Price
Rs.125

Get Your Degree Online

Agent 001 Finds Himself A PDA-Phone

August 2005

www.thinkdigit.com

digit

YOUR TECHNOLOGY NAVIGATOR

BIO METRICS

Your Security In Your Own Hands—Quite Literally

If You Thought Games Were Easy, try playing EA Cricket 2005

Just 30 Days With The iRiver PMP-140 And We Are Smitten!

Would You Monitor Your Employees' E-Mails?

A Café For The Blind Lack Of Vision Won't Keep One Off The World Wide Web

Jasubhai DIGITAL MEDIA

Editorial

You will be assimilated

Maulik Jasubhai Publisher

THERE WAS A time when most of us were uncomfortable with making a simple transaction on the internet with our credit cards. We are at the same stage of 'evolution' in our thinking when it comes to providing our vital statistics to an unknown unnamed 'entity'. We had better get over this dis-comfort in a hurry! Bio-Metric data collections and security measures are here to stay and much to our dismay they are likely to get a lot more 'intrusive' than we have ever imagined them to be.

As we move towards a more connected world, all of us are involved in transactions which involve multiple agencies. Imagine the next time you want to use your cell phone to make a call, collect airline frequent flyer miles, make a purchase, or even register for a newsletter from a content provider; unless we have fool proof system to identify and confirm that you are the authorizing agent none of it will be possible and prone to massive frauds.

"Biometric identification and networks using your personal information, either fingerprints or iris patterns, will be less prone to attack "

Today companies and enterprises are under enormous pressure to maintain the confidentiality and security of their data. At the same time it has become a lot easier for hackers to crack your personal passwords and access codes. Let me ask you, how many of you regularly change your access passwords? Or how often have you given your password to your friend or colleague so that he/she may use your computer/files? My guess is, not often enough and too often, respectively. How do we protect information from being misused? As the miscreants become more sophisticated and as we start using our digital footprint across numerous applications, it will be critical to accurately identify you as the authorized individual. Bio-Metric identification and networks using your personal information, either the finger prints or the iris patterns, will be less prone to attacks and will certainly remove the false impressions of being safe, just because they use passwords.

Of course, there is a downside to this! Your privacy is under siege. You are now part of a world wide grid that not only identifies you accurately but also knows your entire personal history. It is conceivable that your most intimate information may be used to 'analyze' and then 'categorize' you. Your finger prints, your iris maps, even your DNA and genetic structure become a part of the massive database that forms the part of this grid. Insurance companies may use this data to deny you insurance because they have used the data and used some algorithm to classify you as high risk. Countries have used this data and another algorithm to classify you as potential 'security threat'. Companies may use this data and use yet another algorithm to determine your personality and therefore deny you the promotion that you may well have earned. All in all we will be reduced to a set of numbers derived from our private information using a formula devised by a mathematical geek sitting in his basement.

"Resistance is futile.
You will be assimilated!"
— Locutus of Borg,
Star Trek-The Next Generation

digit
YOUR TECHNOLOGY NAVIGATOR

August 2005 • Volume 5 • Issue 8

Chairman
Jasu Shah
Printer, Publisher and Editor
Maulik Jasubhai
President and Publishing Director
L Subramanyan

Editorial
Associate Editor **Deepak Ajwani**
Deputy Features Editor **Aditya Kuber**
Writers **Preethi Chamikutty, Mithun Kidambi**
Copy Editors **Robert Sovereign-Smith, Ram Mohan Rao, Renuka Rane**

Test Centre
Deputy Head **Deepak Dhingra**
Reviewers **Sanket Naik, Varun Dubey, Bhaskar Banik, Jayesh Limaye**
Coordinator **Gautami V Chalke**

Design
Creative Head **Kabir Malkani**
Head - Editorial Design **Solomon Lewis**
Senior Designer **Shivasankaran C Pillai**
Designers **Vijay Padaya, Sivalal S, Pradip Ingale, Vikram Kathare, Shyam Shriram, Akhilesh Prasad**
Photographers **Jiten Gandhi, Sandeep Patil**
Coordinator **Rohini Dalvi**

Multimedia
Content Coordinator **Ishan Prakash**
Web Programmer **Ashwin Nikam**
Design **Sani Mani**

Marketing and Sales
Vice-President, Sales **Vijay Adhikari**
GM, Consumer Sales **Saurabh Pandey**
Head, Non-IT Sales **Bhavesh Thakor**
Brand Manager **Nabjeet Ganguli**
Brand Executive **Rohini Krishna**
Marketing Communication **Vasuki Padakandla, Mona Talati, Elizabeth Jacob, Anurag Acharya**
Ad-sales Coordination **Ramesh Kumar**

Production and Logistics
Head Operations **Shivshankar Hiremath**
Manager (Operations) **Shailesh Iyer**
Managers (Production) **Harish Suvarna, Shiv Hiremath**
Deputy Managers
Mangesh Salvi, Prashant Nair
Production Executive **Ravindra Dighe**
Logistics **Anant Shirke, M P Singh, Vilas Mhatre, Sriram Iyer, Mohd. Ansari Shashi Shekhar Singh**

Audience Development
Assistant Manager **Puja Punj, Krishna Kurup**
Digit Patron Cell **Ghazala Siddiqui**
Executives **Neha Patel, James D'Souza**

Cirulation – Sales
Head **Sunder Thiyagarajan**
Coordinator **Arun Kumar**

Customer Service
Arpita Ganguli, Amarjit Kaur

Head Office: Editorial, Marketing & Customer Service

Plot No D-222/2, TTC Industrial Area, MIDC
Shirvane, Nerul, Navi Mumbai 400 706
Phone: +91 022-27629191/9200
Fax: +91 022-27629164

Printed and published by Maulik Jasubhai on behalf of Jasubhai Digital Media Pvt Ltd,
26 Maker Chambers VI, 2nd Floor, Nariman Point, Mumbai 400 021, India and **Published from Mumbai**
Editor: **Maulik Jasubhai, 26 Maker Chambers VI, 2nd Floor, Nariman Point, Mumbai 400 021**

Printed at Magna Graphics (I) Ltd,
101 C & D Government Industrial Estate Kandivli,
Mumbai 400 067

COVER
Design **Solomon Lewis, Kabir Malkani**
Photography **Jiten Gandhi**
Model **Kajal Jaisingh**
Make-Up **Hemant Ghadigaonkar**

Tell Us What You Feel About Digit

Each month, *Digit* walks through the technology maze to bring you the most relevant, most researched stories. If you have an opinion about anything published in *Digit*, or about technology in general, please write to **editor@thinkdigit.com**

Product Testing

Want your product reviewed by *Digit*? Contact our Test Centre at: **testcentre@jasubhai.com**

Software On DVD/CD

To submit and suggest software for inclusion in the *Digit* DVD or CD, contact us at: **cdcontent@jasubhai.com**

Help!

For any subscription or copy-related issues, send an e-mail to **help@jasubhai.com**
You may also contact the following executives for local queries:

Bangalore: Marshall S (09341809286)
Chennai: L R Laxmanan (044-33629283)
Delhi: Puja Punj (011-51608659)
Hyderabad: Norbert Joseph (09396229281)
Kolkata: Jayanta Bhattacharyya (09331829284)
Mumbai: Arpita Ganguli (022-27629200)
Pune: Sachin Kamble (09372429280)

Endorsements/Reprints

Interested in ordering article reprints, or using our logos?
Contact: **rohini_krishna@jasubhai.com**

Digit Patron

Get more for being a loyal *Digit* reader. Register for the *Digit* Patron programme at **thinkdigit.com/digitpatron**, or send an e-mail to: **digitpatron@jasubhai.com**

Disclaimer: For every *Digit* contest, there will be only one winner, unless specified otherwise. In the event of a dispute, the Editor's decision shall be final

Advertisers' Index

Client	Page
Abacus	114, 115
Acer	23
Adline	67
Amkette	13
Canon	29
Compuage	Inside Back Cover
Creative	116, 117
Cricket Today	45
Dell	14, 15
Kingstone	118, 119
Enjay	124
Epson	19
Intel	41
Intex	65
Kunhar	52, 53
LG	Gatefold
Mahalsa	128
Maxtor	43
Matrix 3D	39
Nikon	7
Perfect 10	59
Radius	127
Rooman	57
Sagarmatha	126
Seagate	87
Sony	21
Sujata	120, 121
Symentec	122, 123
Topgun	125
Toshiba	101
Triffin	35
Viewsonic	Back Cover
Xserve	33

Product Index

Laser Printers And MFDs

Mono Laser Printers 94
Brother HL-5140
Brother HL-5170DN
Brother HL-6050D
Canon LBP 2900
Canon LBP 3200
Lexmark E230
Samsung ML-1520P
Samsung ML-1710P
Samsung ML-2250
Samsung ML-2551N
WeP 1600
Wep 2500
Xerox Phaser 3116
Xerox Phaser 3420P

Colour Laser Printers 102
Brother HL-2700CN
Canon LBP 5200
Epson AcuLaser C1100
Samsung CLP-500

Laser MFDs 104
Brother DCP-8040
Brother MFC-8220
Brother MFC-8440
Canon MF 3110
HP Color LaserJet 2840
Lexmark X215
Samsung SCX-4100
Samsung SCX-4216F
Samsung SCX-4720F
Samsung SCX-5315F

Linux Distributions
Windows Clones 63
Linspire 5.0 CNR Edition
Xandros Desktop OS 3 Deluxe Edition

Linux for Power Users 66
Fedora Core 4
Ubuntu 5.04
Mandrake 10.1 PowerPack + OpenLx
RedHat WS
SuSe 9.3 Linux Professional

New & Notable 78
Gigabyte G-MAX N501
Kodak EasyShare Z740
Logitech MX518 Gaming-grade Optical Mouse
Motorola A780
Palm LifeDrive Mobile Manager
Samsung SGH-D500

To Advertise

Bangalore
Vasuki Kashyap
E-mail: vasuki_ck@jasubhai.com
Phone: (080) 25543303-04, 25546370-73

Chennai
Sahayaraj Prabhu
E-mail: prabhu_sahayaraj@jasubhai.com
Phone: (044) 28235186/88

Kolkata
Jayanta Bhattacharyya
E-mail: jayanta_bhattacharyya@jasubhai.com
Phone: (033) 22345100/5200

Mumbai
Manoj Sawalani
E-mail: manoj_sawalani@jasubhai.com
Phone: (022) 56310515/14

New Delhi
Arvind Prabhakar
E-mail: arvind_prabhakar@jasubhai.com
Phone: (011) 51608658

Pune
Manoj Sawalani
E-mail: manoj_sawalani@jasubhai.com
Phone: (022) 56310515/14

Secunderabad
Sahayaraj Prabhu
E-mail: prabhu_sahayaraj@jasubhai.com
Phone: (040) 27894167/55221051

Contents Magazine

Enter

16
Atul Kasbekar owns three iPods, but he's not a gadget freak, he says

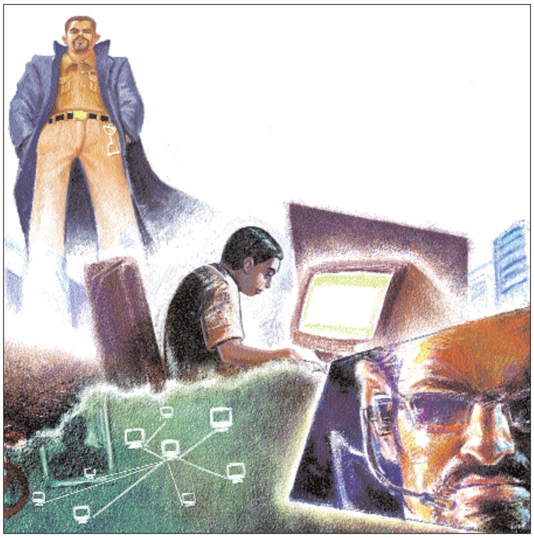
16
You might soon be able to use your phone on flights!

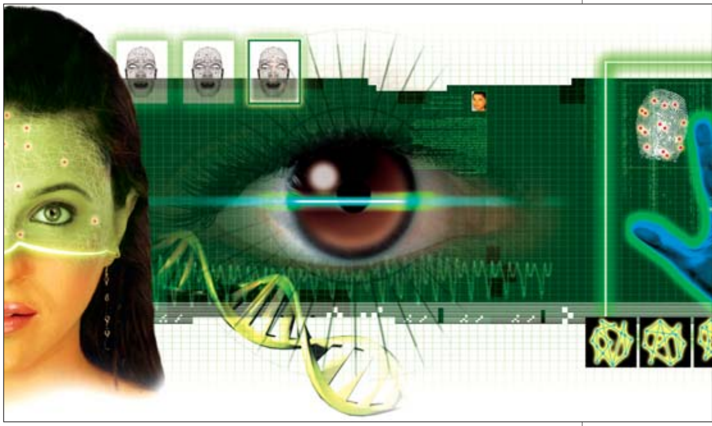
17
Wireless VoIP is coming soon

24
The basics of virtualisation technology

Digital Passion

25 Crime And The City
India's IT laws are dated, and those relating to cyber crime are woefully inadequate. Here's what a prominent cyber crime lawyer has to say about the situation ▼



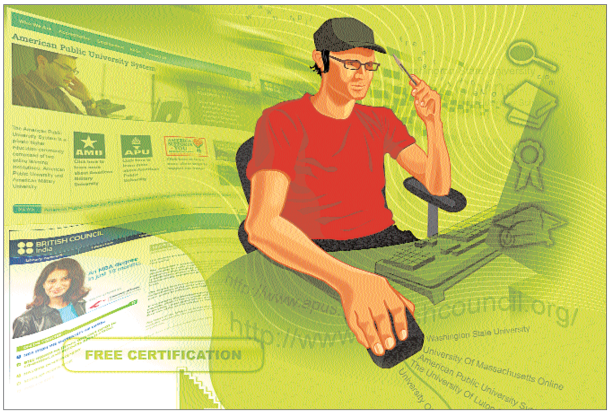


30 Biometrics ▲
Biometrics is touted to be the future of security. Of course it is. Find out about the technology behind it all

36 The Future Of Search
We search online all the time. Search engines are our entry point to the Net. Where is search headed? What will the ideal search engine be like?

Digital Tools

55 Get Your Degree Online
It is indeed possible to get a prestigious North American, European or Australian degree from the comfort of your home, or wherever you choose ▼



78 New And Notable
A new Centrino notebook, a 'head-turner' from Samsung, a gaming mouse, and the Kodak EasyShare Z740 are the highlights of this month's round-up of new and notable products

62 A Linux For Everyone ▲
We've done a comprehensive test of some of the latest Linux distributions. You decide which one is ideal for you

77 Tech Nightmares
Spyware is a headache. What kind of anti-spyware should you use? What do you do when your PC is inundated with spyware? Answers to such questions and more

Digital Business

110 Are You Game?

Leveraging games and technology to attract consumer eyeballs seems to be the new marketing mantra for just about any new product or brand

94 Making An Impression

Laser printers and MFDs have gotten cheaper, as you might expect. Every time is the best time to buy one. But which one? We've done the tests for you

91 A Lossless Compression

We look at how a system called EchoView helps hospitals efficiently archive and retrieve large-sized medical records such as echocardiograms

112 Should A Company Monitor Employees' E-mails?

An interesting debate. A lot can be said on both sides. What about privacy? What about company secrets being leaked? We ask two people with differing views

August 2005

Digital Leisure

131 A Café For The Blind

Would you believe that the blind surf the Net too? Yes, they do—at the NAB's cyber cafés for the blind in Mumbai and Delhi

152 Made in Japan

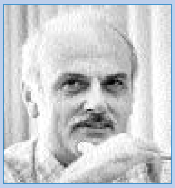
Online interest in Maria Sharapova has surged. And offline, there are Sharapova breast pillows and Sharapova lap pillows

134 Tech Critique

Our reviewer finds that Cricket 2005 is one tough game to play

Escape

139
Edgar Codd laid the foundation for relational databases



139
Should virus writers be put to death? They're not going to be, but it's an idea

REGULARS

Three Incredibly Useful Sites 18
The Digital World 18
Beat That 20
Gender Benders 22
Buzzword Of The Month 22
Tips & Tricks 69
Q&A 84
Agent001 89
Mediawise/Adwise...........................136
Tech Quiz...133
Bluff Your Way Through 140
Digit Diary 140
Blogwatch 141
Digit Forum......................................150
Inbox..150

DIGITAL PASSION

AppletFile 5.0

AppletFile is a set of Java applets that can be used to enhance file upload and download capabilities on your Web site.

The Professional's Choice
Not sure which product is right for you? Click here

JXMLPad 3.4 FC

JXMLPad is a pure Swing JAVA component/framework for editing XML/XHTML document.

AVIRA for Unix Server

This anti-virus program is designed to keep viruses and unwanted programs away from your Unix system. It integrates with Dazuko kernel module on Linux platforms.

DEVELOPER TOOLS

- Dynamic User Interface logic (DUIL) 1.2.0.3
- InstallWizard MSI 4.1 build 0100
- PSPad editor 4.3.3.2089

PSPad
Freeware editor
Česky
Slovensky
English
editor

- S3C Java Serverside Cache 2.1
- Setup Factory 7.0.2
- Visual Build Professional 5.7
- XDataGrid 1.0

LINUX

- EchoServer 1.40-RC02
- GT Subset 1.02
- lcd4linux 0.10.0
- PVM 3.4.4
- pvmsync 1.2.4 Beta 1
- WebForm 1.9

DIGITAL TOOLS

Virtual Music Jukebox 7.2.4

VMJ
Virtual Music Jukebox 7.0

Virtual Music Jukebox is the premier jukebox software that brings the look and feel of a Modern, Internet Ready, Bar Style Jukebox right to your desktop or stand alone Jukebox Cabinet.

The Bat! Home Edition 3.5.30

The Bat! is a powerful, highly configurable, yet easy to use email client.

Opera for Windows (Non-Java) 8.0.1

This new version has a chance to actually beat IE hands-down because it has a truckload of the latest and exciting features.

MULTIMEDIA

- QuickTime 7.0.2.38
- Media Center 11.0.302 RC
- Nero ShowTime 2.0.0.38
- Nero Media Player 1.4.0.33
- Winamp Alternative 1.01
- Yahoo! Music Engine 1.0.1.111 Beta
- Google Video Viewer 1.0

INTERNET

- Netscape Browser 8.0.2
- IncrediMail Build 1930
- Azureus 2.3.0.5 beta1
- Pop-Up Sentry! 2.0.1016
- Avant Browser 10.1 Beta 9
- Browser Hijack Retaliator 2.1
- RSS Aggregator 3.3
- Becky! Internet Mail 2.21.03
- FlashGet 1.65
- Mass Downloader 3.1.607 SR1

SYSTEM

- Advanced Uninstaller PRO 2005 7
- SANDRA Lite 2005.SR2
- RoboTask 2.2.1
- PC-Com Basic 7.1
- Oban MultiDesk Expert 1.20
- SmartSleep 2.9
- Actual Transparent Windows 3.7
- Remora USB Quick Launch 1.3
- Actual Window Rollup 3.6

ESSENTIALS

- AutoPatcher XP June 2005
- Avast! Home Edition 4.6.665
- McAfee Virus Definitions 4527
- Microsoft AntiSpyware 1.0.614 Beta
- Mozilla Firefox 1.0.5 nightly build
- Mozilla Thunderbird 1.1 Alpha 1
- Norton AntiVirus Definitions Update 6/30/2005
- Real Alternative 1.41
- River Past Video Cleaner 6.2.1
- VideoLAN Client 0.8.2
- Winamp 5.093 Full
- WinRAR 3.50 Beta 6
- Yahoo! Messenger 7.0.0.247 Beta

DIGITAL BUSINESS

PRODUCTIVITY TOOLS

EZP3P 2.20

EZP3P is a P3P XML utility that within a few minutes can apply a basic P3P policy to your Web site. EZP3P can be used online or offline.

NetHelpDesk 4.11c

NetHelpDesk is a help desk software system for people that have IT networks.

StudioLine Photo 2.10.6.0

StudioLine Photo—finally, an affordable software package that allows you to manage, edit, and share your digital images all in one application.

- Time Tracker 1.2
- Web Chart Creator 3.0

MOBILE APPS

- Airscanner Mobile AntiVirus Pro 2.9
- Dekart SIM Manager 1.09
- Khashee 1.0

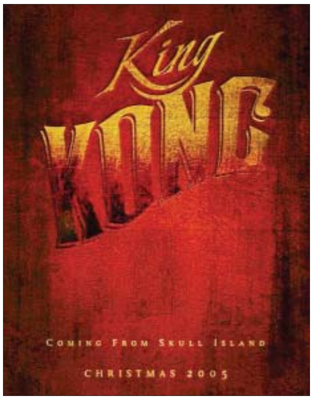
- MobiMB Mobile Media Browser 2.5
- Opera 8 for Windows Mobile 2003 Smartphone
- MobTime Cell Phone Manager 5.3
- Useful Skype Phone for Nokia 6630, 6680 1.01b

DIGITAL LEISURE

VIDEOS AND GAMES TRAILERS

King Kong

Peter Jackson's remakes all time classic, watch the gripping trailor



Fantastic Four

Watch the action-packed trailer of the latest Hollywood blockbuster.

VIDEOS

- Open Season
- Dorky Dad

READER'S CONTRIBUTIONS

- **PNG Icons**
Created by Jeba (cooljeba on *thinkdigit* forum)
- **PNG Icons Black and White**
Created by Jeba (cooljeba on *thinkdigit* forum)
- **The Musical Snake Game**
Based on the famous game for Nokia Mobiles created by Praval Rastogi
- **Trains**
Avoid collision between cars and trains created by Bharat Bhushan Gupta

WALLPAPERS

- Wallpapers based on Aircrafts, Nature, Animals and Celebs

For any queries regarding CD/DVD e-mail **help@jasubhai.com** with the subject as "CD/DVD". If the subject is not mentioned, your mail might not reach the right person.

IBM Pulls The Plug

IBM has finally decided to pull the curtains on OS/2. The company has said that all sales of OS/2 will end this December, and support for the pre-emptive multi-tasking OS will end in December 2006. IBM has posted a migration page to help OS/2 users switch easily to Linux.

Tuning Into iTunes

iTunes, the music download service by Apple, has seen more than 500 million downloads since the time it was launched. At 99 cents (Rs 43) a download, that's a whole lot of money Apple has pocketed. No wonder the iPod has been Apple's single largest revenue driver.

Atul Kasbekar
Photographer

He's India's number one photographer, and one of the first to have professionally shifted to digital photography. Here's what Kasbekar has to say about technology.

CELEB GEEK ★ CELEB GEEK ★ CELEB GEEK ★

What does technology mean to you?
I see change as the only constant in technology. The equipment I use in my work is a means to an end. For instance, with the onset of digital photography, I, too, adapted to it.

How did the transition to digital help?
Digital cameras save one step in the shooting and film developing process as you can click directly with the camera, see the image for yourself and the picture is ready to go.

What gadgets do you own?
I am not a gadget freak per se. Consider my mobile phone—I have been using it for the last year-and-a-half, and haven't considered buying another, since the one I'm using is still serviceable. However, I do own three iPods—all of which I got as presents!

How do you go about buying a particular gadget?
I have a team of assistants who are very tech savvy. If I need to choose between, say, two new cameras, we collect all the info about the products, discuss their pros and cons and then make the purchase. My time is precious—there is a lot more I would like to do in life. So I don't mind delegating work that needs a good understanding of the nuances of technology.

KEEP TALKING

Calls On The Fly

How often have you rued the fact that your cell phone does not have a 'flight' mode that would allow you to stay connected throughout your flight? Well, if Siemens and Airbus have their way, such thoughts could well be a thing of the past.

HELLO!
YEAH, I'M ON A PLANE RIGHT NOW!

The two giants have come together to form a joint venture to develop technology that could make ordinary mobile phone calls possible for all passengers. Siemens will supply lightweight on-board base stations for GSM networks and channel selectors that will ensure mobile calls do not interfere with aircraft systems or networks on the ground.

For their part, Airbus will build the technology into its existing electronics systems, market it to airlines and maintain it.

OnAir, a joint venture of Airbus and air-transport IT and telecoms specialist SITA, has said that complete systems would be ready for installation on the Airbus A320 family of aircraft flying on Western European routes by the second half of 2006. The technology is also suitable for aircraft made by Airbus' rival, Boeing. Boeing's Connexion unit, which already offers on-board broadband access, also expects to start selling cell phone services to passengers by next year.

OnAir also added that aircraft crew would be able to switch the on-board mobile-phone system into different modes, such as text-only, to ensure quiet times in the cabin.

LOOKING OVER YOUR SHOULDER

Listening In On Your In-flight Internet

If being able to make phone calls is the first step, the next obvious step would be to provide Internet connections to passengers on airplanes. Before that can happen, though, American federal law enforcement officials are asking regulators for the authority to be able to tap into any passenger's Internet use within 10 minutes of obtaining court authorisation.

With a large number of companies entering the fray to provide in-flight communication services for passengers, security agencies across the world are gearing up to deal with potential threats. Boeing's Connexion system allows passengers to plug in to a wired Ethernet port or connect wirelessly using 802.11b. The service is available on select flights on a handful of international carriers, such as Lufthansa, Singapore Airlines and Korean Air.

Security Watch

RealPlayer and Rhapsody 3

The Problem

Security holes in RealNetworks' media player software that could put PCs at risk of attack have been reported by security experts at the French Security Incident Response Team. These problems have been labelled 'critical'. The problems are prevalent in current and some older releases of RealPlayer, and they affect different versions of Windows as well as Mac OS and Linux, RealNetworks said. In addition, one of the newly patched bugs is also found in Rhapsody 3, the software used in RealNetworks' music service.

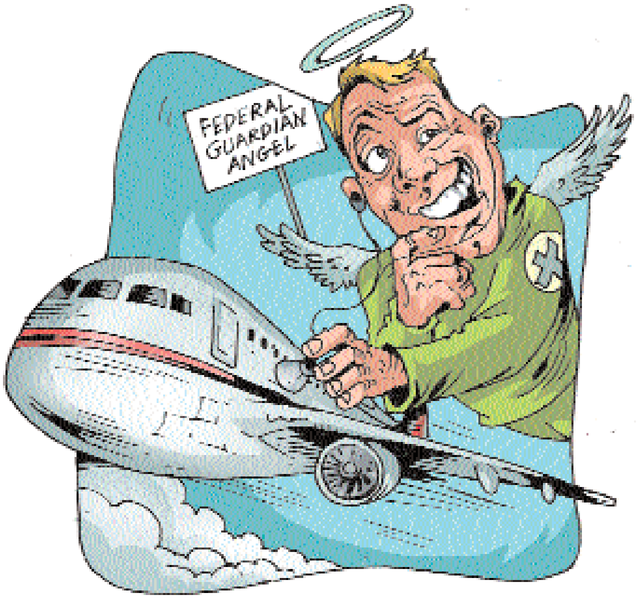
The Damages

Four vulnerabilities in RealPlayer have been discovered, the most serious of which could allow an intruder to gain control of a computer. Three of the four flaws could be exploited using a malicious media file. Specially crafted RealMedia and AVI files could allow an attacker to take over a user's computer, while a malicious MP3 file could be used to overwrite local files or execute ActiveX controls, the report said.

To take advantage of the fourth flaw, a hacker would need to build a malicious Web site. However, the attack would require the user to be running earlier versions of Internet Explorer with standard settings.

Precautions

RealNetworks has put up an updated version of the player on the Web, at www.real.com/player. This has plugged the security holes found in the earlier version.



In addition to this permission, the Justice Department of the United States is asking the airlines to maintain strict control over their broadband links. This also includes the ability to automatically identify every user by his or her name and seat number, remotely cut off access, cut off all passengers' access without affecting the flight crew's access, or re-direct communications to and from the aircraft in the event of a crisis.

Officials also expressed concern that terrorists might use in-flight broadband to remotely trigger a bomb hidden on a plane. They asked the concerned authorities to keep such services from being accessible from the cargo hull of an aircraft.

Despite all safety concerns, though, companies and airlines are generally bullish on airborne broadband. Security agencies are also lauding its potential to enhance communications between the air and the ground during a crisis.

WIRELESS VOIP

Voice Over Wireless Internet Coming Soon

You cut long-distance phone call costs using VoIP, but then you are bound to the computer. Not anymore. VoIP provider Skype and Boingo Wireless, a wireless hotspot operator, have unveiled a new initiative to combine technologies offered by both companies.

VoIP subscribers use a wired phone line to place their call. However, many Voice over Internet Protocol (VoIP) service providers see an opportunity to create wireless versions of their services using Wi-Fi. Introducing the appropriate VoIP service and technology could, in effect, convert Wi-Fi hotspots into giant phone booths.

Although this is Skype's first venture with Boingo, the hotspot aggregator has already entered the VoIP arena. Earlier this year, New Jersey-based Vonage, the world's largest commercial VoIP operator, and Boingo Wireless, agreed to co-market each other's services. Boingo said it is working with handset makers to integrate its software into Wi-Fi-ready phones.

HOT

Podcasting

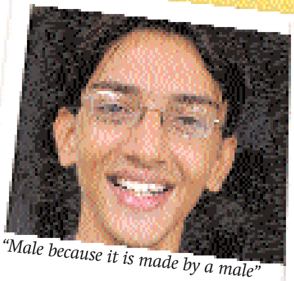
The RSS equivalent of audio distribution; audio files can be automatically downloaded and listened to at your convenience. Podcasting is helping radio stations across Europe and the US create customised radio shows.

NOT

Audio Streaming

The Internet-dependent way of listening to music or radio is passé. Audio breaks, and there is lag and interruptions, too! The quality is not so great either, and compatibility with media players remains an issue.

One Silly Question Is your computer male or female?



"Male because it is made by a male"

Aghariya M Husen, Mumbai

"Female! Everybody wants to know her vital stats (configuration)"

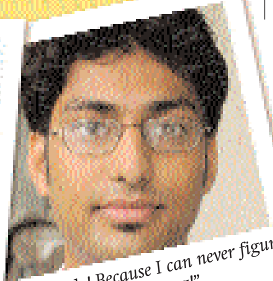
Yogesh Sharma, Baroda

"Female! She is intelligent and very sleek"

Kinjal Mehta, Mumbai

"Male! It needs to be turned on all the time..."

Gaurav Jain, Bangalore

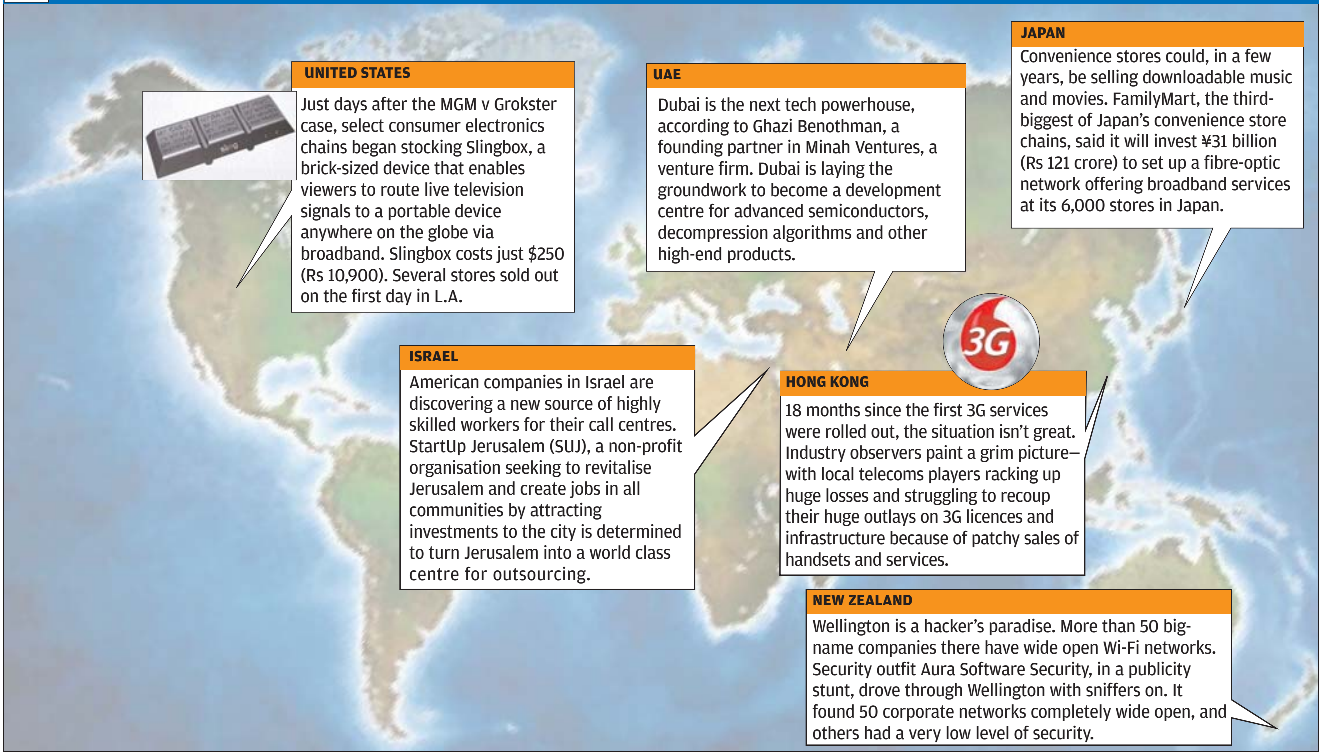


"Female! Because I can never figure out what went wrong!"

Rajiv Shah, Mumbai

The Digital World

A Round-up Of Technology News From Across The Globe



UNITED STATES

Just days after the MGM v Grokster case, select consumer electronics chains began stocking Slingbox, a brick-sized device that enables viewers to route live television signals to a portable device anywhere on the globe via broadband. Slingbox costs just $250 (Rs 10,900). Several stores sold out on the first day in L.A.

UAE

Dubai is the next tech powerhouse, according to Ghazi Benothman, a founding partner in Minah Ventures, a venture firm. Dubai is laying the groundwork to become a development centre for advanced semiconductors, decompression algorithms and other high-end products.

JAPAN

Convenience stores could, in a few years, be selling downloadable music and movies. FamilyMart, the third-biggest of Japan's convenience store chains, said it will invest ¥31 billion (Rs 121 crore) to set up a fibre-optic network offering broadband services at its 6,000 stores in Japan.

ISRAEL

American companies in Israel are discovering a new source of highly skilled workers for their call centres. StartUp Jerusalem (SUJ), a non-profit organisation seeking to revitalise Jerusalem and create jobs in all communities by attracting investments to the city is determined to turn Jerusalem into a world class centre for outsourcing.

HONG KONG

18 months since the first 3G services were rolled out, the situation isn't great. Industry observers paint a grim picture—with local telecoms players racking up huge losses and struggling to recoup their huge outlays on 3G licences and infrastructure because of patchy sales of handsets and services.

NEW ZEALAND

Wellington is a hacker's paradise. More than 50 big-name companies there have wide open Wi-Fi networks. Security outfit Aura Software Security, in a publicity stunt, drove through Wellington with sniffers on. It found 50 corporate networks completely wide open, and others had a very low level of security.

IS IT A BIRD? IS IT A PLANE?

Swarm Intelligence

One of these days, don't be surprised if you look up in the sky and see a fleet of tiny, robotic helicopters capable of swarming like angry bees over your home. This could soon be reality if researchers in Britain have their way.

