.

If you want to get to know the people behind jazz, then All About Jazz (http://www.allaboutjazz.com/library/index.htm) is where you need to go. Learn all about Ella Fitzgerald, the first lady of song, Gene Harris, Tony Bennet, etc. Learn about the

albums that made them, and this peculiar, yet delightful, kind of music that originated in New Orleans. Louis Armstrong has a special profile page dedicated to him in Profiles. Another interesting Jazz Web site is www.thejazzfiles.com, which digs out interesting facts about the lives of tenor saxophonists Gene Ammons, Johnny Griffin, and pianists Sonny Clark among others.

Rock and Roll? Get the low-down on its highs and lows at www.history-of-rock.com. It swamps you with all the things that happened during the period (1954—1963) when rock and roll took shape, and came into existence as a unique genre of music. Oldies Music (http://www.oldiesmusic.com) tracks the sound right down to the '70s. One of its sections—the Oldies Calendar—tells you all about deaths, births and other ground-breaking events that took place in the current week. Its Oldies Artists sections has links to Web sites dedicated to musicians and pop artists that made rock and roll happen.

Though it sounds like the din in a railway accident, metal music has a dedicated fan following all over the world. If you'd



This band displaced the stranglehold of Iron Maiden on hard rock. More of this at http://www.hardradio.com/history/part1.html

## Oh This? Just Something I Composed...

Have you always wanted to say that? Well, now you can! ACID PRO 4.0, available at http://mediasoftware. sonypictures.com/products/acidfamily.asp lets you synthesise your own music with a number of effects to boot.

It lets you have a dramatic fade between tracks, so that they don't sound like cut-paste jobs. It also lets you use as many loops and MIDI tracks as you like. ACID is bundled with 20 DirectX plugins such as amplitude modulation, delay, etc.

Fruity Loops studio (www.fruityloops. com) is another one you should try out. It has nearly 30 high quality effects thrown in for better mixing results. Its inbuilt wave editor lets you edit and record wave files. The editor also lets you reverse the track, add loop points to the file, or record yourself.

Apart from that Fruity Bass Boost, Fruity Stereo Enhancer and Fruity Blood Overdrive are some of the cool sound effects that really add the professional touch to your compositions.

# insight technology

The human eye and brain present a fascinating problem for game developers. How do you make a game that can come close to matching the complexity of visual perception of the average human? With breathtaking graphics, of course. How do you make such games playable? Good question. Here's where the cards come in.

With the Radeon X800 and the GeForce 6800 Ultra, game developers have in their hands, the newest generation of programmable GPUs (Geometry Processing Unit). These have massive number crunching and processing abilities, cutting-edge memory technology, and performance optimisations.

At the cutting edge of the graphics card industry, nVidia has released its newest—the NV40-based GeForce 6800 Ultra. Current favourite ATi isn't standing idly by—they've just released the Radeon

X800 XT (codenamed the R420), the successor to the hugely popular Radeon 9xxx family.

#### **Computing power**

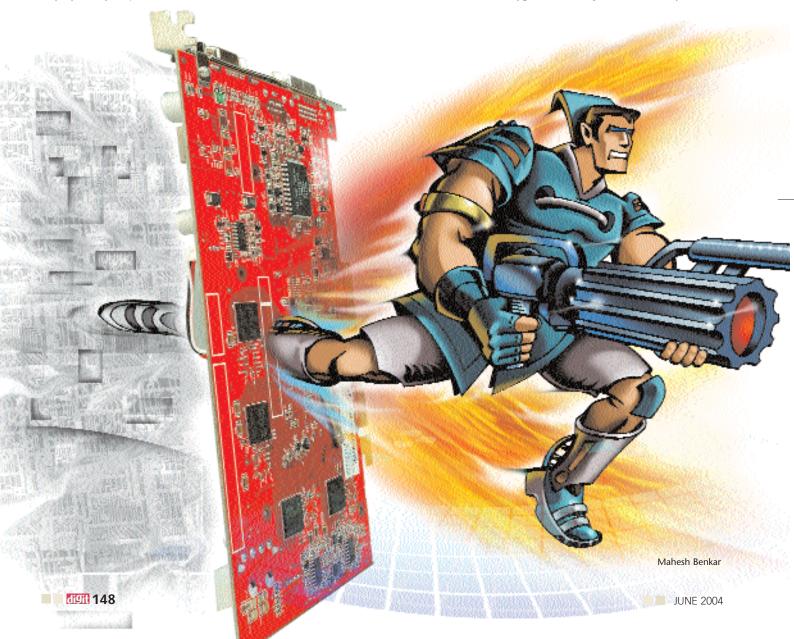
With the new GeForce 6 series family, nVidia has reworked much of the architecture to optimise the NV40's computational performance.

The GeForce 6800 also boasts of 220 million transistors, as against the 125 million on the GeForce FX 5950. This number is even more impressive when you look at the Pentium 4 Prescott's 125 million transistors. The ATi Radeon X800 XT comes packed with about 160 million transistors, as compared to the older Radeon 9800 XT's 110 million transistors. The Radeon X800 XT also scores on GPU clock frequency—it runs at a higher clock speed than all other comparable contenders. At a 512 MHz core clock, this ATi beast beats all the others.

Of course, core clock speeds are a bit hazy, and might well have changed by the time you get to buying the hardware. Part of this has to do with marketing—for instance, nVidia has announced plans to introduce a 6800 'GT' variant, a Porsche for the masses. Costing a little less than the 6800 Ultra, you can get the GeForce 6800 GT, with a slightly lower clock speed, but lots of graphics memory. Another special, possibly more expensive edition—the 'Extreme' GeForce 6800 Ultra—will run at 450 MHz GPU core clock frequency, with fast memory.

#### **Drawing in parallel**

More than the numbers, is the graphics pipelining detail. Well before the X800 XT and the NV40 came along, there's been considerable interest in the features and specs of the two families, and a lot of hype. Processing, and accurately render-



ing computer graphics have traditionally been described by application developers as "embarrassingly parallelisable". What that means is, the graphics processing task can be broken down into many stages and components. The interesting thing about both the ATi and nVidia offerings, is the way each handles parallelism in graphics processing.

The Radeon X800 XT sports 16-pixel-wide pipelines, split into groups of four—with four 'regular' pipelines beneath each 'wide' pipeline. Each wide pipeline works with groups of four pixels, making for a total of 16 pixels. Each regular pipeline has its own pixel shader and texture unit, as well as shared cache memory across the wide pipeline.

The quad pipelines can be enabled or disabled; thus, the X800 can have from eight to 16 pipelines in total. Lower-end models have eight, and higher end

sors still remains at 24 bits per colour channel—red, blue, green and alpha—the same as the 9800 XT. The data formats supported are both 16-bit and 32-bit. However, the computational power is significantly higher, with twice as many arithmetic/logic units (ALUs). With this, the X800 can process up to five instructions for each pixel per clock cycle, as opposed to three with the R3x0 family. The X800 also scores from its predecessor with a vast increase in the number of mathematical and texture instructions. This means that the X800 XT can perform complex pixel shader calculations more efficiently. If the complex pixelshading processing cannot be carried out in a single pass, the job is split, and each fraction is processed. The results are stored in temporary buffers and aggregated later.

The GeForce 6800 Ultra also has a 16-pixel pipeline unit—a big jump compared to the GeForce FX5950's four-pipeline design. Each 16-pixel pipeline of the NV40 comes with its own texture unit per pipeline. This differs from the GeForce FX5950's 4-pixel pipeline—two texture units per pipeline, which could output up to 8 pixels per clock cycle. The 6800, on the

# GRAPHIC Details

After more than two years of rumours and 'informed guesses', nVidia and ATi have come out with their latest graphics blockbusters. Find out what's changed

models—such as the X800 XT Platinum Edition—have sixteen. The X800 now comes with six vertex shader pipelines—two more than the 9800 XT. ATi claims that this, and the increased GPU clock speeds, gives the X800 twice the vertex shading power of the 9800 XT.

The X800 now also has more temporary registers, which allow for more efficient handling of complex shading operations. The internal floating point calculation precision in the X800's pixel proces-

other hand, manages 16 pixels within a clock cycle—the same as the Radeon X800. For today's games, with large and complex models, and many polygons in each scene, the 6800's six vertex shaders provide dazzling vertex processing performance. Think of realistic, high resolution gameplay, with fascinating details—that's the result of just the sort of serious number crunching that works here.

nVidia has enhanced the computational abilities of the NV40 family in other

#### The games that people play

For the sort of hard cash you will shell out for owning one of the top graphics cards, you definitely need to have the games too. Both cards are DirectX 9.0 compliant, so the games you could start with, and drool over are Far Cry, and UT 2004, as well as Prince of Persia: The Sands of Time, Splinter Cell: Pandora Tomorrow and PainKiller, which are already out on the store shelves. There are more games coming in the pipeline, though. Look forward to playing S.T.A.L.K.E.R: Shadow of Chernobyl and Half-Life 2 as well. These games aren't tailor-made for either of the cards, but you can enjoy all of these games the way the developers intended, full with all the special effects and flashes, bangs and pops and gore. id's DOOM 3 would also be a worthy game for them, as and when it's released.

ways too. First, the number of temporary registers has been increased—this used to be a weak point in the FX 5950 series. The pixel processors can now perform floating point computations with full 32-bit precision per colour channel, and with the additional temporary registers.

With changes in the internal programmability of the GPUs, we can expect to see additional precision in computing shaders. Developers can now employ more advanced rendering techniques with fewer compromises.

Both ATi and nVidia have reworked and vastly enhanced the vertex processing capabilities of their offerings, and the result of this will be seen while rendering complex game models. With a huge amount of geometric data to be processed, for the many polygons in each frame, the vertex processing capability of the nVidia and ATi cards will be welcome. ATi's enhanced instruction set will allow for more efficient pixel and texture computations, but the new Radeon does not support the pixel and vertex shader 3.0 specifications of DirectX

The nVidia GeForce 5950 FX is based on the the NV38 GPU architecture, and the nVidia GeForce 5700 FX is based on the NV36 GPU.

The GeForce 6800 Ultra is the first example of the the NV40 GPU.

# insight technology



## **Jargon Buster**

**Anti-aliasing:** Anti-aliasing is a technique used to reduce the visual impact of aliasing, or jagged edges, on a computer graphics system.

Anisotropic filtering: An advanced texture-filtering technique that improves image quality of objects that extend from the foreground to deep into the background.

Fill rate: The speed at which a graphics card can render pixels, usually measured in Megapixels per second. GPUs with higher fill rates can display higher resolutions and more colours, at higher frame rates than other chips with lower fill rates.

Frame buffer: The memory that is dedicated to the graphics processor and used to store rendered pixels before they're displayed on the monitor.

Frames per second (fps): The rate at which the graphics processor renders new frames, or screens full of pixels. A

9.0. Since the GeForce 6800 Ultra does, this opens up the possibilities of more dynamic programming control.

#### **Memory counts**

After all the hype about increased computational performance, there's an even more important factor—memory. Graphics memory has now moved on beyond DDR, and both ATi and nVidia have implemented the spanking new GDDR3 memory standard.

Even more pertinent is how ATi has worked with the memory. The Radeon 9800 XT's problem was the relatively slower memory clock—730 MHz, as compared to the GeForce FX 5950's 950 MHz. They finally set that right by implementing a brand new memory interface. It's a 256-bit-wide interface, similar to the Radeon 9800

XT. ATi claims that this inter-

Info

The ATi Radeon 9800 XT was codenamed the R360, and the cutting edge Radeon X800 was codenamed the R420 face is more The efficient, and far that higher memory clock speeds are supported.

Thus far, the highest end X800 has 256 MB of GDDR3 that runs at 1,120 MHz,

faster GPU renders more frames per second, making the application more fluid and responsive to user input.

Graphics Processing Unit (GPU): A high-performance 3D processor that integrates the entire 3D pipeline—transformation, lighting, setup and rendering. A GPU offloads all 3D calculations from the CPU, freeing the CPU for other functions such as physics and artificial intelligence.

Lighting: In 3D graphics, lighting is used to calculate the degree to which an object is affected by a source, and is used in games to create realistic-looking scenes with greater depth, instead of flat-looking or cartoonish environments.

**Pixel:** Stands for 'picture element'. A pixel is the smallest element of a graphics display.

Pixel shaders: Pixel shaders alter lighting and surface effects, which gives a natural look to materials and surfaces.

yielding a peak memory bandwidth of 33.4 GBps. The interface has four 64-bit data channels communicating with four independent memory controllers, via a switch. ATi says that the memory interface can be extensively tuned; furthermore, the memory controllers can be reconfigured to perform more efficiently for certain applications.

The GeForce 6800 Ultra, too, uses GDDR3; the 256-bit wide memory bus



The GeForce 6800 Ultra. Note the large heatsink and fan combination, and the two DVI connectors

clocks at 1,100 MHz, and the Ultra comes with 256 MB of memory onboard. The memory bandwidth is a good 35.2 GBps, as against the FX 5950's 28.3 GBps, which also has a 256-bit memory interface running 256 MB of DDR memory at 950 MHz.

Earlier examples of the NV3x architecture, such as the FX5800, had a prob-

**Polygon:** The building block of all 3D objects, usually triangles or rectangles, used to form the surfaces and skeletons of 3D objects.

**Texel:** Texels are the smallest units of a texture map, similar to pixels.

**Texture:** An image file that is used to add complex patterns to the surfaces of objects in a 3D scene.

**Texture mapping:** The process of applying a texture to the surface of 3D models in order to simulate walls, skies, etc. Texture mapping enables developers to add realism to their models.