The researchers are using Linux and embedded processors to build their fleets, and the Ultra Swarm project of the University of Essex is an experiment in swarm intelligence and wireless cluster computing. This,

NAH!
JUST SOME ANGRY TERRORIST BEES!
HEY, BHAI, YOU THINK THOSE ARE A SWARM OF SURVEILLANCE BOTS OR SOMETHIN'?
MR. TERRORIST 2005
BZZZ

Illustrations **Harsho Mohan Chattoraj**

Three Incredibly Useful Sites

Programming, news, and a search engine

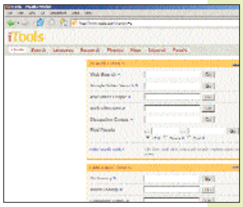
www.cprogramming.com

Cprogramming.com
Weekly Backups $56.00
Welcome!
Latest additions
Navigation Guide

Cprogramming.com

A comprehensive site for C/C++ users, beginners and experts alike. The site provides plenty of tutorials and sample code. The 'Tools' section is a handy guide for beginners. There are tutorials that are like virtual classrooms for virtually every concept and fundamental of C/C++, including Object-Oriented Paradigms.

www.itools.com



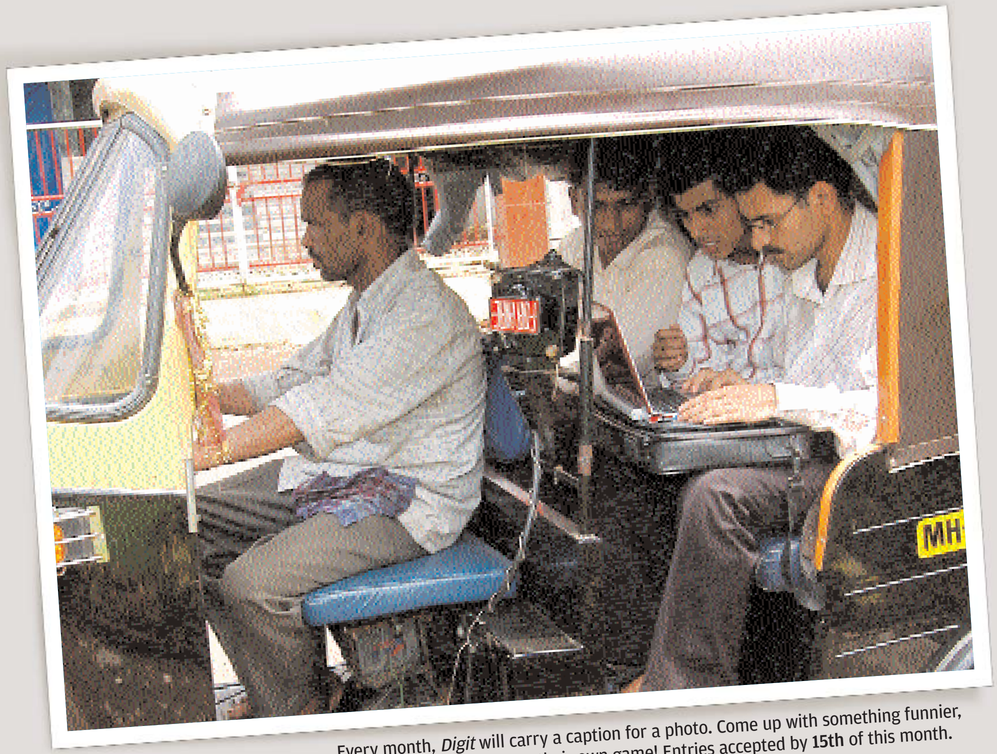
Itools.com

A search engine with a world of a difference. There are different search categories such as Web, people, encyclopaedias, etc. There is a Dictionary, People Search, and a translator. The interface is categorised into 'Search Tools', 'Language Tools' and 'Research Tools'—no more complex search queries!

www.betanews.com

Betanews.com

Get your dose of upcoming software releases from this site. There's also daily technology news. Membership adds benefits such as customised news, contests, and the ability to speak your mind. You can also dig through the news archives. But the real gem here is the 'File Forum', where you can get some of the best software with comprehensive feedback from other users.



Photograph **Sandeep Patil**

Every month, *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by **15th** of this month.

Beat That!

Digit Caption
"Truly 'Mobile' Computing!"

Last Month's Winner!
Neelesh V Saran,
17, Shastri Marg (Elgin Road),
Allahabad (UP) 211001
"Technology is getting to my head"

E-mail your caption with the subject "Beat That", and your postal address, to **beatthat@thinkdigit.com** and win **Unix System Management** by Jeff Horwitz
Published by Pearson Education (singapore) Pte Ltd

Unix System Management
Primer Plus

researchers believe, might give rise to military surveillance applications.

Picture this: a flock of unmanned aerial vehicles with video cameras could take in a hostile landscape from a variety of angles and process the image locally. Researchers are using lightweight toy helicopters equipped with tiny self-contained computers weighing just 8 grams. The tiny bot, however, has packed enough power to run the Linux 2.6 kernel and communicate over a built-in Bluetooth module.

If things fall into place and all goes according to plan, the helicopters will communicate with one another over Bluetooth, allowing them to move as one entity, and even to carry out sophisticated computation-heavy tasks using distributed computing techniques.

The research team claims that the concept is inspired by the graceful flow of flocking starlings, and the knowledge that the accumulated brain mass of a flock of 1,000 birds adds up to that of a human brain. By harnessing wireless communications and distributed computing, the scientists believe that they can put a powerful supercomputer in the sky.

However, there is a flip side. Piloting the toy helicopters using software is not easy. Researchers are now working overtime to marry diverse disciplines such as aerodynamics and visual processing to get the swarm up in the sky and keep it there.

TIME FOR A SONG?

Radio Watch

You're in Tokyo but want to know what the weather is like in Frankfurt. How do you do it? Log on to the Internet? No, just switch on the radio!

Epson, in collaboration with Junghans Uhren GmbH of Germany, has succeeded in developing the world's first analogue radio-controlled watch movement that is capable of receiving signals from three different locations across the globe.

The solar-charged radio-controlled analogue watches available in Japan at present are only capable of receiving standard radio signals from two transmitters in Japan. These watches are unable to handle different radio frequencies and time codes from other countries, so they cannot receive radio signals from other areas including those outside Japan.

The new radio-controlled watch movement is capable of receiving radio signals transmitted from

2005:
A WATCH
ODYSSEY

Frankfurt, Germany, and Colorado, USA, in addition to the two locations in Japan. By selecting the preferred time zone using the World Time function and receiving radio signals from Japan, Europe, or the United States, users can enjoy using a watch that boasts of a superior accuracy of about one second in a 100,000 (one lakh) years.

Seiko Watch Corporation plans to put a radio-controlled watch model installed with this newly-developed movement on the domestic Japanese market in September.

Junghans also plans to offer a radio-controlled watch model installed with a slightly altered version of this newly developed movement primarily in Europe in the future.

So, what time is that talk show in Frankfurt, again?

GENDER BENDERS

Vivian Khanna vs Debashree Chakraborty

Making the mouse left-handed

25 sec

A cricket pro keen on studying business management, Vivian is equally adept at using computers. He volunteers to go first and actually smirks when we tell him about the task at hand. Vivian double-clicks 'My Computer', accessing the Control Panel. He double-clicks the 'Mouse' icon there, and takes a look at the 'Mouse Properties' dialog box. Under 'Options', Vivian selects 'Switch primary and secondary buttons' and clicks 'Apply'. Now that's a job well done!

1 min 5 sec

A literature lover and biotech student, Debashree is cheerful and excited. She takes her seat and, soon enough, clicks the Start Menu. Next, she goes to 'Settings', then 'Control Panel', and clicks the 'Keyboard' icon—bummer! Debashree hunts awhile and realises she's in the wrong place. She hurries back to the Control Panel, and this time clicks the 'Mouse' icon. Then, soon enough, she does what's needed. Debashree couldn't match Vivian's timing, but it's still good going, girl!

JAWS IV?

SHARK: Your New Keyboard

Well, okay, it's no shark attack. But for a smartphone user, it's no less either! Imagine being able to do away with those never-ending searches for letters and saving your fingers the trouble of punching in endless text. It may not be long before you can input data into your smartphone using a space-age Etch-a-Sketch. IBM has created an experimental keyboard system that lets users write by 'connecting the dots', as it were.

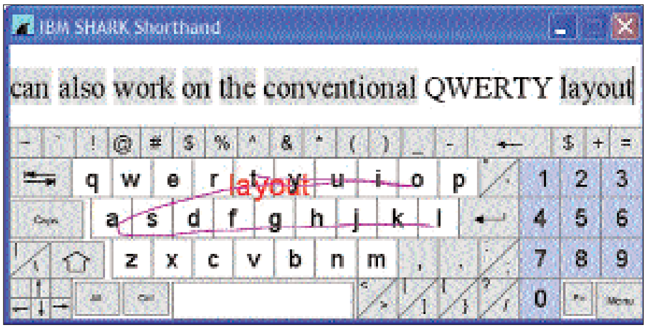
SHARK (Shorthand-Aided Rapid Keyboarding) is an advanced pen-based shorthand method that allows users to input words into mobile devices by tracing them letter-by-letter on a virtual keyboard. Instead of tapping independently on four virtual keys with a stylus to spell 'word', users would put the stylus on 'W' and then carve a continuous trail all the way to 'D'.

Users initially hunt for letters to write words, but the idea is that they fairly rapidly start to memorise the shape of common words and word components—and therefore, their dependence on visual guidance decreases. The computer assesses the user's final pattern, interprets it as a word from its database, and turns it into text on the screen.

SHARK, which has been in beta mode since October 2004, remains a lab project. The growing popularity of smartphones is prompting researchers and companies to develop input systems that will work optimally with those devices.

People have adapted to the QWERTY keyboard, but these are generally too large to tote around with mobile devices. Some companies have come out with projection keyboards that project a laser image of a QWERTY board. The keyboards are light, but require a flat, even surface—not very easy to come by when you're travelling.

According to IBM, SHARK also takes care of the speech and handwriting recognition problems faced by today's software. In trial runs, a few users achieved speeds of around 16 to 17 words per minute! Though this is far slower than touch typing, it is definitely faster than using a stylus on your palmtop.



IBM SHARK Shorthand

can also work on the conventional QWERTY layout

Buzzword of the MONTH

Perpendicular Recording

Data recording on disks is currently done 'longitudinally'. However, the amount of data that can be stored in this manner is fast reaching its limit. Perpendicular recording is being touted as the successor to longitudinal recording.

While longitudinal recording works in a single plane parallel to the disk surface, perpendicular recording works at right angles to the disk surface, piling bits on top of each other. As the name indicates, longitudinal recording aligns data bits horizontally, parallel to the surface of the disk. In contrast, perpendicular recording aligns the bits vertically, perpendicular to the disk, which allows additional room on a disk to pack more data, thus enabling higher recording densities. So far, a 10 GB microdrive has been designed using this technology.

WHATWHENWHYWHEREWHOHOW

W5H

WHATWHENWHYWHEREWHOHOW

Vitrualisation

What is virtualisation?

Virtualisation is a technique by which hardware resources can be abstracted and divided, and these resources are allocated amongst multiple OS environments.

Why do we need virtualisation?

One of the many abilities that virtualisation provides is to run multiple OSes simultaneously on a single hardware platform, which is fast becoming an important solution to problems that confront Information Management today.

How does virtualisation work?

Virtualisation abstracts software from the underlying hardware. It cuts the link that ties a specific software stack to a particular server.

Where can I find an instance of virtualisation?

You could find a software implementation of virtualisation in any corporate computing environment, which needs to run and manage multiple OSes on a single server.

Who provides virtualisation solutions?

The best example of a software virtualisation provider is VMware Inc, a wholly-owned subsidiary of EMC Corporation. And in hardware virtualisation, one of the best examples is Intel, with its Intel Virtualization Technology.

When will Intel Virtualization Technology (IVT) ship?

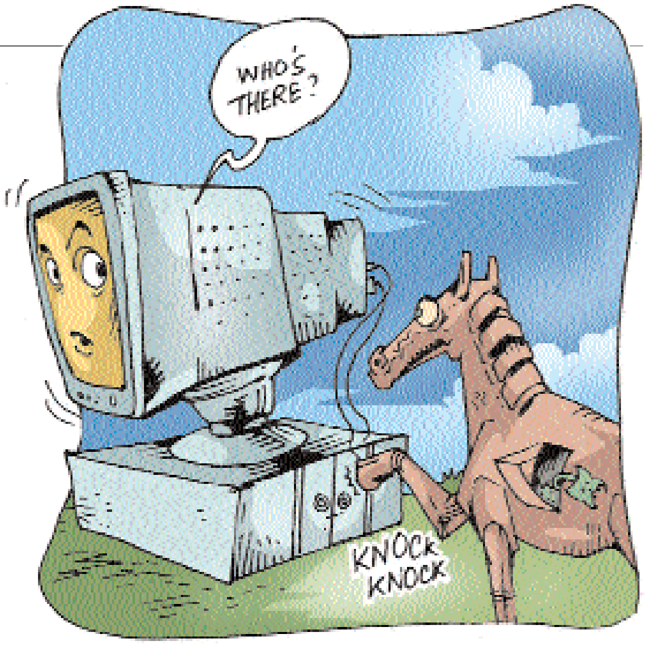
Virtualisation is a long-term Intel initiative. Future generations of the technology are in design and will provide additional benefits. The first generation of IVT will ship in the second half of 2005 on new Pentium IV and Itanium II processors. In the first half of 2006, IVT will ship for Xeon processors and the Centrino mobile technology.

The SHARK keyboard is also compatible with natural English-language patterns. The average person has a writing vocabulary of about 10,000 words, so the patterns the computer will have to recognise remains somewhat contained.

SHARK works with a variety of keyboard types, and IBM is currently experimenting with a number of them. QWERTY keyboards, which were arranged to prevent mechanical problems caused by poorly configured keys, don't work that well. Alphabetically arranged keyboards are even worse, as the distance between some commonly associated letters is even farther apart.

Instead, IBM is conducting experiments with a modified version of its Atomik keyboard. This keyboard consists of three six-letter keys sandwiched by an upper and lower row of four letter keys. The keys are arranged to maximise letter associations.

Beta copies of SHARK can be downloaded from IBM's AlphaWorks site, where it releases experimental software. Let's squiggle!



INCREASED FIREPOWER

Trojans Scouring The Net

The Net just got nastier. If recent reports by security software vendor Sophos are anything to go by, nearly 8,000 different pieces of malicious code have been detected so far this year—mainly coming from criminal gangs.

Sophos also reckons that the dramatic rise in the number of viruses, worms and Trojan horses this year can be attributed to organised criminals turning to cyber-crime. It picked up almost 60 per cent more malware in the first six months of this year than the same time last year.

The biggest growth was in Trojans, programs that damage a user's files, steal information, and can even leave a backdoor for future attacks on the infected PC—a feature crooks value more than pure vandals. This, analysts say, is an indication that organised criminal gangs are now operating in the cyber world.

So if you were already worried about security on the Internet, this is as good a time as any to increase the alert to Code Orange! Time to hit 'Update Virus Definitions'.

SPEEDING UP

Optic Fibre On Your PCB

The speed of data transmission in your computer can now be spruced up through the PCB (Printed Circuit Borad) itself, thanks to the use of fibre optics. A team of South Korean scientists claim that they have developed a new circuit board using fibre optics. This, according to them, will dramatically increase a computer's data transmission speed.

Park Hyo-Hoon, a professor at South Korea's Information and Communications University in Daejeon, and Lee Yong-Tak, a professor of Gwangju Institute of Science and Technology, developed a new PCB wired by both optical fibres and traditional copper wires.

The introduction of dual-core processors by both Intel and AMD has increased processing speeds. However, lower data transmission speeds along the rest of the board due to bottlenecks has hampered the optimal productivity of these processors.

These bottlenecks are eliminated from the new PCB because of the use of optical fibres. With the new technology, it takes only one second to transmit a one-hour video clip of high-definition television while the existing technology takes tens of seconds, claimed the scientists.

They said data that needed high-speed transmission went through optical fibre wires while slow-speed data was directed through copper wires to prevent delays. The team said they expected the printed circuit board to come into commercial use around 2010 when production costs come down. ☒

Compiled by Aditya Kuber, Mithun Kidambi, Ram Mohan Rao and Renuka Rane

30 Biometrics

36 The Future Of Search

46 Lords Of The Code

Lead Feature

CRIME And The CITY

What safeguards are in place to ensure your online security? According to experts, not many

Aditya Kuber

Cyber crime is defined as “an unlawful act where information in a computer is used either as a tool, as a target or both”. To tackle the growing menace of online crime, the IT Act of 2000 was framed. It was greeted with much fanfare. Upon closer inspection, though, many chinks in its armour have shown up. For example, do you know that you could face imprisonment just for sitting in front of a computer terminal—even if it’s off? Far-fetched as that may sound, the current laws can actually be interpreted in a manner so as to make such silly-sounding scenarios a reality. The fact remains that in India, your online safety is not guaranteed, especially if you are the victim.

There are some steps that have been taken of late, though, that may just make it a little safer to stay online. The Mumbai Police recently set up a Cyber Crime lab in association with NASSCOM, and there is also the Bangalore Cyber Crime Police Station, which is actively tackling the growing problem of

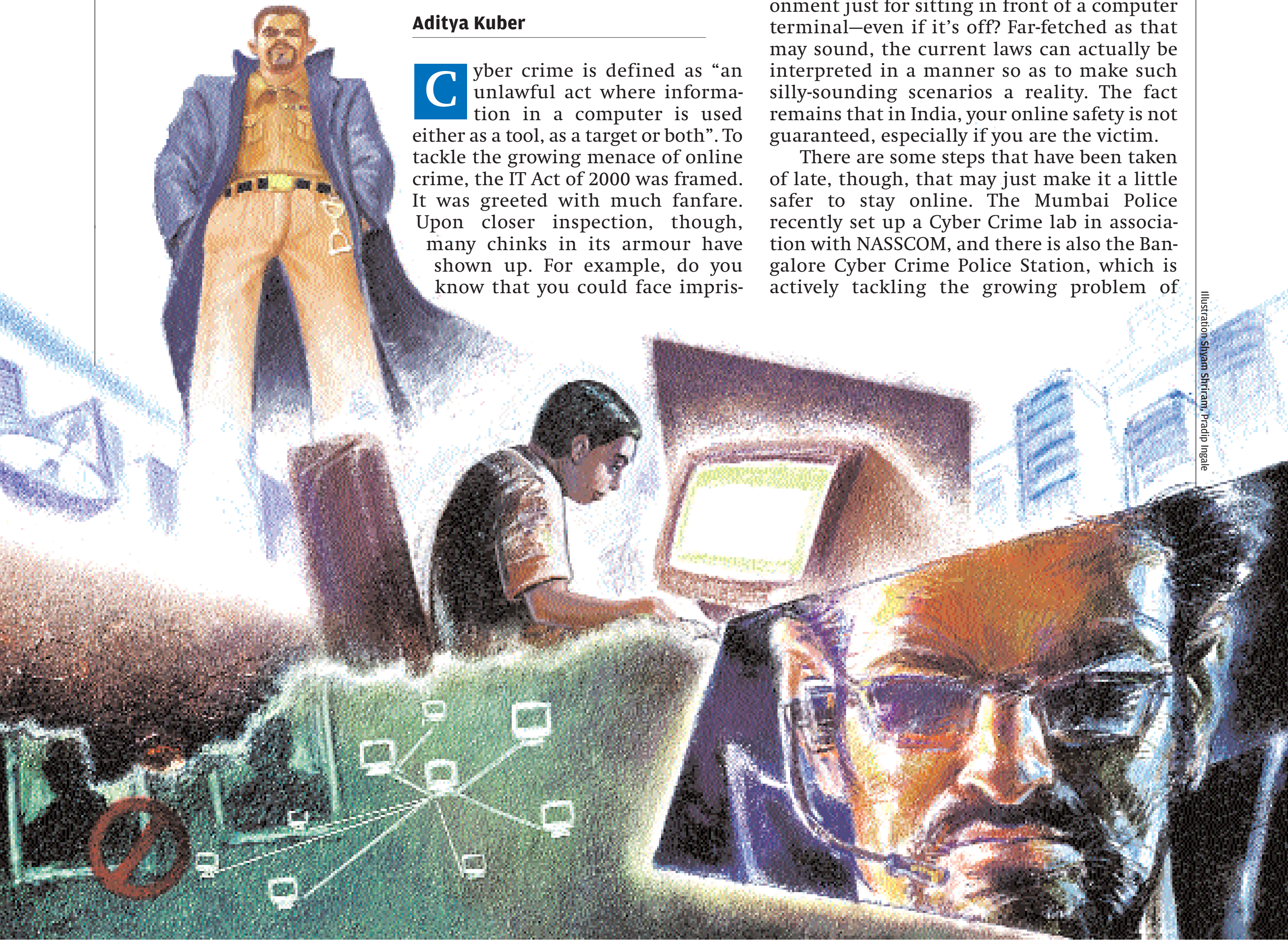


Illustration Shyam Shriram, Pradip Ingale online crime. However, issues with jurisdiction may just limit the reach and effectiveness of both. The Bangalore Cyber Crime Police Station, for instance, has “the whole state of Karnataka” as its jurisdiction for “offences committed under the Information Technology Act of 2000”. Now, with that itself being flawed, the rest of the setup, too, becomes questionable.

Anatomy Of A Cyber Crime?

Of all the cyber crimes committed, hacking and virus-writing are the most common. Businesses in particular are most likely to be victims of these, as compared to any other Internet-related offences.

Establishing a definition of a cyber crime itself can be a task. The Cambridge dictionary defines cyber crimes as crimes committed with the use of computers or relating to computers, especially through the Internet. Universally, cyber crime is understood as an unlawful act wherein a computer is either a tool or a target or both.

According to noted lawyer Paavan Duggal, “The three broad categories of cyber crimes include cyber crimes against persons, property, and nations. Some cyber crimes have been covered under the Indian Cyber Law, namely the Information Technology Act, 2000. These are covered in a detailed chapter—Chapter XI of the IT Act, 2000.”

In the IT Act 2000, though, there are provisions to register a complaint if you have been a victim of a cyber crime. To be able to do that, you need to furnish some data. Here’s a list:

- Server logs
- Copy(ies) of defaced Web page(s) in soft copy form as well as hard copy format, if your Web site has been defaced
- If data has been compromised on your server, computer, or any other network equipment, soft copy(ies) of original data

“Indian cyberlaw is wanting and is defective”

Paavan Duggal
The noted cyber crime lawyer suggests some radical changes to the IT Act, 2000

Which is the best-equipped agency to tackle cyber crime in the world, and which is the best in India?
The best equipped agency to tackle cyber crime in the world is the Federal Bureau of Investigation. It has a distinct division on cyber crime. As far as the best equipped agency in India is concerned, the honours will have to be shared by the Central Bureau of Investigation and some State cyber crime cells, such as the Mumbai Cyber Crime Cell.

Do you think Indian agencies are equipped—in terms of knowledge and infrastructure—to tackle cyber crime?
I think that Indian agencies are well equipped with knowledge, in some pockets, to tackle cyber crime. However, we need to update this pool of knowledge by constant strain and orientation. We also need to ensure that we develop a detailed infrastructure for tackling cyber crime in the country. Today’s cyber crime regulation is often seen as a peripheral activity to main policing activities. Consequently, we find that not much investment has gone into developing the infrastructure for tackling cyber crimes. We need to provide for distinct cyber crime police stations in cities.

Which is the most widespread cyber crime in India?
The most widespread cyber crime in India is, of course, publishing and transmission of obscene electronic information. This is a cyber crime punishable under Section 67 of the Information Technology Act, 2000. The second-most prominent crime cyber crime in India is hacking. This offence is punishable under Section 66 of the Information Technology Act, 2000.

What are the various laws, if any, that explicitly protect the aggrieved party in a cyber crime?
In India, the only relevant law that protects an aggrieved party against cyber crime is the Indian Information Technology Act, 2000. This law has a detailed chapter, Chapter XI, entitled ‘Offences’, which details various kinds of offences under Indian cyber law. The major categories of offences covered under the said law include damage to computer source code, hacking, publishing obscene electronic information, breach of confidentiality and privacy, breach of protected systems and publishing Digital Signature Certificates false in certain particulars, or for fraudulent purposes. These offences are punishable with imprisonment ranging from three years to 10 years, and with a fine ranging from Rs 1 lakh to Rs 2 lakh.

In addition, the IT Act of 2000 has also amended the Indian Penal Code of 1860. However, the only material amendment that has been made is that the word “document” has been substituted with the phrase “document or electronic record”. In addition, there is a new offence—creating a false electronic record—defined under the Indian Penal Code.

What amendments are needed to current cyber laws to help prevent crimes and prevent perpetrators escaping through loopholes?
If one looks at the preamble of the IT Act of 2000, one realises that to regulate cyber crime is not at all one of the stated objects of Indian cyber law. It right to say that Indian cyber law only has three objectives: firstly, to provide legal recognition to transactions carried out by electronic means of communication, commonly referred to as e-commerce, involving the use of alternatives to paper-based methods of communication and storage of information; secondly, to facilitate electronic filing of documents with government agencies; and thirdly, to amend four different laws of the country—namely, the Indian Penal Code, the Indian Evidence Act, the Bankers’ Books Evidence Act and the Reserve Bank of India Act.

Indian cyber law is wanting and defective inasmuch as it does not cover all the existing and emerging cyber crimes. A large number of cyber crimes that are today not covered under Indian cyber law include cyber stalking, cyber harassment, cyber nuisance, cyber defamation and so on. Even cyber terrorism is an offence not totally covered under the IT Act of 2000.

Practical experience after the coming into effect of the Indian cyber law has shown that registration of a cyber crime case requires a lot of time, effort and energy on behalf of the

and soft copy(ies) of compromised data
- Access control mechanism details, i.e., who had what kind of the access to the compromised system
- A list of suspects
- All relevant information that might lead to answers to the following questions:
- What? (What has been compromised?)
- Who? (Who might have committed the crime?)
- When? (When was the crime committed?)
- Why? (Why the crime might have been committed)
- Where? (Where the impact of the attack is; identifying the target system on a network)
- How many? (How many systems have been compromised by the attack)

This is what is required in the case of a large-scale attack. But if you are an individual and your home computer has been compromised, here's what you'll need to bring along as proof:

- Extended headers of offending e-mail(s)
- Soft copy(ies) as well as hard copy(ies) of offending e-mail
- Do not delete the offending e-mail(s) from your inbox
- Save a copy of the offending e-mail(s) on your computer's hard disk

About the types of crimes punishable under the IT Act of 2000, Duggal explains, "Some acts have been detailed as penal offences, including damage to computer source code, hacking, publishing obscene electronic information, breach of a protected system, publishing a false Digital Signature Certificate in certain particulars or for fraudulent purposes, and breach of confidentiality and privacy."

However, he also agrees that the laws are dated. "With the passing of time, new kinds of cyber crimes are emerging, and there is an urgent need to constantly update the laws so they remain effective," he says.

complainant: he needs to constantly pursue, educate and lead the law enforcement agencies into registering the case. I think amendments need to be made to Indian cyber law to provide far more effective legal remedies.

In addition, I am of the strong opinion that the quantum of punishment to be accorded for cyber crimes needs to be enhanced. Today, hacking is only punishable with three years of imprisonment. Therefore, for example, I can technically hack into the systems of one of the most prominent banks, steal information worth crores of rupees, and only be punished with three years of imprisonment and a fine of Rs 2 lakh. In order for punishment to have a deterrent effect, the quantum of punishment needs to be higher.

What has been the most serious cyber crime in India till date?
The most serious cyber crime in India till date has been one involving Dr L Prakash, one of the senior-most orthopaedic surgeons in the country, based in Chennai. Dr Prakash was arrested for taking his patients and clients to his coast house and then forcing them to strip, recording and photographing them in a pornographic, sexually explicit way. This case was registered under Section 67 of the Information Technology Act, 2000, and involved the wives of top-ranking officials and other people. This case merits attention because it is the first and only case of cyber crime conviction in the country.

Are corporates in India prepared to fight cyber crimes against them—economic or otherwise?
In our country, any cyber crime registration receives extensive press coverage, and a lot of the time, companies do not really want to register cyber crimes for fear of undue publicity, or of losing potential business. However, we do have some instances where companies have effectively prosecuted the offenders in cyber crime cases. Ultimately, it is a decision that needs to be taken by the management of the company.

Can ethical hacking be a tool against cyber crime? Can Indian laws interpret it to benefit individuals and organisations?
Ethical hacking can be a tool against cyber crime. Ethical hackers basically try to find security loopholes in computer systems and advise the owners of such systems about the need for patching such loopholes.

In our country, it was thought that ethical hacking is a crime, and as such was not allowed. But if you peruse Section 60 of the IT Act of 2000, you'll realise that the law has made a distinction between hacking and ethical hacking. When dealing with hacking, the law states that the act must be done with the knowledge that it is likely to cause wrongful loss or damage to someone.

However, when one engages in ethical hacking, there is no question of causing wrongful loss to the owner or person in charge of a computer, computer system or computer network, since this is done with implicit consent.

Does the average Indian Internet/computer user know when he is committing a cyber crime or when one is committed against him?
Unfortunately, the average Indian Internet or computer user invariably does not know when he or she is committing a cyber crime. Similarly, he or she also does not know when one is being committed against him. There is an extremely low level of awareness concerning cyber crimes amongst normal Internet users. Even experienced Netizens are normally wary of the IT Act of 2000. People invariably believe that Indian cyber law is a very complex piece of legislation, and that their interests would be best met if they kept away from it.

What plagues the Indian justice system when it comes to tackling cyber crimes?
There's a need to do a lot of activities as far as orienting law enforcement agencies and the judiciary of the country is concerned. The judicial system deals with all kinds of offences in the actual world. However, cyber law being a relatively new law and a special legislation, there's a need for special training and treatment concerning the same. There's a need to constantly educate and orient the judicial system to ensure they are appropriately equipped to deal with cyber crime cases. Right now, very few cyber crime cases eventually land up in court. However, I believe that with each passing month, the number of cyber crime cases in India will increase.

It therefore becomes absolutely imperative that the judges concerned be fully acquainted with the nuances of cyber crime trial and prosecution, and how to deal with various technicalities such as appreciation of electronic evidence, electronic records, as also data or information in electronic form.

Some Recent Incidents In India

- A '15-year-old girl' courts a 16-year-old boy through a popular Internet chat site. The boy runs away from home to Mumbai only to find out that the 'girl' was, in fact, a 30-year-old man. The man sexually abuses the boy, steals his money and beats him up severely.
- A 14-year-old boy raked up bills of thousands of rupees on his father's credit card after he got addicted to viewing pornographic Web sites.
- A 13-year-old girl created a virus after downloading a free "Virus Development Kit" off the Internet.
- A class 10 student who was taunted by his classmates for having a pockmarked face put up a pornographic Web site and displayed 'morphed' nude images of his classmates and teachers.

More info on cyber crime is available at:
http://www.cyberpolicebangalore.nic.in/
http://www.mumbaicyberlab.org/

There is only limited coverage of cyber crimes under the Indian IT Act, 2000 as also under the Indian Penal Code

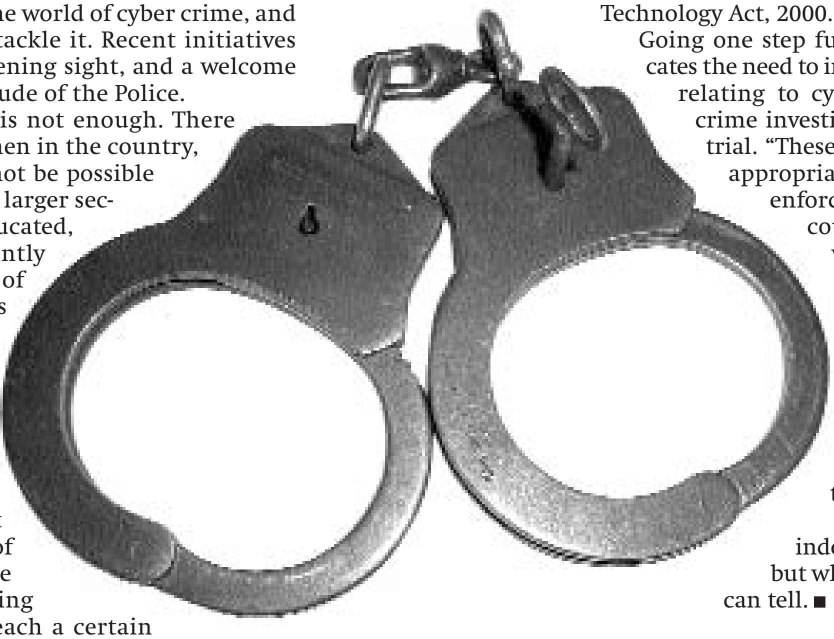
Cyber Crime And The Police

The crimes mentioned above are enough to put you off logging ever again. But wait. Our Police are gearing up and getting their act together. "Although absent initially, law enforcement agencies in India today are taking a lot of initiative to make themselves aware about cyber crimes, their investigation and prevention," assures Debasis Nayak, director, Asian School of Cyber Laws, Pune.

He adds that active steps to remedy the situation are being taken. "The police departments of most states are in the process of establishing specialised cyber crime cells to tackle this. States such as Maharashtra, Goa, Karnataka and Delhi have already established cyber crime cells," says Nayak.

And this is not untrue. The Police have even gone so far as to employ the services of young geniuses—as young as 17 years old—to educate their force about the world of cyber crime, and how to track and tackle it. Recent initiatives are indeed a heartening sight, and a welcome change in the attitude of the Police.

This, however, is not enough. There are a lot of policemen in the country, and while it may not be possible to train them all, a larger section needs to be educated, given the constantly changing nature of cyber crime. Warns Duggal, "The National Police Academy, Hyderabad, is doing some work in this regard, conducting courses on cyber crime. But given the number of police officers in the country, the training efforts can only reach a certain number, and not the entire force. There is an urgent need to ensure that the government sets upallcoates a separate budget for training officials and police officers in various aspects relating to cyber crime investigation, prosecution and registration."



Word Of The Law

Now that it has been widely accepted that the IT Act of 2000 is inadequate in protecting an aggrieved party (individual or corporate), what are the changes that can be brought about?

"I'm of the firm opinion that the Indian IT Act, 2000 needs to have drastic amendments incorporated in order to be in sync with the changing needs of the times. It is important to remember that the IT Act, 2000 was a law that was basically meant for promoting e-commerce. It was passed in 2000 and came into effect on 17 October, 2000. It is an accident of history that a chapter on cyber crime entitled 'offences' got included in the legislation", laments Duggal.

He goes on to suggest changes in the form of a separate cyber law. "I believe that India needs a distinct and separate law on cyber crimes. This should be a special law that would supplement the Information Technology Act of 2000 and the Indian Penal Code as amended. This is because cyber crime is a distinct subject and would require distinct treatment, per se, from law enforcement agencies. Further, amendments should be made to ensure that people are able to effectively register their complaints as cases with the Police."

Duggal goes on to add: "There is only limited coverage of cyber crimes under the Indian IT Act, 2000 as also under the Indian Penal Code. Consequently, we are now beginning to see a number of situations where people are committing cyber crimes with impunity because there is no legal provision under which to book them. It's here that there is an urgent need for India to enact a distinct cyber crime law. This law would need to be supplemental in nature to the Indian Penal Code as also to the Information Technology Act, 2000."