Vertex shaders: Vertex Shaders are used to give a life-like look to characters and environments. For example, developers can add wrinkles or dimples using vertex shaders—when a character smiles.

**GDDR3**: A newer memory standard that has been co-developed by ATI and JEDEC, and is an open standard now. It yields greater performance with lower power consumption.

lem with the smaller 128-bit memory bus width; the FX 5950 changed that to 256-bit. But the biggest change with the GeForce 6800 Ultra is the potent combination of the wide 256-bit bus, the sixteen-pipeline design and the GDDR3 memory, which give it the large memory bandwidth.

It looks like GDDR3 is the way to go for the present and the future. The memory interface, type and the architectural design are going to affect the actual pixel and textured pixel (texel) fill rates, but with the kind of specs the Radeon X800 and the GeForce 6800 Ultra sport, there isn't going to be any bottlenecking there.

#### **Performance optimisations**

Neither ATi, nor nVidia have spared any other performance optimisations. ATi has introduced a new compression algorithm for normal maps, called 3Dc. The normal maps work on the idea that information about an object is stored as a texture, and each texture element stores three components of a vector perpendicular to the object surface at a given point. The DirectX 9.0 specification offers compression algorithms for this as well, but those would lead to information loss, with blocky artefacts in the stored normal maps. The X800 also features enhanced

# insight ■ technology



The ATi Radeon X800 XT Platinum features a small heatsink and fan, and both DVI as well as analog outputs

algorithms for anisotropic filtering and full screen anti-aliasing. For video stream processing, the X800 uses the same techniques as do its predecessors, called Videoshader technology. The GPU performs de-interlacing, reduces noise levels, has support for HDTV and applies anti-aliasing, which wipes out the typical artefacts present in MPEG-4 video compression.

nVidia has added a programmable video processor to the NV40, with some features similar to the X800—de-interlacing the video stream, removing blocky artefacts, noise cancellation, and also, support for HDTV. An exciting feature of the programmable video processor is that it can fuse special effects onto the picture, in real-time. Game lighting, for instance, is another exciting feature of the video processor. nVidia has come up with a new technique to render dynamic lighting into computer graphics. The feature should bring in a photorealistic feel into computer graphics, making games more life-like.

The GeForce 6800 Ultra also comes with enhanced algorithms for full screen anti-aliasing, and a new method for anisotropic filtering.

#### It's the interface too

As of now, both ATi and nVidia are offering AGP versions of the Radeon X800 and the GeForce 6800 Ultra. On the horizon, though, is the new standard in PC I/O—PCI-Express. PCI-Express is expected to debut before the year ends, and will eventually replace the AGP and PCI standards.

It's a matter of bottlenecks—AGP, for instance, was developed to work around the inadequacies of PCI. But if you take applications such as HDTV-video editing, you've just about crossed into a zone that needs the kind of I/O bandwidth that PCI-Express offers. Over the coming months, both nVidia and ATi will offer solutions that will make the transition to PCI-Express from the AGP 8X interface.

What does that mean for graphics cards? They now won't be limited by slower speeds due to the interconnect between the system I/O and the graphics subsystem. It also means that cards can now happily consume more power to run—the GeForce 6800 FX specs already necessitates a 480 W power supply. Industry analysts say that with PCI-Express coming into a position to overtake AGP, card makers will switch over to it. ATi and nVidia are working on bridge interconnects that allow for a smoother transition.

#### So what's in store?

Processing geometric data for today's games needs fascinating, cutting-edge hardware; nVidia and ATi are developing just such fancy hardware. As CPUs get ever more powerful, system memory moves to DDR2, and PCI-Express makes a move into your desktop, these advanced graphics processing beasts are going to push the limits of gaming with fluid, fast gameplay, even when all the bells and whistles are turned on. It's still going to be a game, and not reality—not yet, at least—but you'll come as close as you ever have with the latest offerings. Gentlemen, start your engines. Let the games begin.

SRINIVASAN RAMAKRISHNAN srinivasan\_ramakrishnan@thinkdigit.com

# 1/2 pg VAD

# Minutes Expert **Melodies from Afar**

If you have a

secondary audio source

FM radio, you can select

'Soundcard Input' in the

Input tab to stream this

hook the device's sound

audio. You need to

output to your PC's

Line-In jack first.

feeding your PC, such

as a TV tuner card or

Control your music, wherever you are

Scenario 1: You have 1 GB of music on your PC, but need to work on another PC for a while. You do miss your music, but don't want to wait for hours as the songs are copied to your current PC. And what if you needed to use yet another PC? Also, you want to control what

you listen to.

Scenario 2: You want to hear your music on your colleague's speakers over the cubicle.

Scenario 3: Your boss has an FM card in his PC, and you want to listen to the radio on your PC. What do you do?

All you need is Winamp (any version except 3.x), SHOUTcast Distributed

Network Audio Servers (DNAS), the SHOUTcast Digital Sound Processing (DSP) plugin and Sound-Requester plugin. SHOUTcast (www.shoutcast.com) is a software allowing people to broadcast audio, for others to connect and listen to.

Stirring up your own music

Install Winamp. Apart from playing music, it allows you to arrange and catalogue your music in the order you prefer. You can also create playlists.

#### **Blow**ing your own trumpet

You now need to install SHOUTcast DNAS, which allows your PC to serve music other computers. Go

If you want your audience to also view song titles, then in SHOUTcast DSP options, click 'Enable Title Updates' and set all to 'Auto' in the Output tab's 'Yellow pages' section.

to the newly-created program group for 'SHOUTcast DNAS', and click 'Edit SHOUTcast DNAS configuration'. A .ini file opens with a number of configurable options. The important ones are:

■ MaxUser: The number of people you'll

broadcast to. A higher number means more system resources and bandwidth.

- port on your PC, such as
- Password: Set a password for Winamp to connect to

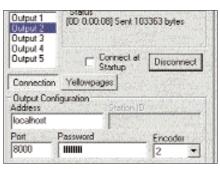
'SHOUTcast DNAS (GUI)' in the SHOUTcast program group to start the software. It's now ready to accept audio outputted by software Winamp as

■ PortBase: Set this to a free

the DNAS interface.

Save the file, and click on

Find it on the 101 Freeware CD Winamp 5.0.3 SHOUTcast DNAS **SHOUTcast DSP plugin** 



The Winamp DSP plugin shows you the running status of the time and bytes spent

from 'Not Connected', to a running display of the time and bytes sent.

Your PC is now ready to serve. Whatever you play in Winamp, can be listened to by people who connect to your PC on your IP. If your IP is 128.128.0.147, people can connect to your station via Winamp at http://128.128.0.147:8000/listen.pls through Winamp's 'Play URL' feature.

To enforce the same

volume across songs

as Zyraxs Evil Volume

Normalizer (www.

during playback, you may

want to use a plugin such

winamp.com/ plugins/

details.php?id= 79888).

To use more than one

time, use DSP Stacker

DSP plugin at the same

(www. specialaudio.com).

#### The 'I can control thee' thing

Install the Song Requester plugin (http://www.oddsock.org/tools/gen\_songre

> quester/), which you can configure so your Winamp can be controlled from any PC on the network, via a Web interface. You will need to specify a password in the plugin configuration screen. Once installed, if your IP is 128.128.0.147, http://128.128.0.147/ admin.cgi and click 'Refresh

on any track.

Playlist Cache'. Now, you can go to any PC on your network, and visit that URL to do the play, pause, stop or skip operations

vour PC.

#### Signals to the outer world

Close Winamp, if it's running, and install the DSP plugin. Now open Winamp Preferences, go to Plugins >

DSP/Effect and click 'Nullsoft SHOUTcast Source DSP...' to configure it.

In Output, click Connection, and select Output 1. Enter 'localhost' in 'Address', '8000' in 'Port', '1' as 'Encoder', and the password you set in the DNAS .ini file.

Next, in the Encoder tab, select Encoder 1, and set what quality you wish to stream at. If you're low on resources, select lower quality. If it's going to be just a few people, increase the quality.

Now, return to the Output tab and click Connect. The status should change

SAURABH KUMAR saurabh\_kumar@thinkdigit.com

# Don't JUNK that PC!

There are lots of things you can do with that old *dabba* of yours. Here are a few...

wo laws govern how soon a computer becomes obsolete—Moore's Law and Parkinson's Law of Data. Read up on these two, and you'd want to junk your four-year old PC already. But hang on—old computers are not worthless. In fact, those who know the worth of an old computer would only be too happy to buy a second-hand one. So what exactly do these folks do with their outdated machines?

UPENDRA SINGHAI

upendra\_singhai@thinkdigit.com

## An office assistant

The most common use for older computers, especially amongst small firms and SoHo users, is account maintenance. Another common use is word processing. Minimum system requirements for Windows 95 is a 386DX processor, 4 MB of RAM and 50 MB of hard disk space. Windows 98, too, needs only a minimum of a 486 processor with 24 MB of RAM and 205 MB of hard disk space.

For word processing and other office applications, install Microsoft Office 97 on the old computer. MS Office 97 requires a minimum of a 486 Processor, 8 MB of RAM and 73 MB of hard disk space. Once these are installed, you can do all your word processing on the old computer, and free up your newer computer for other, more important uses: Games!

For accounting, use software such as Tally's older versions, 4.5 for example. This version was discontinued nine years ago, but runs on a 386. Look for other software that runs on a low-end machine: there are many sites that give you information about these software, and many discussion forums too. Try www.old-computers.com for one.



## Set up a network

Your old computer is going to get much more useful if you network it. Setting up a basic network is easy—all you need is two Ethernet cards, a cross-crimped network

cable, and some change of settings on the two machines.

On the primary computer, enable file and printer sharing, and set the IP to, say, 192.168.0.1. Set the IP for the secondary computer 192.168.0.2 and set the subnet mask for both computers to 255.255. 0.0.

You're done! These IPs can be anything in the 192.168.x.x series, where x is between 0 and 255.



Networking two computers requires you to change the IP settings on the two machines, and that's about it

## DJ, play that song

You can turn your old computer into a music server. If you have Windows installed on your primary machine, there are two ways to do this. One way is to install Windows on the old computer, install Winamp, and then run a ShoutCast server. For details on setting up a ShoutCast server, see the 30 Minutes Expert on page XX in this issue. Another way is to simply store all your MP3s on the old machine for anyone in the network to view and play.

You can also think of installing Linux on the old PC. This will allow you to play MP3s without installing a GUI. One of the popular command line tools is mpg321, a free tool that can be downloaded from http://mpg321. sourceforge.net. Before you can install this tool, you will need to install libid3tag and libmad (the MPEG audio decoder library). Red Hat Package Managers (RPM) packages for these can be found at www.rpmfind.net, and are hardly a few KBs in size. Even mpg321 is just a 58 KB file. Once you've downloaded these files, copy them to your Linux machine and log in

SHOUT cast Source Main Output Encoder Input Output Output 1 (0D 0.00.08) Sent 103363 bytes Output 2 Output 3 Output 4 Output 5 Connect at Disconnect. Connection Yellowpages Output Configuration Address localhost Port Password Encoder 8000 Iэ Automatic Reconnection on Connection Failure Reconnection Timeout 30 5econds

Run a ShoutCast server after installing Winamp, and your old PC is a music server

as root. First install libmad by issuing the following command: rpm -ivh libmad-0.15.0b-2.fr.i386.rpm

Then install *libid3taq* using: rpm -ivh libid3tag-0.15.0b-0.1.rh73.fr.i386.rpm

Now go to the directory where your music is stored. Here, create a file named list.pls with the song names, and press [Enter] after each song. This will serve as your playlist. Now enter the following to start playing your music:

mpg321 -o oss --shuffle --list list.pls

Here '-o oss' specifies you'll be using default sound system for output; '--shuffle' specifies that the songs should play in random order; and '-list list.pls' specifies the playlist.

## Servers of all sorts

You can turn your outdated computer into a file server, a Web server, a proxy server, or even a music server. Making a file server is easy. Simply create a folder and share it with write permissions. The best use for a file server would be to install Linux on it and use it for backups.

With Linux, the chances of your files getting infected with viruses are remote. Further, Linux gives you more stability. If you have other computers connected to this file server, you can use it as a repository for shared files, too.

To make your computer a print server, just attach your printer to the computer. Since printing doesn't require a powerful processor, older computers work fine. However, remember that depending on the drivers of the printer for various operating systems, you may need to install a newer version of operating system for the printer to work properly. Consequently, some old computers-even a 486 or Pentium 100-just might not do.

Setting up a computer as a gateway helps in several ways.

- You can share it with more than one computer;
- It caches Web sites, so frequently visited Web pages load faster.
- You don't need to set up a firewall on all the computers separately.
- You can maintain a log of what sites are being visited.

For this, first download Squid and install it using the following command: rpm -ivh ....

Once it's installed, search for the squid.conf file. Normally it's located in the



# ites to visit

www.old-computers.com

A site dedicated to old computers. Has a discussion forum as well.

www.netfilter.org

The home page of the

Netfilter/iptables project. Visit this site for information on iptables.

www.rpmfind.net

A search engine for RPM packages of all kinds.

www.486superlinks.tk

A source of old software for old machines.



Create a folder, and give it write permissions.

/etc/squid directory. Open this file in a text editor such as vi, and find the line under the ADMINISTRATIVE PARAMETERS section that says:

#### # visible\_hostname

Change it to *visible\_host-name digit* 

Assuming you want your proxy server to be called 'digit', you now need to set the access permissions in this configuration file.

Scroll down to OPTIONS FOR EXTERNAL SUPPORT PROGRAMS, and locate '# TAG http\_access.' Just before this line, add the IPs of the computers that can access this proxy server. For example, if you want to

allow access to 192.168.0.2, add the following:

#### acl friend src 192.168.0.2

Here, 'friend' is an alias. You'll use this alias in the next step while setting up permissions. Scroll down and find the line that says 'INSERT YOUR OWN RULE(S) TO ALLOW ACCESS FROM YOUR CLIENTS,' and add the following:

#### http\_access allow friend

This line needs to be above 'http\_access deny all'. Now, save the file, and start Squid by typing in 'squid'.

Next, you need to set up firewall rules. The simplest way to do this is to use the *setup* command, if you are running Red Hat. Otherwise, you will have to use '*iptables*'. For more details on this, refer to 'Lock and Load Linux' in the April 2004 issue of *Digit* on page 102.

One you're done with the setup, you'll need to specify the proxy settings on the other computers before you can browse the Internet. Open Internet Explorer, go to *Tools > Internet Options*, and switch to the Connections tab. Then, click the LAN Settings button, and specify the proxy server address as 192.168.0.2 and 3128 as the port. Here, the IP we've specified is that of the computer where Squid is installed.

## **Experimenting with stuff**

Most organisations don't seem to like popular IM clients such as MSN Messenger. Setting up a chat client for a local network, such as Jabber and IRC Daemon, is an ideal solution. For details, refer to the May 2004 issue of *Digit*, on page 136.

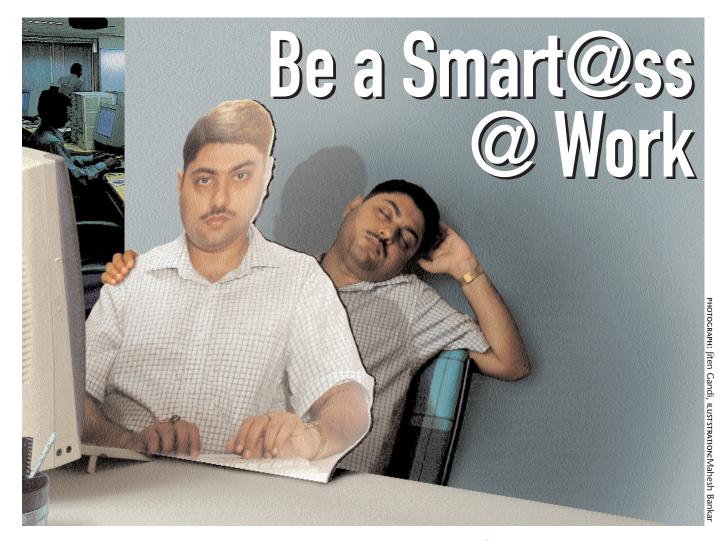
One of the best uses you can put your old computer to is to experiment with stuff you're not sure about. You can install Linux, play around with partitions, re-compile the kernel, and so on. It's also fun to use old computers for command-line tools: get a C compiler and learn C the old way.

We said it before and we'll say it again—there's lots of things you can do with your old *dabba*. Use your imagination—you have nothing to lose!

# 1/2 Pg V AD

■ **157** 

# insight ■ smart@work



hoops! Here comes that evil creature called 'Boss', making rounds in the office, spying on what people are doing. Oops! You have too many chat windows open, so many stupid Web sites, and even Solitaire and Mine Sweeper. As you mentally draft your resignation letter, while clicking wildly on all the little Xs you can see, your boss stops to check the computer of your colleague in front of you. Phew, that was too close! Unfortunately, the girl in front of you didn't even have time to say a prayer—she was playing Bejewelled, was nearing a high score, and didn't notice Big Bad Boss.

As you wonder who'll replace her, you start thinking, "If only there was a way that I could do all I wanted to, and not worry about getting caught..."

There are a few ways you can go about this. None of them are boss-proof, of course, but they can really save you in a jam. Here are the 10 commandments for goofing off.

Who says work isn't fun?
We bring you the 10
Commandments of goofing off at work

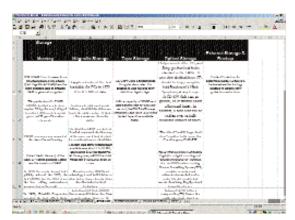
# Thou really should "Work"

Working isn't all that bad! Why, we at *Digit* work almost an hour a day! The best thing about the chore is that it leads to the forbidden fruit—'praise'—from the powers that be. If all goes well, you can get a hefty pay hike, become the boss' pet, be the envy of your colleagues, or even join the ranks of Bossdom. Once in bossdom, you'll never have to worry about work again.

If that sounds appealing, ignore this article, but remember this will cause you to become a stick-in-the-mud. Prepare to be hated by all and sundry, watch out for that potential dagger-carrying Brutus and remember this article...chances are you're going to need to read this in about a year, once you run out of steam.

# 9 Remember thy desktop, and take a snapshot

The first thing we think of doing in a jam, is press [Windows] + [M] (minimise all) or



A Desktop snapshot can prevent a lot of bloodshed

[Windows] + [D] (show desktop). Some people also prefer [Alt] + [Tab], always remembering to keep what's work related as the previous window visited. On a bad day, you end up looking like you weren't doing anything at all, or have something even worse pop on your screen.

The quick fix for this is to open up all the applications that you "should" be using, and press [Alt] + [Print Screen]. Now, go to Start > Run, type 'mspaint' and press [Enter]. This opens up Microsoft Paint. Press [Ctrl] + [V] to paste the captured image, go to File > Save As and save it as, say, 'desktop.bmp'. Then, go to File > Set As Background (Centered). Right-click the Taskbar, select Properties, tick the 'Autohide the taskbar' checkbox and click OK.

Right-click on the Taskbar and go to Toolbars > Desktop to bring up the Desktop tab. Drag it to the extreme left, top, or right of your screen. Right-click on this new Desktop Taskbar and select Auto-Hide. Finally, right-click on the desktop and go to Arrange Icons By > Show Desktop Icons (uncheck it). Now, if your boss is a bit of a Nosy Parker, press [Windows] + [M], and it looks like you're hard at work.

**Honour Thy Messenger** Most bosses are pretty lenient about Web surfing, but chatting is a



May Messenger Plus always protect you from your grumpy boss

strict no-no. For times when the messenger is banned, use Plus Messenger from www.msgplus.net—a pretty impressive tool for MSN Messenger. It has some really cool MSN add-ons, including Boss Protection.

Download and install Messenger Plus, and the next time the Boss is looking, all you need to do is press [Ctrl] + [Spacebar]. This hides all open chat windows, and also changes the Messenger icon to anything else that you want-

the default is pretty good though. To change the Boss Protection settings, open the main Messenger window, and go to Plus > Preferences > Boss Protection.

Turn the other cheek With a little help from a thirdparty utility, you can safeguard yourself from ever being caught. Anti-Boss Key (www. mindgems.com) is by far the best



Once you've configured Anti-Boss Key, getting caught would almost be a crime

solution to the problem. Download this utility, and install it. By default, it hides everything you've kept open-including what's on the taskbar. All you have to do is press [Ctrl] + [`] (the default setting), to hide all incriminating Windows-including the Anti-Boss Key window, of course.

set applications for it to ignore and leave visible, and also customise which application it brings to the foreground when you press your secret key combination. It can even launch that application for you, in case you didn't have a work related application running when your boss walked in.

We suggest you change the default key combination. The default combination to hide and show the application itself is [Ctrl] + [\]—which you also need to change. Go to Extra Settings > Keyboard to change the default key combinations. The only sore point here is that the software is a 20-day trial version, and costs about \$30 (Rs 1,350) to buy—worth it to protect your privacy.

### Do not curse thy system administrator

The biggest problem we face is trying to surf the Internet. Most of us connect to the Internet via the company's proxy server, which means every little thing we do online is logged and can be traced back to the user. You have to fight proxy with proxy, and use any of the thousands of blessed souls out there offering free anonymous proxy servers.

All you have to do is visit a public proxy site, and then use these sites to browse anything you want. All your systems administrator will see is data going to, and coming from, this sole proxy Web site.

Of course, system administrators aren't dumb enough to be unaware of these sites, so don't use a single proxy for long.



## **Tunnel Your Way Out**

Tunnelling is the process of encapsulating data of one protocol within the data of another, to set up a secure connection.

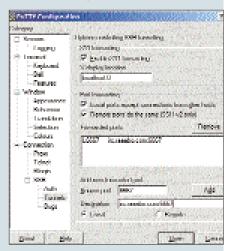
Strictly speaking, tunnelling is frowned upon. So if your office is particularly strict about their Internet access policies, don't do it. For those who work in offices that couldn't care less, and just block ports because every other company does, this can really help.

If you have a Linux machine at home running SSHd, or an account on just about any computer around the world that runs SSHd, you can gain almost unrestricted access to the Internet.

Start Putty, enter your home computer's IP address, or the address of the computer you have an account on, check the SSH option and then key in the correct port. Now, in the left-hand pane, go to Connection > SSH > Tunnels. If your connection is fast, and the remote computer allows it, you can enable X11 forwarding, otherwise just tunnel so that your applications get access to the ports they use.

The only things you need to know is which applications use which ports, and which servers. For example, to connect to an IRC server (irc.someserver.com, for example) on port 6667, set the source

port to '6667', and the destination to irc.someserver.com:6667. This creates a tunnel as soon as you log in to your home Linux box. Therefore, all you need to do to connect is type '/server 127.0.0.1:6667' in an IRC client. Your IRC client's connection is routed to the remote computer, over your SSH port, to the server you want to connect to. You can do this for all applications that use a specific port, server and the TCP/IP protocol.



You can use PuTTY's port forwarding style tunneling to get access to all that you've been denied, thus far

However, there's one Web site that no one in their right mind would block-Google. The easiest way to surf anonymously is to use Google's cache operator. For example, to view www.thinkdigit.com/ forum, all you'd need to do is go to www.google.com and enter 'cache:www.think digit.com/forum' in the search box.

# Who said you have to have just one

Go forth and multiply

desktop? Yes, Linux users have an unfair advantage, as they already have multiple desktops inbuilt with whatever distribution they use, but Windows users, too, can opt for this. You can use Cool Desk, available at http://www.shelltoys.com/virtual\_desktop. Install the software, and you're all set. You can create nine virtual desktops, but beware; this uses a lot of system resources.

All you need is two desktops: one for all non-work related applications, and the other for stuff that your boss expects to see you working with. Switch to the one with all the work-related applications at the slightest sign of boss trouble.

## SSH! He can hear 4 everything

For those who run Linux, are lucky enough to have an always-on broadband connection at home, and unlucky enough to work in an office where just about every port is blocked, you can make a monkey out of everyone.

All you need to do is run SSHd (Secure Shell daemon) on your Linux box at home, set it to accept incoming connections from a port that your office allows (port 80 for example), and leave your home PC running when you're at work.

Now you can use an SSH client such as PuTTY to access the Internet, and do just about anything you want. You can even use PuTTY's X11 forwarding to use the GUI, and its tunnelling capabilities to forward ports (See box 'Tunnel Your Way Out' above).

Remember, you can also use this even if you have just a shell account on a Linux box anywhere in the world, with unrestricted Internet access.

#### If You Can't Beat 'Em, Join 'Em

Not all bosses are born that way! Most were human once, and even employed some of the tactics mentioned in this article to pull the wool over their superiors' eyes. Here's what the experts had to say:

Cell phones make certain noises called 'ring tones'. These are handy when you're in a meeting, and can't suppress a yawn. Just get your cell phone to ring, make it sound like the company's fate depends on this call, excuse yourself, and take five minutes to compose yourself before returning to the ordeal. ""

> Prashant Narekuli, Brand Manager, Digit

I use two seperate branches of my work to make excuses for each other. So when management calls me for a meeting, I tell them I'm busy with editorial work, and vice-versa. I also use "editorpowers" to worm out of meetings. 77

> Sumod Hajela, Assistant Editor

I always keep three windows open the New York Times Technology Web site, the CNN tech page and the Google news page. This way, my boss thinks I am researching all the time. What he doesn't know that there is a word game always on in the background. 77

> Sachin Kalbag, Features Editor

We use *Quake III* to test graphic cards, PCs, motherboards, CPUs and laptops! We Quake, and if anyone asks, we claim to be testing Intel's latest CPU—when actually the CPU is some old P3! This is so clichéd now, people think we're goofing off even when we're actually testing! 77

> Deepak Dhingra, Assistant Manager, Test Centre

If you stand around chatting with your colleagues, it's wise to blurt out a few official sounding words now and theneven if it's out of context. So we stand around chatting all day, and slip in words such as 'layout', 'pagination', 'illustration', 'photo-shoot', etc., just in case a senior is within earshot.

> G S Virdi Editor, Smart Computing



# insight smart@work

## Thou shalt lie

The ultimate work-shirk is not even coming in to office. Why waste all that time travelling, when you can stay at home? The problem is that bosses never believe your lame excuses, since they are well-versed with every excuse in the book. What you need to do is convince them over the phone that you're telling the truth.

If you want to call in sick, the fake cough that you emit at a strategic preplanned point in your conversation with the boss, just never seems to come out right. So, the next time you get a sore throat, record your coughing spasms on your PC as a WAV file. Now, when you call in sick, play the file and sound like you're dying.

Of course, this means that you're



Recording background noises to back you up on your excuses may help you keep your job

only limited by your imagination. Just make sure you label your WAV files correctly. You don't want a background of the sounds of the Amazon jungles or a Delhi traffic jam starting to play when you're pretending to be sick.

# 2 Don't do that, or you'll go blind

One really neat trick you can try is to loosen all the peripherals and card in your cabinet. When no one's looking, shut down your PC, open up the cabinet, and remove all the screws for the peripherals. Get rid of the evidence: clean up the screws lying about. Now, loosen the cards a bit, and start your computer, as a test to make sure it still works. If the computer boots properly, carefully close the cabinet and get back to work.