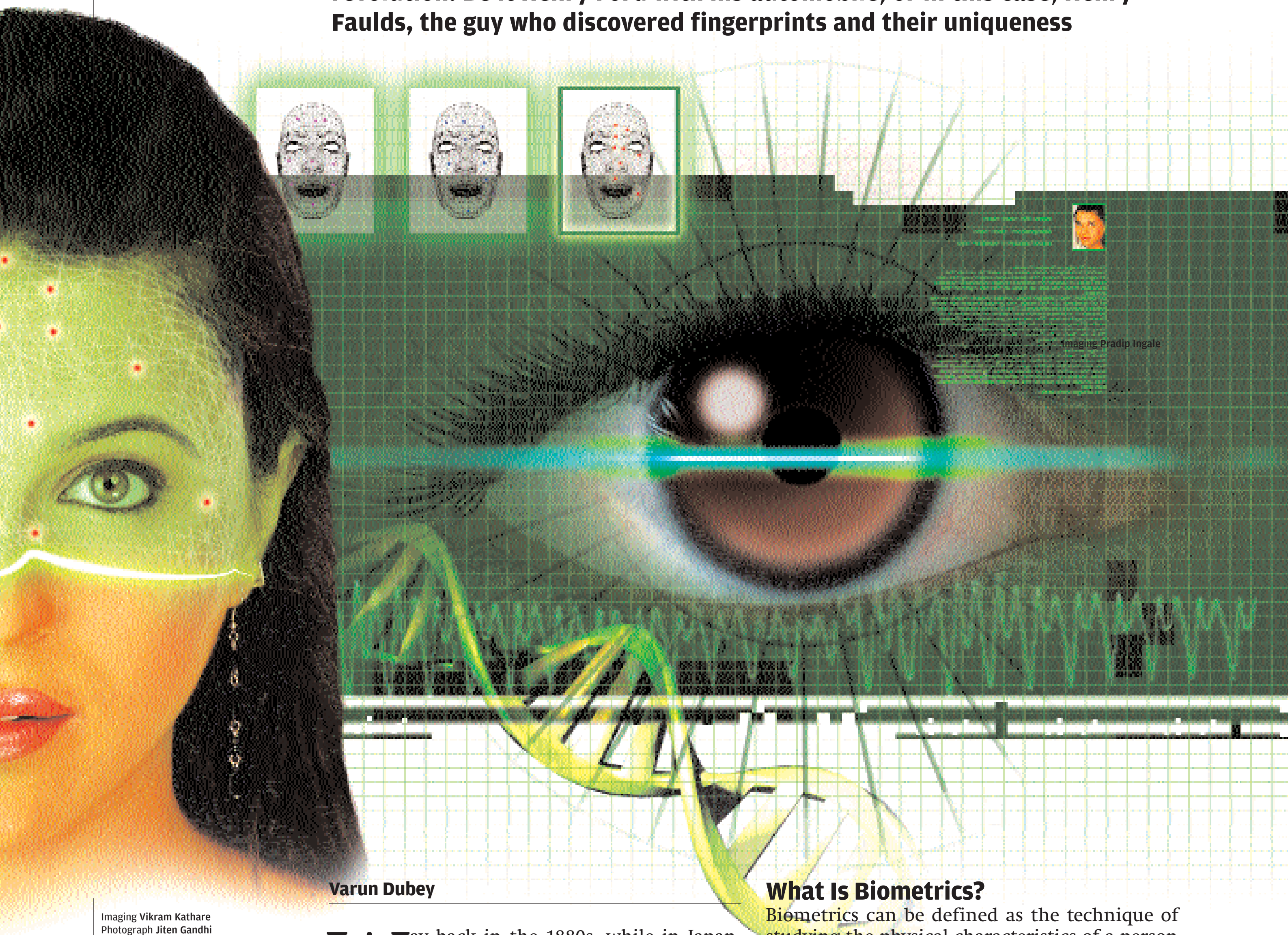
Going one step further, Duggal also advocates the need to include various techniques relating to cyber forensics and cyber crime investigation, prosecution, and trial. "These need to be properly and appropriately imparted to law enforcement agencies in the country. In our country, where a posting to cyber crime cell is invariably perceived as a punishment posting, a lot of effort needs to be taken towards eradicating the current mindset to the entire issue of cyber crime registration, investigation and prosecution."

Strong suggestions that indeed need to be considered, but what will happen, only time can tell. ■

aditya_kuber@thinkdigit.com

Biometrics

There's something about the name Henry that seems to inspire a revolution. Be it Henry Ford with his automobile, or in this case, Henry Faulds, the guy who discovered fingerprints and their uniqueness



Imaging Pradip Ingale

Imaging **Vikram Kathare**
Photograph **Jiten Gandhi**

Varun Dubey

Way back in the 1880s, while in Japan, Henry Faulds studied the prints left behind by craftsmen on ancient clay fragments. He then went on to study his own and his colleagues' fingerprints. This convinced him that each individual had unique fingerprints. A little later, a fellow worker was arrested by the police for a petty crime. Faulds exonerated the man by showing that the finger prints on the crime scene did not match with those of his friend.

Thus began the journey of the most promising science of identification and recognition: Biometrics. Today, apart from fingerprints (and palm prints for that matter), we have discovered facial recognition, DNA, retinal scanning and voice recognition.

What Is Biometrics?

Biometrics can be defined as the technique of studying the physical characteristics of a person such as fingerprints, hand geometry, eye structure etc. to establish his or her identity. This science is primarily implemented to identify individuals.

Why Biometrics?

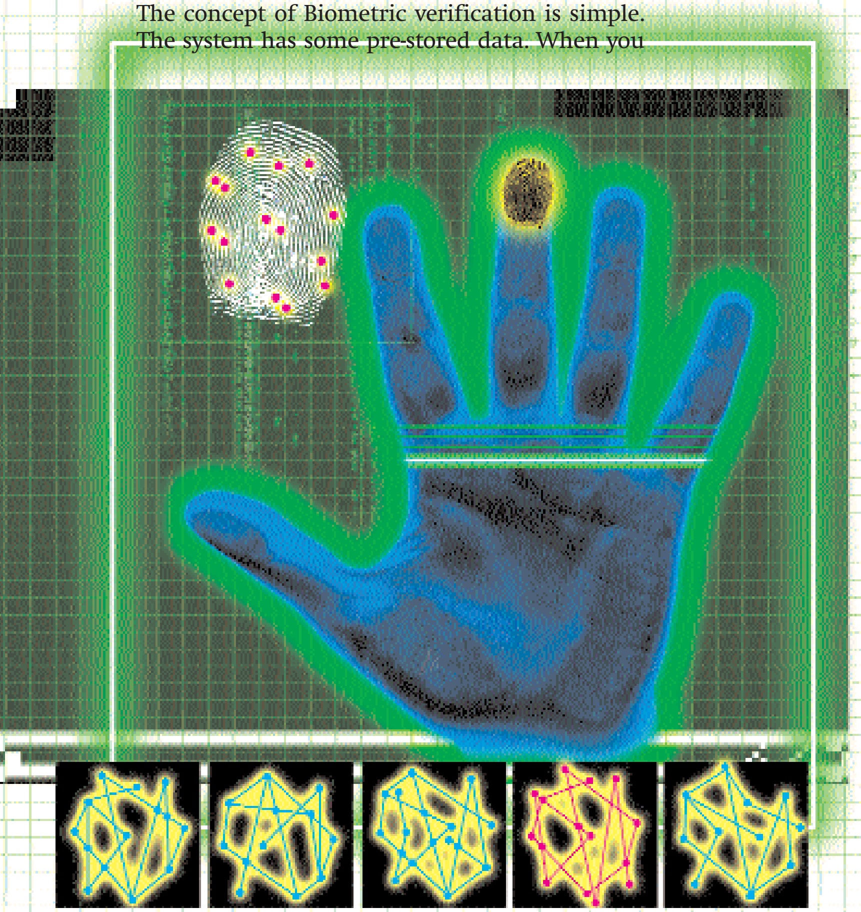
The use of biometrics is no longer restricted to defense establishments or sensitive areas. An increased need for security has prompted even everyday office goers to install fingerprint recognition devices to boot up their laptops, thumb drives and other daily use gadgets.

The question is, why? Why isn't the 16-digit password good enough? Simply because fingerprints are more secure. A password is breakable and anyone with basic knowledge of computers can crack passwords using the myriad free programmes available on the Internet.

For obvious reasons, a fingerprint, however, is difficult to fake without the help of the owner. It is also a lot more convenient to simply place your finger on to a scanner instead of remembering a long and complex series of characters and their cases. To make matters worse, they should, ideally, have no correlation whatsoever. So essentially, for maximum security, your password should be an alphanumeric 'word' that doesn't mean anything. Go figure!

How Biometric Processes Work

The concept of Biometric verification is simple. The system has some pre-stored data. When you approach the system (say a fingerprint scanner), your finger is scanned and matched with a record of fingerprints already in its database. Only when it finds a match, access is granted. The concept might be simple, but the process is quite ingenious.



Fingerprint Scanning

Humans have fingerprints for the exact same reason that tyres have treads. It helps in better grip and, by a bizarre twist of nature, different people have entirely different sets of fingerprints, which enables identification.

A fingerprint is made up of ridges and valleys (lines and the gaps separating them) and it is these ridges and valleys which are scanned to verify the authenticity of a print.

To authenticate a set of prints, a scanner needs to do two things: first, it needs to get the image of the prints which are to be authenticated, and second, it needs to actually go about the business of verifying them.

Each fingerprint has a unique pattern of ridges and valleys

The most commonly used method of scanning is optical scanning. An optical scanner has a CCD sensor (Charge Coupled Device) similar to the ones used in digital cameras. There is an array of light sensitive diodes (photosites). When these diodes come in contact with light, they generate an electrical signal. Every photosite records a pixel representing the light it came in contact with.

An analogue to digital converter (ADC) system in the scanner processes the electrical signals to generate digital representations of the image. It is not necessary that the same kind of light falls on all diodes. So what is generated is a mix of dark and light areas, which together make up the image.

The process begins as soon as you place your finger on the glass plate. The scanner has its own source of light (mostly an array of LEDs) which illuminate the finger and the CCD inside takes a picture of the finger. But it doesn't just rush off to match it with the images in the database. It first checks for the integrity of the image in terms of contrast, sharpness and sheer quality.

The system checks the average pixel darkness, or, might employ a sampling technique and check the overall values in a small sample area. If the image is too dark or too light, it is rejected. Exposure settings are then accordingly adjusted and the print rescanned.

If the exposure level is found to be correct, it goes on to check the image definition (sharpness of the fingerprint). It does so by analysing several straight lines moving horizontally and vertically across the image. If the definition is good, a line running perpendicular to the ridges will comprise alternating segments of light and dark pixels. If this is found to be in order, the scanner proceeds to comparing the captured fingerprint with those in the database to see if it can find a match.

Matching of prints is a fairly complex process in itself and is far removed from the super-imposing method commonly shown in films.

This is so because smudging (due to scan surface or oily fingers) can make the same print appear different in different photos. Also, scanning and matching the entire finger consumes a lot of processing power.

Instead, the scanners compare specific features of the fingerprint (called minutiae). These points are generally places where ridge lines end or bifurcation occurs. The idea is to measure the relative positions of the minutiae; much the same way that people used to navigate in ancient times by using relative positions of stars in the sky to get their bearings.

Depending on the algorithm, a specific number of minutiae must be matched for the print to be accepted. Despite the various sums and checks in the system, fingerprint scanning is not even remotely a foolproof system. If you look around on the Internet, you will find a truckload of sites giving detailed instructions on how to go about faking fingerprints! In fact, in a recent study at Yokohama National University, Japan, scientists easily fooled even the latest fingerprint systems using fake prints made out of gelatine.

Retinal Scanning

Despite being shown as the absolute cutting edge, retinal scanning is actually rather old in the chronology of technology innovations and research on this started way back in the 1930s. For the retina to be scanned, the user looks through a small hole in the scanning device and focuses on a particular point for the time period during which, a low intensity light and a CCD analyse the layer of blood vessels at the back of the eye for matching patterns (akin to fingerprint checking) and validate or repudiate the persons identity.

This technology is still not in the public domain (unlike fingerprint recognition, which is) and is used only to secure highly sensitive security areas.

Unlike fingerprints, there is absolutely no known method of replicating a person's retina and to use a dead person's retina is no good as it deteriorates too fast to be of any help.

Iris Scan

Iris Scan, though relating to the eye (like retinal scan) uses a completely different method of identification. The Iris is the coloured ring surrounding the pupil. The scan analyses the features that exist in this coloured tissue.

Over 200 points can be used for comparison such as the rings, furrows and freckles. The scan is done with a regular camera and the subject stands about a foot from the lens (of the camera) so it is a lot more convenient.

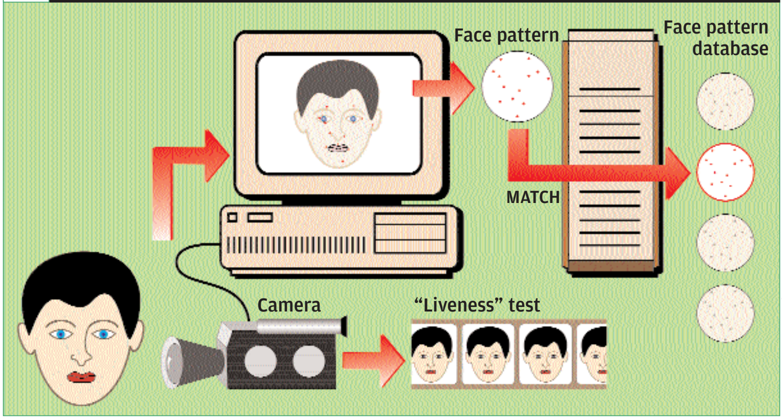
The Iris pattern is much more unique than a fingerprint. A statistical analysis puts the probability of two irises matching at 1 in 10 to the power 78 while the population of humans on earth is roughly 7 billion that is 7 to the power 9.

Facial Recognition

While fingerprinting and retinal scanning are relatively easy to administer, since the people going through the process are aware of it and are consenting to subject themselves to these measures, the main application of facial recognition is in security wherein the software is expected to pick a face out of, say, thousands of passengers at the airport, and match it with a database of wanted criminals and positively state whether or not that face belongs to the guilty party.

To make the computer recognise a face from a picture or a video feed is quite an achievement in itself, but a bigger achievement is to identify clearly if the face is that of the wanted man or not.

How Facial Recognition Works



Infographics Sivalal S

every face has certain characteristics and distinguishable features, which allow us to differentiate between two people

If you look in the mirror, or at a persons face for that matter, you will notice that every face has certain characteristics and distinguishable features, which allow us to differentiate between two people. The equipment used here is not really too fancy or cutting edge, and the brains for this lie entirely in the software.

The software divides the face into 80 nodes, some of the common ones being distance between eyes, width of nose, and depth of eye sockets, cheekbones, jaw line, and chin. The system generally needs to match between 14-25 nodes in order to obtain a positive ID.

Now, obviously, there are a lot of people coming in and out of a place where this system is set up (stadiums, airports etc). The real challenge is to recognise a face instantaneously. To facilitate this, a database is created with the help of an algorithm, which goes through the characteristics of the faces and stores them as a string of numbers. This string is called a face print.

The following are the broad steps utilised by facial recognition software.

- **Face Detection:** The camera pans around looking for a face. The minute it encounters a face, it starts scanning it and proceeds to identifying the various nodes and taking measurements if possible
- **Detection of Orientation:** Once the face is detected, the system determines the head's size and position. Generally, a face needs to be around 40 degrees towards the camera for the system to register and analyse it
- **Mapping:** The facial image is scaled down to the level of the images in the database and is then rotated and otherwise adjusted to match the formatting of the images in the database.
- **Encoding:** The algorithm then converts the face into a face print based on the pre-defined criteria programmed into the algorithm.
- **Matching:** This new data is then used as a filter to sort through the database of faces at super fast speeds to come up with a match.

Since it uses a variety of nodes, simple alterations of the face will not fool it; however, twins might; so the system is certainly not infallible.

Voice Recognition

Like fingerprints and face attributes, every person has a unique speech pattern. Voice recognition works by first storing voice pat-

With biometrics, our movements from office to work could be tracked easily using various security cameras deployed on the road

terns and then using them as a database to authenticate a subject.

Voice recognition is often confused with speech recognition, which is a technology that converts speech to text and the conversion software needs to go through extensive training by the user before any suitable and acceptable results are obtained.

Voice recognition works by noting a person's voice (physical characteristics of the vocal tract, the harmonic and the resonant frequencies) and converts it into an audio file which is known as a voice print.

During the creation of a voice print, the subject is asked to choose a phrase and asked to repeat it. The phrase should be 1 to 1.5 seconds in length since a smaller phrase provides the system with too little data, and beyond that, too much data. Both of these conditions result in reduced accuracy. The problem with voice recognition does not lie in its integrity since it's near impossible to fake a voice. The problem lies with the technology we are using to implement it with.

In the confined environs of a test lab, the technology is at par with other biometric technologies but in the real world tests, it has to contend with background noise, weather conditions, audio source and the like. Consider these two scenarios:

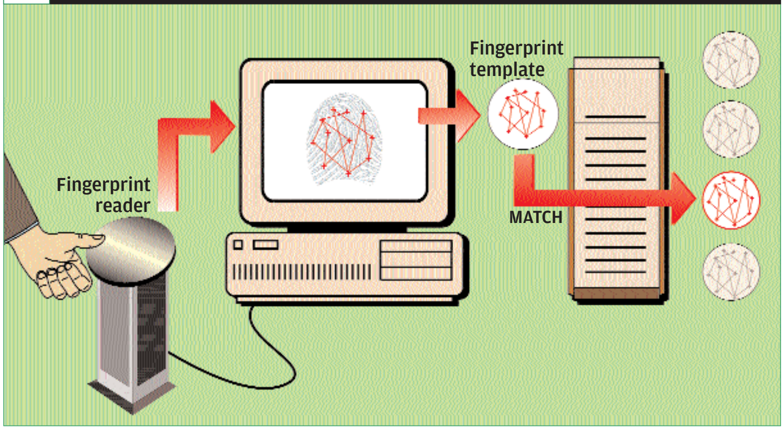
First: First, say you need to get inside your house which is "voice-locked"; meaning it has a voice recognition-based security system.

Now, if there is a traffic jam on the street in front of your house, horns blaring, people screaming, the system might refuse to authenticate you due to too much background noise (try using voice dialling in your cell phone in room full of chattering people and you'll understand what we are talking about).

In fact, it might also fail to authenticate you if you have a sore throat or are suffering from a cold as it alters your voice (and hence the voice print) quite considerably!

Second: Voice recognition can use any plain audio source, such as telephones, cell phones, etc., to authenticate the user but herein lies the catch: if you use a different phone than the type used during registration (creation of voice print in the database), the system might not authenticate you. This happens because the voice data that the

How Fingerprint Recognition Works



Lifeguard for your System

For Notebooks & PC's

System disk failure ?

Unable to retrieve your data?

Lost your data for good?

XSERVE India presents ExBoot, a new portable instant backup and recovery solution, which does exactly the same. In the event of hard drive failure or data loss, users can boot directly from the external USB backup drive to continue normal operations until the failed hard drive is replaced in the PC. ExBoot is the life guard that will protect data and ensure peace-of mind for PC users and mobile professionals.

ExBoot Software features

ExBoot features a one-touch button, which automatically makes a backup of the complete system including OS, files, settings, and applications.

- Whole system backup and total recovery
- Automatic backup and scheduling
- Incremental backup
- Multiple volume backup
- External boot up
- Synchronization
- Point-in-time restore
- Recovery CD
- Available with options of 1.8", 2.5" and 3.5" Drives
- Capacity ranges from 20GB - 400GB
- USB 2.0

ExBoot
For Notebooks & PC's

Serviced & Marketed by:
XSERVE INDIA PVT. LTD
Ph: +91-80-5113 1001
Email: info@xserves.com
www.xserves.com

system receives might vary, due to the use of different quality microphones.

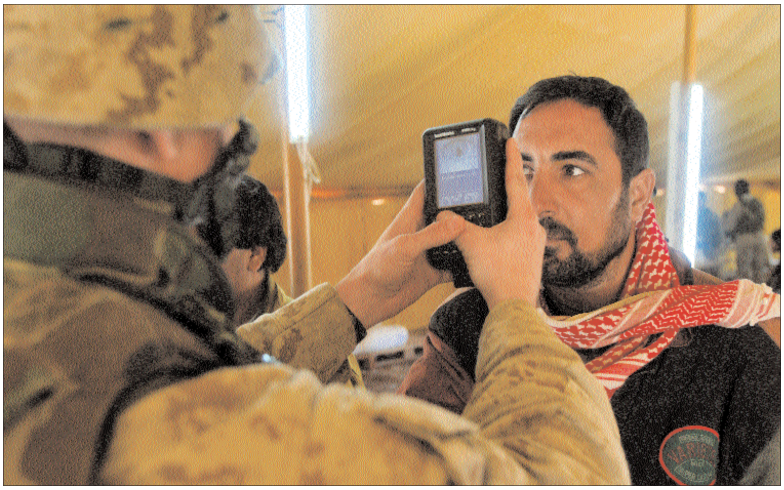
But, despite the limitations, voice recognition does have a lot going for it. The biggest is the cost saving as you do not need any special equipment. Any regular microphone will suffice as an input source. The added benefit is that voice recognition is the only technology that can give remote access to users and hence can have wide ranging applications from phone banking to remote login to secure servers but for that, the issues mentioned above need to be ironed out.

The case is of “Big Brother” breathing down your neck every time you turn around and do even something as mundane as boarding a train to office

Can Biometrics Be A Threat?

The single biggest argument against Biometrics is that it is a potential threat to privacy. The case is of “Big Brother” breathing down your neck every time you turn around and do even something as mundane as boarding a train to office.

The concern is genuine since individuals would most certainly lose their anonymity in a biometric dependent system. Privacy advocates claim that citizens have a right to anonymity while engaging in transactions such as online purchasing or in-person voting. If biometrics is used for authentication and identification (the line between these is being fast blurred by biometrics), our anonymity when using different systems or services is lost.



A US Soldier performs an iris scan on an Iraqi

Biometrics would ensure accurate cross-database matching and extensive records about a person’s habits, preferences and frequently visited places. As is the case today, this information database can then be sold to second and third parties, making sensitive or private information blatantly public and leading to invasive marketing campaigns and widespread harassment.

Even our movements from office to work would not remain private and could be tracked easily using various security cameras deployed on the road. A case in point is the cameras deployed on certain traffic signals in New Delhi that click a picture of your vehicle when you commit an offence such as jumping a traffic light. The police then send the picture along with a *challan* (traffic ticket) mentioning the date and time for you to pay the fine.

This could be extended to recognising your face and knowing your background. Judging by the rampant and all-pervasive corruption that we have, is it advisable to give such personal information to someone who can and probably will use it in any which way they like? Maybe not.

Privacy extremists extend this to a time when the computers matching the faces and giving backgrounds would themselves be smart enough to “know” who and what we are and harass us. This doomsday conspiracy, although interesting, is not likely to happen for sometime to come, but should certainly be thought of when implementing biometric solutions.

Biometrics For You

Biometrics is no longer the stuff sci-fi dreams are made of but is here in reality and lots of products incorporate one or another form of biometric security.

Microsoft recently launched a fingerprint scanner, which is compatible with Windows XP. This allows you to link your XP account with your fingerprint. So, instead of entering your password (at the XP logon or at any password websites) you just need to let it scan your fingerprints.

Even laptops from manufacturers like Fujitsu (S7010) and the Lenovo (previously IBM) T42 and the X-series tablet PC (costing over Rs 1,00,000) incorporate built in fingerprint recognition systems and replace the need for you to enter and remember any passwords!

India has not been left behind by the Biometric wave and we do have a few companies dedicated to Biometrics-based product development. Pune-based BioEnable (www.bioenable.co.in) and Mumbai-based Jaypeetex (**www.jaypeetex.com**) have products ranging from door locks to attendance registers to car immobilisers to computer mice. The Tirupati temple in Andhra Pradesh has deployed biometrics for crowd control and is also looking into incorporating it as a security measure.

During the recently concluded elections in Iraq, a system known as the Biometrics Automated Toolset (BAT) was extensively used to profile the local population. The BAT system stores a person’s biometric data such as retina scans, fingerprints, facial data, and links it to names. This was incredibly helpful in, firstly, ensuring security and integrity of registration and the individual and secondly, in avoiding duplication as even with the help of an interpreter, names can be differently or incorrectly spelt.

A pilot project is on in the US where instead of swiping your credit card, you simply put your thumb in the fingerprint scanner in the ATM. This gets matched to the thumbprint in their database and the transaction is processed. Simple, secure and hassle-free. Just what technology should be.

The concerns over biometrics are not without reason. Biometrics can certainly be a powerful security tool to combat terrorism. In the end it is upto the people to decide whether the price of losing their anonymity is justified in order to gain the comfort of security. ■

varun_dubey@thinkdigit.com

SEARCH
FUTURE
RESULTS

Imaging Akhilesh Prasad
3D Modelling Vikram Kathare

The Future Of Search

We search all the time. Search engines, not portals, are the order of the day. Where is search headed? When will the perfect search engine arrive?

Ram Mohan Rao

Second only perhaps to e-mail, search engines are probably the most useful thing on the Internet—where would you go without them? How many URLs do you know about that you just happened to stumble upon, following links? Most of your bookmarks are probably the result of Googling, or of having used some other search engine.

But is Google God? Not yet, at least. And no other search engine is, either.

How many times have you wished that Google's 'I'm feeling lucky' button would take you to the exact page you were looking for? And how many times has that actually happened? Even if you think it did, there was probably a page out there that was better than what Google showed up when you pressed 'I'm feeling lucky'.

The idea is that a search engine needs to fetch the few specific pages from the billions available that interest you. It's a daunting task.

The problem gets broken into three parts. The first is the keywords you enter: how accurate are they? The second is in the way the search engines map the Net. And finally, there's the problem of people accurately tagging their Web pages so the search engine knows what a particular page is about.

We now have desktop search, video and image search, local search, and more, in addition to just the directory-based search of a few years ago. So where is search today, and where do we wish it to take us? Will that 'I'm feeling lucky' button become the magic button you've always wanted?

Criteria

In what follows, we focus on the problem of searching for Web pages. At the outset, we must define what kind of pages we're looking for when we conduct a search. The most important criterion, of course, is relevance. The page that comes up should contain something very similar to (if not exactly) what you are looking for. But relevance is not the only thing. If you're doing a search on crocodiles, it's very likely that you're also interested in alligators; therefore, ideally, a search for 'crocodile' should show up results that have only the word 'alligator' in them, in addition to those that contain 'crocodile'.

There's more. How authoritative is a page? You sure can't trust everything you see on the Internet. The page you're going to refer to should be, in some way, 'better' than other similar pages.

You sure can't trust everything you see on the Internet. The page you're going to refer to should be, in some way, 'better' than other similar pages

A related criterion is popularity. You'd rather get your information from a popular source—assuming it is authoritative as well—than from an obscure source. Actually, these two are related, so we could just say we want pages that are authoritative and popular. Popular pages are more likely to be authoritative than unpopular ones for obvious reasons.

In sum, then, what is desired of the ideal search engine is that it displays not millions of pages that may or may not interest you, but a few authoritative, popular pages that address your need—in addition to other pages that may interest you, which you didn't think of when you typed in your search.

This is possible, firstly, if your search query is good; second, if the search engine determines your intent well; third, if the pages out there properly and honestly indicate to the search engine what they are about.

Now that's a lot of variables for a single search, and only if they come together every time you search will the results be of any use.

Good Search Queries

Technology is supposed to make life simpler. That includes making it unnecessary for us to rack our brains when we're conducting a search. There should be no need to be an 'expert Googler', if there were such a term. However, most of today's search engines actually do require that—that you frame your query well. If you're searching for a local place that serves up pizza, and you'd like to order online, you should be able to just type in 'pizza' and get your restaurant. Now that would entail some level of localisation capabilities built into the search engine, and also the fact that the engine should be able to determine what your intent is—namely, that you want to buy pizza.

Similarly, if you type in 'When was Britney born?', the search engine should be able to take that as a question and give you the answer. That also entails that the engine should be able to determine that you mean Britney Spears, not any other Britney out there. And as we mentioned earlier, returning popular results is important, and here, a popular page is much more likely to be about Britney Spears than about any other Britney.

At the time of going to print, a Google search on 'When was Britney born?' provides the answer, just as though what you typed in were a question. (Note that this happens when you use Google.com, not Google.co.in.) None of the other major search engines do, probably being thrown off by news of Britney Spears becoming a *born*-again Christian, and by the song *Born to make you happy*.

So is Google indeed God? It's premature to make such a conclusion, but the fact is that Google does, in some measure, seem to understand what you're looking for better than the other search engines do. In an ideal world, every search engine should be able to provide the answer to that question, just as if it were a question—and without the need for a specialised sub-engine that understands queries for dates!

How? The answer could just lie in AI (Artificial Intelligence), and the semantic mapping of the Web.

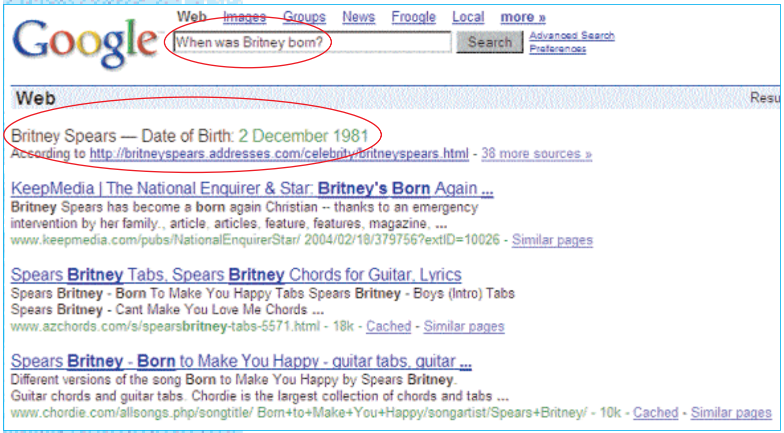
The Semantic Web?

If much of the problem with finding the right page lies in the information that the pages give out to search engine crawlers, the answer might just lie in the vision of Tim Berners-Lee called the Semantic Web, in the context of the WWW.

From Semanticweb.org, "the Semantic Web is a vision: the idea of having data on the web defined and linked in a way that it can be used by machines." It is, essentially, a project that aims to create a more intelligent Web by annotating pages on the Web with their semantics (meaning), in a manner understandable by computers (or search engine spiders). Thus, if a spider knew what a page was about, it would return more relevant results—or so the idea goes.

Let's take the Britney example again: there is no way for a spider or any other automated agent to know that Britney Spears is a person; that something like "2nd December 1981" is a date; or even that any given person has a special date called a birth date.

Using XML and other technologies, this information can be made explicit in the page that contains these elements. And what a great help that would be! If your search engine could understand things such as birthdates and people, and if pages could declare themselves as being descriptive of a particular person and a



When was Britney born?

Britney Spears — Date of Birth: 2 December 1981
According to http://britneyspears.addresses.com/celebrity/britneyspears.html - 38 more sources »

KeepMedia | The National Enquirer & Star: **Britney's Born** Again ...
Britney Spears has become a **born** again Christian -- thanks to an emergency intervention by her family., article, articles, feature, features, magazine, ...
www.keepmedia.com/pubs/NationalEnquirerStar/ 2004/02/18/379756?extID=10026 - Similar pages

Spears **Britney** Tabs, Spears **Britney** Chords for Guitar, Lyrics
Spears **Britney** - **Born** To Make You Happy Tabs Spears **Britney** - Boys (Intro) Tabs
Spears **Britney** - Cant Make You Love Me Chords ...
www.azchords.com/s/spears**britney**-tabs-5571.html - 18k - Cached - Similar pages

Spears **Britney** - **Born** to Make You Happy - guitar tabs, guitar ...
Different versions of the song **Born** to Make You Happy by Spears **Britney**.
Guitar chords and guitar tabs. Chordie is the largest collection of chords and tabs ...
www.chordie.com/allsongs.php/songtitle/ Born+to+Make+You+Happy/songartist/Spears+Britney/ - 10k - Cached - Similar pages

Google is the only search engine that interprets a date-of-birth query as such, and gives the answer as a special result placed before the other results

The Web is not viewed for the collection of documents that it is: it is viewed as a lot of individual documents taken separately

particular date, it would be much easier to find an answer to "When was Britney born".

As of now, the Semantic Web is only a vision, with its proponents and detractors. There are various technical reasons for this, which we cannot go into within the scope of this article. We'll just have to wait and watch to see if it takes off.

Emergent Semantics

Emergent semantics is described as "a self-organising alternative to the Semantic Web that does not require any recoding of the data currently available online. Based on successful experiments with communities of robots, emergent-semantic technology is built on the principles of human learning." This is being worked on by Sony Computer Science Laboratory. Could this 'emergent semantics' be a viable alternative to the Semantic Web?

In November 2004, an article by Junko Yoshida and R Colin Johnson described emergent semantics as extracting the meaning of Web documents from the manner in which people use them. The scheme would harness the human communication and social interaction among peer-to-peer file sharers, database searchers and content creators to append the semantic dimension to the Web automatically, instead of depending on the owner of each piece of data to tag it.

Sony argues that this latter method—of the owner of each Web page, for example, tagging the page with its meaning—is similar to attempting AI by writing 'if-then' statements about everything in the world.

So how would emergent semantics help automatically tag documents? A basic explanation is that the meaning of a document is taken from the browsing paths of all the people that browse that document. A browsing path, of course, is the path that you take while following document links—from Classical.com to, say, Beethoven.com, to Mp3.com. Since you visited Classical.com before and Mp3.com after visiting Beethoven.com, there is an indication that Beethoven.com has something to do with 'classical' and with MP3s. Now take the behaviour of all the users who've visited Beethoven.com and there you have it—the page is about Beethoven, Beethoven is a person, the page has classical music on it, and so on!

Search Engine Optimisation

Search engine optimisation (SEO) is the process of effectively modifying a Web site so it shows up high in the results page by a search engine. Basically, an SEO'd site is more spider-friendly than a non-SEO'd one.

What happens when a spider visits a Web page? It looks at the title tag, the Meta tag, the 'alt' tag in images on the site, and so on. All these need to be filled in, and filled in well. 'Well' here means that they should be accurate reflections of what the site is about, and that they should be dense enough for the spider to get sufficient information from them.

There are, of course, several unscrupulous ways of boosting search engine rankings. For example, a site may put in a lot of hidden text that will drive users to the page—a pornographic site may include hidden text about, say, "Windows", so that the page shows up along with 'Windows' results when you're looking for info on Windows. Similarly, one may repeat keywords hundreds of times on a page, so that the site ranks high for that keyword.

Take cloaking, for example. A popular definition says cloaking is "the process by which your site can display different pages under different circumstances. It is primarily used to show an optimised page to the search engines and a different page to humans." Most search engines penalise a site if and when they discover it is using cloaking.

SEO is big business, especially because of the exponential growth of the number of pages on the Web.

Latent Semantic Indexing

Talking about 'semanticising' the Web, another important technique is Latent Semantic Indexing (LSI). With a regular keyword search, a document, looked at from the search engine's point of view either contains a keyword or doesn't. There's no middle ground. And each document stands alone—there's no interdependence between documents. The Web is not viewed for the collection of documents that it is: it is viewed as a lot of individual documents taken separately.

In LSI, the regular recording of what words a document contains is done first. The important addition is that it examines the document collection as a whole to look for other documents that may contain the same words in a certain document. What does this do? Essentially, if two documents have a lot of words in common, they are 'semantically close'. ('Semantics' means 'meaning'.) And if two documents don't have many words in common, they are semantically distant.

Now when you perform a search on a database that has been indexed by the LSI method, the search engine looks for documents that semantically match the keywords. For example, in the semantic system, we're talking about, 'crocodile' and 'alligator' are pretty close, so a search on 'crocodile' would also bring up pages that contain only 'alligator' with no mention of 'crocodile'.

If search engines were to use LSI, they would be more powerful. Think about the fact that a search engine looks for pages that contain all your keywords. If you were to enter twenty keywords into a regular search engine, you'd get very few results—but LSI shows the reverse behaviour. If you enter more search terms into a search engine that has LSI'd the Web, it's likely to find more, not less, documents of relevance—for the simple reason that it would bring up closely related documents for each keyword.

You could then filter the results according to relevance, which would provide feedback to the engine about what you think best matches your query. This, combined with personalisation (see the '*Personalisation*' section in this article for more), would lead to your results getting much better over time.