Now, give your cabinet a little kick just when you're showing a colleague something work related. He or she will be your witness. Chances are that your loosened cards will fall out, and cause your OS to hang. Even your display might show some really weird colours, or switch off altogether. Now,

you can spend an hour (or even two) "fixing" your computer!

Whenever possible, try and grab all the fun work—as the saying goes, "Find a job you like, and you'll never work a day of your life!" Try and get a job as a reviewer for SKOAR!, the gaming magazine, or convince your editor to let you write an article called 'Be a Smart@ss @ Work'. You can hold meetings, have brainstorming sessions, go around asking your bosses all sorts of uncomfortable questions, and

If you aren't afraid to share your shirking secrets, write to us at *shirkers@thinkdigit.com*, and give us a few tips. In the end, remember that your boss was probably doing the same things once, and may be wise to your tactics.

even goof off a bit and say it's "research!"

And remember, your boss may be sitting in his or her cabin reading this article, right now! However, since sloth has always been the greatest inspiration for creativity, we're sure you'll keep inventing.

Happy goofing off!₫

ROBERT SOVEREIGN-SMITH robert\_smith@thinkdigit.com

# 1/2 page H AD



## "I, uh, forgot the root password"

Let's look at recovering the root password from the boot loader. If you're using GRUB, then, as GRUB loads up, highlight the Red Hat Linux entry on the GRUB menu, and then press [E] to edit the boot configuration. Locate the following line, something that looks like this:

#### kernel /boot/vmlinuz-2.4.20-0.70 root=LABEL=/ hdc=ide-scsi

Type the number '1' at the end. Doing so boots the PC into run level 1-single user mode, where you're automatically logged in as root. This done, type 'passwd' at the prompt. You can enter a new password here.

If you use LILO, try this. At the LILO boot prompt, type 'linux single' to get to single user mode. Of course, you may have entered a boot password, and forgotten that as well, which effectively prevents you from adding in any arguments to the boot loader whilst booting.

For wretched times like that, get hold of the Red Hat 9 install

[ Minimal BASH-like line editing is supported. For the first lists possible command completions. Anywhere else TAB list completions of a device/filename. ESC at any time cancels. at any time accepts your changes.]
grub edit> kernel /boot/vmlinuz-2.4.28-8 ro root=LABEL=/ 1

Edit the GRUB entry to boot into single-user mode

CDs. Next, boot using the first CD—the bootable CD—and type 'linux rescue' at the boot prompt. The rescue program will run through a couple of the initial install steps, such as setting up the mouse. keyboard a

such as setting up the mouse, keyboard and network interfaces.

You don't need to set up the network interface: run straight through the program to the point where you can choose to mount the hard drive with read-write permissions. Click on Continue, and get into the command prompt. Type 'chroot/mnt/sysimage'. You now get into the root environment (/) with the right permissions. Now, reset the password by typing 'passwd', then type 'exit' to get out of the chroot-ed environment, and 'exit' again to reboot. That's it, password recovered.

Remember that since it's so easy to recover a boot password, you need to physically secure your machine if you don't want someone else using your computer as root.

## "I can't boot into Linux"

If you have your boot diskette, you should be able to boot into Linux, and reinstall the boot loader. If not, no problem—Linux is quite forgiving, and with just a little effort, you can get back to GRUB-ing or LILO-ing your boots.

For GRUB users, boot into Linux using the first Red Hat 9 install CD, and once on the prompt, chroot to the /mnt/sysimage directory. Now that you're in, run this command to get GRUB working:

#### grub-install /dev/hda

This example assumes that you're loading GRUB in /dev/hda, the MBR of the first IDE hard drive. To install GRUB in the boot sector of the Linux partition (located on, say, /dev/hda5), use:

#### grub-install /dev/hda5

If all goes well, you should see no error messages popping up,



line after booting into Linux using the install CD, and chroot-ing into the correct directory. Of course, in both cases, you would need to have copies of the config files (the grub.conf and the lilo.conf files respectively,

Your system has been mounted under /mmt/sysimage.

Press <return> to get a shell. If you would like to make your system the root environment, run the command:

chroot /mmt/sysimage

The system will reboot automatically when you exit from the shell.

Boot into Linux using the Red Hat CDs, the rescue-image way

located within /etc) in the right places, and the associated files in the /boot partition.

You may also be unable to boot into Linux because of a kernel panic, which occurs when the kernel cannot be booted into. This could happen because of the installation of a newly, (and badly), compiled kernel. Another problem may be a system service that refuses to load, hence preventing a boot. In such a case, boot into single user mode from the boot loader, and start the ntsysv utility; locate the service and disable it from the bootup list. Other problems could include hard drive corruption errors.

## "No more tux, please"

It's fairly simple to cleanly remove Linux from your hard disk, and go back to single-boot Windows. This is a two step process: You first need to overwrite the partitions that Linux occupies on your hard drive, and then follow up by cleaning the MBR, if that's occupied by Linux.

First, determine your current boot loader. If it's NTLDR-and you're dual-booting using GRUB/LILO on the boot sector of the Linux partition—you don't have to bother with clearing MBR. If the boot loader is LILO, boot into Linux and run the 'lilo -u' command to uninstall LILO.

To recover hard drive space from Linux, use the GNU fdisk tool, from the command line: fdisk /dev/hda.

(This is if you want to run fdisk on the /dev/hda hard drive.)

Next, choose the Linux partitions, both the file system one(s) and the swap partition, and delete them. For convenience, you can also choose to convert them into VFAT, or FAT32.

If you're running GRUB, or forgot to uninstall LILO, here's the way out. For Windows 98 users, once you have finished with the fdisk operation, use the Windows 98 bootable CD, or boot diskette to boot into Windows 98 and run 'fdisk /mbr', as explained earlier.

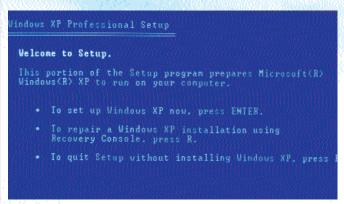
That's about it. Windows XP users will have to boot into Windows XP using the Windows XP boot CD. Press [R] during setup to activate the recovery console, and run the 'fixmbr' command.

If you have the money to spare, we'd recommend that you invest in PowerQuest's Partition Magic 8. It's one of the best commercial tools for managing disk file systems, and do conversions between a variety of operating systems including Linux and FreeBSD, and all versions of Windows. Partition Magic's Boot Magic tool also manages multiple boots.

## "I can't boot into Windows!"

For Windows XP users, GRUB is godsend. Unlike LILO, it allows for seamless dual-boots with Windows XP, and a wide variety of Linux and Unix OSes, without any additional tweaking. However, it's quite possible that you managed to destroy the MBR sufficiently enough—be it a virus or just another boot loader that you can't boot into Windows. Before pressing the panic button, try reinstalling your boot loader.

It's quite possible that with your GRUB device mapping intact you may be able to boot into Windows XP. If you are really out of luck, you need to resort to loading in the Windows XP boot loader, NTLDR. Here's how: Insert the Windows XP bootable CD, and during setup, press [R] to initiate the recovery console. Locate the correct Windows installation that you want to recover—this



Next up, clicking 'R' takes you to the Recovery Console

applies only if you have multiple Windows installationsand supply the admin password. Next. run the 'fixmbr' command, and you should have the NTLDR sitting in the MBR.

Windows 98 users can get away with a

neat and simple solution—boot using the Windows 98 CD or a Windows 98 bootable diskette, and run 'fdisk /mbr' at the command prompt. This will overwrite the current MBR (GRUB or LILO) and allow for fast booting into Windows 98.

So what happens to Linux? For information on how to continue dual booting into Linux using the NTLDR, refer the February 2004 issue of Digit. With Windows 98, you may consider reinstalling GRUB on the MBR itself. In any case, remember that Linux needs a boot loader regardless of whether or not you're dual-booting. So you could choose to install a third-party booting util-

ity such as XOSL in the

MBR, and install GRUB (or LILO) in the boot sector of the Linux partition. XOSL (www.xosl.org) is a free tool with a slick GUI and is highly recommended for dual-boots. Downloads may be problematic as the Web site appears to be down for a while now, so get a copy from an enlightened friend.



## "Oops. I believe I just deleted my..."

There's a simple solution if you accidentally deleted everything on your system as root: Reinstall everything. Format and reinstall, but if you happened to wreak havoc over only one partition, try this: if you tried 'rm- rf \*' in the /usr directory, there is hope for you. Boot using the Red Hat 9 CDs, and choose the standard install option by pressing [Enter] at the prompt. Then choose to upgrade. Don't do a fresh install.

Over the next few screens, you'll be asked to enter some options about the upgrade software packages. Don't take a chance—install everything that you think you have lost. Once

Perform an upgrade of an existing installation.
Choose this option if you would like to upgrade your existing Red Hat Linux system. This option will preserve the existing data on your drives.

The following Red Hat product will be upgraded.

Rest Hat Linux 9 (New/hold!).

Customize packages to be upgraded.

Perform a new Red Hat Linux installation.
Chouse this option to instal your system from scratch. Depending on how your choose to partition your system the existing data on your drives may or may not be preserved.

Upgrading your Linux installation should get your box working

done, the reinstall starts. The advantage of doing this versus a clean install is that your personal files are safe, as long as you don't choose to format.

On the other hand, keep in mind that if you happen to be the unlucky administrator of a machine hexed with root-kits, doing this may not be advisable. Instead, back up the data selectively after inspecting it, then clean format and reinstall Linux. You just cannot take a chance with tainted binaries and programs, and it is worth the effort to clean format from scratch and secure your machine, to ensure that the episode is not repeated.



# "Crash! Bang! Whiz! Fizzle. Ouch! Now what?"

The default Red Hat 9 file system is Ext3, a journaling file system that allows for quick recovery from hard drive crashes. This means that the entire sequence of hard drive operations is journalled (or recorded), which lets the file system recover fromcrashes much faster. For instance, a forced file system check does not always take place with the Ext3 file system in place. However, despite this, its possible that errors and inconsistencies with the data on the hard drive may force an integrity check. Generally, this takes place automatically.

As the system boots up after a crash, you are prompted to

Accessing NNOPPIX CORDM at /dew/scd0.

Total memory found: 126912 kB

Creating /randisk (dynamic size-98120k) on /dew/shn. None.

Creating directories and syntinks on randisk. Done.

Starting this process.

Init: version 2.78-knoppix booting

Processor 0 is Pentium III (Nathal) 501MHz, 512 KB Cache

ATH Bies found, power management functions enabled.

ISB found, managed by hotplug.

Emaking hotplug namager.

Autoconfiguring devices...

Mouse is Generic Serial Nouse at /dev/tu90

AGP bridge detected.

Uideo is 1740, using XPree86(1740) Server

Numitor is SAH 1266 H:30-55kHz U:50-120Hz

Using Modes "1024x768" "BOOx600" "640x480"

Whit acceleration started for /dev/hdd.

Using suep partition /dev/hdd2.

Motwork dowice eth0 detected, DICP broadcasting for IF. (Backgro
Autonometer started for: floppy edron.

INII: Extering runlevel: 5

Executing /etc/lait.d/wsession starti

Boot into Knoppix and recover your data

start an integrity check, which you should perform. To do so manually, you can use the 'fsck' command. Keep in mind that fsck should not be performed on a mounted partition, as this may corrupt the contents and

cause serious errors. Refer to the man page on fsck for more detailed usage instructions.

To copy essential data from a Linux installation that you may not be able to boot into or use.

there's a workable solu-

tion from Knoppix, the live boot CD distro. Of course, the data has to be readable. Also keep in mind that data recovery in case of a badly corrupted hard drive should be done by an expert.

For quick data recovery from a hard drive that's not badly damaged, boot into the Knoppix Linux distro. The nice thing about Knoppix is that it scans and configures your computer hardware on the fly, and automatically mounts FAT32 file systems. Once you boot into Knoppix, you should be able to read the contents of the hard drive and recover data onto another partition.

SRINIVASAN RAMAKRISHNAN

srinivasan\_ramakrishnan@thinkdigit.com

# insight ■ troubleshooting



# NTFS and FAT blues, hyperthreading hype, vanishing displays—it's all in the game. Everything has an answer—seek, and ye shall find!

#### The first seven steps

Q. Some time after installing Windows XP, there was a problem and some files went missing. I was asked to load the missing files from the original CD. While doing so, somehow, I loaded the entire OS again. Thus, there were two operating systems on my C drive.

Now, when I scanned my drive for viruses, a series of events took place, and I got a message that said I couldn't have the same OS, on the same drive, twice. I had to re-format the C drive.

Even after this, I was unable to load the OS. So I choose the D drive to install it. I did not get a boot disk with the OS CD. Can you to tell me how to partition my hard disk, and format it with the NTFS file system, step by step.

Dr K P M Prabhu

A Follow these guidelines for the first seven steps after booting from the Windows XP CD:

First, press [Enter] for a new installation. Next, press [F8] for agreement acceptance. You can choose [R] for repair, and [ESC] for a new installation; select New.

If you already have partitions on your disk and want to re-create those, delete each by selecting and pressing [D]. Press [L] to re-confirm your selection.

Start creating a partition by pressing

*[C]*. Enter the size of the partition. For example, a 20 GB drive can have a 8 GB and a 12 GB partition. You can permute and combine as you wish. However, as a general rule, leasing too much space for the C drive is not advisable; the C drive should only be used for the operating system and program files.

Once the partitions are created, select C: and press [Enter].

Here, you can select between FAT and NTFS. Whichever you select, make sure you don't select the 'Quick' option. Hereafter, the installation should be simple to complete.

TV tuner settinas

Q. I have a Pentium 4 2.4 GHz, an Asus

P4B533-VM motherboard and 128 MB of DDR RAM, running Windows 98 SE; I have Goldwave installed. I recently installed a Mercury TV-tuner card. When I ran the program, there was sound, but it disappeared when I recorded a sample video!

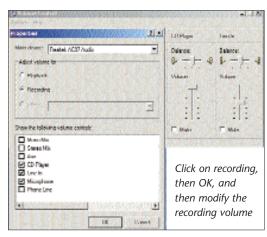
When I changed the source in Goldwave to Line-In, the recording had sound. Also, I found that changing the Line-In volume in Goldwave had the same effect on the recorded video, whereas the Line-In volume in the volume panel had no effect. I uninstalled

Goldwave, but found that the recorded volume was the same as before. Changing the Line-In volume in the volume panel did not have any effect on the recording. Please help.

Deepmoni

A For Live TV, as well as recording, your input source should be configured to Line-In. Also, check that the Audio Out settings have your sound card as default.

Now, to control the recording volume, start Volume Control from Accessories. Go to the Options menu, then to Properties, select 'Recording' and press [Enter]. Now, move the volume bar for the Line-In to change the



recording volume level. Check your recording and adjust this accordingly.

#### Pages that do not open

Q I have an Athlon XP 2.4 GHz PC connected to a LAN, running Windows 98 SE and Internet Explorer 6 with SP1. The problem is that when I visit any of the Web sites such as Indiatimes, Yahoo! India, Rediff, MSN India, or others that contain ActiveX control (.ocx) files, I get a security alert message saying, "Your Current



Moving the bar up and down controls the security

A virus despite anti-virus
I have a PC with Windows XP. I

recently bought an Internet connection

pack, but before installing the pack, I

installed McAfee Virus Scan Professional

Edition. Now, whenever I connect to the

Internet, I get the message that

says,"This system is shutting down.

Please save all work in progress and log

off. Any unsaved changes will be lost.

Security Settings Prohibit Running ActiveX Controls on this page, so the page may not display correctly." What do I do? Abhijit Mukherjee

A To get over the problem, open up Internet Options in the Control Panel, and change the settings bar in the Privacy tab to Medium. If you wish to customise the settings, you can do so in the Security tab by clicking 'custom level' and defining your own settings.



The Disk Management window shows you the disk status

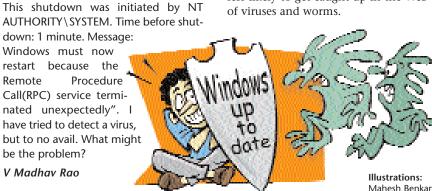
#### Vanishing act

**Q.** I have a 40 GB hard disk, split into three partitions. One of the partitions is 13 GB.

Last week, I reinstalled Windows XP on my system. After installation I seem to have lost the 13 GB drive—only two drives appear. What do I do?

Girish Cariappa

A You are infected with the blaster worm. Download the fix from http://securityresponse.symantec.com/avcen ter/venc/data/w32.blaster.worm.removal.to ol.html. You need to frequently update your virus definitions. Also keep Windows updated with the security patches that are released by Microsoft from time to time. If you do so, you're less likely to get caught up in the Web



A Right-click on My Computer and click Manage. Now, click on Disk Management, and then verify that the 13 GB partition is formatted—that is, it should show the status as 'healthy'. If not, then right-click on the partition and select format. Now, you should be able to see the partition.

#### Spyware in file system

• How can I convert an NTFS partition into a FAT32 partition?

Every time I shut down my PC, I get an error message saying, "Ending Program - wupdater.exe." What is the use of this exe file? How can I get rid of this message permanently?

When I open Internet Explorer, every time a Web site with the address http://searchcentral.cc is opened. I tried the 'Use Blank' option in Internet Options, but it isn't working.

Sumit Goel

⚠ Use Partition magic (www.powerquest.com) to convert NTFS to FAT32.

As far as wupdater.exe is concerned, it is spyware. Go to Start > Run, type 'msconfig' and press [Enter] and de-select the file. It shouldn't auto-start the next time Windows boots up. Delete the file if you want to, but that might crash the software that installed it.

Finally, the IE problem is also due to the spyware in your system. There are spyware removal tools such as Spybot (included in this month's 101 Freeware CD), which reduce the trouble involved in manually searching and removing each one of them.

#### Is /boot necessary?

• Can I install Linux without creating partitions for /boot and swap? If so, where will the boot loader install?

S. Mohammed Riyazudeen

A No, you can't install Linux without a swap partition, but you can skip the creation of a separate /boot partition. In this case, the boot files will be stored in the /root partition.

#### Windows is not ready to install

QI have a Celeron 1.2 GHz, an Intel i810 motherboard and a 40 GB Seagate hard disk. Earlier, my PC was running Windows 98; while installing ELX Linux, I corrupted my FAT partition. So I removed all the partitions and re-created them, but now even

Remote

# insight ■ troubleshooting

after many attempts I am unable to install Windows 98.

After a couple of reboots, it starts executing scanreg and then hangs. When I boot the system with a bootable floppy, scandisk gives an error saying, "Some of Windows files have been allocated to invalid partitions/locations," and a prompt such as 'Fix it' or 'Don't Fix It'. Even after I choose 'Fix It', the problem isn't resolved. What do I do?

#### Amit Gupta

A There are only two possibilities—either the RAM or the hard disk is faulty. As a first step, get a working RAM module from a friend's PC and try the installation. If it works, just get new RAM. If it doesn't, then get the hard disk checked thoroughly at a service centre.

#### Can't find root

Q. I am totally new to Linux. Whenever I try to install PCQ Linux 2004, I get an error saying the root partition is not defined. What is a root partition? I have an 80 GB Samsung hard disk with four FAT32 partitions: The C: drive is 10.7 GB, and has Windows XP installed. The D: drive is 11 GB, E: is 28 GB and F: is 26 GB.

I want to install PCQ Linux 2004 on the D: drive with the dual-boot option. Ashish Jha

A While installing Linux, you need to create the 'ext3' and swap partitions. At this point of time, specify the mount point for the ext3 partition as '/', without the quotes. You won't get the error message.

boot, i.e., Windows 98 SE and Windows XP. In Windows 98, I right-clicked on the desktop and changed the resolution. Now my computer does not show up the display in Windows, and instead shows up the message 'Out of frequen-

Q. I have a Pentium 4 system with dual-

cy'. What's the problem?

Where I can find details about files such as boot.ini, io.sys, config.sys and autoexec.bat?

Where is my display?

#### Bikrant Rana

A To set the display right, boot into Windows 98's Safe Mode, by pressing [F8] while Windows is just about to start. In safe mode, change the resolution to a lower one such as 640 x 480, and then restart the computer. As far as information about Windows files is concerned, visit www.support.microsoft. com, and search for the specific file details you need.



#### Hangs at power on

Amy PC just doesn't boot. What I mean is that the PC starts normally, I can hear a single beep, then the PC shows the system configuration, then, 'updating ESCD', and that's it—nothing on the screen after that. A cursor blinks but the OS doesn't start. I had Windows 98 on my machine.

Afiya

A If you are well versed in PC hardware, open the cabinet and tighten the connections: the hard disk and CD-ROM connectors, etc. Press the RAM module gently. Also, verify the boot sequence in the BIOS; the first in the list should be the hard disk. Finally, use a boot floppy and check the partition table using 'fdisk' for irregularities; a bad partition table can cause such prob-

lems. If 'fdisk' does not give an error, call an engineer.

#### Is CD NTFS or FAT?

Q.I downloaded data from the Internet on a machine running Windows 2000/NTFS, and burned it on a CD. My home PC runs Windows 98/FAT, so naturally it's unable to see the CD files, and hangs. Is there any software available to view or extract the files from the CD and convert them to FAT?

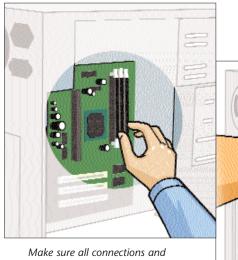
Some Niyogi

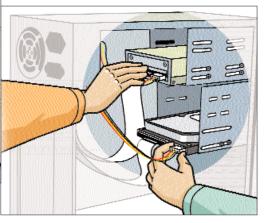
⚠ CDs have a file system of their own—CDFS. It does not matter if the host file system is NTFS or FAT. If the CD was created successfully without any errors, it should be read in Windows 98 too. A weak lens might be the culprit, but to verify this, just reading the CD in another drive using Windows 98. If the CD works, then the drive is faulty.

#### What is HyperThreading?

Q.I would like to know what HyperThreading is. I have heard a lot about this new product from Intel. I have an assembled PC that comprises an Intel D845GEBV2 motherboard (which has an external AGP slot and Extreme Graphics onboard as well), an Intel 1.7 GHz, 512 MB RAM and a 80 GB Seagate Barracuda hard disk.

I would like to exchange my current motherboard for Intel's new Hyper-





digit 174

modules are tightly fitted

## **FAOs**

#### Msvcrt.dll revisited

Q. I am unable to set up some software on my computer. The error message I get is, "The MSVCRT.DLL file is linked to missing export NTDLL.DLL rtGetNtVersionNumbers."

Sudhanshu Bhasin

↑ The problem is simple, the software you've installed isn't meant for Windows 98. Certain software were designed for Windows 2000 and later, and won't run on windows 98.

However, it's also possible that the program you're trying to install now isn't the culprit. If you tried to install software earlier that was meant for the NT platform, it could have corrupted your MSVCRT.DLL file, or installed the wrong version.

To fix this, you need to extract the MSVCRT.DLL file from the CD, and overwrite the one in the '\Windows\System\' folder. This should solve the problem.

#### **Unwanted visitors**

Q. I have a Windows 98 SE machine. I use Internet Explorer 6. One day after browsing a few Web sites, my homepage became 'www.4-counter.com'. I replaced it with 'about:blank', and also reset all Web settings to their defaults. But after rebooting, the default homepage again became www.4-counter.com. What is the problem? How can I reset my homepage to a blank page? Raj

To solve the problem, you'll need to modify the registry. This is a risky affair, so be careful. Open the Registry Editor by executing 'regedit' at the Run prompt. Now search and delete each key that has a value of 'http://www.4-counter.com'.

Alternatively, you can search and remove spyware applications using spyware removal tools such as Spybot (included in this month's 101 Freeware CD).

**Summer heat**Output

Output

Output Athlon 1800 MHz, an ASUS motherboard, and 256 MB of DDR RAM. The problem is that the CPU fan overheats. How can I rectify this?

S Palani

A Only use the original fan and heatsink that was provided with the CPU. If need be, you can purchase better cooling solutions from thirdparty vendors.

As a precautionary measure, verify that excessive amounts of dirt haven't accumulated on the fan blades. You may need to clean the fan carefully with a paint brush. If you have to remove the fan to clean it, be careful and snap it out carefully.

Use thermal paste to increase heat dissipation—remember, too thick a layer of thermal paste can act as an insulator and make matters worse. Sometimes, keeping the cabinet open may help.

Threaded one. Do you recommend the exchange, or should I make do with my present configuration? I intend switching to a HyperThreaded motherboard since it's relatively faster, and supports multitasking.

Can you recommend motherboards that are better than the one I have in mind. If so, please suggest some that have an external AGP slot, as I have a graphics card. Also, please let me know the cost involved.

Siddharth

▲ Intel's HyperThreading technology pertains to processors and not to motherboards.

Intel's latest CPUs have this feature, and nearly all new motherboards for the Pentium 4 platform support it.

As far as performance goes, there will be a marginal gain, and that, only with applications optimised HyperThreading. Unfortunately, as of today, there are very few such applications. Another good point to note is that, some applications actually see a performance drop when used with HyperThreaded processors.

However, you have a pretty decent machine and there is absolutely no reason to shift to a newer configuration as of now.

#### **Back up Outlook Express files**

1 have Window 98 SE and Outlook Express 6. I need to know how to save, or copy my e-mails from Outlook to a CD.

Neeraj Mishra

A To back up files, first start Outlook Express, then go to Tools > Options, and click on Maintenance. Next, click on Store Folder, copy the path, and paste it Windows Explorer. Finally,

copy all files to the backup location.

Restoring is simple: copy the files back to the original folder.

#### Monitor starts!

• We switch off the monitor when listening to music or running anti-virus software. However, to our surprise, the system automatically shuts down when we switch it back on. How do we solve this problem? Arnab and Smita

A Get your power supply checked at a good service centre, as it's faulty. It's unable to take the load when you start the monitor, thus triggering off a restart. You may even need to replace the SMPS with another with a higher power rating.

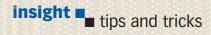


Open the store location in explorer and copy the files



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!



# tips Ctricks

# Is a Free-Free W orld

Tried the free software on the CD along with this issue? Now here are some quick tips to give you the winning edge

contents
42 Essentials

**42** Multimedia **43** Internet

45 Interne 46 System

47 Office

**48** Developer Tools



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Farzana Cooper

JUNE 2004

### ESSENTIALS

## **MULTIMEDIA**



#### Adobe Acrobat Reader **Full 6.0**

Adobe Acrobat Reader comes in two flavours—the Basic and the Full version. The difference is that the Full version has comprehensive help, support for accessibility features, and most importantly, the provision to search within Adobe Catalog Index files. The Index files provide access to a full-text search system. This makes it simpler and faster to search for text within multiple PDF files, through a single interface.