LSI could also help archivists—those who categorise documents into classes based on their contents. If there were an LSI system in place, a document would already have attributes assigned to it, in the sense of "this document is about such-and-such a topic." The archivist would only have to add to or subtract from the list of attributes, instead of having to make up a list from scratch.

In the real world, it was reported on 5th February 2005 on Seobook.com, "Many people have been noticing a wide shuffle in search relevancy scores recently. Some of those well in the know attribute this to latent semantic indexing, which Google has been using for a while, but recently increased its weighting."

AI And NLP

Coming back to how AI could help, the answer is that AI could help determine one's intent when one feeds in keywords, and it could help in understanding the contents of a page as well. When both these happen, what you have is a smarter search engine. This could happen through implementations of NLP (Natural Language Processing).

We've talked about NLP earlier in *Digit* (June 2003): it's basically a method by which a computer processes something said in a 'natural language' such as English, as opposed to a computer language, and comes up with something intelligent. That is, when you apply NLP to something like "the world is round", the machine would have an internal representation of that fact. That sentence would not remain four, un-understood words, but would mean something to the machine. They would mean that something called 'the world' has a property, and that that property is called 'round'. The system could also, if the knowledge has been fed in, know what round means; it might be able to deduce that the world is therefore in some way similar to a ball, and so on.

In the future, then, if search engines come up with NLP implementations, we'd have a situation in which they would understand what you're saying. When you ask "When was Britney born", they would know that you're talking about a person called Britney; that you need a date as an answer; and that date is connected with that person called Britney; and finally, that the date in question is a birth date. Note that Google seems to be doing something like this already!

On the other side, what about the pages that have the answer to the question? Those pages, when they're crawled or 'spidered' have to have NLP applied to them too, at least in a rudimentary way. If a Web page says "Britney Spears' birthday is the 1st of January", the NLP-enabled spider would be able to deduce, as in the example above, that there is a person called Britney Spears, that that person has a property called a birth date, and that the value of that property is "1st January". The search engine would then serve up the page.

Of course, it's not as simple as it sounds. Conceptually, it is—but NLP is one of the hardest AI problems. However, Tom Mitchell, former president of the AAAI (American Association of Artificial Intelligence), said in November 2003 that in three to five years, we could have something like this.

Mitchell said that we can already develop computer software that can examine a Web page, and find names of people, dates and locations.

"It can't read text and understand it in the level of detail people can, but already, it can read text and can say, 'Oh, this is the name of a person' with about 95 per cent accuracy and, 'Oh, this is a location; this is a date'," he said.

Researchers have written programs that can

exfinity
http://exfinity.in
The FASTEST
Desktop Computer on the planet*
EXTREME X3778
Advanced 64-bit processor
- AMD Athlon™ 64, FX, X2, Opteron™
AMD 64 Athlon
Fastest graphic card in the world
- NVIDIA® GeForce™ 7800 GTX
GeForce 7
20% faster than any other PC in its class
- Factory Overclocked

Extreme is the first high performance hand crafted graphic workstation in India. Designed for mission critical applications, it focuses on speed with stability.

Extreme is available in different configuration optimised for 3D modeling, compositing and gaming.

For more info or a live demo contact us at info@exfinity.in or call +91 22 23084511

* Proved with independent benchmarks.
All logos and trademarks are property of their respective owners.

find names and job titles of people mentioned on a Web site. For example, such programs can find "Jane Smith, Vice President of Marketing," or "Joe Jones, CEO," according to Mitchell. He even goes so far as to say that you can go to a search engine and type in, "Show me a list of universities that offer meteorology as a major and order them by student-to-faculty ratio"!

Is that an exaggeration? Coming from a former president of the AAAI, we're tempted to think not. However, AI claims are traditionally exaggerated, and there have been brilliant people in the past who predicted that a computer would become as intelligent as an average human being by 1980. AI claims, therefore, sometimes need to be taken with a pinch of salt.

An example of a current search engine that has AI claims to fame is Accoona. From the "Artificial Intelligence" link on Accoona: "Accoona Artificial Intelligence is a Search Technology that understands the meaning of search queries beyond the conventional method of matching keywords. This user-friendly technology, merging online and offline information, delivers more relevant results and enhances the user experience...

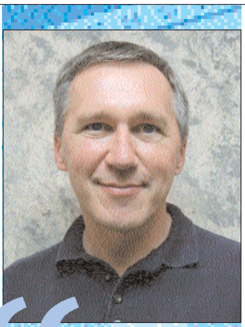
"Accoona's AI uses the meaning of words to get you better searches. For example, when you type five keywords in a traditional search engine, you're going to get every page that has all five keywords, no more, no less. With Accoona's AI Software, which understands the meaning of the query, the user will get many additional results. Accoona's AI also super-targets your search. For example, within a query of five keywords, Accoona AI allows the user to highlight one keyword, and will rank the search results starting by every page where the meaning of that one keyword is more important than the meaning of the other four keywords."

So does Accoona live up to the hype? We typed in "When was Britney born?", again, into Accoona, and first appeared sponsored results about Born shoes. The top results all brought up the song *Born to make you happy*. No AI at all here. Accoona doesn't parse what we type into it, and it doesn't recognise our query as a question—leave alone supplying the answer.

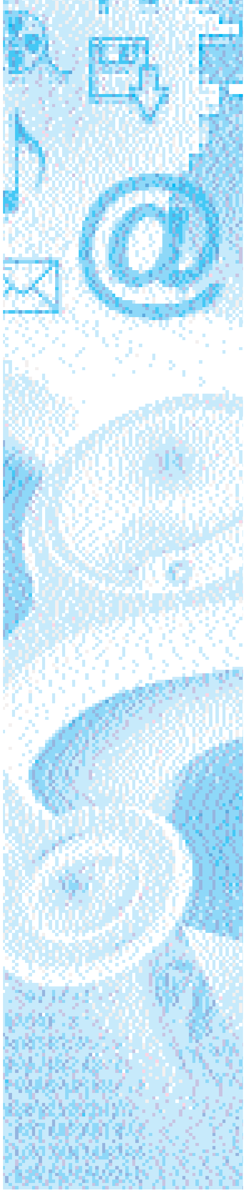
What's throwing so many engines astray is the song *Born to make you happy*, which almost always shows up before links containing the birthdate. Another reason is that common words are ignored, so that means 'when' and 'was' are ingored—precluding the possibility of parsing the query. This illustrates what plagues search engines today: they search mostly on keywords, with little attention to what your query means or what a page is trying to say.

This is changing; Google already uses LSI, and is giving it more and more importance (see section '*Latent Semantic Indexing*' for more).

Reviews of Accoona are mixed, but the general consensus is that the database is not large enough yet for it to replace any of the biggies. And in our experience, the artificial intelligence doesn't show up. The time isn't ripe yet—and perhaps we'll see better AI implementations in the years to come.



> **"We can already develop computer software that can examine a Web page, and find names of people, dates and locations**
>
> **Tom Mitchell**
> Director,
> Center for Automated Learning and Discovery,
> School of Computer Science,
> Carnegie Mellon University



Personalisation

Some argue that the future of search engines lies in personalisation. And that means giving up some of our personal data, such as browsing habits, to the search engines. People paranoid about sharing such information might not like the idea; they're the same people who wouldn't want to use GMail because GMail 'reads' your mails. But personalisation could just be the way to go.

Google recently launched the personalised version of its search, at **http://labs.google.com/personalized**. You create a profile of your interests, and Google returns your results based on those, and more importantly, Google remembers you over sessions if you log in with your Google account. It is thus able to offer you better and better results over time, because, simply speaking, each time you conduct a search and click on a link, you're giving it a better idea of who you are and what it is that you're likely to want displayed as search results. This is rudimentary AI at work. For example, if you've often conducted searches on home improvement and on glass, a personalised search engine is more likely to interpret your "windows" keyword as meaning glass windows, rather than the operating system.

Craig Silverstein, a data mining researcher and now a director at Google, has a quote about personalised search: "It's clear that a list of links, though very useful, doesn't match the way people give information to each other... How can the computer become more like your friend when answering your questions? That means giving direct answers to questions, extracting data from online sources rather than giving links to Web pages. It also means doing a better job of divining what the searcher is looking for, tailoring results more closely to what, based on past experience, appear to be the user's particular interests."

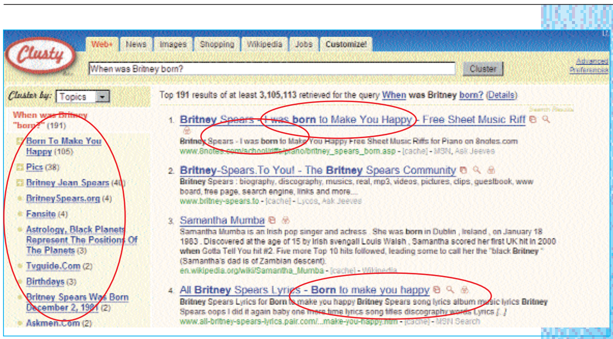
Clustering

There are some in the know who argue that clustering, not personalisation, will be the future of search. A search engine called Clusty currently clusters search results admirably—a search on "Britney Spears" brought forth the following clusters: "Britney Spears pictures (53 sites), Nude (28 sites), Artists, Art (24 sites), Fan (17 sites), MP3 (10 sites), and so on. And these clusters actually had relevant documents in them! The 'Pictures' cluster linked to pictures sites, the 'Fan' cluster led to fan sites, and so on.

Of course, you might ask, "Why not supply all the keywords—such as 'Britney Spears Fan Sites'—in the first place?" The answer is that the clusters bring out related things of interest that you might miss out with your keywords.

In other words, *you* might not know exactly what *you're* looking for. In this example, the 'Federline' cluster contained 10 documents—Kevin Federline is Britney's husband, which we didn't know until we'd conducted this search on Clusty. And naturally, someone interested in Britney is likely to be interested in the related topic of her husband as well.

Seo-scoop.com has this to say about clustering: "Clustering related search terms into groups



When was Britney born?

Top 191 results of at least 3,105,113 retrieved for the query When was Britney born? (Details)

When was Britney "born?" (191)
- Born To Make You Happy (105)
- Pics (38)
- Britney Jean Spears (40)
- BritneySpears.org (4)
- Fansite (4)
- Astrology, Black Planets Represent The Positions Of The Planets (3)
- Tvguide.Com (2)
- Birthdays (3)
- Britney Spears Was Born December 2, 1981 (2)
- Askmen.Com (2)

1. Britney Spears - I was born to Make You Happy - Free Sheet Music Riff
Britney Spears - I was born to Make You Happy Free Sheet Music Riffs for Piano on 8notes.com
www.8notes.com/school/riffs/piano/britney_spears_born.asp - [cache] - MSN, Ask Jeeves

2. Britney-Spears.To You! - The Britney Spears Community
Britney Spears : biography, discography, musics, real, mp3, videos, pictures, clips, guestbook, www board, free page, search engine, links and more....
www.britney-spears.to - [cache] - Lycos, Ask Jeeves

3. Samantha Mumba
Samantha Mumba is an Irish pop singer and actress . She was born in Dublin , Ireland , on January 18 1983 . Discovered at the age of 15 by Irish svengali Louis Walsh , Samantha scored her first UK hit in 2000 when Gotta Tell You hit #2. Five more Top 10 hits followed, leading some to call her the "black Britney " (Samantha's dad is of Zambian descent).
en.wikipedia.org/wiki/Samantha_Mumba - [cache] - Wikipedia

4. All Britney Spears Lyrics - Born to make you happy
Britney Spears Lyrics for Born to make you happy Britney Spears song lyrics album music lyrics Britney Spears oops I did it again baby one more time lyrics song titles discography words Lyrics [...]
www.all-britney-spears-lyrics.pair.com/...make-you-happy.htm - [cache] - MSN Search

Clusty's clusters—on the left—are often useful, but when we asked it when Britney was born, *Born to make you happy* dominated the results

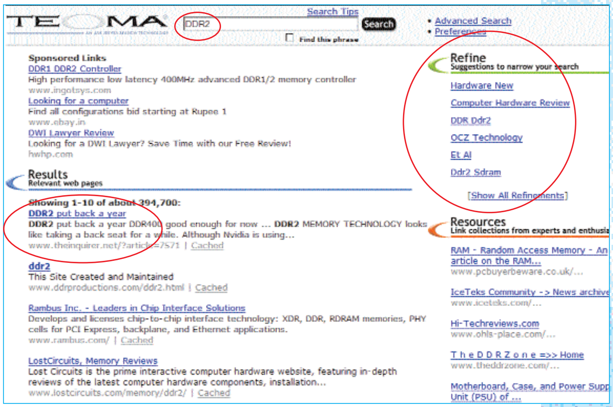
has already been implemented by several smaller search engines such as Vivisimo's Clusty, but the other major search engines (including Google) will likely soon follow."

And here's a quote from Tony Philipp, executive VP of Vivisimo: "The challenge that you have right now is not information overload. It's information overlook."

Authority

You might be familiar with a popular alternative search engine out there called Teoma. Although 'Authority' isn't a word one would normally associate with search engines, Teoma's selling point is its Authority rankings. As they claim: "The Teoma difference is authority. A lot of the players in the ever-evolving search space talk about relevance. But what do they really do to achieve this Holy Grail? And what do they offer to prove their claims? The truth is, not much. Teoma has invented a whole new approach to search, and this allows us to achieve our mission of providing the best search results on the Web... Teoma adds a new dimension and level of authority to search results through its breakthrough approach, known as Subject-Specific Popularity.

"Instead of ranking results based upon the sites with the most links leading to them, Teoma analyses the Web as it is organically organised—in naturally-occurring communities that are about the same subject... To determine the authority—and thus the overall quality and relevance—of a site's content, Teoma uses Subject-Specific Popularity, which ranks a site based on the number of same-subject pages that reference it, not just general popularity."



DDR2

Sponsored Links
DDR1 DDR2 Controller
High performance low latency 400MHz advanced DDR1/2 memory controller
www.ingotsys.com
Looking for a computer
Find all configurations bid starting at Rupee 1
www.ebay.in
DWI Lawyer Review
Looking for a DWI Lawyer? Save Time with our Free Review!
hwhp.com

Results
Relevant web pages

Showing 1-10 of about 394,700:

DDR2 put back a year
DDR2 put back a year DDR400 good enough for now ... DDR2 MEMORY TECHNOLOGY looks like taking a back seat for a while. Although Nvidia is using...
www.theinquirer.net/?article=7571 | Cached

ddr2
This Site Created and Maintained
www.ddrproductions.com/ddr2.html | Cached

Rambus Inc. - Leaders in Chip Interface Solutions
Develops and licenses chip-to-chip interface technology: XDR, DDR, RDRAM memories, PHY cells for PCI Express, backplane, and Ethernet applications.
www.rambus.com/ | Cached

LostCircuits, Memory Reviews
Lost Circuits is the prime interactive computer hardware website, featuring in-depth reviews of the latest computer hardware components, installation...
www.lostcircuits.com/memory/ddr2/ | Cached

Hardware New
Computer Hardware Review
DDR Ddr2
OCZ Technology
Et Al
Ddr2 Sdram
[Show All Refinements]

RAM - Random Access Memory - An article on the RAM...
www.pcbuyerbeware.co.uk/...
IceTeks Community -> News archive
www.iceteks.com/...
Hi-Techreviews.com
www.ohls-place.com/...
T h e D D R Z o n e =>> Home
www.theddrzone.com/...
Motherboard, Case, and Power Supp
Unit (PSU) of ...

We asked Teoma about DDR2. The first non-sponsored result is from a well-known publication. The 'Refine' options seem intelligent, too

So does it work? Are Teoma results really more relevant and useful than Google's? We threw "When was Britney born?" at it (again), and surprisingly, there was no link to the star's birth date in any of the top ten results. However, Teoma also has a 'Refine' feature that lets you zero in on what you want, and in the 'Refine' section, we found the following: 'Britney Spears Biography'; 'What Is Britney Spears' Brother's Name'; 'How Old Is Britney Spears'; 'Britney Spears Life'; and 'Britney Childhood'. Unfortunately, clicking 'How Old Is Britney Spears' and 'Britney Spears Life' didn't provide the answer either.

So what is Teoma good at? It doesn't seem to be too good at answering questions, as we've seen, but when you're looking for general information on a subject, Teoma brings up obscure results that are way down in the Google list—taking Google as the benchmark. For example, a Google search on 'DDR2' brought up product pages first; a Teoma search brought up an article from theinquirer.net, a popular site, as the first result. Close to the top was also a page from lostcircuits.com, a site we found was a good source for hardware news. Google or Teoma—it's your call!

SEO And The Ultimate Search Engine

Everything we've discussed so far—emergent semantics, LSI, AI, NLP, clustering, personalisation, authority ranking—are things that search engines already have experimented with, or will soon experiment with. Who does what first is what matters when it comes to competition in the search space. The ideal search engine is just something that brings as many of these techniques together as possible. It will feature personalisation; it will cluster your results...

The important thing is that search engine optimisation (SEO) (See box '*Search Engine Optimisation*'), as it exists today, should become redundant. SEO is all the rage—just search for 'search engine optimisation' and you'll get an idea of how big the business really is. There are all those sites out there struggling to get noticed, to get to the top.

On the other hand, what do *you* want? You want the sites that are most relevant, authoritative, and popular, along with related sites that may bring related topics to your attention. Peoples' habits aren't going to change in a long while—we'll most likely continue with our limited keyword habits. So are your interests at conflict with that of the search engine optimisers?

It may seem so. Pages that are not search-engine friendly, but of more interest to you, will, as of today, appear below those that have been optimised. And that's not what you want. You—the information-seeker—want SEO to be redundant. That is also the ultimate goal of Google, or of any other search engine.

It's when SEO vanishes that we'll know that the ultimate search engine has arrived. Until then—happy Googling! ☒

ram_mohan@thinkdigit.com

iRiver PMP-140

Bhaskar Banik

My friend had recently returned from Dubai. Yes, the one place considered to be a shopper's paradise. I had asked him to get me some interesting stuff. What I hadn't asked him, though, was to get me an iRiver PMP-140 (Portable Media Player). It was a complete surprise (and it cost a bomb). Well, that's what friends are for—to pay each other's bills! So here's what happened with the iRiver in the first 30 days of its life or at least during the 30 days it was with me...

Day 1: The Newbie

To use this baby, I needed to charge it first. Hmm, why can't the company pre-charge it so we don't have to wait? Stupid question, but inevitable when you're dying to use a gizmo. I had to wait eight long hours while I let it charge...

Day 2: Problems Already?

The iRiver is charged, and I'm eager to connect it to the PC. I connect it and it's detected as a PNP USB Mass Storage Device. So far, so good. Next, I try to install the bundled software and face my first problem. It just doesn't install, because InstallShield has a problem.

Day 3: Music, Music And More Music!

After a lot of troubleshooting and Web browsing, I finally manage to resolve the issue. This little palm-sized device can play WMA, WAV, AVI, ASF, MPG, FM radio and display JPG and BMP files! Whoa, time to get cracking! I copy a humongous amount of music and movies to the player. After all, I need to utilise all the 40 GB of space on the drive.

Day 7: More Buttons Than I Can Handle

Yes, everything's copied and playing fine, even the DivX files. But some files, such as those with the .DAT extension, need to be converted before I can play them on the iRiver. Such a pain! And why on earth are there so many buttons on it? I would've been happy with just three.

Day 12: If You Have Got It, Flaunt It!

I've decided to debut this thingy on the bus I do my daily commute on. One part of my brain is strictly against the idea. The other just can't wait to flaunt it. I give in to the temptation... The bus is crowded and at an opportune moment, I take out the iRiver right in the company of my co-passengers. I can understand the ogling and salivating that follows. I also see some people turning green. Is it just me, or are the aliens finally taking over the planet?

Day 18: Protecting The iRiver And My Sanity

My brother has miraculously managed to delete everything there was on the iRiver. Great, I say—at least he didn't throw it on to the floor and stomp on it! Apparently, he was just trying to watch a movie. I make a mental note to keep it away from hazardous humans who cause pain to men and devices alike and make sure the 'Hold' button is on when I am not using the iRiver.

Day 25: Time For Some Fun

Today's a holiday. I decide to check the iRiver's recording capabilities. I connect it to the TV and start recording. Pity—it can only record voice and not video. After 10 hours of continuous recording, I need to take a break. The iRiver does what it promises on the manual. However, I need to charge it once more. Later, I get my family to watch a movie from the player on the TV. They still can't believe this tiny gadget costs a bomb!

Day 30: All's Well That Ends Well

I've been using the iRiver for a month now, and it still feels like I got it yesterday. I don't take it on the bus any more, much to the chagrin of my co-passengers. The 'portable' tag does not apply to the iRiver since it stays home, at least for now. Moreover, I don't mind the power outages during weekends anymore. I can get cosy and watch my favourite movie anytime, anywhere, at my own convenience. Thank God for the iRiver!

bhaskar_banik@jasubhai.com

PMP-140
PMP
Video
Photo
Music
Radio
FM
PORTABLE MULTIMEDIA PLAYER

Photograph Sandeep Patil Imaging Sivalal S

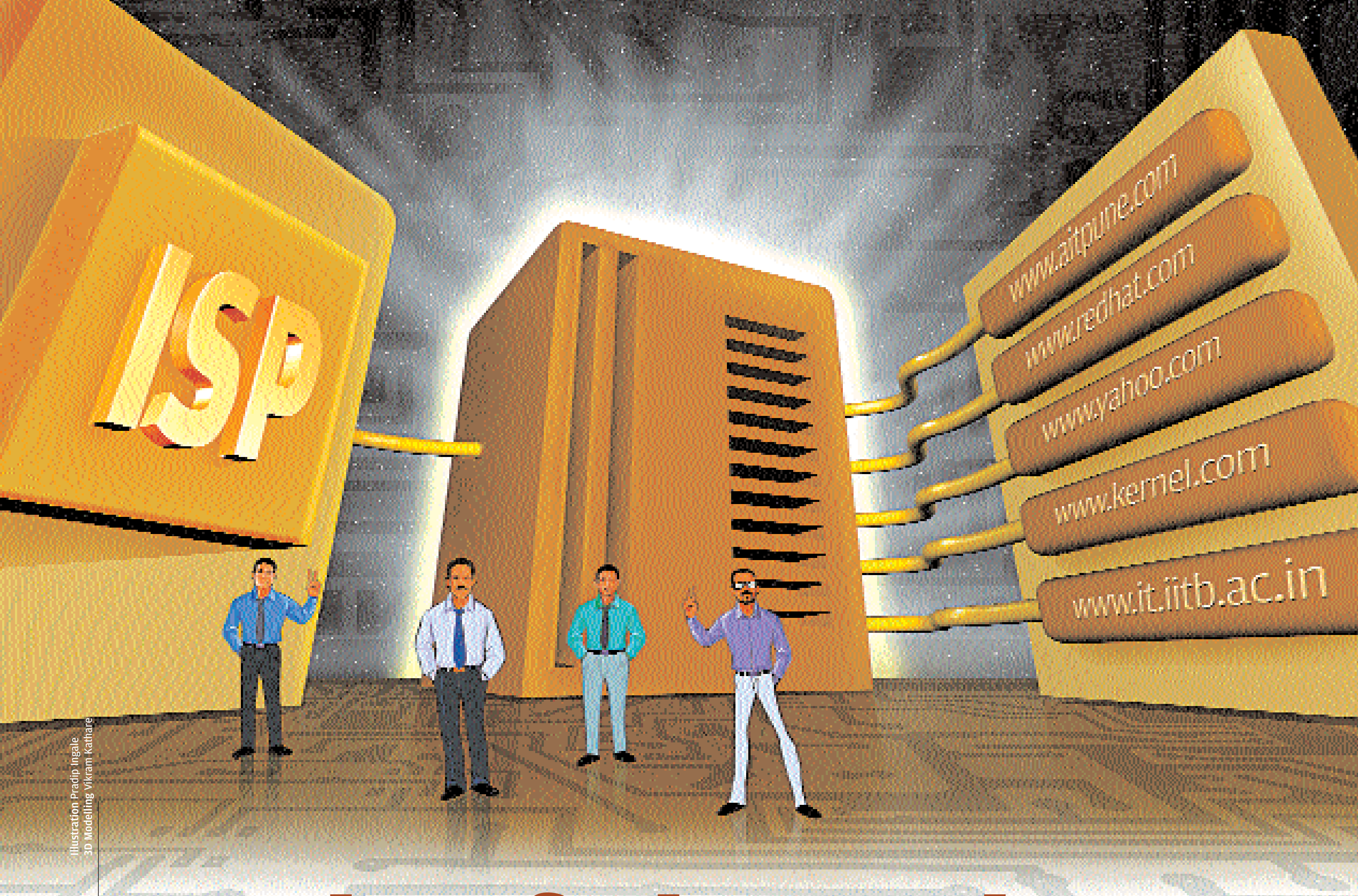


Illustration Pradip Ingale
3D Modelling Vikram Kathare

Lords Of The Code

A project on Open Source technology brings prestige and pelf to graduates of the Army Institute of Technology at Pune

Renuka Rane

Amit Yadav, Narender Kumar, Nishant Kumar and Pranay Pramod are jubilant—and with good reason. Just last month, this winning foursome walked away with the top honours—Rs 2 lakh—for their project on Virtual Private Server (VPS) 2.6.5-1.358 which they entered in the Red Hat Scholarship programme 2004-05. Their joint efforts made it possible to host several Web sites simultaneously on a single PC using distinct VPSes that run independently.

How It All Started

Yadav, the two Kumars, and Pramod are children of serving Army personnel. Ever since joining the AIT in 2001, they have been the thickest of pals.

During their second year of engineering, they were introduced to the philosophy of Open Source by a senior, who later joined Red Hat. This cursory introduction sufficed to arouse their interest in the concept and its possibilities. When the first Red Hat Scholarship was announced last year, they decided to compete for it.

What's Red Hat And Open Source?

As most of you may be aware, software is compiled source code. Open Source, as the name suggests, means the code is protected by a special license, but one that allows everyone to access it. On the other hand, in the case of proprietary software such as Windows, only programmers employed with the company can write or alter the code.

While both Open Source and proprietary software have their positives and negatives, the major negative of proprietary software is that shortcomings and remedies are never known to the real users—the public at large.

With Open Source, on the other hand, users can—often collaboratively—see the code, change it and fix problems. Open Source is a philosophy based on collaboration, community and collective ownership of intellectual property. Open Source allows the best technology to win in an open, competitive environment.

What's needed for one to be able to work with the Open Source code is a knowledge of the programming language, and, how the code interacts with the operating system (OS)—entailing some knowledge of the working of the OS.

The fantastic four—Nishant Kumar, Narender Kumar, Amit Yadav and Pranay Pramod

Red Hat India, one of the leading Linux and Open Source solutions providers in the country, announced the 2004-2005 Red Hat Scholarships programme, known as the ‘Lord of the Code’ contest, for students across India. An education initiative designed to encourage budding open source software developers, it is jointly conducted with the Kanwal Rekhi School of Information Technology (KreSIT) at IIT-Bombay.

To participate in the programme and be eligible for the prize, a team is required to develop a piece of high-quality Open Source software.

What Is VPS?

Says Nishant Kumar, “While we were trying to zero in on the theme for our project, our external project guide, Aditya Pandit, who was working with Calsoft (a software consulting house), provided us with the idea of a setting up a VPS. He was working on a similar project at the time. We accepted his suggestion.”

The effort and contributions going into projects submitted for the competition are expected to be similar to that of a typical final-year B.E. or B.Tech. project.

“In our project, we decided to show the benefits of running a VPS using Open Source, and at the same time, ensuring it is cost-effective, with optimum utilisation of resources,” says Nishant.

The aim of the project was to partition the server’s native operating system kernel into isolated operating environments. These partitions are called Virtual Private Servers on Linux. A VPS provides multiple virtual hosting environments on the same physical server, and eliminates the need for separate physical servers for hosting different Web sites, for example.

The VPS implementations are targeted at Internet Service Providers (ISPs) and Web Hosting Providers (WHPs).

Hard Work Ensues

Says Yadav, “Given that a computer has enough resources to drive ten times the number of applications a single Linux server would usually require, why not put ten servers on that PC, which will then share the available resources in an efficient manner? So, essentially, we separated the user-space environment into distinct units in such a way that each VPS looked and felt like a real server to the processes contained within that VPS on that computer.”

The aim of the project was to partition the server’s native operating system kernel into isolated operating environments. These partitions are called Virtual Private Servers on Linux

Write In

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

In fact, the team gave a live demo that showcased a maximum of 10 VPSes running on a single computer. This number can be increased depending on the resources available to the system.

Group projects needed each student of the group to have identifiable contributions, and also that the total visible effort be commensurate with the number of students in the group.

To this end, Amit looked after signals, Narender handled networking, Nishant took over Process File Separation, and Pranay worked on File System Separation. It was therefore a well-defined project, with daily six hours of effort put in for a period of one year.

In The Real World

Just creating the VPS was not the end, though. There had to be practical applications. This was possible through Process Isolation, Network Isolation and File System Isolation.

For instance, the team put one alias for each VPS, that is, each VPS had a different IP (Internet Protocol) address while running on the same computer. Each individual VPS is bound to a particular IP address the moment it starts, and all connections for that VPS are handled only through that IP address.

The project statement claims that the VPS ensures minimal virtualisation overheads, efficient sharing of system resources, enhanced security, minimal changes to the kernel, and faster context switching.

Nishant Kumar explains: “The VPS we designed scores over other software that can be used as a substitute, such as VMware or Xen. For instance, VMware needs to virtualise hardware for each VMware application running on the system. On the other hand, all the VPSes running on a machine can make do with the same device drivers. Moreover, if one VPS crashes, the other would remain unaffected.”

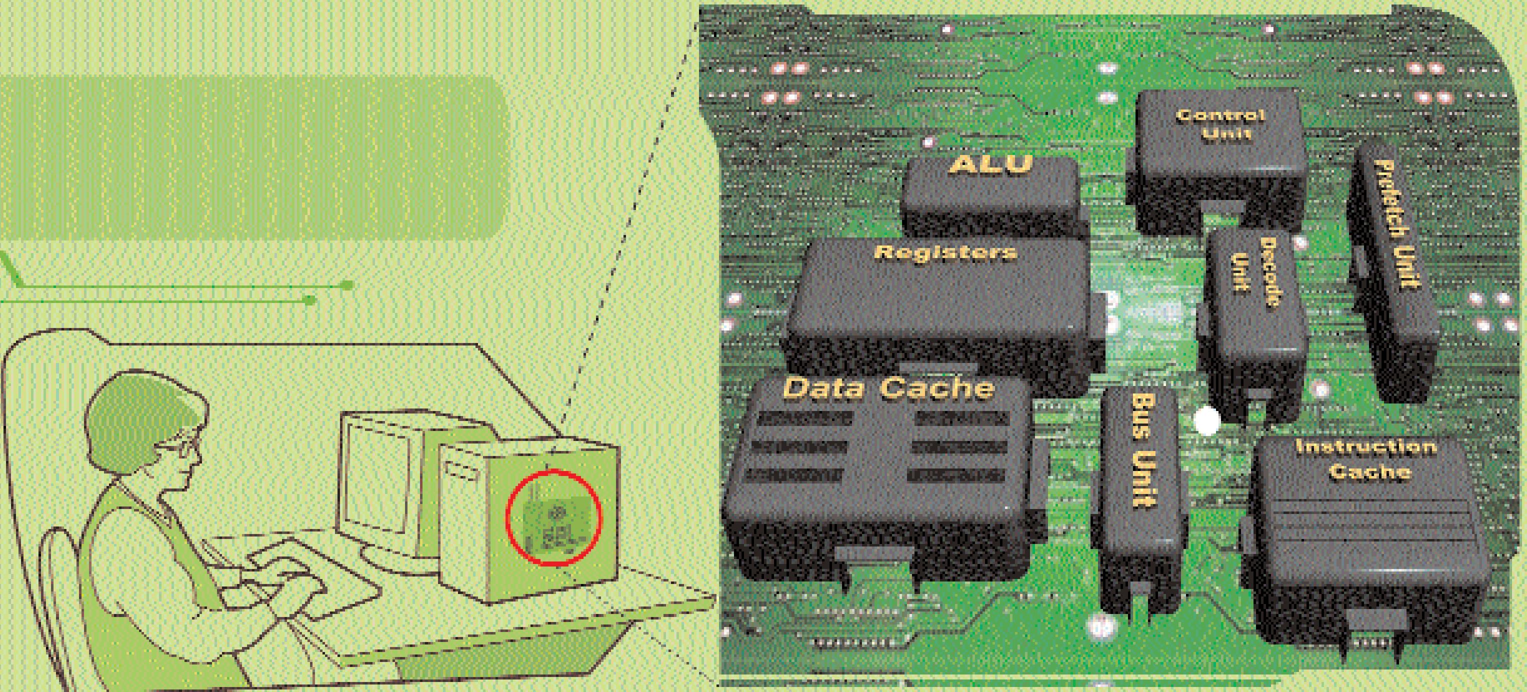
Fruits Of Labour

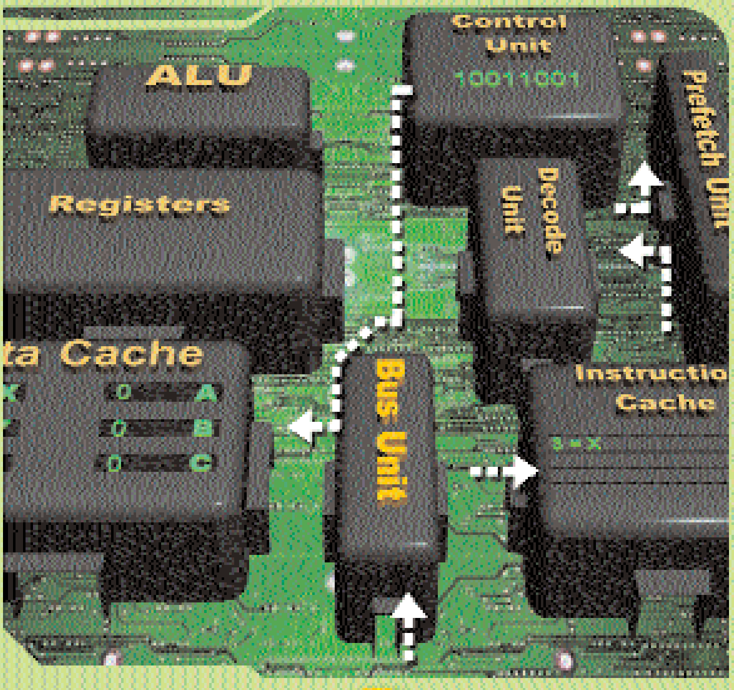
“Red Hat Scholarships is a programme aimed at encouraging talented young programmers in India. The largest numbers of engineers graduate from India every year, and given the right guidance, the next Linus Torvalds could well emerge from India,” said Javed Tapia, director of Red Hat India. If the efforts and achievements of this foursome are anything to go by, we’re inclined to agree with Mr Tapia!