The search interface supports search using simple, compound or Boolean arguments. Advanced search capabilities, such as stemming and proximity, help you refine the search results.

To search via an index, drag and drop the index file, with the PDX extension, into the application. The search bar opens on the right hand side. By default, the search application will be in Basic mode, but by using the link at the bottom of the page, you

enable Advanced mode. Remember, you need to use the Full version of Adobe Acrobat Reader 6.0 to avail these options.

The results obtained can be sorted in various ways. Relevance sorting keeps the most probable results on the top. 'Sort by filename' is self-explanatory. The Digit Archive filenames in the second free CD with this issue, have been chosen such that, on being sorted, they appear in chronological order.



#### dBpower AMP Music Converter

To start using dBpower AMP, all you need are the plugins for the formats into which you need to encode your audio files. Once you have them installed, you can start right away.

Within Explorer, locate the file you want encoded, rightclick on it, and choose 'Convert To'. You should see the listed options for the audio formats supported. Select the format of your choice and click on it. This opens the Options menu where you can set parameters such as encoding quality and type. When you have entered the options, click on Convert to start converting the file.

## **Winamp 5.03**

#### **Global Hotkeys**

Winamp 5.03 features global hotkeys that allow you to control your player using the keyboard. The fun thing is that the shortcuts work even if Winamp is not in focus. Thus, even if you're working in Word, you can pause, play, stop, or increase or decrease volume with the following configurable key combinations:

Action	Shortcut
Play/Pause	[Ctrl] + [Alt] + [Home]
Stop	[Ctrl] + [Alt] + [End]
Next Track	[Ctrl] + [Alt] +
	[Page Down]
Previous Track	[Ctrl] + [Alt] + [Page Up]
Increase Volume	[Ctrl] + [Alt] + [♠]
Decrease Volume	[Ctrl] + [Alt] + [♥]
Left Seek	[Ctrl] + [Alt] + [←]
Right Seek:	[Ctrl] + [Alt] + [→]

#### **Welcome the Media** Library

Winamp boasts of a powerful feature called the Media Library. Open it by right-clicking on the main window and selecting Library, or by pressing [Alt] + [L]. You can navigate over the main sections, called Views, from the left side pane.

To add your files, click on



Tips & Tricks, Software shortcuts, Q&A know-how How to guides, Step-by-step tutorials, Biginner guides

# Help

www.zdnetindia.com/help



The Media Library is a manageable bird's eye-view of all your music collection

Library, and select the directories containing your media files. Winamp immediately separates the audio from the video files, and puts each under the correct View.

If you flip across the default Audio and Video Views, you'll notice there's a lot you can do in each View. For example, under the Audio View, you can view your collection by artiste or by album. There's also a useful search facility that lets you search for files within the library, with the results displayed in the Results pane. You can narrow down your search by entering multiple keywords. You may choose to either enqueue the results to the current playlist, or play it straight off the library.

If you right-click on the track in the Results pane, you can choose to play all tracks by the same artiste, or play all the tracks in the album, or add the files to a playlist. Right-clicking on the track in the Results pane lets you access and change file information, and remove the file from the library and the drive.

You can even create your own custom views, such as 'High Bitrate' to automatically filter only those audio files which have a bitrate of, or more than, 192 Kbps.

The media library can also keep track of various playlists. It also allows you to keep track of media folders—your music sources. These can be local or shared fold-

ers. They can be scanned automatically for new media. Tags are used to generate searchable info in the library for later reference.

#### **The Playlist Editor**

Winamp's Playlist Editor hasn't really changed in this makeover. It still remains the easiest to work with. If you've just loaded a huge playlist, and want to search for a specific track, a quick search-and-select can be done by pressing [F3].



Winamp is full of features waiting to be utilised

This opens up the 'Jump to file' window, where you can enter the search criteria. The filtered song can be played immediately, or enqueued to be played after the current song.

#### Forget me not

If you want to list your favourite tracks such that they

can be accessed in a jiffy, you can bookmark them with Winamp's convenient bookmarking feature. To bookmark tracks, right-click the selected tracks in the Playlist Editor and select 'Bookmark Item(s)'. You can also use the [Alt] + [I] combination for this. To access the bookmarks, right-click on Winamp, go to Bookmarks and pick up your track from the list there.

#### Not just skin deep

The new Winamp boasts of skin support which, apart from looking really great, has some new and impressive features. To begin with, the 'repeat' button is now a three-way toggle. It toggles between 'No repeat', 'repeat playlist' and the new 'Repeat Track', which will keep repeating the current track. Also on offer is the Notification feature, which, if the player is minimised will pop up details of new actions, such as a track change, a playback pause etc.

Additionally, you can make Winamp transparent, and as unobtrusive as you want. Also, for those with changing moods, Winamp can now wear multitudes of colours. Change the colour to suit your mood.

## INTERNET



#### **Eudora**

#### Insert recipients quickly

If you send frequent e-mails to certain addresses, then use the 'Recipient List' in Eudora for quick access to their email addresses.

To add a user to this list, go to *Tools* > *Address Book*. Click on the desired user to

see all his/her details. In the Recipient List checkbox, select Yes.

Once you have added the desired users to the Recipient List, sending email to them will be easier. Just right-click in the To, Cc or Bcc box, select 'Insert Recipient' and click on the desired user.



Virus Alerts, Bug Fixes, Patches, Security

Virus Workshop

www.zdnetindia.com/virus

# insight ■ tips and tricks

#### You've got tweet!

You can change the sound played when a new mail arrives, by assigning a wav file within *Tools > Options > GettingAttention*. Click the unnamed button, locate the .wav file, and click Open. Now, whenever you receive an e-mail, your sound of choice will be played.

# A backup a day keeps the doctor away

Backing up your Eudora e-mails is as simple as copying and pasting. Find the Eudora folder—in Windows 98, it's located at C:\Windows\app licationdata\qualcomm\eudora—and select all the files with the .mbx, .pce, .txt and .fol extensions. Copy the selected files to a backup storage device. The .mbx, .pce and .fol files relate to e-mails, while \*.txt files contain the address book.

#### Drafts, or stationery

Instead of typing the same body text for oft-formatted e-mails, such as standard responses to information requests, you can save general layouts of such e-mails. These are saved as Stationery in Eudora, and can be readied to be sent with minor, last minute changes. To create new Stationery, go to Tools > Stationery. A blank window will open up. Right click in this window and select New. In the composition window, fill in as many fields as you wish, and save the Stationery.

Sending the e-mail is now as simple as double-clicking

a Stationery item and making a few changes, if any.

#### Mail list

Some people have more than one e-mail address. You can send an e-mail to all of these by creating a mail list. To do this, when you create a user entry in the address book, you see a box that says 'This nickname will expand to the following addresses'. Enter as many e-mail addresses as you want, and your list is ready.

#### **Work faster**

The fastest way to send e-mail is to press [Ctrl] + [E] to open the send e-mail box.

#### Filter on nick

Eudora provides a different way to filter e-mails. Instead of the regular filter, using the e-mail address, Eudora allows you to filter using nicknames. This way, even if the e-mail address of the person changes, the mail will still be considered recognisable. Of course, if both the nick and e-mail ID change, it would bypass the filter.

To set up a filter, go to *Tools > Filter > New*. Specify the conditions, and the action to be taken, and you're done.

#### **Vacation reply**

With the help of Filters and Stationery, configure Eudora to reply to all e-mails that arrive within a specified period. The filter acts a dummy controller—you can draft a personalised respnse, which will be sent as a reply mail during the vacation period.

#### **Eudora add-ins**

Eudora has add-ins to facilitate and automate many frequent tasks. These are easily downloadable from the Internet. Here are some of the more popular ones.

#### Mail alert

This add-in runs as a standalone program, using Eudora's e-mail settings, to poll your e-mail server at regular intervals. If it detects new mail at the server, then it pops up a window indicating this. It also provides ways to read, reply to and delete the e-mails directly from the server. The MailAlert add-in can be downloaded from http://www.diamondridge.com/s oftware/mailalert/index.htm.

#### Address book to HTML

This add-in helps you export Eudora's address book to HTML. This is handy, when publishing your address book on your Web site for others to refer. It consists of an executable program, which needs to know the folder location of the address book.

In Windows 98, the default folder is C:\Windows\ApplicationData\qualcomm\eudora. The add-in needs 'NNdbase.txt', which contains Eudora's entire address book. On clicking the 'Convert' button an html file is created in the same folder, by the name NNdbase.htm. The add-in itself provides a way to view the converted file. This add-in is available at http://www.min dspring.com/~aegreene/eudora/.

#### Mail to HTML

Similar to 'address book to HTML' is 'mail to HTML'. Suppose you subscribe to a mailing list, and get an interesting e-mail which you would like to share. You can upload this to a Web site, Intranet, or Internet based with just a few mouse clicks.

The add-in effectively converts the entire mailbox into HTML pages. It generally finds the source folder, and you need to specify the destination folder where the HTML files will reside after conversion.

Apart from this, you can even convert mails into text files. The plugin is available at http://users.erols.com/tgitlin/

#### Synchronise two PCs

Use this plugin to synchronise the address books of two PCs running Eudora.

There's an interface window where you have to select NNdbase.txt—the address file, from the first computer, and then the address file from the second system. A destination file that consists of a compiled address book from both machines is created. The plugin is available at http://eudora.interweb.be/addins.html.

## **Opera 7.23**

#### Down with the mouse!

Opera supports a whole lot of keyboard shortcuts. We list some of them here:

To go to a URL directly, you can press [F2], and enter the URL in the address bar which pops up. If your



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address bar is enabled, you can press [F2] to take the keyboard focus to the address bar. Additionally, you can load a document from your hard drive by pressing [Ctrl] + [O].

Document images can be easily toggled simply by pressing [G]. This is a three-way switch, and will cycle between 'Show all images', 'Show loaded images', and 'Do not show images'. If you come across a Web page with bad formatting, making it unreadable, you can press [Ctrl] + [G]. Of course, you can always use the classic [F5] or [Ctrl] + [F5] combination for a page refresh.

Once you are done with a window, you can hit [Ctrl] + [F4] to close the active MDI window.

#### Zip zap zoom!

Opera boasts of true zoom functionally, which allows you to zoom not only text, but even images and styles proportionately. You can exploit this feature using the trusty old keyboard by repetitively pressing [0] and [9] for a 10 per cent zoom out, or zoom in respectively. [7] and [8] can do.

If you're lost, you can always press [6] to revert to 100 per cent zoom.

#### Scroll that page

You don't need a mouse to use the scroll bar. You can hit [Ctrl] + [F7] to toggle the scroll bar on or off. The arrow keys can be used to scroll up and down. [Page Up] and [Page Down] scroll page-wise. Likewise, [Home] scrolls the

document to the top, and [End] takes you to the end of the document.

Additionally, you can use [Q] and [A] to navigate to the previous and next text link on the page respectively. Once on a link, press the Space Bar or [Enter] to open the link in a new window. Handy, eh?

If there's a form on page, despair not; you still don't need a mouse to enter the form. Press [Tab], and Opera will promptly take you to the form fields. Don't feel like making a purchase at that moment? Press [F9], and focus will return to the Web page.

Looking around for a history of URLs visited? Press [H], and you get the list at your fingertips...literally.

#### Manage that document

Opera boasts of keyboard shortcuts for just about everything. It allows you to manage your document windows easily using keyboard shortcuts:

	Action	Shortcut
Ī	New document	[Ctrl] + [N]
	Duplicate window	[Ctrl] + [Shift] + [N]
Ī	Reload all	[Ctrl] + [F5]
	Cascade windows	[Shift] + [F5]
Ī	Tile horizontally	[F6]
ľ	Tile vertically	[Shift] + [F6]
	Restore focus	[F9]
	Switch to next	[Ctrl] + [Tab]
ſ	Switch to previous	[Ctrl] + [Shift] + [Tab]
	Minimise current	[4]
	Maximise current	[5]
	Close all	[Ctrl] + [Shift] + [W]

#### 2 Put across a point

Apart from being an excellent browser, Opera doubles

up as a fabulous presentation tool.

Press [F11] to transform Opera into presentation mode. Scrollbars vanish, the document opens in full screen and menus hide. Cer-



Opera is capable of transforming a Web page to a slide

tain parts of the document may be hidden, and fonts and formatting may change to reflect presentation status.

#### The M2 factor

Another weapon in Opera's arsenal is the feature-packed M2 client that fulfils all your news or mail client needs.

To configure a new newsgroup account, go to Mail > New Account. Choose the type of account—in this case, it will be a news account. To subscribe to a thread of the Microsoft newsgroup domain, enter msnews.microsoft.com as the incoming server and your SMTP as the outgoing server. The outgoing server will be used to send your posts to the news server via email. Use the following settings to better refine your account usage preferences in your mail account:

Leave messages on

server (POP accounts only): This will leave a copy of the message on the server even after you have downloaded and read it. Good if you might need mail again at another computer.

Mark messages as read if already downloaded: This option will ask M2 to mark a mail as read if the mail has been marked as read from some other mail client earlier, or from some other location.

Download message body when checking: This

selects if M2 should download only the message header, or the complete message body as well. Choosing to download only message headers can come in handy so you can delete spam, or an unsolicited, large mail just by reading its header.

Keep local copy of message body: This makes a local copy of the mail for later viewing.

Check for mail every # minutes: This forces M2 to check for new e-mail after a specified duration.

Play sound when new messages arrive: M2 can optionally play back a sound alert to indicate the arrival of a new mail.

Queue messages (do not send immediately): Enabling this option causes M2 to halt a message immediately. Instead, it queues it in the outbox. All messages will be sent only when the Send button is clicked.



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#### SYSTEM

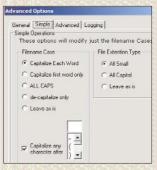


## StopYell 2002

#### Mend your filenames

StopYell is a one-stop solution for all filename renaming jobs. You can make elementary or complex filename changes, and StopYell will do it all at the click of a button. This feature comes in handy when there are multiple file sources, and you have to follow various file naming conventions.

Use the simple dialog box to change your filenames to

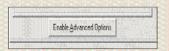


Change your filenames from HiCcUpS.jpg to Hiccups.jpg

lowercase or keep it all caps. You can also choose to convert a long filename to sentence case, which converts the first letter of the filename to caps. If there are numbers or special characters in the filename, you can define if you want the character immediately after the special character to be capitalised.

Similar changes can be made on filename extensions too.

StopYell, by default, keeps the advanced filename rename options disabled so that no accidental filename change happens. Click the 'Enable Advanced Options' option to enable advanced features. This will allow StopYell to generate new file-



Advanced options allow StopYell to improve filenames by more than just the case

names, not limited to changing of case.

If you have a number of files downloaded from, say, your digicam, and you need to prefix all filenames with a word, say, 'goatrip\_', you can turn on the Prefix option in the Serial Filenames tab and enter the word you need to add before all your filenames.

#### **Serial** mender

So you downloaded a hundred different photographs from a hundred different sites for your project, but the mixed filenames are making it hellish for you to keep track of them?

Go to the Serial Filename tab and enable the Auto-Serial Naming option. The result will be filenames such as 'picnic\_trip\_1.jpg', 'picnic\_trip\_2.jpg', etc.



StopYell can suggest filenames to use for serial filenames

A powerful feature waiting to be exploited here is 'Auto Suggest'. Once enabled, it analyses the target folder to automatically suggest a prefix for a filename, which, most often, makes sense.

#### **The General Stuff**

StopYell's General tab is chock-full of features you can use. Often, Web sites rename the filenames to adhere to online Web resource locator naming standards, which are browser friendly, but forget to change the filename back to its human-readable form. This is when special characters in the filenames get



Replace bad characters such as % from filenames quickly and easily

replaced with codes. For example, space becomes %20, and so on.

Fixing this on 50 files can be a headache without StopYell. Go to the Advanced Options and switch to the Advanced tab. Here, in the General tab, check Enable Replace. By default, underscores and '%20' are converted to spaces. Other configurations are available as well.

The same tab will also allow you remove all digits from filenames, or remove extra whitespace, at the click of a button.

Eventually, filenames



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such as '34\_gOa%20 Trip.JPG', get converted to 'Goa Trip.jpg'. Did we hear "Cool"?

#### Mame your tracks

Not resting at its capabilities to rename simple and complex naming requirements, StopYell manages to automatically rename MP3s by reading their ID3 tags.

Give it a folder full of songs, and it will look in



Rename a file from good\_ song.mp3 to Californication.mp3

each song to get related details such as Title, Artiste, etc, and build up a logical filename for each file, so you know the song just by looking at the filename.

StopYell changes the naming convention depending on how much information is found in the ID3 tag of a given song. Default and recommended naming conventions are provided by default, but can be changed if needed. Info tags get replaced by the actual information. For example, a file called 'so young.mp3', with '%a - %t(%m)' selected

builds up the filename 'The Corrs - So Young (Talk On Corners).mp3'.

#### **ZoneAlarm**

#### Program control

Clicking on Program Control lets you set security levels for programs that may access the Internet from your computer.

Clicking on the Main tab lets you set broad-based rules; set Medium here. To set specific rules for each program, open the Program tab—here you will find a list of programs that have tried to connect.

You can also add programs such as your browser, e-mail client, or a specialised application to which you would like to grant access. For example, if you use filesharing programs over the Internet, you can add the filename here through the Add option, and set its parameters. Choose between denying access, to allowing outright access, or settle on the program asking for permission every time it wants to connect.

#### Server rights

ZoneAlarm may alert you about granting server rights to certain programs—this is the case with chat and file transfer software that allow for real-time conversations, such as Yahoo!, MSN or mIRC. You can assign these rights from Program Control under the Programs tab. ZoneAlarm monitors the activity of the programs con-

tinuously and prevents unauthorised access.

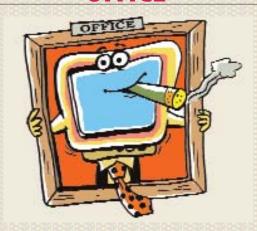
#### **U**Full stop

To stop all Internet activity, click on the red Stop button. You can configure the Internet Lock from the Program Control screen, in the Main tab. This is obviously a drastic measure—use this if you are certain that a Trojan or some

other major security loophole exists on your computer.

You can also configure certain software to bypass the Internet lock. This is useful, if, for example, you wish to leave for the day, but need a download to complete. In this case, you can give, say, your download manager rights to bypass the Internet Lock.

### **OFFICE**



## OpenOffice.org

# Turning off AutoFormat and AutoCorrect in Writer

Writer, the word processor within the OpenOffice.org suite, comes with automators, namely the auto-format and auto-correct facilities. While these may be useful, they can also be irritating, especially when text is being corrected or formatted wrongly. For example, with the default settings, it capitalises the first letter of every sentence; every URL is recognised and

is coloured to mark it out as a hyperlink.

To turn off these, go to Tools > AutoCorrect/AutoFormat. Under the Options tab, uncheck the options that you don't need. You can choose not to have it autocorrect and auto-format, while you modify the text, or while you enter the text onto the page.

# Inserting special characters in Writer

To insert special characters such as the ® or © symbols, place the cursor in the desired position, and then go to *Insert* > *Special Character*.

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# insight tips and tricks

Choose Symbol from the Font list, and click on the symbol you want inserted.

#### **Locking text**

Writer also has an option that lets you lock in a section of text to prevent it from being edited or changed. Select the portion of text that you want protected, go to Insert > Section, and under the entry for Write protection, select the Protect option. Finally, select Insert. The selected text is now locked; you cannot overwrite the text.

If you like to safeguard the

section with a password, choose the 'With Password' option, provide a password and click OK.

#### Freezing panes in Calc

To view row or column captions for a long spreadsheet as you work through it, you can freeze the fields that hold the

If a single row or column caption needs to be frozen, click on the cell just below or to the right of the row or column that contains the caption. Go to Windows > Freeze. If you have either column cap-

tions or row captions, you can create cross freezing by clicking on the uppermost left side cell that does not contain a caption.

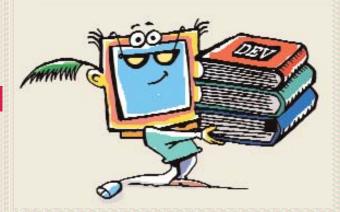
For example, in a sheet with single row and column captions, choose the B2 cell. If you have multiple row and column captions to be frozen, you can split the sheet window. Click on the cell just below or to the right of the row or column where you want to insert your caption, and go to Windows > Split. The sheet window splits. Now, you can scroll both parts of

the split window, displaying the caption as per your requirements.

# About those pesky

If you see ### in a cell where you have entered some data value in Calc, it means that the value is too large to be displayed, and that Calc has clipped it to display '###'. To read the value, resize that particular cell. If the cell content is text, you can double-click on the cell. This shows a red triangle that indicates that the field is overflowing.

## **DEVELOPER TOOLS**



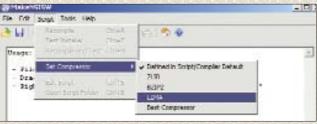
#### NSIS 2

#### Showing the doors

Any installation package is incomplete if a corresponding uninstall module is not bundled. Uninstallation is as essential a component as the installation module. Hence, it is necessary to add the correct values in your NSIS script to allow for a successful uninstall.

The information has to be

added to the following reg-



NSIS has many configurable options, such as which compression to use for the final install package

istry key: HKLM\Software\ your application: Microsoft\Windows\CurrentVer-

You need to add the following mandatory keys:

sion\Uninstall

DisplayName (string): This is where the name of your applications goes.

UninstallString (string): Path and filename of the uninstaller. Always quote the path to ensure that spaces do not prevent Windows from finding the uninstaller.

Optionally, add the following information to help users get more data about ModifyPath (string): Path

and filename of the application modify program

InstallSource (string): Location from where the application was installed

RegCompany (string): Company name of the application HelpLink (string): The Web site of the application

HelpTelephone (string): The phone number for application support

URLInfoAbout (string): A link to the application home page DisplayVersion (string): Displayed version of the applica-

VersionMajor (dword): Major version number of the applica-

VersionMinor (dword): Minor version of the application

NoRepair (dword): This is set to 1 if the uninstaller has no option to repair the installation



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# Off the Shelf



ost of you have seen the *Lord of* the *Rings* movies by now. It is truly amazing when you consider the detailed universe that this literary work of Tolkien has created. Especially if you are an RPG fan, most of the characters and locales you encounter owe their origins to this trilogy.

However, movies don't follow the book exactly, and this annoys purists.

So if you're interested in this world and want to know how it all began, *The Hobbit* is here to entertain you. Although no movie version exists to the book that preceded *LOTR*, there is a game at your disposal. Best of all, it sticks to the book.

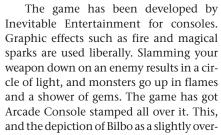
The story goes thus. A group of Dwarves has been rendered homeless by an evil dragon called Smaug the Magnificent. Following the great loss and suffering across Middle-earth, the Dwarves decide to do something. They are accompanied by Gandalf, who recruits Bilbo Baggins to essay the role of a burglar and treasure-hunter extraordinaire. Now, Bilbo must endure a series of challenging quests.

The story is depicted nicely through

the use of storyboards, in-game cutscenes and voiceovers.

Once the quest begins, the game's visual appeal strikes you, despite the boring opening video. Butterflies in myriad colours circle the flora of Hobbiton, neat little gardens surround each Hobbit's home, and brightly coloured jewels and glowing silver pennies are yours to collect. All this is set to collect.

collect. All this is set to a very pleasant soundtrack.



grown kid, has resulted in the Everyone rating for the game.

As you progress, the game difficulty takes a sudden upward bump. Enemies attack in waves, more bosses are encountered, and the puzzles seem a hell of a lot more difficult. Abundant action saves the game from sliding the *Tomb Raider* way.

However, the action slacks in levels like The Gathering of

Bilbo gets a much-needed power-up

a very pleasant the Clouds, where enemies are few. At times like this, you need to take it easy for

times like this, you need to take it easy for a while. Fortunately, the next level, The Clouds Burst is all-action, no puzzles. So you can merrily take on seven to eight goblins at a time, and show them who's boss.

By that time, you should have acquired the skills required to mutate from a timid Hobbit into a roaring ball of curly hair with big, hairy feet. The game is ported to the PC by a strange entity called The Fizz Factor, and they have had to grapple with the twin devils of camera controls, and the save system.

If you have a gamepad resembling a console, you will find that all is well. Otherwise, stick to a keyboard-mouse combination. The save system consists of pedestals where you can begin anew. The PC porting has also introduced a crashing bug that decides to present itself whenever the planets are aligned just so. You never know when it might strike.

When played at a stretch, *The Hobbit* can seem never-ending. But taken a session at a time, it provides plenty of entertainment, and is way above your everyday third-person slash-em-up.



Genre: Action ■ Developer: Inevitable Entertainment/The Fizz Factor ■ Publisher: Vivendi Universal Games ■ Distributor: Sony Music Entertainment ■ Phone: 022-2646-1600 ■ System Requirements: 600 MHz CPU, 128 MB RAM,16 MB 3D card ■ Price: Rs 999

Web site: www.sonymusic.co.in ■ Rating: ★★★ 🙀

# **Commandos 3: Destination Berlin**

## Revamped and much more intense

Difficulty-wise, Commandos 3, fits somewhere between the first two versions. Its interface has been revamped from the original cluttered backpack. All other functions are neatly categorised into five hexagonal buttons displayed at the bottom of the screen. Two of these provide access to your weapons and items. Right-clicking on them expands the buttons to show all usable equipment.

This rearrangement looks very good, but veterans don't really bother with the interface—they will use the hotkeys instead. But, except for three or four critical hotkeys, the rest have been done away with.

C3 has more intensity in it than C1 and C2 combined. Several missions have very limited time to accomplish the objectives. In the opening mission, your sniper needs to take out the elite German sniper, before



he kills off the Russian soldiers. In one mission, the night before D-Day, you need to disable the reinforcements stationed in a camp, within 10 minutes, before they head for the beaches of Normandy.

The missions in *C3* have undergone a sea change. The total game time has been halved.

The sound in *C3* is, excellent. The graphic engine now gives you the ability to zoom and rotate smoothly around your character even while indoors.

Another facet of the game that's been done well is the characters that populate it. The fluff of the previous titles has been discarded.

Unit skills have also been upgraded. Commandos can now carry soldiers around. All units can now stun soldiers and tie them up. The only

exception to this is the weakling Spy, who still has to rely on his hypo injections to knock people out.

C3 carries both good and bad things. The game is relatively short, and there are a few glitches. But, as long as we get our yearly dose of some great Nazi lovin', we'll still be playing Commandos 3.

Genre: Action ■ Developer: Pyro Studios ■ Publisher: Eidos Interactive

System requirements: 700 MHz CPU, 256 MB RAM, GeForce or Radeon-class card with 32 MB memory, 2 GB free disk space

Price: Rs 2,999 ■ Web site: www.commandosgame.com



# **Need for Speed Underground Too Fast**

The first thing that NFS Underground reminds you of is 2 Fast 2 Furious, the movie that inspired millions to get their crummy cars upgrades and loud gangsta rap. The car racing scenes in the movie were mind blowing. Here is a game that promises the same fun.