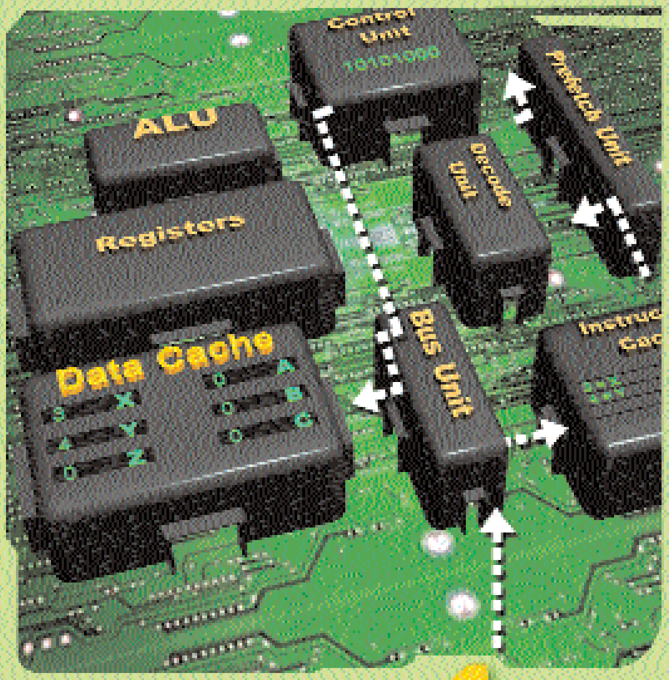
For the moment, though, the VPS needs to be tested thoroughly to ensure it is foolproof, and some niggling issues need to be addressed as well. Getting the tests done is next on the agenda, after which the project can be unleashed into the real world.

However, the project is proof enough that India is now a contributor to—and not just a recipient of—Open Source technology. ☒

renuka_rane@thinkdigit.com


Control Unit
ALU
Prefetch Unit
Registers
Decode Unit
Data Cache
Bus Unit
Instruction Cache


Control Unit
10011001
ALU
Prefetch Unit
Registers
Decode Unit
ta Cache
X
0 A
0 B
0 C
Bus Unit
Instructio Cache
3=X


Control Unit
10101000
ALU
Prefetch Unit
Decode Unit
Registers
Data Cache
3 X
4 Y
0 Z
0 A
0 B
0 C
Bus Unit
Instruc Cac

Step 1 : The number '3' is pressed

3

a. On pressing the '3' key, the microprocessor (µP) is alerted. It asks the Prefetch Unit to get the instruction. The new data instruction comes into the µP through the Bus Unit, and is stored in the Instruction Cache, where it is assigned 'X' as the code. So at this point, 3 equals X.

b. The Prefetch Unit sends a copy of the new data to the Decode Unit.

c. At the Decode Unit, the data is translated into binary and sent to the Control Unit and the Data Cache.

d. '3' is stored in the Data Cache for the future at an address called 'X' as per the instructions of the Control Unit.

Step 2 : The number '4' is pressed

4

a. On pressing the '4' key, the microprocessor (µP) is alerted. It asks the Prefetch Unit to get the instruction. The new data instruction comes into the µP through the Bus Unit, and is stored in the Instruction Cache, where it is assigned 'Y' as the code. So at this point, 4 equals Y.

b. The Prefetch Unit sends a copy of the new data to the Decode Unit.

c. At the Decode Unit, the data is translated into binary and sent to the Control Unit and the Data Cache.

d. '4' is stored in the Data Cache for the future at an address called 'Y' as per the instructions of the Control Unit.

How A Microprocessor Works

Here we illustrate a simple addition of two numbers, 3 and 4. The visual depicts functioning of a microprocessor during the addition process, irrespective of the data entry sequence

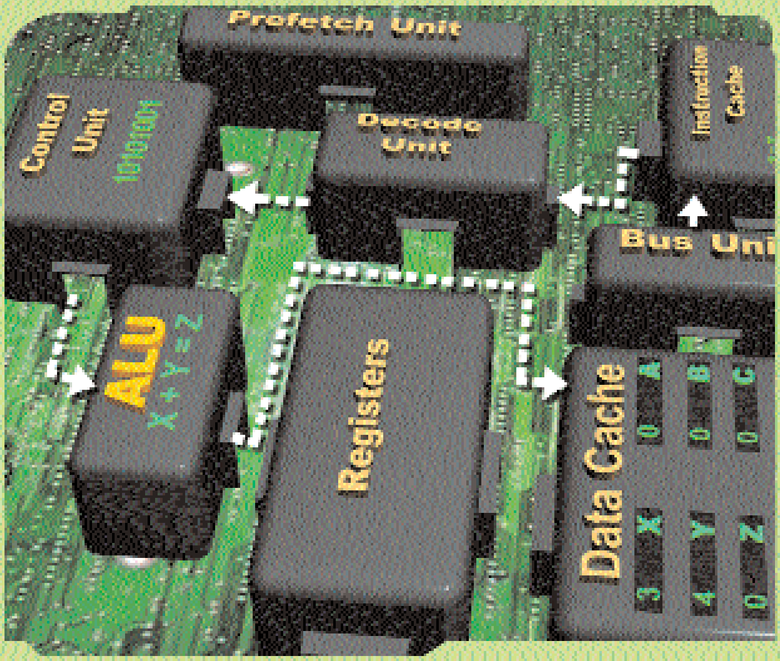
Step 3 : The ‘+’ key is pressed

a. On pressing the ‘+’ key, the µP is alerted, which asks the Prefetch Unit to get the instruction. The new data instruction comes into the µP through the Bus Unit, and is stored in the Instruction Cache as the code ‘X + Y = Z’, indicating that an addition operation will be performed.

b. The Prefetch Unit then sends a copy of this new data to the Decode Unit for processing.

c. At the Decode Unit, the data is translated into binary and sent to the Control Unit and Data Cache. Also, the ALU is alerted that the ADD function has to be performed.

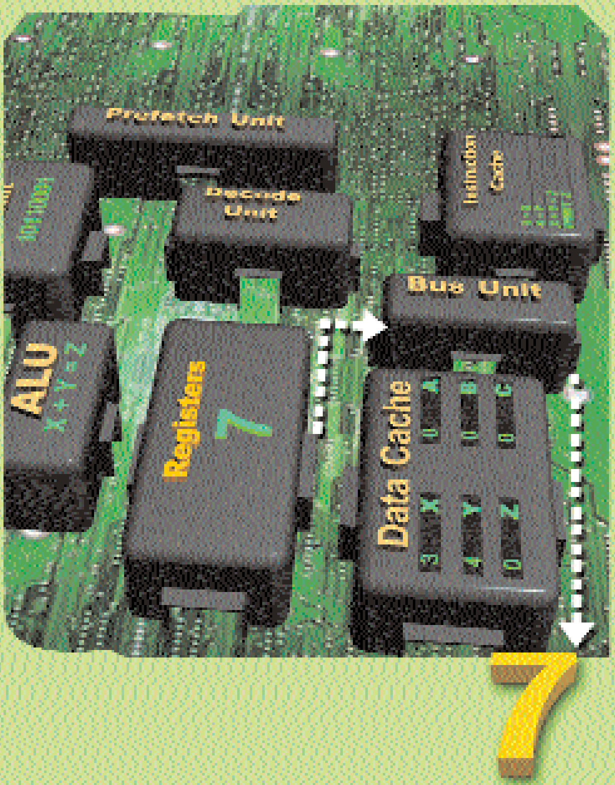
d. In the Control Unit, the code (X + Y = Z) is broken down, and the ADD command is sent to the ALU. In the ALU, the values of X and Y are added, and the result, ‘7’, is sent to an address location in the Register.


Prefetch Unit
Control Unit
Decode Unit
Instruction Cache
Bus Uni
ALU
X+Y=Z
Registers
Data Cache
0 A
0 B
0 C
3 X
4 Y
0 Z

Step 4 : The ‘=’ key is pressed

a. On pressing the ‘=’ key, the µP is alerted. It asks the Prefetch Unit to get the instruction. The new data instruction comes into the µP through the Bus Unit, and is stored in the Instruction Cache as ‘Print Z’.

b. The Prefetch Unit then sends a copy of this new data to the Decode Unit for processing.


Prefetch Unit
Decode Unit
Instruction Cache
Bus Unit
ALU
X+Y=Z
Registers
7
Data Cache
0 A
0 B
0 C
3 X
4 Y
0 Z
7

Imaging **Vikram Kathare, Shyam Shriram** and Text **Preethi Chamikutty**

Archos AV700

Experience 'Space'... courtesy the stereotype-defying Archos AV700

The guys at Archos have done it yet again! While we've barely gotten over their Gmini and PMA 400, they've launched the AV700 Digital Video Recorder, or as we would like to call it—portable cinema!

You'd agree with the accolade when we tell you the device has a massive 7-inch, 16:9 aspect screen, which is nearly half the size of most desktop monitors, and a gigantic 100 GB of space—all wrapped up nicely in a device that just about fits in your hands!

Apart from playing the usual DivX and MP4 video formats, it also lets you record directly from your TV or VCR (if you're one of the few who still have one). The device also has a USB host cable that connects to the PC end of any digicam's USB cable, allowing you to transfer photos from any digicam on the planet directly to the AV700! The formats supported are JPEG (except progressive) and BMP.

And if that weren't enough, it even Auto Syncs with Windows Media Player 10, and you can download and install Mophun games for a great on-the-go gaming experience.

Imaging Sivalal S

TAKE a CRACK

The 'Safe Mode' boot menu in Windows only appears after an improper shutdown, or when you press [F8] while booting. Can you make it appear every time Windows XP boots?
Write in with the subject 'Take a crack', and your postal address, to **takeacrack@thinkdigit.com** with your solution

THIS MONTH'S CHALLENGE

Make The Safe Mode Boot Option Appear Every Time Windows Starts Up

LAST MONTH'S CHALLENGE

Win!
The Call Center Handbook

Take a Crack and Win
The Call Center Handbook
By Keith Dawson
Published by
CMP Books

LAST MONTH'S WINNER
Akshay Goel
54/7, Strachey Road,
Allahabad 211002

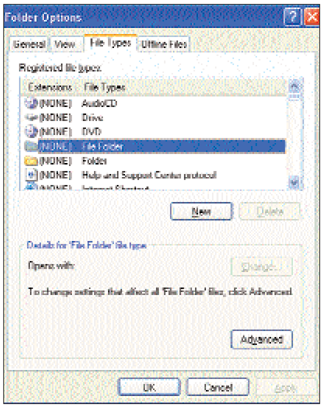
Rules and Regulations

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

Add an item to the context menu to print out a directory listing

There are many solutions or 'hacks' to the problem, but here's the simplest solution in three steps. You create a batch file for printing out a directory, create a new action for folders, and finally do a small registry tweak.

1. Creating the Printdir.bat file:


Folder Options
Registered file types:

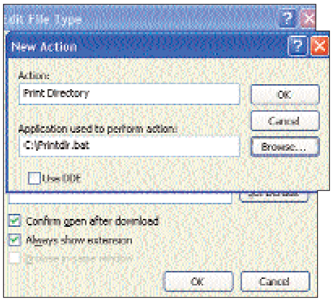
Extensions	File Types
(NONE)	AudioCD
(NONE)	Drive
(NONE)	DVD
(NONE)	File Folder
(NONE)	Folder
(NONE)	Help and Support Center protocol

Navigate to 'File Types' in 'Folder Options'

Go to Start > Run, type in "notepad", and click OK. Copy the following text into Notepad:

```
    @echo off
    dir %1 /-p /o:gn >
"%temp%\Listing"
    start /w notepad /p
"%temp%\Listing"
    del "%temp%\Listing"
    exit
```

Save the file as "Printdir.bat". Place the file in your Windows directory and close it.

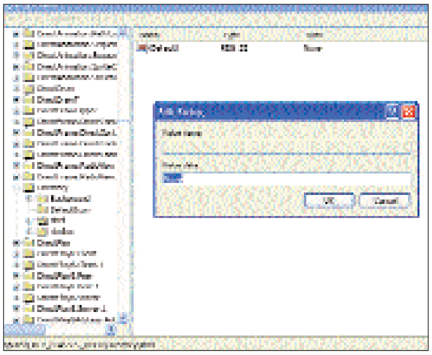

New Action
Action: Print Directory
Application used to perform action: C:\Printdir.bat
☐ Use DDE
☑ Confirm open after download
☑ Always show extension

Create the new action context menu

2. Creating a new action for file folders:

Open the Control Panel. Double-click 'Folder Options', and in the 'File Types' tab, click 'File Folder'. Click 'Advanced' and then click 'New'. In the 'Action' box, type in "Print Directory".

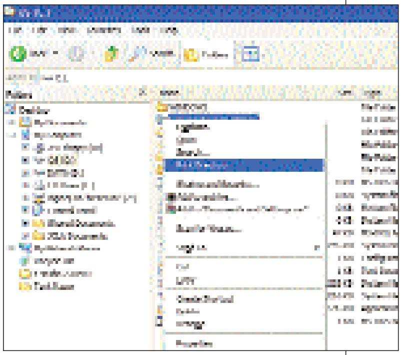
In the 'Application used to perform action' box, enter the text "Printdir.bat". Click 'OK' thrice and close the Control Panel.


You also need to do a small registry tweak

3. Editing the Registry:

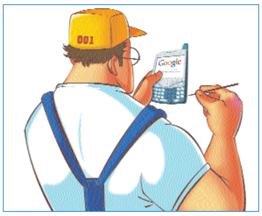
At this point, double-clicking a folder might result in the 'Search Companion' opening. In order to remedy this, you need to edit the Registry.

Open the 'Registry Editor' by going to Start > Run, typing in "regedit" and pressing OK. Locate the 'Default' entry for the key "HKEY_CLASSES_ROOT\Directory\shell".


Use the context menu to print out a directory listing

Click 'Modify' to change the value, and enter "none" in the 'File' data box. Click 'OK' and exit the 'Registry Editor'.

The required item—for printing out folders—will now appear in the context menu. ■



62 A Linux For Everyone
78 The Best New Gadgets
89 PDA-phone Calling

American Public University System
AMU
APU
BRITISH COUNCIL
India
An MBA degree in just 18 months
FREE CERTIFICATION
http://www.apus
http://www.britishcouncil.org/
Washington State University
University Of Massachusetts Online
American Public University System
The University Of Luton Business School
University Of Phoenix Online

Illustration Akhilesh Prasad

Get Your Degree Online

The what, where, when, why, who and how of getting an overseas degree online

Ram Mohan Rao

E-learning is already big and is set to become bigger. You're probably familiar with the concept of e-learning and the possibility of getting degrees online. There are several things that come to mind: is it really possible to get a degree online, from the comfort of your home? What's the catch? Which universities can I apply to? Are there any North American universities out there that I can join? Are online degrees as good and authoritative as their offline equivalents?

The W5H Of Online Degrees

Kicking off with the 'what' of online degrees, we're talking about getting a full-fledged degree or diploma online. There are certifications and other types of programmes as well, but we will concentrate on degrees and diplomas. These degrees or diplomas are indeed as 'good' as their offline equivalents—of course, with the caveat that the university you 'attend' online is good, too.

A word of caution: if you've heard about a programme through unsolicited e-mail, treat it as spam. While we can't rule out the possibility that the mail could be about a legitimate institution, it's likely to be some form of scam. You could end up receiving fake degrees and credentials.

Now, what can you study online? If you conduct a thorough search online, you're likely to find every—and we mean every—subject that you can think of, from psychology to zoology to business administration to philosophy. Some degrees are more popular than others, and will figure more often. You can also get Bachelors and Masters Degrees, PhDs, and more types of degrees and diplomas than you knew existed!

Next, **'where'** can you study? From the comfort of your home, of course! (Or from the comfort of your office, if you don't tell your boss about it, and if you have enough time on your hands.) You can also study while travelling, if you're pressed for time.

'Why' online? There are various reasons as to why one would need to take up an online educational programme. First of all, there's the 'study abroad' factor: if you cannot afford to go to the US or Canada or Australia or the UK, and want a 'foreign' degree, getting it online is your best bet.

Then, there's the time factor: you can't take a sabbatical from work, and you need to study while working. Or, you may have completed part of your college, left mid-way to start working, and now feel it's time to complete your education—your work experience and previous college education will also fetch you credits. And then, there's the prospect of enhancing your work skills, and if your lucky enough, your employer is willing to pay for a certification—so you sign up for an online course, and at the same time continue working. Some employers will even pay your course fees for a full-fledged degree programme, including an MBA.

'When' do you enrol? Most online universities (including the online departments of regular universities), allow students to enrol at several points of time throughout the year. While some colleges open admissions thrice in a year, others may do so as often as six times. And, as you've probably guessed, online means the time shouldn't matter—ideally, you should be able to enrol on any given day! However, there are a few restrictions due to which institutions allow you to enrol only at specific times of the year.

'How' does it work? It's simple—course material is brought to you via the Web, e-mail, videoconferencing, and also by written material delivered to your doorstep. Generally, you study at your own pace, but there's usually a timeframe within which you must complete your degree requirements.

Examinations are usually open-book and online. Admission is given on the basis of your prior educational qualifications and work experience—your physical transcripts are formally evaluated by the institution, or by an agency appointed by the institution. Many institutions require you to be employed in order to take courses online.

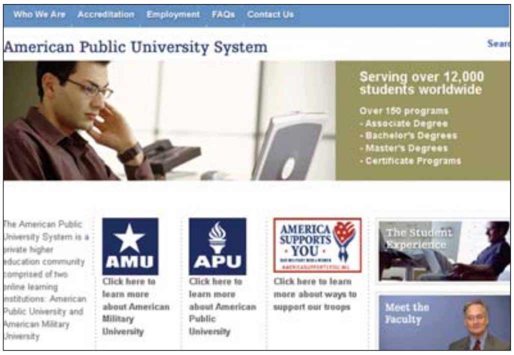
Finally, the **'who'**: *Digit* cannot, naturally, make any claims for the universities or institutions mentioned, because none of us have obtained degrees from any of these places. Read on for a sampler of some of the places from where you can obtain a degree.

Remember, before beginning an online degree programme, it's important to ask about the institution's and the degree's accreditations. This is because you need to be sure that you will be furnished with a degree that is recognised by employers and universities after the completion of your course. Accreditation can be done by national and regional organisations, however, national accreditation is more prestigious.

Here's are some aspects you should consider before deciding to get a degree online:

- Online classes require as much work as offline ones. Do you have the time? Don't be under the impression that just because you don't have to attend classes, you'll require less time.
- Will you be motivated enough to study without professors and classes to urge you on? And will you have the discipline to do it?
- What about your finances? Will the degree be worth it, in terms of career advancement and/or the possibility of further studies?
- Whether videoconferencing is there or not, how important is face-to-face contact with a professor to you?

If you really need that degree, and in your present circumstances, cannot attend a 'real' university, consider yourself lucky if you answered positively to all the above. Here are some institutions we picked:



Serving over 12,000 students worldwide

Over 150 programs
- Associate Degree
- Bachelor's Degrees
- Master's Degrees
- Certificate Programs

he American Public niversity System is a rivate higher ducation community omprised of two nline learning nstitutions: American Public University and merican Military niversity

Click here to learn more about American Military University

Click here to learn more about American Public University

Click here to learn more about ways to support our troops

AMU has a very wide variety of courses available

American Public University System (www.apus.edu)

The American Public University System is a private higher-education community comprising two online learning institutions: American Public University and American Military University.

Serving over 12,000 students worldwide, APUS welcomes international students. There are over 150 programmes, and you can get an Associate Degree, a Bachelor's Degree, or even a Masters Degree. There are also some Certificate Programmes available.

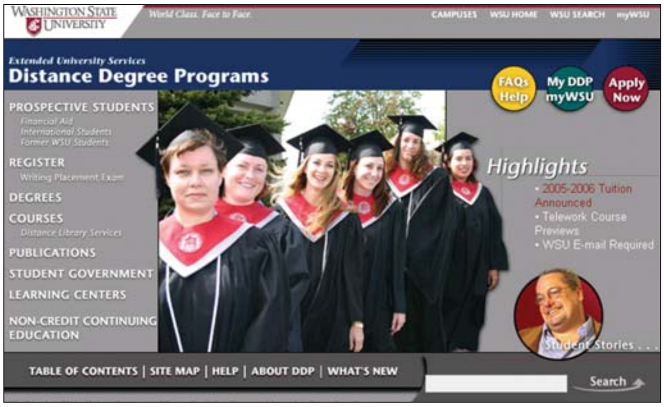
APUS is accredited by the Distance Education And Training Council. To get into a Bachelor's program, APUS requires the online application and orientation be completed, followed by sending in high-school transcripts or diplomas. APUS will review previous college coursework for potential credit towards the degree.

Bachelors programmes range from Aerospace to Business Administration to Management to Marketing to Philosophy. In fact, American Public University has one of the widest ranges of programmes available.

Fees are $750 per 3-credit course, and the Bachelors degree requires 120 credit hours. That works out to approximately Rs 13 lakh. For more information see **http://snipurl.com/enhance1**.

Washington State University (http://distance.wsu.edu)

Washington State University is accredited by the Commission on Colleges of the Northwest Association of Schools and Colleges. It is also a member of the National University Continuing Education Association, and is listed in the official publications of the US Office of Education and the State


WASHINGTON STATE UNIVERSITY
World Class. Face to Face.
CAMPUSES
WSU HOME
WSU SEARCH
myWSU
Extended University Services
Distance Degree Programs
FAQs Help
My DDP myWSU
Apply Now
PROSPECTIVE STUDENTS
Financial Aid
International Students
Former WSU Students
REGISTER
Writing Placement Exam
DEGREES
COURSES
Distance Library Services
PUBLICATIONS
STUDENT GOVERNMENT
LEARNING CENTERS
NON-CREDIT CONTINUING EDUCATION
Highlights
• 2005-2006 Tuition Announced
• Telework Course Previews
• WSU E-mail Required
Student Stories . . .
TABLE OF CONTENTS | SITE MAP | HELP | ABOUT DDP | WHAT'S NEW
Search

WSU online is one of the USA's top online institutions

Department of Public Instruction.

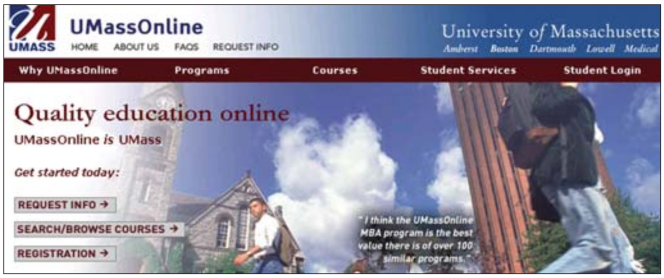
Bachelor's degrees available for international students include the Bachelor of Arts in Social Sciences, Humanities, and Criminal Justice. The BA in Business Administration includes a Management and Operations major with an emphasis on Organisation Management, and a Management Information Systems (MIS) major. There are several other courses; for details see **http://distance.wsu.edu/degrees**.

WSU's degrees can be pursued completely online. Visit **http://snipurl.com/enhance2** for information on admission procedures. WSU, however, requires you to have TOEFL certification. Undergraduate tuition for international students is $402 (Rs 17,500) per credit hour. For more details, see **http://snipurl.com/enhance3**.

University Of Massachusetts Online (www.umassonline.net)

UMassOnline has a very user-friendly site. It's one of the top-ranked universities in the US. To apply to their undergraduate programmes, visit **http://continuinged.uml.edu**, under 'Miscellaneous Forms' and complete the form. You'll need to have your previous college or university send them an official copy of your transcripts too. UMass will then send you a worksheet delineating those courses that have received transfer credit.

They accept a maximum of 30 transfer credits towards an associate degree, and a maximum of 90 transfer credits towards a Bachelors degree, 60 of which may come from a two-year institution. Once enrolled in a program, UMassOnline has a procedure titled 'Credit by Exam'. A student may petition their programme co-ordinator, providing proper documentation indicating their proficiency in a course or courses.


UMASS
UMassOnline
HOME
ABOUT US
FAQS
REQUEST INFO
University of Massachusetts
Amherst Boston Dartmouth Lowell Medical
Why UMassOnline
Programs
Courses
Student Services
Student Login
Quality education online
UMassOnline is UMass
Get started today:
REQUEST INFO →
SEARCH/BROWSE COURSES →
REGISTRATION →
"I think the UMassOnline MBA program is the best value there is of over 100 similar programs."

UMassOnline has a very user-friendly Web site

Based on the discretion of the programme coordinator, this documentation may include a letter indicating proficiency, appropriate certificates earned through a training programme, or an actual course examination. The student is required to pay the tuition for one credit to earn the three course credits.

Online course tuition is $825 per 3-credit course. That works out to approximately Rs 14.4 lakh for a four-year Bachelors degree.

Narasingha Prasad Padhi
System Administrator
Wipro

Harisha B L
Network Administrator
Datacraft

This could be you!

Pick up the basics of IT. Or learn the most advanced of courses in networking and internet security. And get launched into a most happening career that is guaranteed to take you places.

For Rooman Technologies can make it all happen with complete ease. With the best of faculty, state-of-the-art facilities to help your learning process in a highly professional manner.

Come, join the best today, to be the best tomorrow.

HARDWARE & NETWORK TRAINING

Courses Offered

- COMPTIA-(A+, N+), Security+, Server+
- MICROSOFT-(MCSA, MCSE)
- RED HAT - (RHCE, RHCT)
- CISCO - (CCNA, CCNP)
- CHECK POINT-(CCSA, CCSE, CCSE+)
- ISS-(ISS-CS, ISS-CE)
- EC-COUNCIL-CERTIFIED ETHICAL HACKER (CEH)

CEH (CERTIFIED ETHICAL HACKER)

- Scanning & Footprinting
- System Hacking
- Writing Trojans And Viruses
- Man In The Middle Attack
- Session Hijacking
- Physical Security
- Hacking Wireless Network
- Linux Hacking
- Novel Hacking
- Penetration Testing
- Cryptography
- Hacking Webserver
- SQL Server Hacking
- Evading IDS & Firewall

ROOMAN TECHNOLOGIES
where Education meets Technology

Bangalore: Rajajinagar-Ph: 080-23423623/23520892 e-mail: training@rooman.net

Basavanagudi: 080-26526933/26602929 Ganganagar: 080-23541369 Jayanagar: 080-26550229 Koramangala: 080-25719121/25701870 Davangere: 08192-221244/55 Shimoga: 08182-226288 Gadag: 08372-238644 Gulbarga: 08472-237877 Mangalore: 3rd Floor, Crystal Arcade, Near Roopa Hotel, Balmatta Road, Ph: 0824-3000888/7/6 Chennai: Nelson Manickam Road, 044 52168797, 52178797 T. Nagar: 044 52170161/2 Delhi: Laxmi Nagar: 011 22017090/22017096 Dwarka: 011-30924450, South Ext.: 011-51004669/4699 Noida: 0120-253852, Punjabi Bagh: Ph 52484321, 5223412 Patna: 0612-252738/2525002 Jamshedpur: 0657 2422512 Trichy: 0431 - 2722333, Tirupati: 0877 262002 Thrissur (Kerala): 0480 3090363 Coimbatore: 0422 394844, Meerut (UP): 0121 3122416/3102826, Bhilai: 0788-2361992/5031312

For details of our franchise network visit: www.rooman.net/vu_learn.php

For further enquiry visit us at: http://www.rooman.net or email training@rooman.net

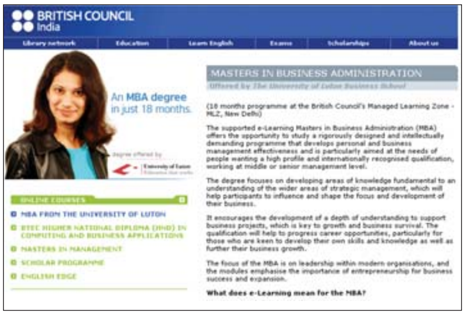
FRANCHISE ENQUIRIES SOLICITED Contact franchise@rooman.net

The University Of Luton Business School (http://snipurl.com/enhance5)

An MBA offered by the University of Luton through the British Council is an attractive option. It's an 18-month programme at the British Council's Managed Learning Zone (MLZ) in New Delhi. The British Council provides support including:

- ◘ A three-day induction workshop at the MLZ in Delhi
- ◘ A voice-to-voice interactive seminar package that gives students tutorial support directly from the staff throughout each semester
- ◘ Luton will also engage local facilitators to meet students for peer group discussions and help clarify doubts—these weekend sessions are held at the British Council.
- ◘ University of Luton lecturers provide a 'Flying Faculty' service, which delivers short overviews of each module, at the British Council in Delhi.
- ◘ All learning material needed for each module are available on CD-ROM, which gives easy-to-follow sections related to the topics and areas of study to be covered.
- ◘ Students will use the university's virtual learning environment, which enables the student to communicate with both the tutor and fellow students.

The course is unique because it provides full interactive support. It costs about Rs 2.8 lakh.



MASTERS IN BUSINESS ADMINISTRATION

Offered by The University of Luton Business School

(18 months programme at the British Council's Managed Learning Zone - MLZ, New Delhi)

The supported e-Learning Masters in Business Administration (MBA) offers the opportunity to study a rigorously designed and intellectually demanding programme that develops personal and business management effectiveness and is particularly aimed at the needs of people wanting a high profile and internationally recognised qualification, working at middle or senior management level.

The degree focuses on developing areas of knowledge fundamental to an understanding of the wider areas of strategic management, which will help participants to influence and shape the focus and development of their business.

It encourages the development of a depth of understanding to support business projects, which is key to growth and business survival. The qualification will help to progress career opportunities, particularly for those who are keen to develop their own skills and knowledge as well as further their business growth.

The focus of the MBA is on leadership within modern organisations, and the modules emphasise the importance of entrepreneurship for business success and expansion.

What does e-Learning mean for the MBA?

The British Council provides full interactive support for Luton Business School MBA

University Of Phoenix Online (http://snipurl. com/enhance6)

Although the University of Phoenix is well-known for spamming, there's nothing illegitimate about it. UOP offers both undergraduate and graduate degrees.

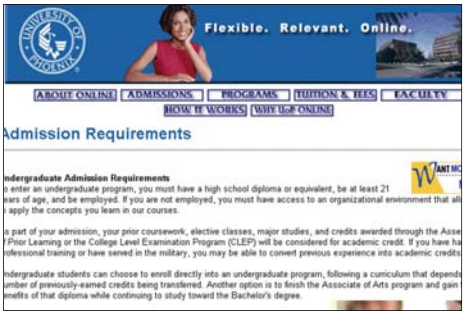
To enter an undergraduate programme, you must have a high school diploma or equivalent, be at least 21 years of age, and be employed. If you are not employed, you must have "access to an organisational environment that allows you to apply the concepts you learn in our courses". As part of your admission, your prior coursework, elective classes, and major studies will be considered for academic credit. If you have had professional training, you may be able to convert previous experience into academic credits.

You will retrieve lectures, questions and assignments from your instructor, and review them offline. Throughout the class, your instructor will also provide guidance and feedback on your progress.

All courses are offered one-at-a-time. Each course lasts five to six weeks, and if you need to take a break at any time, you can. Fees at UOP online are high, though—undergraduate fees are $460 (Rs 20,000) per credit hour, compared to $250 (Rs 10,900) per credit hour at the APU. To see the complete list of courses offered, please visit **http://snipurl. com/enhance4**.

Do write in and tell us if you are already pursuing a degree online so we can share this knowledge with more of our readers! ☒

ram_mohan@thinkdigit.com



dmission Requirements

ndergraduate Admission Requirements

o enter an undergraduate program, you must have a high school diploma or equivalent, be at least 21 ears of age, and be employed. If you are not employed, you must have access to an organizational environment that all apply the concepts you learn in our courses.

s part of your admission, your prior coursework, elective classes, major studies, and credits awarded through the Asse Prior Learning or the College Level Examination Program (CLEP) will be considered for academic credit. If you have ha rofessional training or have served in the military, you may be able to convert previous experience into academic credits

ndergraduate students can choose to enroll directly into an undergraduate program, following a curriculum that depends umber of previously-earned credits being transferred. Another option is to finish the Associate of Arts program and gain enefits of that diploma while continuing to study toward the Bachelor's degree.

UOP is one of the most popular destinations for online degree-seekers

Everybody is looking for security solutions. Their search could end at your stall.
SECURITY
SAFETY
& FIRE

International Security, Safety & Fire Exhibition

December 9-12, 2005, Hall No. 18, Pragati Maidan, New Delhi

DISPLAY PROFILE

•Access Control System •Perimeter Protection Devices •Surveillance Devices •Burglar Alarm System •Explosive Detection & Disposal •Aviation Security •Equipment for Bank and Hospital Security •Information Security Devices •Fire Alarm & Fire - Fighting Equipment •Personal Safety and Crowd Control •Radio Communication Systems •Traffic Monitoring Systems •Training Equipments.

Participation Fee
Shell Scheme - Rs.3900/- Per Sq. Mtr.
(10.2% service tax will be extra)

BOOK YOUR SPACE NOW

For further details, please contact :
Dy. General Manager (Domestic Fairs)
INDIA TRADE PROMOTION ORGANISATION
Pragati Bhawan, Pragati Maidan, New Delhi 110 001 (INDIA)
Tel.: 91-11-2337 1815, 2337 1832, 2337 1814
Fax : 91-11-2337 1860/1492 - 93 Email: itpoml@vsnl.net
Website : www.indiatradepromotion.org or
www.internationalsecurityfair.com

In collaboration with
Central Industrial Security Force (CISF)
Ministry of Home Affairs, Government of India

Giantexplorer.com

Portals are a great tool, especially if they live up to the billing of being a portal

Aditya Kuber

"Explore the world," says the tagline to the portal, and true to this, the site is a veritable one-stop solution to your most-required searches.

Just choose 'Travel' and click on the tab—what follows is a page full of categories and sub-categories that are enough to satiate even a giant's appetite for information!

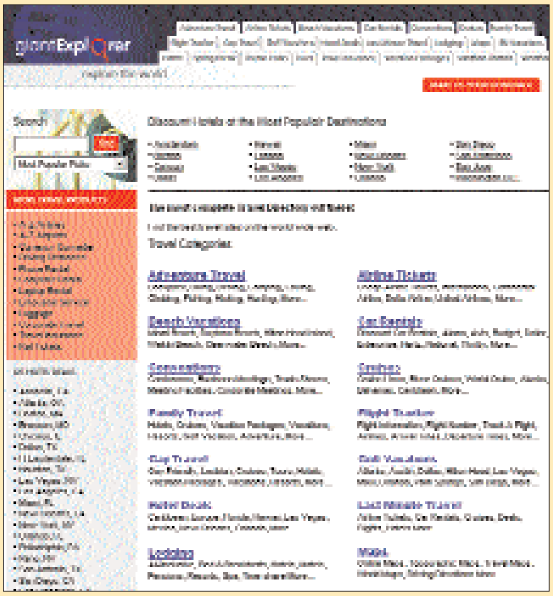
Tabbed Browsing

No, we are not changing focus to the new-age browsers—rather, just making a connection between the layout of the site and the new, preferred way of browsing—tabbed. The top of the page has about 22 tabs ranging from beach vacations to cruises, airline tickets to golf, vacations, and even Gay Travel. And all this in just the 'Travel' tab.

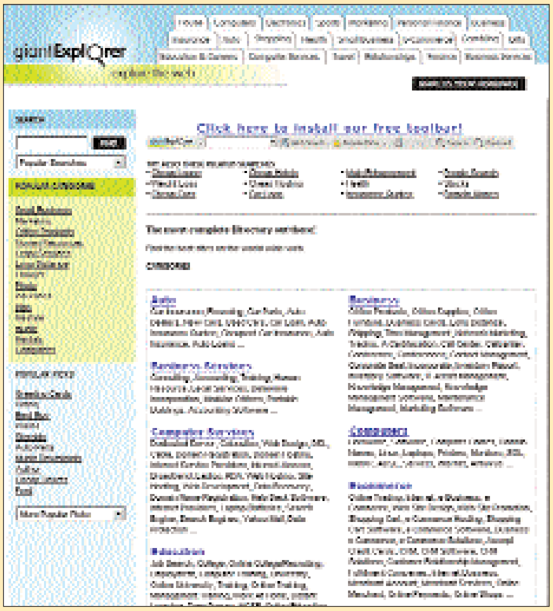
On the homepage, though, the 20-odd tabs are all about different topics ranging from Shopping to Gifts, E-Commerce to Relationships, Sports to Casinos. Why would you want to go anywhere else?

Content

You know us...the first thing we looked for was technology, but a dedicated tab was not to be seen. Could it be possible that this site had nothing to offer on technology?