Additions to this version of *NFS* are the Drag and Drift modes. And the competition is great. The PC puts up a good fight, and rival cars use all available shortcuts. To be on top, take all the shortcuts and drive like the devil.

The handling of cars is by far the best in this version. You start off with standard cars, all fresh out of the factory — models with handling and speed that are not the best. But as you progress and upgrade the car, its handling improves, and so does the speed. But performance upgrades are not the only things you can

do with the cars. It is also very crucial that you car looks good. You can get style points and multipliers that unlock vinyls and other goodies that add to the look of your baby.

The music list for *NFSU* comprises punk and gangsta rap. You will enjoy this too till the end of the starry-eyed effect. It would have been awesome if they'd allowed us to play MP3s from our hard drive.

The motion blur is awesome. It makes you actually feel the speed. But there's no motion blur on older cards like the GeForce2 or the Radeon 8500. You need NOS to experience it. There is a small program available online to the game work on LANs. The LAN gaming thing is very sim-



ilar to the online one, and it's fun.

The game could have been awesome, but there only 15 race tracks. Would I buy it? Yeah. For the simple reason that EA has promised a LAN gaming patch and the online thing.

Genre: Action ■Developer: Electronic Arts ■Publisher: Electronic Arts ■ System requirements: 800 MHz CPU, 128 MB RAM, GeForce2-class card, 1 GB hard disk space ■ Web site: www.needforspeed.com ■ Rating: ★★★

# arcade reviews



Here's an interesting tome on information security. *Security Warrior* is coauthored by Dr. Cyrus Peikari and Dr Anton Chuvakin, old hands at computer and information security, and is targeted at an audience with intermediate knowledge of computer architecture and networks. The book is structured into four sections and an appendix, and its Web site, www.securitywarrior.com, has a lot of interesting papers and code samples.

Part I discusses software cracking or reverse code engineering (RCE), in the context of Windows and Linux on the x86 platform. It also deals with RCE on ARM-powered handhelds running Windows Mobile apps. The authors work through the chapters with interesting live examples.

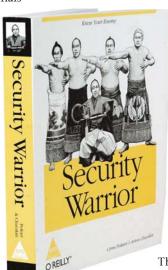
Part II is about network stalking, with TCP/IP security, social engineering techniques and network reconnais-

sance, using commonly available tools. It ends with a look at how hackers hide their tracks.

Part III discusses platform attacks, with Unix and Windows attacks, as well as SOAP XML security, SQL injection. It has a fascinating chapter on wireless security.

Part IV discusses log analysis, new approaches to IDSs, honeypots and incident response.

At the end of each chapter are references to papers and articles published, many of which are online. The appendix cov-



ers some useful Soft-ICE commands.

This is not a book for wannabe undercrackers. ground Instead, you, as a software developer, a network administrator, or just the desktop user can know how common security measures are circumvented. If you have some familiarity with Linux, Unix and Windows with C, you will definitely enjoy reading this informative book.

Thoroughly recommend-

ed-get your copy today.

Publisher: O'Reilly Author: Dr. Cyrus Peikari and Dr. Anton Chuvakin Distributor: Computer Bookshop (India) Pvt. Ltd Phone: 022-2206356/0989/5631, 022-22077922/23/24 ■ E-mail: cbs@vsnl.com ■ Web site: www.securitywarrior.com ■ Price: Rs 500 Rating: ★★★★☆



# **Instant Immersion Translator Deluxe**

## A cut above online translation

**T**nstant Immersion Translator ■ Deluxe is a suite of translation programs. The programs offer translation between English and a host of other languages, but you use each of them slightly differently.

The translation quality it offers is better than what Google's and AltaVista's language services offer. However, you need to be connected to the Internet to use the program—the translation engine is not local.

This review is from the perspective of the French and German translation engines, although there are many languages available. "From the colloquial to the complex, your message will be deliv-

ered accurately and quickly," the cover claims. True, to an extent. Don't expect flawless translations. The system is still plagued with the problems that all translation engines are bogged down by-context, slang, poetic usage, and so on. Reverse-translation still produces the comical results that Google and other free online translation services do.

You'd expect that idioms and stock phrases would get translated perfectly, but that's not the case either.

However, for plain language, as occurs in business letters and product descriptions, translations are easy to understand.

There are settings you can choose fromformal, familiar, gender of the speaker, among others. And there are dictionaries to choose from, such as, legal, medical, and so on.

The features are nifty. In LogoTrans, one of the components of the suite, the reverse translation appears automatically. In File-Trans.Net, you can browse to a file of your choice to be translated, and the maximised window gets translated automatically. In TransIt.Net, you simply choose the language pair, and drag an icon onto the file to be translated.

All very well, the bottomline is, how good are the translations? The verdict is "pretty good." If you're a frequent user of translation services, or if you need good translations for business purposes, the price of Rs 4,295 for this suite is worth it.

Publisher: TOPICS Entertainment ■ Distributor: Microware Computer Services ■ Phone: NA

E-mail: helpdesk@topics-ent.com ■ Web site: www.topics-ent.com ■ Price: Rs 4,295

Rating: ★★★★☆

# **Welcome to the Digit Show!**

Of ample laughter and the Real Boss...

We seek him here, we seek him there The newbies seek him everywhere One minute he's out, the other he's in The sly, elusive Network Admin!

Tall began when the new breed called Recruits-from-Chennai was introduced to Team Digit. After an elaborate round of introductions, the Recruits attempted to settle in. They soon began the search for elusive office space. After a day of musical chairs, they finally landed their very own work stations. Life would now be complete.

Or so they thought. Till they attempted to log in.

<Click> HTTP 404: Site not found. <Click> Unable to access network. (Silence)

(More Silence)

The seemingly perfect computers simply refused to acknowledge their presence in the organisation.

While the Recruits wondered if this was the Editor's way of telling them that he had changed his mind about hiring

Aja Ad m h t

them, Saurabh 'CD' Kumar uttered the magic words, "Ask Ajay."

It doesn't take long to realise that the Real Boss here is a lean, mean man called

Ajay Borwankar, the Network Administrator.

Soon, Dr Ajay was summoned to set things right. Newbie Meera had forgotten her password; Newbie Suprotip struggled to get his computer to behave like one;

Newbie Nadim hijacked designer Sachin Dalvi's computer, and therefore has no problems...yet. He better begin admin-worship in full earnest, once Sachin returns.

Two hours later, the Recruits made their grand entry into the network. The relief on their faces gave way to reverence for their saviour, Ajay. But, there are rules, and keeping Ajay in

good humour involves veneration. Doggedly protective of the network, Ajay tolerates little criticism. Complaints such as "mails take two hours to show up in the inbox" will be met with cold disdain. "I have no problems on my home computer" is his fuming retort.

First lesson: Be nice to Ajay Borwankar. Even the 'Monday Meeting', where the CEO welcomed the newbies, did little to assure them that he was the real boss.

Despite the typical oh-so-state-of-theart settings, Digit has its fair share of the lighter side of life. Here, you prick one ear, and you get the customary dosage of verbal lambasting from the big boss. Prick the other, and your other boss has least control of his vocal cord over forgotten Bollywood numbers. And if you are lucky enough, yet another boss, stung by some conspiracy theory, wanders aimlessly with arms akimbo, wondering, not for the first time—who pinched the table fan from his cubicle! And as if that wasn't enough, the building rattles every evening from the quarry blasts.

Even the canteen guys chip in at The Digit Show. If you order coffee, it is very likely that three days a week, the liveried boy will thrust *vada-pao* under your nose, with a, "Is this what you asked for?" look.

# **Happy New Year!**

Digit's birthday bash is today!

o, we're not in a different time zone, nor just plain crazy. Our new year begins in June, when we celebrate *Digit's* birth. More chaos, more technology, the latest hardware, deadlines, and even more innovative ways to surprise our readers. This also means resolutions, and Team Digit's resolutions ranged from the solemn to the bizarre!

The Editors were sober and realistic: Sumod says, "I'm gonna exercise more," and Sachin claims, "I shall go home in time to watch the beautiful sunset everyday." They'll probably be the only ones to keep their promises!

Our designer Pillaiji declared, "I want to close the issues earlier." Deepak 'PJ' Dhingra quips, "I want to close

issue later. Let's finish the June issue on June 15th."

Aparna said, "I resolve to increase the digits in my salary", while Saurabh 'CD' Kumar wants to learn to manage his moolah better!

Srini swears he will finally upgrade his ageing processor, while Garfield resolved not to resolve. Ram says, "I'll spend more time at my desk than in the smoker's bay," and Mitali says her resolution is "1024x768"! Raaabo just confused us all by saying, "I resolve to make time to resolve a resolution that will make others resolve to keep their resolutions."

As of now, we're starting an office pool to see whose resolution crashes, burns, screams and dies first. We hope none do. We'll keep you posted.

e is believed to have invented the mechanical tabulating machine the first device for high-volume data processing. It was first used in the 1890 census in the US. He also established the Tabulating Machine Company—one of the founding companies of IBM.

- a. Charles Babbage
- b. Herman Hollerith
- c. Tim Berners-Lee
- d. Konrad Zuse
- 2 Which of the following companies has acquired Ximian, the specialist in Linux desktop management and groupware technology?
- a. Novell
- b. Cisco
- c. Hughes
- d. Red Hat

- c. Working memory allocation as per RAM available
- d. Graphical User Interface (GUI)
- **7** This company, founded by Marc Andreessen and Jim Clark in the early '90s, was later called **Netscape Communications.**
- a. AOL
- b. Cisco Systems
  - c. Mosaic Communications
  - d. 3Com
- 3 US Space Shuttles use a noise-cancellation technology that protects astronauts from permanent hearing damage. Who invented it?
- a. Alexander Graham Bell
- b. Amar Bose
- c. Lewis Nixon
- d. Thomas Alva Edison
- 4 The first application of computer chips was in designing the guidance system for a flying machine. What was it?
- a. The Apollo spacecraft
- b. The Airbus A200
- c. The Minuteman Ballistic missile
- d. The Grumman X-29
- 5 Enlightenment, the revolutionary desktop for Linux, was launched in 1997. Who developed it?
- a. Linus Torvalds
- b. Wichert Akkerman
- c. Bob Young
- d. Carsten 'Rasterman' Haitzler
- 6 Palm OS 4.0 is the newest operating system for Personal Digital Assistants (PDAs) from Palm Technologies. Which of the following is an addition to this operating system from version 3.5?
- a. Virtual File System Library b. Flash ROM upgrade capability

- 8 This browser engine technology was codenamed NGT. By what name is it better known?
- a. Active Server Pages
- b. ActiveX
- c. JavaScript
- d. Gecko
- 9 Which animated motion picture made the most money world-wide?
- a. Shrek
- b. Monsters Inc
- c. Antz
- d. Finding Nemo
- 10 Name the original hypertext project founded by Ted Nelson in 1960. It preceded the World Wide Web and Lotus Notes, and derived its name from the first line of a poem by Samuel Taylor Coleridge.
- a. Odyssey
- b. Utopia
- c. Xanadu
- d. Limbo
- **Answers** d:4: 12: a J 3: C 6 Delphi 7 RTF 11: p J0: c 4 Router **2 NAICODE** p:6 p:8 o:7 2 Spyware 3 QWERTY ε:6 b:č ɔ:4 1 Netiquette I Mewbie 1:b 2:a 3:b Down: Across: Crossword ZIND
- 11 Which is the world's largest fulltime dedicated astronomical instrument? a. Search for Extra-
- Terrestrial Intelligence (SETI)

- **b.** Very Long Baseline Array (VLBA)
- c. The Green Bank Telescope
- d. Atacama Large Millimetre Array (ALMA)
- 12 The World Wide Web, as we now know it, was developed as a project at the **European Organisation for** Particle Physics Research. Situated on the border between France and Switzerland, what is this organisation better known as?
- a. CERN b. ICANN
- c. FCC d. ISOC
- 13 This cost-effective WLL technology was developed in India by IIT Chennai and Midas Technologies, Madras. Identify it.
- a. dRMS
- b. VoIP
- c. CorDECT
- d. CDMA
- 14 Name the company that negotiated a deal with the Federal Space Agency of Russia to fly Dennis Tito and to the **International Space Station?**
- a. Space Travels
- **b.** Space Adventures
- c. Space Frontiers
- d. Space Discovery



## did you know

LinuxChix is a community for women who like Linux. The membership ranges from pure novices to technical writers and even programmers.

#### numberette

GPS is also used to keep time, because GPS receivers can display time accurate to within

#### 150 billionth

of a second

#### digit QUOTIENT

1 to 5 Way to go...

6 to 10 Good, if you like being mediocre

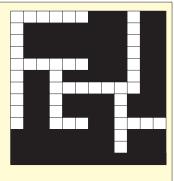
11 to 15 Your next job could be with us!

Got an interesting question? Send it in with the correct answer to quiz@thinkdigit.com

#### This month's theme: Personalities

- 1. A derogatory term describing a new user of a USENET newsgroup, whose naive comments irritate the group's established members.
- The standard arrangement of keys on a typewriter or keyboard.
- A 16-bit character encoding system spanning all characters in all languages, including Chinese.
- A file format designed to enable exchange of documents between different word processing programs.
- A short message sent over a network by one computer to check whether another is correctly connected to it.

1. Behaviour guidelines evolved by users of the Internet.



- 2. A software, surreptitiously installed on a computer, monitoring use of that computer without the user's knowledge.
- 4. A device that pushes traffic through a packet-switched network; for example, the Internet.
- 6. The world's first online encyclopedia; founded in 1982.