Want travel info? The Giant's here...



At home with a list that never seems to end!

We decided to do a search and find out. Much to our relief (lest the withdrawal symptoms set in), we were greeted with a page (and a few hundred thousand more) related to technology links.

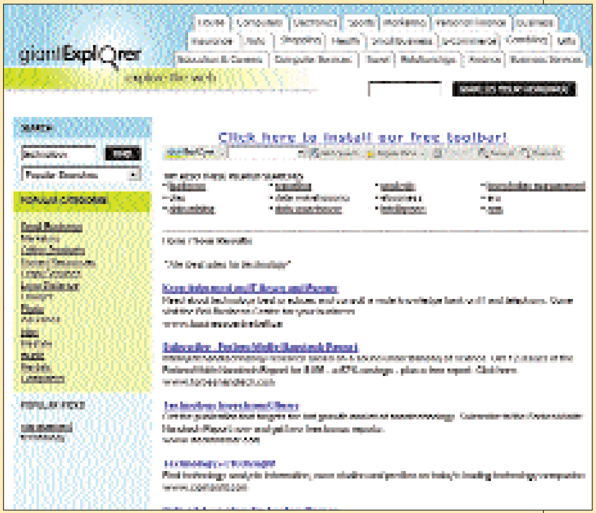
The sub categories found on this site are as 'different' as we have ever seen. Under E-Commerce, for example, the sub-categories were as specific as CRM, CRM solutions, and CRM software, yet as diverse as predictive diallers, telemarketing and Web site design. Had we stumbled upon a goldmine?

Navigation Blues

"For every hole, there's a pile of dirt somewhere else," goes an old saying. It rings truer with every moment we spend on this site. For all the variety and range of information available on this site, the navigation is that much tougher. Fonts (no matter at what screen resolution you are viewing) are uncomfortably small, and we would even hazard saying that there's just too many sponsored links that are not marked clearly. Blind links, if you like. Not very nice, we think.

Fact of the matter is, given the information and links available, traffic will grow eventually, as will ad income. But by leading visitors on a blind chase, return traffic would be scarce. Simple!

Also offered is a free toolbar that you can download and install on your browser for quick access to the Giant! Unfortunately, it did not install on our computers, but we're guessing that's only because our computers have either Firefox or Opera. Maybe it works with IE, but we're not risking turning that on.



Whew! A search on 'technology' got a few thousand links

What About Google?

Well, what about it? Google's still the *numero uno* for searches. And before you ask us why in the world we are telling you about the Giant!, it's best to clarify that a lot of the results we found here were the ones you would probably find only on page 1,457,236,098 using Google. It's worth a shot trying your luck here once in a while.

But the real reason to come here would be the special categorisation of information, and its obvious advantages. Try it out for yourself and let us know what you think—http://giantexplorer.com. ■

aditya_kuber@ thinkdigit.com

Imaging **Pratip Ingale**

A LINUX For Everyone

We test latest Linux distros to find the ideal candidates for SoHo use

Sanket Naik

Not too long ago, Linux was predominantly considered as an operating system for geeks and the idea of installing it on a home desktop was totally alien. Though fervently used on servers, on the desktop side, system administrators were the only humans to accept Linux open-heartedly.

Despite being free to use, Linux never really caught on big time, for, it had grisly hardware compatibility issues, a rustic GUI-in comparison to Windows and Macintosh—a command line interface that asked you to remember thousands of commands and in case you got stuck, and there was no one who could help you out.

However, as with many things, Linux also has undergone a gradual evolution. Most teething problems have been well taken care of. Hardware detection has improved by leaps and bounds and provides better control over your hardware.

The graphical interface has replaced many command line utilities and hence, working with Linux is much simpler today. In case you get stuck, there is a strong community eager to solve your problems, and companies that offer dedicated support.

All these things have helped Linux to elevate its perception from a not so user-friendly OS to a must-try operating system.

Though Linux has evolved into a user-friendly OS, in no way has the taming come at the expense of the stability or flexibility that's inherent to it. This domesticated beast is still potent enough to be deployed on a server and lithe enough to be used on a desktop. This single attribute makes Linux a one-size-fits-all solution and gives it a leg up in comparison to its competitors.

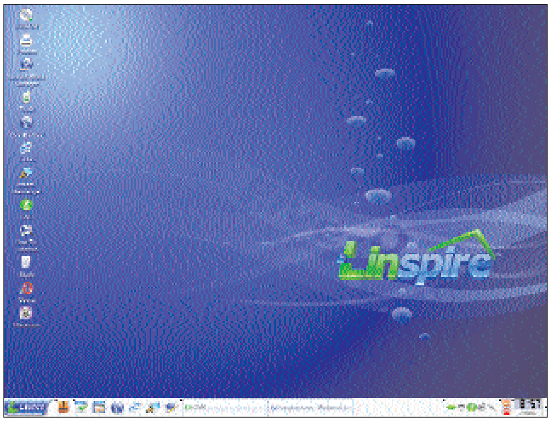
Architecturally, Linux is quite different from Windows, right from its philosophy to the final implementation. It is modular, which makes it powerful, but demands a steep learning curve, from the interested and passionate computer user.

This steep learning curve often happens to be the stumbling block, as many first time Linux users struggle to get past doing mundane tasks such as burning CDs, playing music, accessing shares on a network, etc., which otherwise is a no-brainer on a Windows box. Recent developments were largely geared towards reducing this learning curve and make Linux more approachable.

When it comes to using Linux, the biggest challenge a user faces is choosing the right distribution to start with. Speaking of variety, as of today, there are more than a thousand distributions available. Each of these distributions has its unique characteristics—some are totally geared for server use, others are written from scratch for probing network security, while the majority are aimed towards enthusiastic individuals.

If we want to classify distribution based on usage scenarios then there are three broad categories they distinctly address—beginners, power users and corporate.

In distributions aimed at beginners, the focus is often to make the distro look and feel like Windows, so that first time users can gradually learn the new OS without feeling the shift. This makes the transition from other operating systems to Linux much smoother. However, such distributions are made by companies and hence are often paid propositions, as opposed to the basic philosophy of Linux being free.



Look familiar? That's not Windows; it's Linspire's Interface

For power users, being at the cutting edge matters more than simplicity and hence, the focus is often to provide the best there is in the Linux world. Such projects are community-driven and are free to download and use.

Distro's aimed at the corporate world have a different demand; ease of deployment, availability of patches, good technical support and basic sets of applications for office work are some of the important ones corporate users would look for. These projects need dedicated teams and are often a product from a Linux vendor company such as RedHat, SuSe or Mandrake.

In this comparison, we have looked at some of the best distro's available for the first two categories. For beginners, who want to take the jump in the Linux world, we have Xandros Desktop edition and Linspire 5.0. For power users, we have Fedora core 4, Ubuntu 5.04, SuSe 9.3 professional, RedHat WS, Mandrake 10.1 Power Pack and OpenLx 11.0.

WINDOWS CLONES

To begin with, both Xandros and Linspire (previously knows as Lindows) are targeted towards a Linux newbie and are very different from other distros when it comes to general usability. Both distro's offer a sleeker user interface and introduce some excitement into the otherwise bland UI that other Linux distro's have.

Installation

As with Windows, the installation of Linux also requires you to have a bootable CD with you. Both Xandros and Linspire come on a bootable CD and all you need to do is insert the disc in your CD-ROM and wait for the system to boot.

Once the system boots via the CD-ROM, Linspire presents you with a menu to either install it on your hard drive or run it directly from the CD (as a Live CD).

On the other hand, after booting through the CD Xandros directly goes into hardware detection mode and once that is completed, presents a welcome screen.

After you select to install Linspire, the installer goes

How We Tested

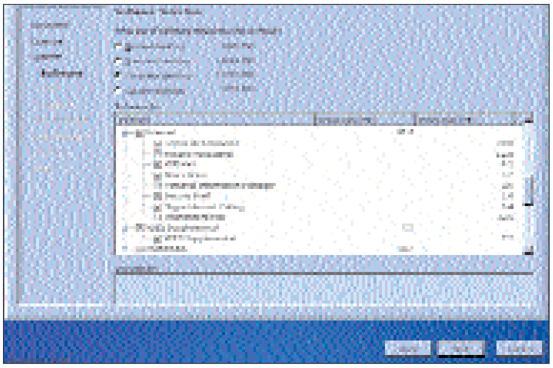
Our testing methodology took into account parameters such as ease of installation, ease of use, out of box usability and to some extent hardware support.

In ease of installation, we checked how simple the installation process is? Does it allow you to choose empty space on the hard drive to install the new OS? How simple is the user interface for partitioning the drive? Does the installer provide any useful hints or information during partitioning of the drive? These parameters are quite critical for a beginner and may not be as important to a power user. To gauge the simplicity of installation we got a non-Linux user to install the OS on one of our test machines.

For ease of use, we took into account general usability of the system. To start with we checked how simple it is to customize the system to your liking i.e. wallpapers, screensavers, applying themes, changing fonts and their size, changing the screen resolutions etc. Once the system was set to our liking we moved on to setting up network connection, proxy settings, configuring the email client, configuring a printer. Then we checked sharing of folders on the network, browsing the LAN network, connecting to the Internet, updating the system by downloading new patches, etc. In the process we tried simulating a typical PC usage.

In out of box usability, we looked at the bundled applications and whether they are enough to carry out your daily chores. We looked for an office suite that can be a viable replacement for MS Office, a messenger client for chatting, a good browser for Internet browsing and some sort of image manipulation application. We also tried connecting a USB flash drive and a Digital camera to check the plug and play capability of these distro's. Overall, the idea was to find out how effective Linux distro's are when it comes to real world scenarios.

Right from its inception, hardware support has been a problem with Linux. It is extremely difficult to test distros on every hardware configuration, so we decided to test these distro's on the latest hardware. The idea was that if they work with the latest hardware, chances are that they will work with older hardware as well. Our testbed comprised of an Intel 3.4 GHz Pentium 4, an Intel D875PBZ motherboard, 512 MB DDR RAM, MSI FX 5200 graphics card, Creative Vibra sound card, SATA 400 GB Hitachi hard drive and Samsung's SyncMaster 173P TFT monitor. The other machine was an AMD FX-53 processor, MSI VIA-based motherboard, 1 GB 400 MHz RAM, Gigabyte FX 5950 graphic card, onboard AC97 sound, SATA 120 GB Seagate drive and a Samsung 17-inch CRT monitor.



Xandros offers a well polished installation interface. Seen here is the application selection window, a la Win98 style

through the routine of collecting necessary data such as keyboard layout, machine name, and administrator password. On the next screen, it asks you which partitioning method to employ. By default, two options are offered, one to completely take over the hard drive and the second, more advanced one, where you can select the partition to which you want to install the OS.

Once you boot from the Xandros CD, you will be presented with a license agreement—quite unexpected! After accepting the license, the installer moves on to the installation selection, where it offers very familiar looking options—express install and custom install, and a small pane at the bottom offers the explanation for the two options.

This resemblance to the Windows way of installing might put off hardcore Linux gurus, but is a boon for first-timers.

If you select custom install, you can select applications to be loaded by default on the next screen. To make it even easier, there are four preconfigured sets such as minimal, standard, full and custom desktops.

Then you move on to the disk partitioning, where you are offered three options, namely use free space, take over disk and manage disk and partition (advance control).

Partitioning used to be the most critical phase during installation of Linux on a PC, the rudimentary interface wasn't intuitive enough and most first time users wound up with a blank hard drive. Not any more.

The disk partitioning in Xandros is worth mentioning and we think even Microsoft can take a lesson or two from these guys on how to make the UI for partitioning simple and functional. Between the two distro's, we felt Xandros offered a much cleaner and polished interface.

Partitioning used to be the most critical phase during installation of Linux on a PC... and most first time users wound up with a blank hard drive. Not any more

Once the partitioning is done, Xandros offers to set up your network, if any, and you can specify your IP address, gateway, and other details, followed by the computer name and administrator password. Following this, you can add a user if you please—we suggest you do so, as using the system with root privileges is never advisable for a newbie.

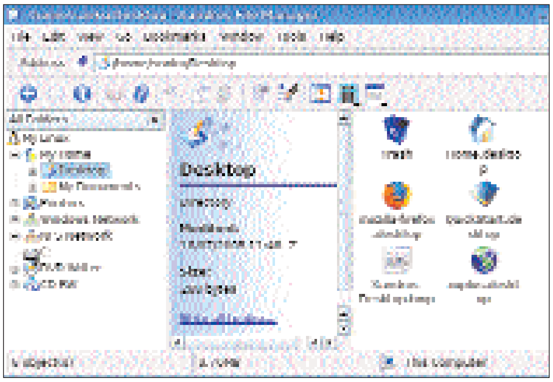
Once all the required information is acquired, an installation summary page shows up in both OSes. Before proceeding to the installation, Linspire confirms twice, and then starts off with the installation procedure, whereas Xandros starts off immediately. Both OSes took almost 30 minutes to complete the installation procedure.

During the installation of files, splash screens convey the features built into Linspire to make it a simpler Linux. Though these things are not of great value, it definitely gives a new user a hint of what he can expect of this new OS.

Rembember, Xandros offers better control over the installation procedure since it allows you to choose applications that you want to install. Linspire, on the other hand, takes control away from users and by default, configures the machine to a predefined state.

Though this could be good for new users, as they do not have to bother about the applications being loaded, advanced users should at least have the option of choosing what to install.

Overall, we think Xandros sets the standard for other Linux distros to follow when it comes to making a Linux installation a sweat-less affair.



Xandros File manager, gives easy acces to your drives, network, shares etc in a simple and elegant manner

Post Installation

Once both the operating systems are installed, a splash screen (with rather big typography) tells you to remove the CD-ROM and press [**Enter**] to restart the machine.

After a reboot, Linspire presents you with the administrator login, entering the password takes you to the next screen—a License agreement. Then the system does the routine task of setting region, time, date and finally moves on the advanced setting tab, where you can create new users and change network settings.

Xandros, on the other hand, starts up with a first run wizard and takes you through setting up and customising of your system.

In Linspire, the first time you log into your system, an audio tutorial makes sure you get a good hold on the various aspects of the new OS. The audio tutorial is comprehensive, with features to forward, rewind or skip through chapters.

Both OSes were able to detect most of our hardware straight out of the box. We did come across some small issues, but they were solved immediately.

Xandros had set the TFT settings to 1024 x 768, but we were able to change it to 1280 x 1024 without any hiccups.

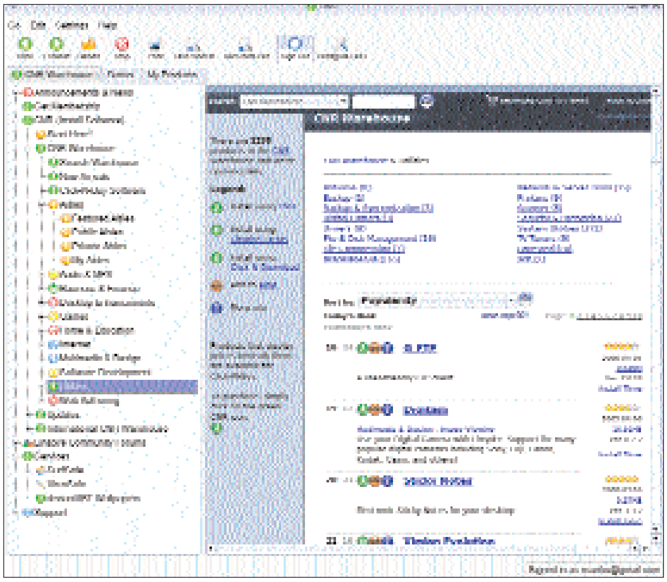
Linspire, for some reason, wasn't able to boot on the 875 machine, but ran smoothly on the AMD machine. Apart from these issues, we didn't face any problems as far as hardware detection was concerned.

Usability

Moving on to the desktop screen, it is hard to believe you are using a Linux distro. The desktop resembles Windows, and you are greeted by familiar icons up front. Purely on visual appeal, we think Linspire beats the pants off all other distros, including Xandros.

Though both of them use the KDE environment, Linsipre has done a commendable amount of work to add eye-candy. Both desktops are well organised and uncluttered, and you have all the necessary icons up front.

A Windows user is so accustomed to the 'Start' button, so to make that relation there's the 'Launch' buttons on both OSes. Click on them and you have the application menu, control centre, recently used applications, and the usual features. While there



Linspire's inspiring CNR service takes away the pain of updating

are certain entries specific to these two OSes, in general, the structure is pretty same. Linspire has done a good job on giving each section such as Games, Utilities or Office, a different coloured icon so that demarcations are distinct.

The Xandros File Manager is good, and is the primary system browsing tool for file management. The left window pane lists your drives, CD/DVD-ROMs, network folders etc. The most important thing is that you can drag-and-drop files on the CD-RW to backup your files—just as you do in windows XP. Linspire uses KDE's Konqueror file browser, but it's nothing great.

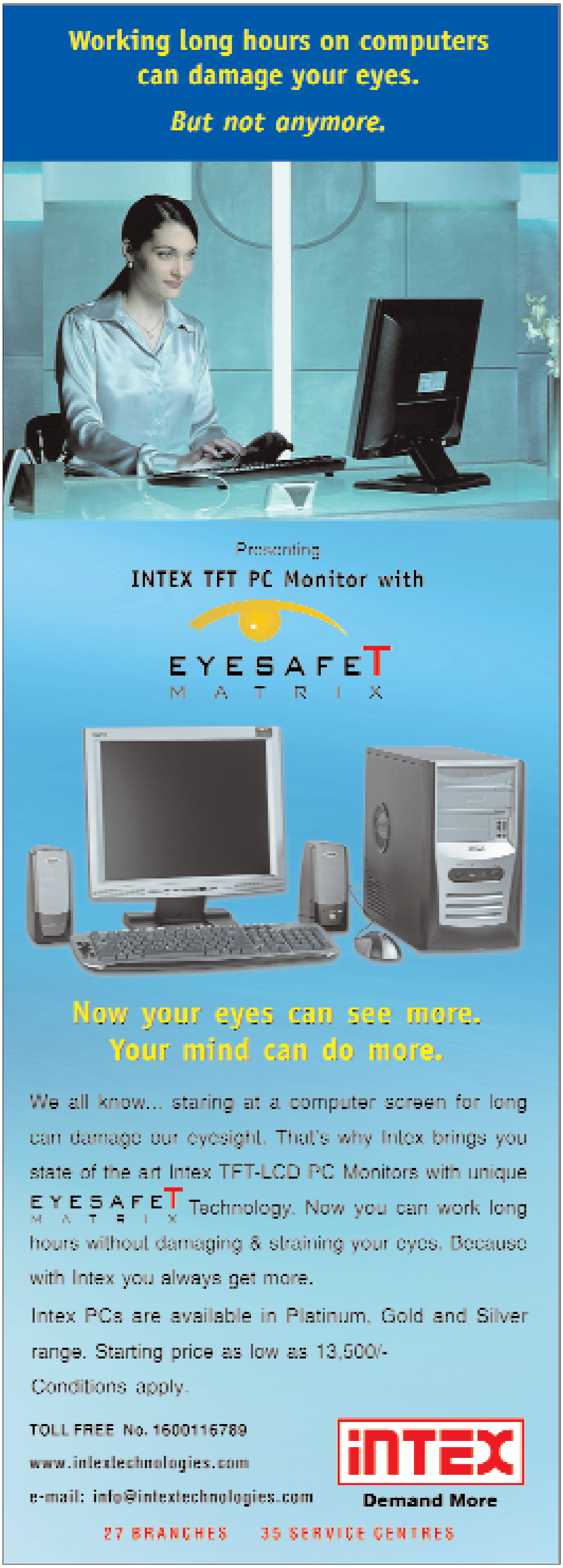
Coming to applications, both OSes offer up-to-date software. OpenOffice 1.1.x is offered by both; though we would prefer to see version 2.0, as it offers features comparable with MS Office. On the browser side, Xandros ships with both, Mozilla as well as Firefox 1.0, whereas Linspire offers a customised version of Mozilla as the default browser.

Linspire comes with the ability to view QuickTime, Windows Media, Flash etc., and we were able to play the movie trailers that offered on the *Digit* DVD. There were two applications that are bundled with Linspire: Lphoto and Lsong. Lphoto is an image organiser and is quite similar to Google's Picasa, whereas Lsong looks like a clone of Apple's iTunes player.

To install more software in Linspire, you need to get a paid subscription of CNR (Click 'n' Run) service. It enables you to search Linspire's repository for a particular application and install it by downloading it via the CNR client. While most applications in the CNR repository are available for free anyway, it is the convenience of installing that matters and hence a new user just has to click a particular software to install it, which can otherwise be a much harder task.

Xandros comes with Codeweaver's CrossOver Office 4.1, which allows you to run Windows-based applications on Linux. You can install MS Office XP, Adobe Photoshop 7, IE 6, Windows Media Player, etc. Xandros network is the tool that helps you organise your installed software, and download newer ones.

Between CNR and Xandros network, CNR offers a simpler and better interface to upgrade and install newer software.


Working long hours on computers can damage your eyes.
But not anymore.

Presenting
INTEX TFT PC Monitor with
EYESAFET MATRIX

Now your eyes can see more.
Your mind can do more.

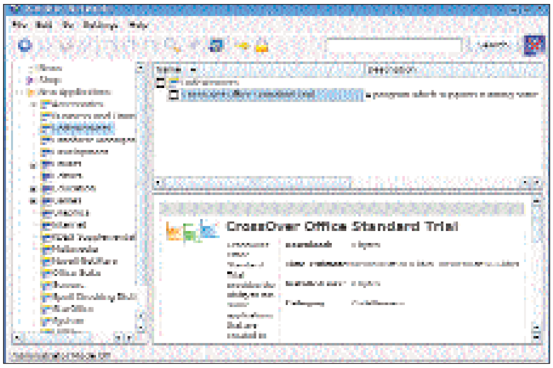
We all know... staring at a computer screen for long can damage our eyesight. That's why Intex brings you state of the art Intex TFT-LCD PC Monitors with unique EYESAFET MATRIX Technology. Now you can work long hours without damaging & straining your eyes. Because with Intex you always get more.

Intex PCs are available in Platinum, Gold and Silver range. Starting price as low as 13,500/-
Conditions apply.

TOLL FREE No. 1600116789
www.intextechnologies.com
e-mail: info@intextechnologies.com

iNTEX
Demand More

27 BRANCHES 35 SERVICE CENTRES



Xandros networks makes software updating effortless

Conclusion

We found both these products quite suited for a new Linux user and recommending a single product is difficult. Both these products are neck-and-neck in terms of features and performance; however, we do think Xandros has something more to offer than Linspire.

Overall, it's a personal choice; if you value eye-candy, Linspire beats Xandros hands down, but if you want practicality then Xandros is the way to go.

Also keep in mind that you need to buy them. While Xandros Desktop OS 3 Deluxe edition is available for $90, Linspire 5.0 with one year CNR membership retails for around the same price. If you want to try these products, they are available on their respective Web sites for download.

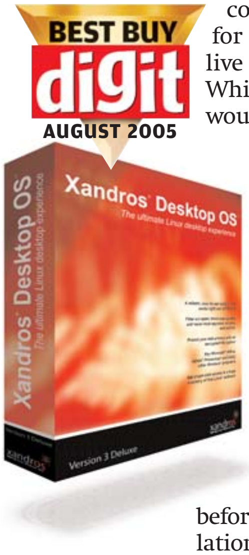
LINUX FOR POWER USERS

In this category, we have Ubuntu 5.04, Fedora Core 4, RedHat WS, SuSe 9.3 professional, Mandrake 10.1 and OpenLx 11.

While Fedora has been the distro that most power users swear by, in recent times, Ubuntu has seen remarkable acceptance by the community and happens to be the number one according to **www.distrowatch.com** poll.

SuSe 9.3, RedHat WS and Mandrake 10.1 have corporate backing and hence are driven by dedicated teams of developers as against the community driven project such as Fedora and Ubuntu.

OpenLx comes from an Indian developer and is based on Fedora core. These distros are targeted at mature Linux audiences that prefer the DIY (do-it-yourself) approach over spoon-feeding. Hence, ease of use, though desired, is not the defining factor as to which is better.



On the other hand, it does not mean that a new Linux user can't try them, but don't expect things to work for you out of the box, a little tweaking here and there will be required.

Installation

Since you have enough experience and confidence on installing these Linux distro's, we think we need to touch up on the important issues without going into the depth of installation as we did for the beginners.

A true blue Linux user is at complete ease with a command line interface (CLI), for he has not only learned to live with it but also to love it. While this is true, a GUi installer wouldn't hurt.

Ubuntu was the only distro in this comparison to come without a GUI-based interface. Though it doesn't hamper the work, we would love to see a nice, simple, point-and-click UI.

Fedora 4, RedHat and the Fedora-based OpenLx come in second when it comes to ease of installation. One good feature they have is to check the installation media for any errors before you actually start the installation. While installing Fedora, we found that CDs 3 and 4 were corrupt. Because we used this disc check feature, we saved a lot of trouble and time.

SuSe and Mandrake have always been ahead of their time, innovating features that make life simpler. Keeping with the tradition, their latest products have the same sleek installer that will win accolades. We think SuSe has done commendable work on their YaST2 (Yet another Setup Tool) module, which is simply fantastic to use.

Apart from Ubuntu, all other distro's here will allow you to choose the packages to install. Is that bad? Not really, since Ubuntu comes on a single CD-ROM while all other distros come on a minimum of four CD-ROMs. So there is nothing much left to choose or discard in Ubuntu—what you get is a fairly configured system.

Partitioning, again, is much simpler in SuSe and Mandrake as compared to Ubuntu, Fedora or OpenLx. The primary reason being the amount of attention paid towards convenience.

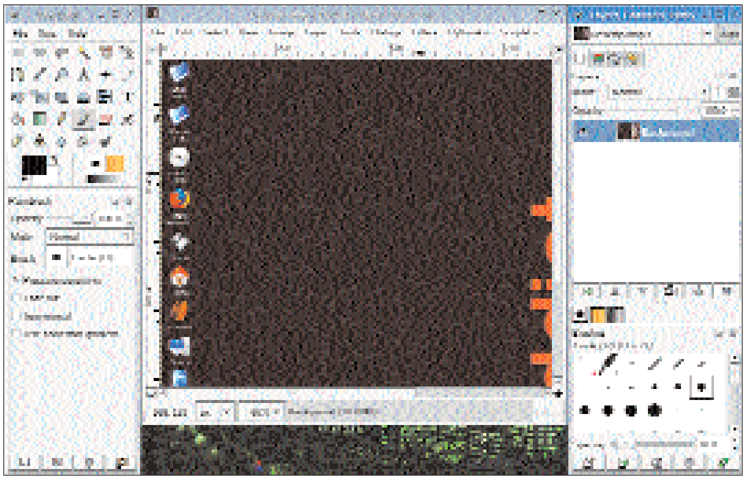
However, bear in mind that although other distros have workable user interfaces, there is still a lot of scope for improvement.

Overall, when it comes to ease of installation it is SuSe that takes centre stage. Its sleek, simple to use interface and granularity in offering control over the installation procedure gives it an edge over other distros.

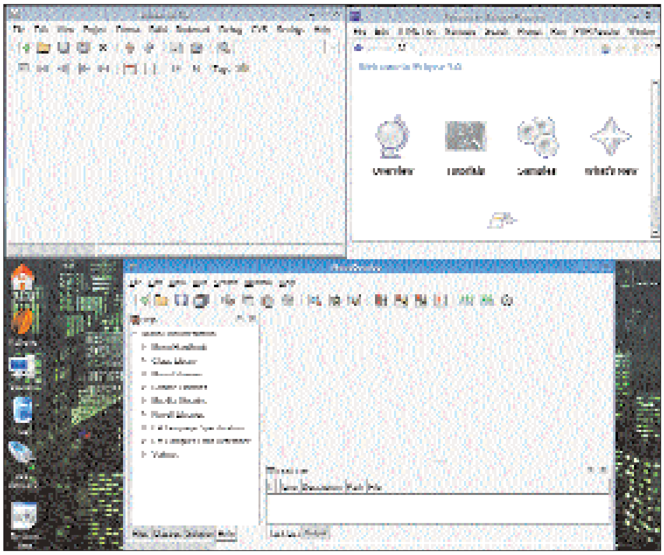
Post Installation

After installing the files, Ubuntu offers to configure your video display and prompts the user for the appropriate resolution to use—we found this really helpful. Once done, a pleasant looking coffee coloured Gnome desktop tickles your senses. "Wow! This is neat...", are the words most people use to describe it.

Ubuntu was the only distro that defaulted to Gnome's 2.10 (geeky) environment—all other distro's invariably use KDE (K Desktop Environment).



The new Gimp 2.2, an Image manipulator for Linux is bundled with OpenLx, SuSe 9.3, Fedora Core 4, Ubuntu etc.



There is a plethora of development tools bundled with OpenLx, such as Mono development suite, Eclipse suite and much more...

RedHat WS, Fedora 4 and OpenLx are pretty much the same and once installed, default to a customised KDE desktop. Apart from a few icons, there is hardly anything that distinguishes WS from Fedora. However, the developer of OpenLx has done some amount of work to distinguish itself from the Fedora core and also convey its India roots.

In Mandrake, once the installation is done, it offers a choice as the default environment—KDE, Gnome or other environments. It also offers to download the latest patches and packages before proceeding to the desktop. Finally, you are asked to take part in a survey and then to agree to the user license before it takes you to a blue KDE desktop.

SuSe also follows a pattern similar to Mandrake, before defaulting to a pleasant green KDE desktop.

On the hardware detection front, almost all distros were able to detect every single component of our testbeds. There were some minor issues though; Ubuntu failed to load once on the i875 chipset machine, but after a reinstall worked perfectly.

During installation, SuSe was able to take 1280 x 1024 resolution on the 17-inch TFT monitor however, once the installation was complete, it defaulted to 1024 x 768 and also detected it as a CRT monitor. Some tweaking with Yast2 solved the problem. Fedora core 4, RedHat, OpenLx and Mandrake were bang-on, detecting everything in the first go.

As compared to last year's Linux comparison, we faced relatively less hardware incompatibility issues this time. This goes to say that the community has done a great amount of work in sorting out driver issues. To give you a perspective: when we connected our 400 GB hard drive to Windows without SP1, it only detected about 120 GB or so, but the same drive was detected perfectly in all these distros. Unbelievable? Better, believe it!

Usability

A lot depends on the environment you prefer, when talking about usability. KDE offers the intuitiveness of Windows, but is a system hog and requires real processing power to run at its best. Also, since most Linux distros are based around KDE, the number of applications that are developed and bundled along with the

BUY 1, GET 30 !!!

You see, every single +ONE PC EX unit, is an external terminal unit which allows you to expand a single PC into 30 PC nodes. All working independently and efficiently, without stretching your budget !!!

+ONE PC EX Benefits

Simple to install.
Does not require extra CPU, hard-drive, etc.
Extremely economical.
Provides data security.
Requires no maintenance.

Features

External installation.
Real time monitoring over DSL.
Proprietary WoIP protocol.
TCP/IP based standard ethernet network.
Hardware & software copy protection.

SPECIFICATIONS

Server Compatible with Win XP / 2000.
Dimensions 21 (l) X 16(b) X 4(h).
Compact, attractive & lightweight.
Low power consumption.

With exclusive UTMA, (Ultra Thin Multi-Access™) technology, the +ONE PC EX allows upto 30 users to run applications, surf web, Office suites, normal multimedia without the complexity of expensive PCs. Great savings and performance combo are now truly possible ! Call us, to help you anytime, anywhere..

ADLINE SYSTEMS
www.adlinesystems.com

Let's Talk...
Call us @ 011-51547279

210 Mahan Chambers, 15A/55, Saraswati Marg,
Karol Bagh, New Delhi - 110 005 (India)
Phone : 011-25720911, 51547279, 9891027399,
9811113897, Telefax : (011)-25720441.
adline@del6.vsnl.net.in / adline@bol.net.in

Dealers Enquiries Solicited

OS is huge. Gnome, on the other hand, is direct in its approach and does not offer any eye candy. Nevertheless, it is functional and is less demanding on system resources.

Ubuntu, as we mentioned earlier, defaults to Gnome and presents a clean desktop interface. Despite the single CD installation that takes only 25 minutes to install, a clean install of Ubuntu provides enough applications to get your work done. It comes with Firefox 1.0 for Internet browsing, OpenOffice 1.1 and Evolution for communications and Gimp is included as the default image manipulator.

On the multimedia side, it includes Totem movie player, Rhythmbox media player, Sound Juicer CD ripper and a volume monitor. A Bittorrent client is also included along with Gaim and Xchat IRC.

Being based on Debian, Ubuntu uses its excellent apt-get package system for updating and installing new applications. If you don't plan to fiddle around in the command line, Ubuntu also includes Synaptic package manager, a front-end tool for apt, which makes installing applications a breeze. By default, the apt repositories are not enabled, and you need to uncomment the lines in the /etc/apt/sources.list file.

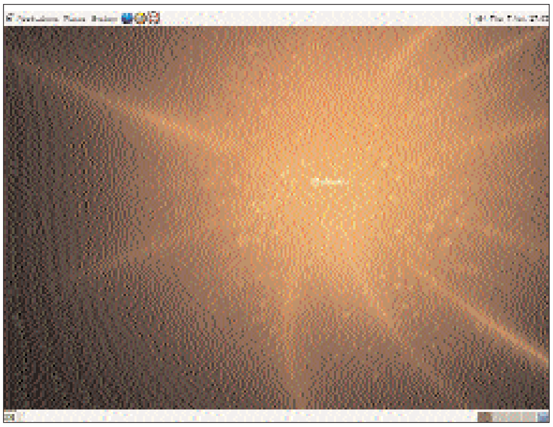
Debian repositories have a huge collection of applications and you can be sure of finding what you want.

Fedora Core 4 and RedHat offer you a choice of using either KDE or Gnome—we preferred the KDE version. Both come on four CD-ROMs and hence, during installation, if you choose to install all packages, it takes around two-and-a-half hours. With that many applications installed, you will never have to hunt for more!

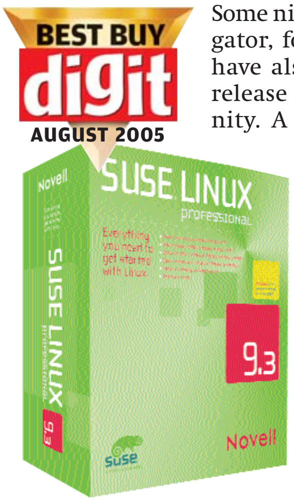
To give you an idea, the menu will reveal 30 apps in the accessories section, 11 games, 16 graphics related software, 19 Internet related software... the list goes on.

Contact Sheet: Linux Distributions

Distro	Web site	Contact Information
Linspire 5.0 CNR Edition	www.linspire.com	G.T.Enterprises Tel No: +91-80-2669 5890/91/92/ 93/94 Fax : +91-80-2669 5887
Xandros Desktop OS 3	www.xandros.com	
RedHat WS	www.redhat.com	
Mandrake 10.1 Power Pack +	www.mandrake.com	
OpenLx 11.0	www.openlx.com	
SuSe 9.3 Professional	www.suse.com	
Ubuntu	www.ubuntulinux.com	Download from Web site
Fedora	http://fedora.redhat.com	With *Digit* DVD this month



An iconless desktop from Ubuntu enhances appeal without compromising on funtionality



Some nifty tools such as the Akregator, for collecting news feeds, have also made it to this latest release from the Fedora community. A new tool called Yum is also included for easy system update and get the latest patches.

OpenLx is also based on the Fedora core, but has some good features bundled with the OS. An evaluation version of Kalculate, a financial accounting application is provided with the OS. This distro also bundles dozens of development kits such as Mono development, Eclipse, etc., an audio visual editor such as hydrogen, and Blender, a 3D modelling suite. The Clamav anti-virus software is also offered in the pack. Overall, we found the list of packages to be more than enough for anyone to use.

SuSe and Mandrake have always believed in offering the best possible collection of applications along with their OS. SuSe 9.3 professional does not disappoint on that count. Just to check, we decided to install all the applications provided in the SuSe DVD, and it took about three hours to install! It would be safe to say that they are more than enough applications available for a life-time!

We found SuSe to be up-to-date as far as applications are concerned. It had KDE 3.4 and Gnome 2.10. OpenOffice version 2.0 also made it into this distro, and we were glad that we wouldn't miss the 'format painter' feature that was missing in the previous versions of OpenOffice. Though the splash screen says OpenOffice 2.0, in reality, it is 1.9.X.X—a stable version of 2.0 is still awaited.

Beagle, a desktop searching utility and XEN, a virtualisation tool for the Linux operating system are some of the highlights of SuSe 9.3 professional, and should please true power users. Beagle is switched off by default and you need to create an empty .runbeagle file from Gnome to make it work.

We plugged in a flash drive into each of these distros to see the reaction and to our disbelief, it was auto-mounted and a temporary desktop icon was created, through which you could access the data. Our similar attempt with a digital camera, however, did not work. We tried setting up a network printer, and in most cases, the result was failure. A lot of work still needs to be done on all these distros.

Conclusion

To compare Ubuntu with either SuSe or Redhat would be unjust. So, we further classified this category into free-to-use and paid distros.

Ubuntu and Fedora fall under the free to use category, and both are projects driven by the community. When it comes to the number of applications that are bundled with them, Fedora seems to be your best bet. Ubuntu, on the other hand, provides what's necessary and you can upgrade your system as per your needs later on.

Ubuntu is doing well right now, and its success will depend entirely on the efforts of this community. From our limited experience with the community we can say they are quite active and you can expect a quick response to your queries. We bet our money on Ubuntu.

So we are left with RedHat WS, OpenLx SuSe 9.3 professional and Mandrake 10.1 as paid distros. Here, the verdict is clear—SuSe wipes the floor with the competition and wins, thanks to the truck loads of software bundled, cutting-edge features such as XEN, beagle and up-to-date software. However, this, under no circumstances undermines the efforts made by OpenLx and RedHat to offer well-rounded Linux solutions.

Moreover, since you will be coughing up cash, having a support system in place gives peace of mind and SuSe has a good presence in India via Novell, which unfortunately, can't be said about Mandrake. ☒

sanket_naik@thinkdigit.com

Tips & Tricks

SECRETS THAT KEEP YOU AHEAD IN THE RACE

GENERAL TIPS
Gmail 69
Photoshop 72
Photoshop CS Shortcuts 73

30 MINUTES EXPERT
Back up Your DVDs Using ratDVD 71
Make A Web-based E-mail Form Using PHP 74

Gmail

Sign Out Properly

In Netscape, Mozilla and Firefox, if you close the Gmail tab, not the window, you're still signed in. Anybody can open a new tab and go to Gmail and automatically get logged into your account. It's therefore a good habit to sign out from a Gmail session by clicking the 'Sign out' link on the top right corner.

Compose In A New Window

Pressing [**Shift**] brings up a new window for composing. This is assuming your pop-up blocker is off. For example, when you press [**Shift**] and click on 'Compose Mail', a new window pops up for composition. You can also use [**Shift**] in conjunction with 'Reply', 'Reply All', and 'Forward'.

A Secure Gmail Session

Gmail lets you have a secure HTTPS session via https://gmail.google.com. Use this link if you're paranoid about security!

Return To The Inbox

To return to the inbox, you can, of course, click on the 'Inbox' link on the left-hand side, or if you're in conversation view, click on the 'Back to Inbox' link above the conversation.

There is a green 'Inbox' label text next to the subject. You can also click the Gmail logo, a much larger target, to go back to the inbox. Clicking on the logo, the 'Inbox' link, or the 'Refresh' link will refresh the 'Inbox' with the latest messages received.

Selecting A Sub-Conversation

Have you ever had a long, multi-person conversation, and you wanted to concentrate on a particular sub-conversation with one person?

Let's say you e-mailed three of your friends, Aditya, Bob, and Renuka, with the subject "Going okay?" and asked them all "How's it going with you?".

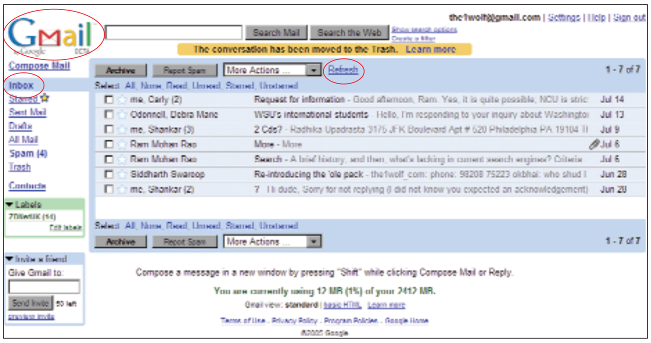
They all replied back and now you've gotten into three separate sub-conversations, all within the same Gmail conversation. There is an easy way to concentrate on your sub-conversation with, say, Aditya. Simply do the following search (without the square brackets):
[subject:"going okay" (from:aditya OR to:aditya)]
Then when you click on the conversation, it will open up with only the matching messages expanded.

The "to:" operator finds stuff in the to/cc/bcc fields. If you also cc-ed or bcc-ed Aditya in other messages that you don't want to match the search (e.g. in your messages to Bob and Renuka), then do the search:
[subject:"going okay" (from:aditya OR (to:aditya -cc:aditya -bcc:aditya))]
The "-cc:aditya" and "-bcc:aditya" terms eliminate the possibility of matching on messages cc-ed or bcc-ed to Aditya.

Sending Shortcuts

Send mail to fellow Gmailers by entering the username in the 'To', 'Cc', or 'Bcc' area. There's no need to include '@gmail.com'!

If your e-mail address is firstname.lastname@gmail.com, and now you wish you didn't have the period, you're in luck. For some reason, Gmail treats that e-mail address the same as one without a period (and vice-versa), so firstnamelastname @gmail.com works just as well as firstname.lastname @gmail.com. Gmail is flexible with regards to capitalisations, too!



The conversation has been moved to the Trash. Learn more

me, Carly (2)	Request for information - Good afternoon, Ram. Yes, it is quite possible; NCU is stric	Jul 14
Odonnell, Debra Marie	WSU's international students - Hello, I'm responding to your inquiry about Washingto	Jul 13
me, Shankar (3)	2 Cds? - Radhika Upadrasta 3175 JFK Boulevard Apt # 620 Philadelphia PA 19104 Tl	Jul 9
Ram Mohan Rao	More - More	Jul 6
Ram Mohan Rao	Search - A brief history, and then, what's lacking in current search engines? Criteria	Jul 6
Siddharth Swaroop	Re-introducing the 'ole pack - the1wolf_com: phone: 98208 75223 okbhai: who shud I	Jun 28
me, Shankar (2)	? Hi dude, Sorry for not replying (I did not know you expected an acknowledgement)	Jun 20

Compose a message in a new window by pressing "Shift" while clicking Compose Mail or Reply.

You are currently using 12 MB (1%) of your 2412 MB.

Gmail view: standard | basic HTML Learn more

Terms of Use - Privacy Policy - Program Policies - Google Home

©2005 Google

Click any of the three areas indicated to see a refreshed Inbox!

Searching For Names

In Gmail, "or" is not the same as "OR". Only the capitalised version (sans quotes) will work with searches. Also, the actual search terms are not case-sensitive. "adi" works just as good as "Adi". Using the same example, it's important to realise that the search engine of Gmail does not search partial words. So "adi" will not find "Aditya".

Performing Actions On A Group Of E-mails

Let's say you have 150 e-mails, listed over two pages (100 maximum per page), and you want to archive all of them.

You might make the mistake of clicking 'All', then hitting 'Archive' and thinking that this would do the trick. It doesn't. Commands such as 'Trash', 'Archive' or 'Label' only affect items that are both selected and on the page you're currently viewing.

Don't forget that when you archive or label e-mail, you're affecting the entire conversation of e-mails by default. If you want to trash just one of the e-mails in a conversation, you can do this by expanding that particular e-mail, clicking on 'More Options', and then clicking 'Trash this message'.

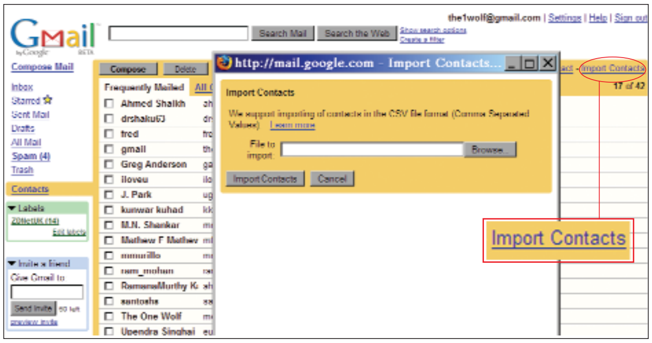
Importing Contacts Into Gmail

To import contacts into Gmail the 'official' way, you'll need to export a CSV file from your other mail account, and then import it into Gmail.

To import your Yahoo! Mail address book, save your file as a Yahoo! CSV. Instructions are available in the Yahoo! Address Book help section at: **http://snipurl.com/gefa**

Here's a way to export your contacts from Hotmail to Gmail.

Using Internet Explorer:
Sign in to your Hotmail account. Click the 'Contacts' tab. Click 'Print View'. Align the cursor with the first letter of the 'Name' column. Highlight your contacts by holding down the cursor and



We support importing of contacts in the CSV file format (Comma Separated Values) Learn more

You can, with a little work, import your contacts into Gmail

dragging it down the list. Hold down [**Ctrl**] + [**C**] to copy the list. Open Microsoft Excel (or a similar spreadsheet program that supports comma separated values).

Select cell A1 in Excel. Hold down [**Ctrl**] + [**V**] to paste (don't use 'Paste Special'). Choose 'Save As' from the 'File' menu, and select the type 'CSV (Comma delimited)'. Make a note of where you saved the file.

Using Mozilla Or Firefox:
Sign into your Hotmail account. Click the 'Contacts' tab. Click 'Print view'. Align the cursor with the first letter of the 'Name' column. Highlight your contacts by holding down the cursor and dragging it down the list.

Hold down [**Ctrl**] + [**C**] to copy the list. Now, open either Microsoft Excel or a similar spreadsheet program that supports comma separated values.

Next, select cell A1 in Excel. Right-click inside cell A1 and select 'Paste Special'. Select 'Text', and click 'OK'. Choose 'Save As' from the 'File' menu, and select the type 'CSV (Comma delimited)'. Make a note of where you saved the file.

To Export A CSV File From Outlook And Outlook Express:
Here are some general directions to follow, though instructions may vary by version. For more detailed instructions, open 'Help' in Outlook or Outlook Express and type 'export' in the search box. Look for topics including 'export wizard', 'export information', 'exporting contacts' or 'exporting address book contacts' in the title.

From Outlook:
Select **File > Import/Export > Export** from the main menu. Choose Comma Separated Values (Windows). Select 'Contacts', and save the exported file.

From Outlook Express:
Select **File > Export > Address Book** from the main menu. Select 'Text File' (Comma Separated Values). Next, click 'Export'.

Importing A CSV File Into Gmail:
Log into Gmail and click 'Contacts' on the left side of the page. The Contacts list then opens in a new window. Click 'Import Contacts'. Click 'Browse' and locate the CSV file you'd like to upload. Select the file and click 'Import Contacts'. After successfully uploading the document, a dialog box displays the number of new entries that were added to your Contacts list.

An Easy Way To Import Contacts

There is a super-easy way to add your existing address book from your old e-mail account (Yahoo, Hotmail, or any other) to your Gmail contacts list.

Here's what to do: first e-mail everyone on your list including yourself at your new Gmail address. Say something like: "I'm going to be switching e-mail addresses to my new Gmail account." Then, 'Reply All' to that e-mail from your Gmail account. Tell everybody, "This is my new Gmail account." Everybody you e-mailed will then be in your Gmail contacts list.

Use '+' to separate mails

Gmail filters can separate mails sent to name+someword@gmail.com and name+anotherword@gmail.com. For example, give your Gmail address to Amazon and eBay as name+amazon@gmail.com and name+ebay@gmail.com respectively, and then you'll be able to filter the mails from Amazon and eBay.

Selecting Many Mails At Once

Suppose you have many mails to select (say for archiving them). In Gmail, select the first mail, press [Shift] and select the last mail. All mails between the first and the last will be selected, just like in ordinary desktop applications.

The Gmail Notifier

The Gmail Notifier is a downloadable Windows application that alerts you when you have new Gmail messages. It displays an icon in your system tray to let you know if you have unread Gmail messages, and shows you their subjects, senders and snippets, all without your having to open a Web browser. Download it at **http://snipurl.com/gefx**

Use Gmail As Your Default Mail Client

G-Mailto is a utility that automatically associates "mailto" e-mail links on the Web with Gmail. So clicking an e-mail link will open the Gmail compose window instead of opening, say, Outlook Express, that doesn't work with Gmail (yet). If you are not logged in, it will bring you to the Gmail login screen and redirect you to the compose window after you log in. Download the utility here: **http://snipurl.com/geg5**

All About Labels

Gmail lets you assign a Label to a message and then view all messages assigned to that Label. Sounds a lot like the typical 'Folder', but unlike Folders, you can assign multiple Labels to a message, thus letting the message span multiple categories.

To better understand how Labels differ from Folders, consider the real-world counterparts, and it should become clear.

Say, you have a desk full of paper messages, some messages are from family members, and some are jokes that your friends have sent you. Using the Folder model to categorise the messages, you would create one folder called 'Family' and one called 'Jokes'. You would then look through the paper messages and file them accordingly.

When you want to look for a message from your father, you just look in the 'Family' folder. But what if one of the messages is from your mother, and it's a joke or a forward? Which folder do you file it in?

Now, instead of having folders, say, you have sheets of labels, some marked 'Family' and some marked 'Jokes'. You affix 'Family' labels to all messages from your family, and you affix 'Jokes' labels to all messages that are jokes.

Your mother's message now has two labels on it. When you want to see all Family messages, you just look at all the messages that have 'Family' labels. Some may also have 'Jokes' labels, but you don't care because you are interested in your Family messages.

Likewise, when you grab all the messages labelled 'Jokes', some may also have 'Family' labels, but again, you don't care because you are looking at Jokes. Further, if you only want to look at jokes from your family, you look at the messages with both 'Family' and 'Jokes' labels.

But Gmail lets you assign multiple labels to a message! So just put one or more Labels on a message, and finding it later becomes much easier. You can add a Label to a message in one of two ways:

- If you are viewing a message listing, you can just

30 Minutes Expert

Back Up Your DVDs Using ratDVD

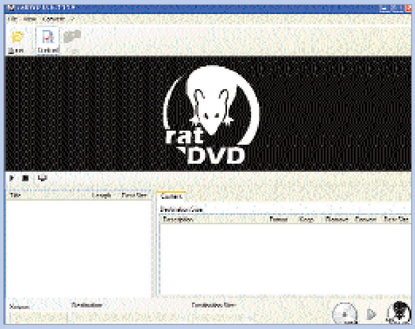
Want to shrink your DVD and yet retain the menus and other features? ratDVD tells you how...

Varun Dubey

Apart from good quality, what is the biggest USP of a DVD?

Undoubtedly, it is the ability to resume from a specific location, the menus, the scene selection and additional goodies including the "making" of the movie, bonus tracks, and scenes. All of it is packaged to prompt people to pay the significant price difference and buy a DVD instead of a VCD.

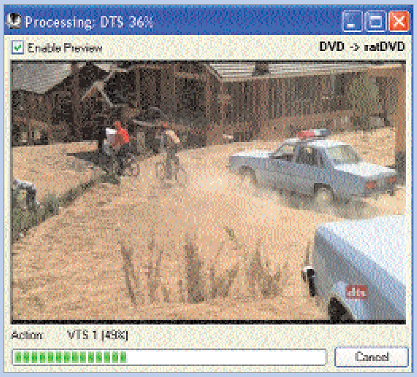
Now, the quality you get when you copy your disk on to your laptop in the avi format is exceptional, but what about the menus and other goodies? Really Advanced Technology DVD, or ratDVD, does just that!



The default screen of ratDVD

It creates a container file, a concept akin to file zipping, which maintains the quality of an avi file while providing you with a full-fledged DVD experience in terms of menus and navigational features.

To make the concept extremely simple, we can say the ratDVD zips your DVDs and allows you to watch them as and when you see fit. This is not to say that the compression is lossless. It is lossy, but the difference is not really noticeable unless you get picky or get a file which is roughly a third of the size of your DVD!



Monitor the enconding progress

STEP 1

What You Need And From Where?

The software is called ratDVD and is available for download at **www.ratdvd.dk** It has been developed by a group of programmers (aren't they all?) who have decided to keep themselves anonymous for fear of a lawsuit from media giants...

STEP 2

The Software And The Interface

The software uses freeware or proprietary encoding methods and creates a .ratDVD file, which is playable via the ratDVD player or through several others (through force play—which is when the software says, "This file is not supported, try playing anyway?" So you say "Yes"!)

The interface is remarkably simple for software that does something no other software has hitherto been able to accomplish (although DivX 6 employs menus, they are no match for the ratDVD).

The window contains three file explorer-type panes and is dominated by the preview pane where you can watch the movie you are er... ratting!

The bottom two panes show the DVD content and individual file settings when the DVD file has been loaded into the software. The software shows the duration and size of each file and also the size of the final file.

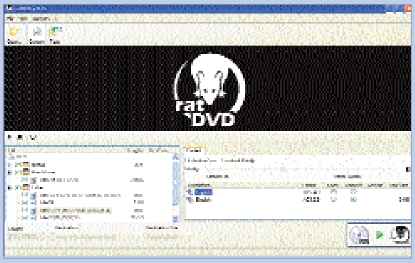
STEP 3

The Settings

The software allows you to open only .ratDVD files and DVD Video Files (such as Video_TS.ifo). It doesn't support MPEG and others. That's OK, as it's supposed to zip DVDs!

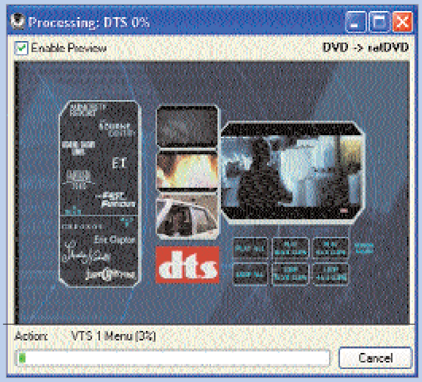
On opening the Vide_TS file, it gives a list of files on the DVD and the content of each file (in terms of audio streams) on the right-hand side.

You can choose to keep or delete the various Audio streams (it's best to keep the DTS 5.1 and delete others for best audio quality, unless, you are low on space, then you should only keep the AC3 2.0 2 channel audio.)



Select the movie file from the given list

It has a neat slider—it is by default set to zip the file with 95 per cent retention of quality, but you can slide it at 100 per cent file size and beyond. This results in bloated file sizes sans any significant increase in quality.



Play your ratDVD file

The most interesting feature of the ratDVD is that you can individually select audio channels for each video file. If there's a video file you don't like very much, you can downgrade the audio quality to reduce the file size. It's best to remove video files that you don't want and to do so, simply uncheck the file in the left pane.

STEP 4

Convert

To convert the file, simply click the bottom right icon. The software closes this window and opens up another conversion window which is a preview pane and by default, shows the movie preview as it gets ratted in the background. There is a tiny little check box on top, which when unchecked, shows the ratDVD logo while the file is converted.

varun_dubey@thinkdigit.com

click the checkbox next to the message, click on the 'Apply label…' dropdown, and select the Label you want to apply. Gmail will display the Label just to the left of the message's subject.

- If you are viewing a message, just click on the 'Apply label…' dropdown, and select the label you want to apply. Gmail will display the new label to the right of the subject line.
- To remove a label, select 'Label View' from the Labels box on the left, 'select' the specific message by clicking the checkbox next to the message, and then click on the 'Remove label xxx' button at the top of the listing. Your label will now be removed.

But where did the message go? It's no longer in the current view. If the message had one or more other Labels assigned, it will still show up in those Label views. If not, you will find it in the 'All Mail' view.

Auto-Forward Gmails

Would you like to use your Gmail account as your main e-mail account, but have some or all e-mail auto-forwarded to other accounts? Gmail has the ability to forward received e-mails in two ways, viz., 'All' or 'Selective'.

'All' Forwarding

This is a global setting that lets you optionally forward all received e-mail to another e-mail address. Click the 'Settings' link, and click the 'Forwarding' tab.

Here, you have the option to 'Disable' or 'Enable' e-mail forwarding. Click 'Enable', enter the e-mail address to which you want to forward the mail, and then select one of the following self-explanatory actions from the associated dropdown:

- Keep Gmail's copy in the Inbox
- Archive Gmail's copy
- Trash the Gmail's copy

'Selective' Forwarding

Filters have also been enhanced with a new 'Forward it to: e-mailaddress' action letting you selectively forward e-mails based on the filter criteria. You can use the same or different e-mail address for each filter if you choose, providing very powerful e-mail management.

For example, you get statement notifications from a bank, and you would like to auto-copy it to your wife. Just set up a filter to select e-mails with the bank's sending address and then select the 'Forward it to:' action, and enter your wife's e-mail address. Now, she will get notified!

All About Filters

You can create up to 20 filters to manage the flow of incoming messages. Use filters so that certain messages bypass the inbox, are automatically labelled, or both. You can also automatically forward messages to another e-mail address using filters. Filtered messages remain archived and searchable.

To set up a filter, click 'Create a filter' to the right of the 'Search the Web' button. Next, enter your filter criteria in the appropriate fields. When you click 'Create Filter', a list of messages that match your filter appears.

After you create a filter, the filter rules are applied automatically to new messages in your inbox. You can change your filters at any time by clicking 'Settings'.

To edit filters, click 'Settings' at the top of any Gmail page. Click 'Filters' along the top of the orange 'Mail Settings' box. Click 'edit' next to the filter you'd like to update. Enter the new criteria for the filter in the appropriate fields, and click 'Next Step'. Choose an action for the messages to take, and click 'Update Filter'.

Photoshop

Embossing Type

Start by creating a new file. Fill it with a light colour. Change the foreground colour to a darker version of the background colour. Use the type tool to enter the same type.

Select **Filter** > **Blur** > **Gaussian Blur**. Use a value of 1, for example. Now change the foreground colour to white. Use the type tool to enter the type again. This will be the highlight. Select the move tool and position the white type up and to the left of the darker type. Select the eye dropper tool and click on the background of the image.

Use the type tool to once again enter your type. Select the move tool and move the type between the fore and background type.

Superimposing Layers

Open up any image to be used as a background. Open up another image you want to superimpose. Select the paths palette. Select the pen tool from the tools palette. Click all round the image, outlining it.

From the paths palette, select 'Load Path As A Selection'. Click **Select** > **Feather**, and choose a number, say 20. From the paths palette, select 'Turn Off Path'. Copy the selected image by pressing [**Ctrl**] + [C]. Now paste the image into the background image pressing [**Ctrl**] + [V]. Under the layers palette, drag the opacity bar to make the image blend into the background.

Drop Shadows

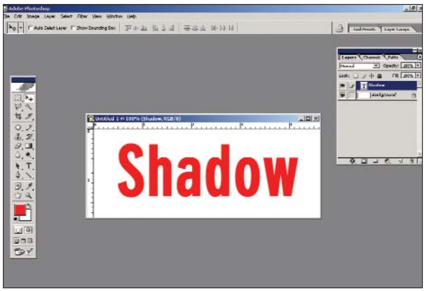
Create a new file. Create a new Layer. On the new layer, create the type font you want to use. Duplicate the layer with the type. You should now have 'Layer 1 copy' over 'Layer 1'. Select 'Layer 1', the bottom layer.

Press [**Shift**] + [**F5**] to fill in the type, use black and preserve transparency. Offset the layer a bit using the move tool. Select **Filter** > **Blur** > **Gaussian Blur**. You can use a value of 2.5. If you want a softer shadow, select a higher number.

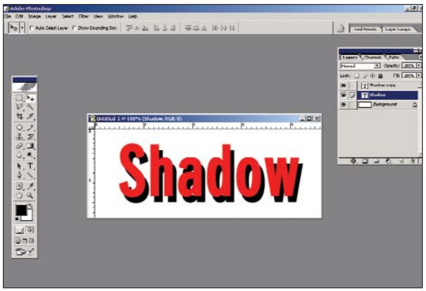
Creating Borders

Open up the photo or image you want to create a border around. Click the 'Quick Mask' mode button in the Photoshop toolbox. This will create a 'Quick Mask' channel in the 'Channels' palette.

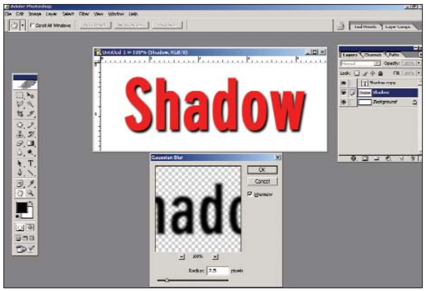
Choose the rectangular marquee tool in the Photoshop toolbox. Select an



This is a image we start off with. We need to create a drop shadow without using a filter



At this point, we have duplicated the layer with a black fill behind the original layer



We then apply a Gaussian Blur to make the shadow effect look more realistic area in the centre of the image. Choose 'Fill…' from the 'Edit' menu. Fill the selection area with black at 100 per cent opacity.

Choose 'None' from the 'Select' menu to deselect the area. Then choose 'Gaussian Blur…' from the 'Blur' submenu in the 'Filter' menu. Use a radius setting of between 10 and 20 pixels. You have now applied the 'Gaussian Blur' to the 'Quick Mask' channel.

Select a special effects filter from the 'Filter' menu. For example, you can use the 'Sprayed Strokes'. Since you are still in the 'Quick Mask' mode and there is nothing selected, only the 'Quick Mask' channel will be affected by the filter.

Click the 'Standard Selection Mode' button in the Photoshop toolbox. This will select the area of the image that is not masked by the 'Quick Mask' channel. Fill the area with a background colour, and you're done.

Glowing Type

Start with a new image and fill it with your background colour. Create a new layer and use the 'Type Mask' tool to enter your text. Use **Select** > **Modify** > **Expand** to expand the 'Type Mask'.

Now feather the selection: **Select** > **Feather**. Use '4', for example. Fill the selection with a colour of your liking for the 'glow'.

Now that you have your glow, use the 'Type' tool in the 'Layers' mode and enter your text again using any colour. Play with the 'Expand' and 'Feather' settings to create suit your preferences.

Dotted Lines

Here's a simple way to create dotted lines. Open a new document, any size, say 200 pixels wide and of any height. First of all, choose the pencil tool to make sure the settings apply to this set of brushes. Before doing anything else, be sure to save your brushes if you have a fancy set of brushes that have been already tampered with. You will be playing with the settings and it is always nice to be able to load your previous set.

Double-click on the second smallest brush in the palette window. Your palette should look rough as we are working with the pencil tool.

The smoother brush version will come later. You are now viewing the brush options. The important change you need to do for the dotted line effect is the spacing. Simply change the 'Spacing' option to 250 per cent. Here, you can enter any figure up to 999.

Now, simply draw with your pencil and you have your dotted line! To make sure your line is straight, hold down the shift key while you draw the line. Another technique is to single-click your starting point and then while holding the shift key, single-click your ending point; Photoshop draws the dotted line between the two points.

Switch over to the Paintbrush and see that the same effect is created, only with smoother anti-aliased dots. All of the same options also apply to the Airbrush tool as well.

Along with the size and spacing of the dots, if you need to do dotted lines with an oblong shape that are on an angled line, simply change the angle of the brush. Just like a calligraphy pen, you can change the angle of the stroke of your brush; however, in this case it changes the direction of the dot in your line.

Create A Textured Background

Start by creating a new image, 200 x 200 @ 72 dpi. Switch to the channels palette and create a new channel. With the new channel active, apply the 'Noise' filter and adjust the levels till you get the effect you desire. Return to the RGB channel and apply the Lighting effects filter:
Lighting Source: Directional
Intensity: 20
Focus: 50
Gloss: 100 (shiny)
Material: 75 (plastic)
Exposure: 45
Ambience: 13
Texture Channel: #4
White: high

Now that you have your texture, apply offset 100 to the left and 100 down, making sure 'Wraparound' is checked. Once you have applied the Lighting filter you also need to colour your new background.

To do so, create a new layer and fill with the colour you want your background to be. Go to the layer palette and change the 'Layer' mode to 'Color Dodge'. And there you have it—your textured background!

Wrapping Text In A Circular Fashion

Starting with a new image, place your text making sure it just touches the left edge of the image. Now go to the 'Layers' palette and uncheck 'Preserve Transparency', with this option unchecked you can now wrap the text.

But first, we must re-scale the text so that when it is wrapped it does not look squashed. Go to **Layer** > **Transform** > **Scale**, and increase the height of the text by about one half.

Now we need to make a square selection around the text. Use the marquee tool and press [Shift] while drawing a perfect square around the type. If the selection is not centred on the text, just right use the arrow keys to adjust it.

All that is left now, is to apply **Filter** > **Distort** > **Polar Coordinates** and select 'Rectangular to Polar'.

Photoshop CS Shortcuts

The Work Area

[**Tab**] hides your palettes and tools.

- [**Shift**] + [**Tab**] only hides the palettes.
- [**Ctrl**] + [**Tab**] cycles though all open image windows including the File Browser.
- Press [**Alt**] and click on the image info area at the bottom of the document window (the Status bar on Windows) to access the actual pixel dimensions of the document (width, height, channels and resolution).
- [**Ctrl**] + [**Page Up**] or [**Page Down**] moves left or right one full screen.
- [**Home**] moves to the upper left corner. [**End**] moves to the lower right corner.

Bet You Didn't Know

Make An Image Look Like It's Moving Towards You

Pick a favourite picture of yours—a car, an animal, whatever. Make sure the image is in RGB mode. You can check by clicking on Image and then Mode. Make a quick mask. Select the area of the image you want to look clear, using the lasso or marquee tool. Now select **Select** > **Inverse, then Edit** > **Fill.** Fill with black 100%, then do **Select** > **None.** Apply a Gaussian blur around 13 or 14 (9 or 10) for small images. Now use the **Brush Strokes** > **Sprayed Strokes** filter. Stroke length 12, radius 7, right diagonal.

Now go back to Standard edit mode. Inverse your selection. Apply a radial blur zoom, amount 40, and there you have it!

Rulers And Guides

[**Ctrl**] + [**R**] shows or hides the rulers.

- [**Ctrl**] + [;] shows the guides.
- [**Ctrl**] + ['] shows grids.
- Use the right mouse button in the ruler area to access units from the context-sensitive menu.
- When dragging out a guide from the rulers, [**Alt**] changes the orientation of the guide (vertical to horizontal and vice versa).
- Reposition a guide using the 'Move' tool (position the 'Move' tool directly on top of the guide). When the icon changes to a double-headed arrow, click and drag to reposition the guide.
- Drag a ruler outside the image area, if you want to quickly delete it.
- Set the rulers to percentage to quickly find the centre of an image.
- Reset the origin of the rulers by clicking and dragging from the intersection of the rulers.

30 Minutes Expert

Make A Web-based E-mail Form Using PHP

Want visitors on your Web site to leave feedback and contact you? Here's how to do it free of cost while ensuring a minimum of effort for visitors

Varun Dubey

Consider this scenario—you have a Web site but you haven't yet set up e-mail IDs on it. Or for some reason you wouldn't like to do so (maybe because it's so tedious!).

However, if you have a Web site and would like to receive feedback or communication from your clients or visitors, you must have a business e-mail ID (xyz@yourcompany.com). To have a Yahoo! or Hotmail address for business purposes is not only un-chic, it also seems downright unprofessional.

Regardless of whether or not you have a business e-mail ID, you may feel it takes a lot of effort on the part of the visitor or client to e-mail you. You may even want to do away with the e-mail addresses given in the 'Contact Us' page.

Let's take a look at what it takes to build a Web-based form ('Contact', 'Feedback', what have you) using PHP (Hypertext Pre-Processor, an HTML-embedded scripting language). You won't believe how easy it is. What's more, there are no restrictions on the number of forms you can create! However, to understand this workshop, a basic idea of HTML is essential.

What It Does

Assuming you already have a Web site, you would like people to send you feedback or would like them to contact you when in doubt. So when they come to this feedback page (lets call it that, shall we?), they see a form wherein they can enter their details and queries. On clicking 'Submit', the form contents are processed using the PHP file and mailed to a pre-specified e-mail account. This can be any e-mail address in the whole wide world (or Web for that matter).

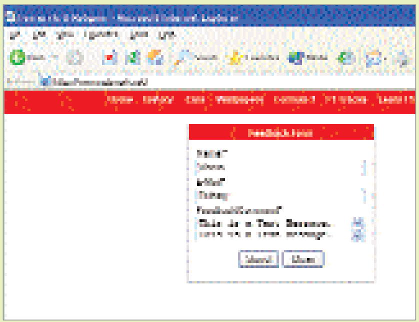
STEP 1 Understanding The Form

For the scope of this workshop, we will consider a simple form consisting of fields for 'Name', 'E-mail', and 'Feedback/Comment'. Also, the PHP file will be called feedback.php.

To create a form, you can use Microsoft FrontPage or Macromedia Dreamweaver. These will let you create the forms in a single click, and you can proceed straight to the section about adding the PHP page and the reference in the form.

If you do not have the above-mentioned software, you will have to whip out Notepad and do it the good old manual way. If this page is going to have just this form, then, after you put in the <head>, <title> and <body> tags, you need to put in the code for the form.

The code has two parts: the field title (such as 'Name', 'E-mail', and so on), and the actual place where the data will be entered.



A Web-based e-mail form

STEP 2 Writing The Code

The first line that you need to write is:

```
<form method=”POST”action=”
www.nutswork.net/feedback.php”>
```

This is the line that tells the browser to send the form data to the PHP file.

The URL must be absolute, i.e., it should incorporate the directory structure of your Web site. For instance, if you have made a directory in your Web site called 'phpforms' and have placed the feedback form in that directory, in the 'action' field above, your URL will become: 'www.nutswork.net/phpforms/feedback.php'

STEP 3 Adding The Fields

To add the input fields such as 'Name' or 'E-mail', you need to write the following lines of code exactly as they appear here. Make sure all the lines are between the <body> and </body> tags.

```
Name: <input type=”text”
name=“T1” size=“20”>
```

Here, "Name:" is what you will see when you open the page in the browser. This will be followed by an empty text box—more on that later.

Make note of the entry "name="T1"" inside the <> symbols. Here, 'T1' is the name of the input box and can be anything you choose, but make sure you remember it as we will be using it in our PHP file.

To create more fields such as 'E-mail' and 'Comment' simply use the above code with the name field changed. You should take care that no two fields can have the same name, so if you are calling the first field (i.e., the field where you are entering the users name) 'T1', then no other field on the same page can be called 'T1'.

When you create the field for 'Feedback/Comment', it will obviously be greater than the field for 'Name', 'E-mail', and so on. Go back to the code above and in place of input type="text" you must define your text box as:

```
<TEXTAREA style=”WIDTH: 230px”
name=comments
cols=34></TEXTAREA>
```

STEP 4 Creating The Buttons

To submit the data to the PHP file, we need to tell the browser that the form has been filled and needs to go for further processing. To do that, we need to create a button that will post the form on clicking it. To create the button, you will need to type the following in your Web page source code:

```
<input type=“submit” value=“Submit”
name=“B1”><input type=“reset”
value=“Reset” name=“B2”>
```

This will give you two buttons, one to submit and the other to reset the form. Here, anything that you put in place of 'submit' in the value="submit" field will appear as on the button when you view the page.

Again, here name="B1" is the name of the button and should be remembered as well will use the reference in our PHP file. Once you are done creating the fields, don't forget to the close the form code by adding </form>.

STEP 5 The PHP File

The first two characters that you need to enter are '<?'.

These signify to the browser that this is a PHP file. We will first add the e-mail address to which you need to mail the form file. To specify the e-mail address, type exactly as it is given below:

```
$mailto='varun_dubey@thinkdigit.com';
```

Obviously, here you can put whatever e-mail address you want and all the data in the form we created above will be sent to that address as an e-mail. We will now set the subject line of the e-mail so you can identify where the mail has come from and set appropriate filters if you wish.

```
$subject = "Feedback Form";
```

Whatever you put in place of the Feedback Form will appear as the subject line in the e-mail you receive from the Web site.

Now we need to link the HTML form we created earlier to this PHP-based form. We need to give the path and tell the PHP file where the form is stored. To do so, enter the following line of code:

```
$formurl =
"http://www.nutswork.net/feedback.html";
```

The URL here must be absolute and not relative.

STEP 6 The Error And Thank You Pages

Suppose your users do something wrong or there is a server error, they will then see a page of garbled code and to prevent that, you will need to incorporate an error page. This will be a separate Web page with content showing that an error has occurred. This can be used effectively to ensure that the mandatory fields have been filled.

Include the following code:

```
$errorurl =
"http://www.nutswork.net/incomplete.html";
```

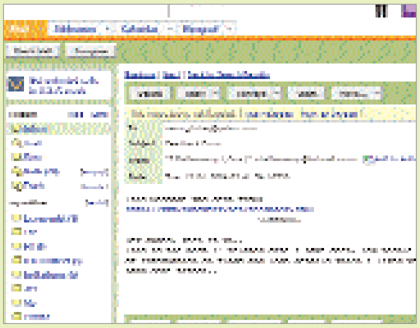
And for the 'Thank You' page once the form has been successfully submitted, you need to add:

```
$thankyouurl =
"http://www.nutswork.net/thankyou.html";
```

Both the incomplete.html and thankyou.html must reside at the paths mentioned in the file, or the Web visitor will get an error even if he does everything right!

STEP 7 Writing The Code For Sending The Form

```
$name = $_POST['name'] ; //takes the name. Instead of "name" in
// enter what ever name you gave to the NAME: field in the HTML form.
$email = $_POST['email'] ; //
$comments = $_POST['comments'];
$http_referrer = getenv(
"HTTP_REFERER" );
if (!isset($_POST['email'])) {header(
"Location: $formurl"); exit ;}
if (empty($name) || empty($email)
|| empty($comments)) {header(
"Location: $errorurl" ); exit ; }
```


The format in which the content is received in the e-mail

The code above makes the fields 'Name', 'E-mail' and 'Comments' mandatory. If the user forgets to enter these, he will be asked to go back and fill the form correctly. To remove or add any more fields, add them by keeping the shown format in mind.

```
if (get_magic_quotes_gpc()) {
        $comments = stripslashes(
$comments ); }
    $messageproper =
"This message was sent from:\n" .
        "$http_referrer\n" .
        "———————— COMMENTS ——
————\n\n" .
        $comments .
        "\n\n——————————————
——\n" ;
```

The code above is the formatting of the data as it will appear in the e-mail you will receive. '\n' signifies a new line and anything you'd like to add can be entered between double quotes.

```
mail($mailto, $subject,
$messageproper, "From: \"$name\"
<$email>\nReply-To: \"$name\"
<$email>\nX-Mailer: chfeedback.php
2.02" );
header( "Location: $thankyouurl" );
exit ;
```

The above few lines are the instructions for the mail programs (server-based, not Outlook) to put the appropriate information in the right fields so that e-mail address is not shown instead of the name and also vice-versa.

'?> ||' signifies the end of the PHP file. That's all you need to do! Just save and upload the file and send your first Web-based form!

The Advantages

The benefits of having a such a form are many. As mentioned earlier, you can create it to allow people to get in touch with you instantly without messing around with mail clients or the more tedious Web-based e-mail accounts.

The best part is that you can create multiple forms by just changing the title of the input field and the address you would like it to be mailed to.

Say you have a Web site wherein you would like people to get in touch with you, send you feedback, or report any dead links or errors in your content. You can simply set up the requisite number of forms and change the title of the boxes as required.

We'd advise you to enter different e-mail addresses for each form. So, when you receive the mail, it is organised neatly in terms of content, or if different people handle different aspects such as feedback from visitors or delivery of products, the appropriate e-mail address can be given.

To slightly modify the settings—for instance, if you'd like to conduct a survey and want the results to be mailed to you—simply create a form with more fields than we've done here, and once the visitor is done with it, it will be mailed to you automatically.

If you want a more innovative implementation, you could use the form to take Web-based orders. Before you jump with delight, understand that it is not a replacement to online shopping, but an extension of it can be implemented so your customers can contact you directly and you can service them as soon as you get the e-mail.

Now, you may think, what about spam? Rest assured—there is no cause for concern. To avoid spam, include a mandatory field for telephone numbers which will let you check the authenticity of the mail and you can promptly go about servicing your customers.

The implementations can be many and we're sure you can think of many more original and myriad uses for this PHP form.

varun_dubey@thinkdigit.com

- Double-clicking at the intersection of the rulers resets the point of origin to the upper-left corner.
- [**Shift**]-drag a guide to snap it to the ruler marks. You must do so, even if the 'snap to' option is turned off.
- In order to change the size of the image and also have the guides in the image resize proportionally, be sure to unlock them by unchecking the **View** > **Lock Guides** menu item. And, if you need them to stay in place, then lock the guides before resizing.

The Navigator Palette

To change the zoom percentage in the Navigator palette, [**Ctrl**]-drag in the thumbnail (on the Navigator palette) a new rectangle the size of the desired zoom.

The Info And Histogram Palettes

Click the 'Eyedropper' icon to select what information is presented in the readout. You can select 'Proof color', 'total ink' or even 'opacity' as one of the options.

- Click the cross-hairs that track the cursor coordinates to change the units of measurement.
- Click and drag in the histogram to select a range of tonal values.

The Color/Swatches/ Styles Palette

[**Shift**]-click the 'Color' palette's colour ramp to cycle through the available colour modes.

- [**Alt**]-click on a colour swatch to delete it in the 'Swatches' palette.
- Use the palette menus to choose different colour sliders (including HSB).
- Right-click on a swatch or style to 'Rename', 'Delete' or 'Create a new swatch/style'.
- Clicking in a blank area of the 'Swatches' or 'Styles' palette will create a new swatch/style.

The Actions Palette

Use the fly-out menu to access the 'Button Mode' to see your actions as clickable buttons.

- [**Alt**]-drag to copy a recorded state to another action (or within an action).
- To change the recorded settings for a state in an action, double-click on the recorded state.
- [**Alt**]-click the disclosure triangle next to the action to collapse or expand all components of an action
- While recording an action, you can play another action to record the steps.

The Paths Palette

To create a stroke of paint or create an even path for dodging and burning, create a path with the pen tool and then select the painting tool. Then from the 'Paths' palette menu, select 'Stroke' path. Choose the 'simulate pressure' option to simulate pressure sensitivity of the tool.

- [**Ctrl**] + [**Enter**] turns the selected path into a selection.
- To copy and paste paths from Adobe Illustrator to Photoshop, in Illustrator select **Preferences** > **Files and Clipboard** and select copy as 'AICB'. Otherwise, the object will be placed as raster (pixels).

The Layers Palette

Double-click a layer's name in the 'Layers' palette to rename it. Double-clicking on any palette which lists its contents by name will allow renaming of the item.

- [**Ctrl**] + [**Shift**] + [**N**] will bring up the 'New Layer' dialog box.
- When on a layer, use [/] to toggle the lock transparency option On and Off.
- [**Alt**] + [[ ] or [ ]] selects the layer above or below.
- [**Alt**] + [**Ctrl**] + [{] or [}] moves the layer up or down.
- [**Alt**] + 'Merge Visible' (from either the layer menu or the Layers palette menu) creates a 'flattened' version of the visible layers on the currently targeted layer.
- To load the selection of any layer (based on the opacity of pixels in the layer): [**Ctrl**]-click on the icon for a layer on the Layer's palette. [**Ctrl**] + [**Shift**] adds additional layers to the selection. [**Alt**] + [**Ctrl**] subtracts another layer from the selection. [**Alt**] + [**Ctrl**] + [**Shift**] creates the intersection of two layers.
- Double-clicking 'Background' will bring up the 'New Layer' dialog box, changing the Background into a layer.
- [**Alt**]-double-clicking on the 'Background' will change the Background into a layer bypassing the 'New Layer' dialog box.
- [**Alt**]-click between two layers in order to create a 'Clipping Mask'.
- [**Alt**]-click on a layer's Eye icon to hide all other layers; [**Alt**]-click again to toggle all previously visible layers. To make all layers visible (as oppose to only those that were previously visible), right-click the Eye icon of a layer and select 'Show/hide all other layers'.
- To delete hidden layers from the 'Layers' palette, use the fly-out and select 'Delete Hidden Layers'. You can do the same for 'Linked' layers. Or, to delete hidden layers, [Control]-click on the trash can icon at the bottom of the 'Layers' palette.
- [**Alt**]-click the 'Adjustment Layer' icon on the 'Layers' palette to display the 'New Layer' dialog box. This allows for a variety of options including 'blend modes' and 'Use Previous Layer to Create Clipping Mask'.
- To hide the information on a layer while maintaining 'Layer Styles', decrease the 'Fill' amount of the 'Layer'. Note that decreasing the 'Opacity' amount will decrease the layer information as well as any 'Layer Styles' applied.
- [**Ctrl**]-click on the Eye icon on the layer palette to colour-code a layer.
- [**Ctrl**] + [`] (or [~]) targets the image (not the mask) in the 'Layers' palette.
- [**Ctrl**] + [\] targets the layer mask in the 'Layers' palette.

The Channels Palette

[**Ctrl**]-click the new channel icon to create a new 'Spot Color' channel.

- Use the fly-out menu to select 'Palette' options to increase or decrease the size of the thumbnails in the 'Channels' palette. This option is also available for the 'Layers' palette.

Bet You Didn't Know

A keyboard shortcut for linking objects (layers)

Normally, to link objects, you would use the layer window, clicking on the right of the Eye icon. There is a keyboard shortcut for this: simply click the desired layer first. Then, pressing **[Ctrl]**, **[Alt]** and **[Shift]** together, click the next (or desired) layer. They'll get linked. You can link as many layers as you want. To unlink layers, simply use **[Ctrl] + [Shift]** instead.

The Brushes Palette

Use the 'Brush Tip Shape' to manipulate the diameter, angle, roundness, hardness and tip shape of a brush.

- Click the 'Lock' icon to lock brush attributes regardless of the brush preset selected.
- Turn on the 'Airbrush' attribute by clicking the icon in the options palette, or by using the 'Airbrush' option in the 'Brushes' palette with many of the painting tools to create an airbrush effect. Or, use the keyboard shortcut [**Alt**] + [**Shift**] + [**P**].

The Tool Presets Palette

To create a tool preset, set up the options for your tools, then click on the tool presets icon in the upper left of the options bar, and save the preset.

- Tool presets (for the currently selected tool, or for all of the tools) can be accessed at any time from either the 'Options' bar, or the 'Tool Presets' palette.
- When saving a brush as a tool preset, not only does Photoshop CS save all the options in the Options bar (such as opacity, blend modes etc), it also saves the foreground colour.
- Use 'Current Tool Only' to view only those presets available for the currently selected tool. ☒

Anti-spyware Tools

Infected? Removing spyware isn't always as simple as just running an anti-spyware scanner. There are various problems one faces during this process, here are solutions to some of them

Ram Mohan Rao

Anti-spyware And A Slow PC

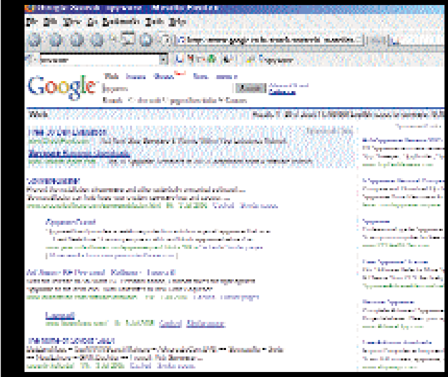
Problem: Anti-spyware doesn't seem to make much difference with a slowed-down computer.

Solution: Always use authentic anti-spyware software. Never trust sponsored links.

There are quite a few recommended anti-spyware software, and few of those are free. We recommend Lavasoft's Ad-Aware SE Personal, available at **www.lavasoft.com**

When you do a search for 'spyware' on Google, you come up with more than 17 million results, and several sponsored links. Several of those links are suspect.

They may lead you to pages that offer you spyware-removal software for a fee which either don't work in the manner described or are not worth the money you paid for them. Worse still, they may install additional spyware on your system!



The links on the right are sponsored links. Don't always trust what you see here

Heavily-infected PC

Problem: Computer is heavily infected and incredibly slow.

Solution: Re-install your OS.

In some cases, say, when you have been using your computer for a long time and have never scanned it for spyware and are using an outdated virus definitions file, virus and spyware infections may come in before you can download the requisite software.

Moreover, when the spyware has become an integral part of your system, even a computer technician can't get rid of the spyware. At this point, it is better to just back up what you need and have the OS reinstalled.

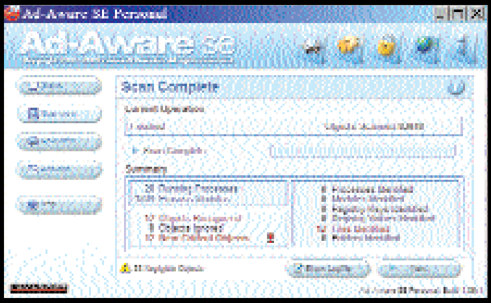
Unable To Delete Infected Files

Problem: Files even after detection don't get deleted.

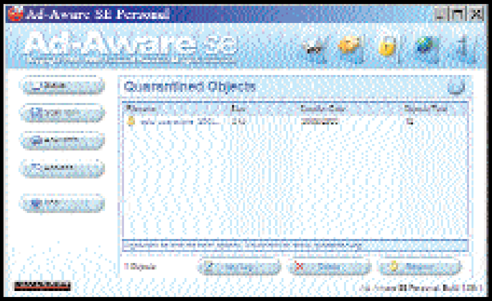
Solution: Manually remove them.

There is detailed information at **http://snipurl.com/g22q** on how to remove a wide variety of existing spyware and adware.

On the page, scroll down to where it says 'Manual Removal'. Here, you will see information on several spyware programs, what they do, and how to remove them.



Ad-Aware often finds several suspect items...



...but doesn't completely eliminate all of them

This might come in handy if, for instance, you see AdAware detecting spyware, and then when you press the 'Delete' button, you find that not everything in the list has been deleted.

This could happen because some spyware 'know' about anti-spyware programs, and entrench themselves in your system more firmly than others do.

Unable To Spot All Spyware

Problem: All spyware is not detected.

Solution: Use two different anti-spyware software.

It's always a good idea to use two different software. One will catch what the other one misses, and vice-versa.

For example, there's AdAware SE and SpyBot. These programs are "highly recommended" by TechTV and other computer authorities, and they complement each other.

Common Spyware Infections And Time-consuming Scanning

Problem: Spyware infections are too common and scanning takes a lot of time.

Solution: Use a pre-emptive filter.

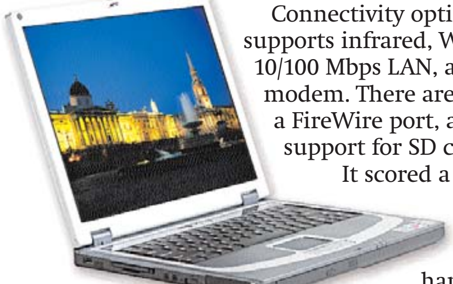
If you are willing to pay, you can use software that catches spyware *before* it infects your computer. This may often be a better approach than, say, scanning for spyware once in two weeks.

For instance, Ad-Aware SE Plus (not Ad-Aware SE Personal), which costs $27 (around Rs 1,175), offers more proactive features, including real-time monitoring for pop-up ads and spyware.

Ad-Aware SE Plus prevents browser hijacking, and also prohibits Web site-based ActiveX programs from getting installed on your computer. ■

ram_mohan@thinkdigit.com

Gigabyte G-MAX N501

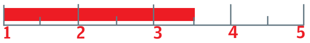


This Centrino notebook features an Intel Pentium M 1.6 GHz processor, 256 MB of DDR RAM and a 40 GB hard disk. The 15-inch 1024 x 768 TFT colour LCD display appears surprisingly large due to the thin borders. Connectivity options, are good—it supports infrared, Wi-Fi 802.11 B/G, 10/100 Mbps LAN, and a 56 Kbps modem. There are three USB ports, a FireWire port, a serial port, and support for SD cards too.

It scored a decent 18.4 in the Business WinStone 2004 test, and can handle office applications well. Battery life, though, was a mediocre two hours and 41 mins.

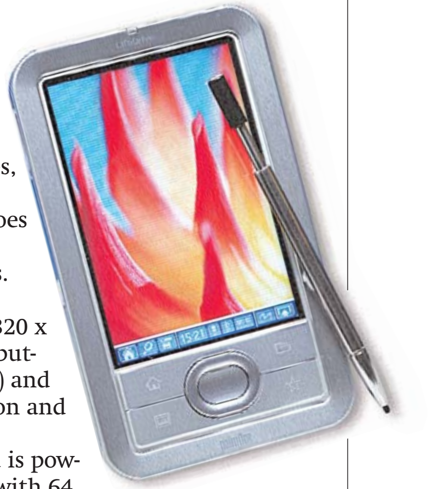
Company **Gigabyte Technology (India) Ltd**
Price **Rs 47,750 (Local levies extra)**
Phone **022-26526696**
E-mail **sales@gigabyte.in**
Web site **www.giga-byte.com**

Rating



Palm LifeDrive Mobile Manager

Not Converged Enough



In this world of convergence, Palm has decided to buck the trend with the LifeDrive. It's one of the rare handhelds to *not* include cell phone features.

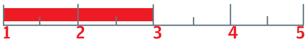
The LifeDrive is brilliant at what it does, though, and is the first ever microdrive-based PDA—but to have a handheld that does amazing things and not be able to make a call means you'll have to carry two devices.

The device looks sleek with a brushed, muted aluminium finish, a big screen—a 320 x 480 TFT touch screen, and four dedicated buttons for music, photos, home (main menu) and file browser, along with four-way navigation and a centre click button.

It runs on the Palm OS 5.4 Garnet, and is powered by a 416 MHz Intel XScale processor, with 64 MB of onboard RAM and a 4 GB hard disk. Not surprisingly, it is underpowered, and the interface is sluggish.

Available from **The Gadget Boy (Inorbit Mall, Malad, Mumbai)**
Price **Rs 26,500**
Phone **022-56880270** Web site **www.palm.com**

Rating



New&Notable

Samsung SGH-D500

Now That's A Swiss Army Knife!

Measuring 93.5 x 45.7 x 23.6 mm and tipping the scales at just 99 gms, the D500 is the latest head-turner from Samsung. A tri-band GPRS mobile phone, the D500 boasts of features like a slide-out keypad, MP3 playback, external speakers and a 1.3 megapixel camera with flash.

Encased in a beautiful, glossy black casing, the device sports a 176 x 220 LCD that can display 262,144 colours. Apart from the screen, the front facia includes a four-way navigation key with a centre-click button, two soft keys, Send and Call End keys and a Cancel button.

The left side of the phone has a conjoined volume control key and an IR port, while the right side has a dedicated camera key and a port to connect the external speaker. The bottom of the phone slides out to reveal the backlit 12-key numpad and the camera at the rear. You also find a self-portrait mirror and the flash next to the camera at the rear.

Unique features include support for seven Indian regional languages: Hindi, Marathi, Tamil, Bengali, Punjabi, Gujarati and Kannada. Connectivity options include Bluetooth, USB and SyncML, apart from Infrared.

Three Java games—*Forgotten Warrior*, *Freekick* and *Arch Angel* are pre-loaded. Memory capacity is 96MB, shared dynamically between applications. You cannot expand the memory, however.

Menu
Contacts
SAMSUNG
Anycall

The 1.3 megapixel camera can capture stills at 1280 x 1024, 1152 x 864, 640 x 480, 320 x 240, 176 x 144, and 128 x 96 resolutions with three quality settings. The shooting mode can be set to Single, Multi, Mosaic or Night. ISO setting can be kept at Auto or set to speeds of 100, 200 or 400. The flash can be switched Off or set to Auto, Permanently On or Shoot Only. Video can be captured in 3gp format at 176 x 144, 160 x 120 or 128 x 96 resolutions, with three quality options.

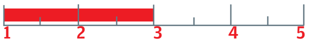
The phone provides a standard icon-based menu, accessible using the soft-key and the navigation button. The size of the keys is a bit of an issue, though, and you will need to use the tips of your fingers to operate. The slider can be operated using one hand.

MP3 playback is decent with the inbuilt speaker, and even better with the external speaker module. The supplied speaker is a tiny conical device that plugs in to the side of the phone, and is also a speakerphone.

On the whole, the phone is great for users who want a sleek camera phone with high flaunt value.

Company **Samsung India Electronics**
Price **Rs 21,399**
Phone **011-51511234**
E-mail **vikas.tagra@samsung.com**
Web site **www.samsung.com/in**

Rating



Kodak EasyShare Z740

Bigger And Stronger, But Better?

Kodak has recently launched the EasyShare Z740 kit comprising a five-megapixel auto-focus CCD camera with 10X optical and 5X digital zoom, and a printer dock.

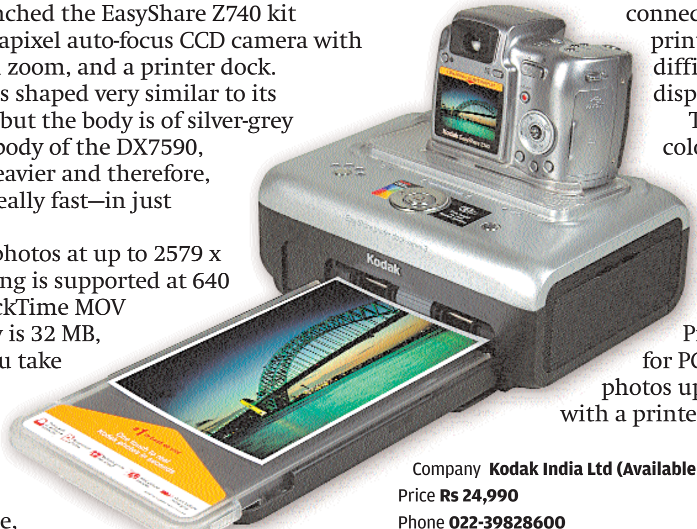
At a glance, the Z740 is shaped very similar to its predecessor, the DX7590, but the body is of silver-grey plastic, unlike the metal body of the DX7590, which makes the latter heavier and therefore, steadier. The Z740 boots really fast—in just three seconds.

The camera can take photos at up to 2579 x 1932 pixels. Video recording is supported at 640 x 480 or 320 x 240 in QuickTime MOV format. Onboard memory is 32 MB, which is not enough if you take the camera on a trip, but this is expandable via SD and MMC card slots.

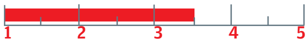
Various settings such as Picture/Video size, White Balance, Focus Zone, Auto Focus control, etc. can be adjusted. A jog dial facilitates access to various functions such as Video and Macro. The 'Share' button allows you to activate the EasyShare feature when connected to a PictBridge-ready printer. The 1.8-inch colour LCD is difficult to view outdoors, and the display quality is not so great.

The photos we took reproduced colours naturally, but the auto-focus leaves much to be desired as many of the photos seemed to lose out on sharpness. Also, the image brightness reduces as magnification is increased.

The Z740 comes with a Printer Dock Series 3 that is used for PC-less printing of borderless photos up to 4 x 6 inches. It is bundled with a printer dock and priced at Rs 24,990.



Company **Kodak India Ltd (Available from Neoteric)**
Price **Rs 24,990**
Phone **022-39828600**
E-mail **sales@neoteric.co.in**
Web site **www.kodak.com**
Rating



Motorola A780

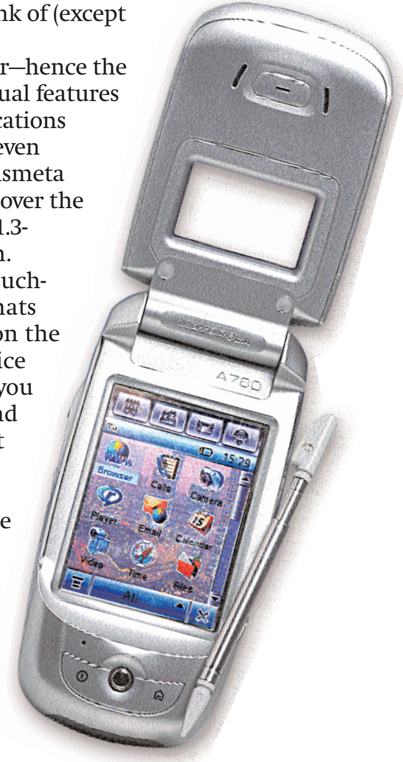
A Power-packed Performer

Motorola's A780 is a Linux-based flip-phone and includes every feature you can think of (except radio and Wi-Fi), and then some more.

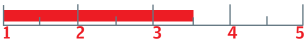
It is powered by a 312 MHz processor—hence the slightly sluggish interface. It has the usual features such as GPRS and Bluetooth, and applications including the Opera Web browser and even RealPlayer. It comes with a 128 MB Transmeta flash card, which gives you some space over the 50 MB onboard. Motorola also added a 1.3-megapixel camera with 8X digital zoom.

Being a PDA-phone, it features a touch-screen and allows multiple input formats and also a regular cell phone keypad on the flip lid. Another cool feature is the voice recognition. Turning it On will allow you to simply speak names or numbers, and the phone will try to understand what you're saying.

A jog dial on the left can be pressed or moved up and down to adjust volume but the menus it generates are contextual. All-in-all, a decent PDA-phone, which doesn't compromise on build or aesthetics.



Company **Motorola India**
Price **Rs 31,335**
Phone **0124-5191760**
E-mail **W4481C@motorola.com**
Web site **www.motorola.com**
Rating



Looking for more information on any of the products featured here?

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

Logitech MX518 Gaming-grade Optical Mouse

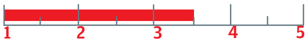
With increasing skill levels and cut-throat competition, any advantage you have while fragging fellow gamers is welcome. This is exactly what the new Logitech MX 518 does. For the first time, you can change your mouse resolution on-the-fly!

This is an eight-button optical mouse with two buttons near your thumb, which are used for moving back and forth in Web pages. You need to be careful with these buttons—the sensitivity is very high.

The clickable scroll wheel is sandwiched between two tiny buttons, which control the resolution changer. There's a straightforward '+' and '-' signifying increase and decrease in resolution. The mouse supports three resolutions: 400, 800 and 1600 dpi.

A software disk has been provided, but we had some issues installing it and making it work. The mouse does a neat job, is comfortable to hold, and the resolution switching is indeed a godsend!

Company **Logitech Electronics India**
Price **Rs 3,990 (Special scheme: Rs 500 off this month)**
Phone **022-25671160**
E-mail **response@logitech.com**
Web site **www.logitech.com**
Rating



1 **Poor:** Has serious drawbacks and needs improvement before it can be used for its target application. 2 **Mediocre:** Does not live up to expectations, needs improvement in many areas. 3 Average: Reasonably competent, but nothing spectacular about the product. 4 **Good:** A good buy, better than most products in its category. 5 **Excellent:** A brilliant combination of price, performance and features—far beyond expectations.

Q&A

Your Questions, Our Answers

Potential Problems?

Q **I created a Windows XP bootable CD with SP2 as was described in the instructions given in “Take a Crack” of Digit March 2005. First, I installed Windows 98 SE in the F: drive. After completing the installation, I installed Windows XP SP2 in the C: drive. During the installation, after the first reboot, I got an error message saying that files SV-262e1.png, SV-262e3.png, and SV-262e4.png were missing. I have not encountered any problems after the installation. I want to know whether there are any potential problems and how I should solve them.**

Prajwal, Bangalore

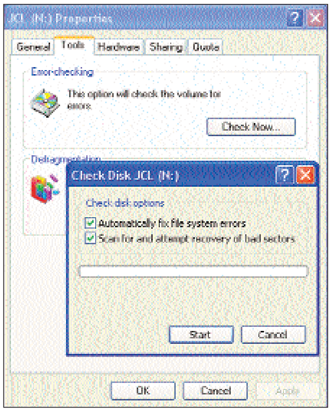
A You are experiencing the problem because your CD is not written properly. Due to this, some part of the installation works properly but the other does not, as some files have not been written accurately to the CD. There are many reasons for this to happen: running other programs while the CD is being written, an anti-virus software running in the background, bad quality media or even a faulty CD writer. You will need to rewrite the CD and this time, try to avoid any of the above and if possible, try burning to a different brand of media at a lower speed.

Getting started with your Hard Disc Drive ?
Call 1600 180 11 04
Seagate

Will defragmenting my hard drive speed it up ?

Q **I have an AMD 2400+, 512 MB RAM, ASUS GeForce4 MX 440 64 MB, 60 GB Samsung hard drive. My computer was absolutely fine until I decided to connect my hard drive to a friend’s computer. I managed to connect the hard drive, but messed up on the jumper settings. Eventually, I just gave up and got the hard drive back. Ever since this episode, I have recollected the jumper settings and even got XP to work. But, my computer slowed down a great deal. In fact, all hard drive operations were painfully slow. I even did a complete format but that didn’t help either. I reinstalled XP with SP2 but the computer continued to be sluggish. I returned to normal XP without any service pack but the hard drive is still very slow. Copying files takes a very long time. What is wrong with my PC? Will a defrag solve it?**

Arun, Via e-mail



☑ Automatically fix file system errors
☑ Scan for and attempt recovery of bad sectors

Run check disk to correct hard disk errors

A In all probability, your hard drive has developed bad sectors. This could have happened while it was kept out of your PC. Hence, when Windows XP loads and tries to access these bad sector areas on the hard drive, it is not able to access any data there, and your system comes to a standstill.

You must run a check disk on your drives in order to mark these areas as bad sectors and correct this problem. To do this, open ‘My Computer’, right-click on ‘C:’ and click on ‘Properties’. Click on ‘Tools’ and click on ‘Check Now’. In the Check Disk options, check the options ‘Automatically fix file system errors’ and ‘Scan for and attempt recovery of bad sectors’. Although this will fix your problem temporarily, you should note that bad sectors point to a failing and unreliable hard drive and tend to increase. You should replace it with a new one soon.

Audio Formats in DVD

Q **In AVI to DVD software, while converting VCDs to DVD format, the audio stream box remains blank. It doesn’t show the formats. VCDs are generally ‘DAT’ files. Are AVI and DAT the same? How should I convert VCDs to DVD format and vice-versa?**

Pratul Shrestha, Kathmandu

A Audio streams of a DVD usually consist of six audio channels and are Dolby Digital encoded. To decode the audio, you need to have the appropriate AC3 filters to be installed. In the absence of these Codecs, the DVD audio cannot be decoded and hence you are unable to see anything in the audio stream box. You can download the free AC3 filters from **www.ac3filter.sourceforge.net**. Alternatively, you may also download and install DVD players such as Cyberlink PowerDVD 6 from **www.cyberlink.com** or InterVideo WinDVD 7 from **www.intervideo.com**.

The DAT format is different from AVI. DAT format is an implementation of MPEG-1 format whereas AVI is the native video format used by Windows. You may use software such as NeroVision Express from **www.nero.com** to convert VCD to DVD and vice-versa. You may also use TMPGEnc from **www.tmpgenc.net/e_download.html** to do the same.

Splinter Cell Problems

Q **I have an AMD 64 3200+, 1 GB 400 MHz RAM, an MSI motherboard and a GeForce 6600 256 MB (PCIe) card. After installing** Splinter Cell Pandora Tomorrow, **I get an error saying "NO Non power-of-two render target support detected". No one seems to know how to solve it.**

G Natarajan, Via e-mail

A This error goes away after you download and install the latest patch for Splinter Cell Pandora Tomorrow. The latest patch (1.31) adds support for this new texture cap and removes the error message. You can download this patch at **www.ubisoft.com**.

Auto Connect?

Q **I have Pentium 4 with 256 MB RAM running Windows XP Professional. I am facing a problem wherein my PC dials the Internet connection automatically, even when I open the command prompt or any software. Even when I restart my PC, it tries to connect to the Internet. How should I stop this?**

Subarno Bhattacharya, Via e-mail

A Subarno, it seems that your PC has been affected by Spyware dialler programs that try to connect to the Internet without permission. These programs install themselves on your computer without your knowledge if you have visited certain sites. The dialler programs can be removed by using anti-spyware software such as LavaSoft Ad-Aware Personal Edition from **www.lavasoft.com** and Microsoft AntiSpyware from **www.microsoft.com**. After installing one of these programs, you have to update the definition files and then scan your PC for Adware and Spyware to remove them. You could also use Spyware Blaster or Spybot S&D given with the August 2005 CD of Digit.

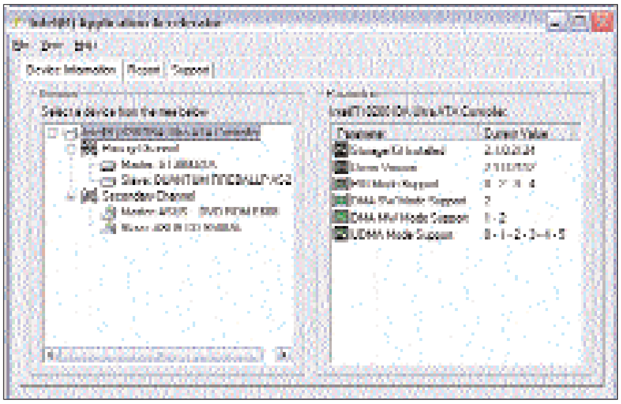
Got a Hard Disc Drive Emergency?
Call 1600 180 11 04
Seagate

Disappearing DMA

Q **I have P 4 (2.4 GHz) processor, Intel 845GVSR motherboard and 256MB (DDR) RAM. My problem is that the DMA disappeared when I installed the Intel Application Accelerator in Windows 98. What is the reason?**

Ranjit Kumar, Via e-mail

A When you install the Intel Application Accelerator, it takes over the control of the DMA transfer rates of IDE devices. Hence, you are not able to see the DMA settings. You can still access these through the Application Accelerator utility where you can decide to limit the transfer rate of a particular device.



Intel Application Accelerator

Do I Need An AGP Card?

Q **I have a PC with the following configuration: Intel Pentium 4 3.0 GHz, 865G chipset, 256MB, 400Mhz RAM (64 MB on-board shared memory), 80 GB HD, 1MB Cache and 800 MHz FSB.**

This is a Zenith PC and I opted for 865G chipset rather than 915G since the vendor told me that the AGP graphics card cost almost a third of PCIe cards. I have DirectX 9.0c installed. Max Payne 2 runs fantastically on the PC but my other game, "True Crime: Streets Of LA" that requires less resources than Max Payne 2 gives a fatal error saying "No capable 3D hardware found on your system. This game requires direct 3D compatible hardware that either supports either T&L or vertex and pixel shaders version 1.1 or higher". Also, the demo of Splinter Cell Chaos Theory 3 gives an error saying: "<?int?splintercell3.General.DirectX shader model 1.1 is required?>". Now will this problem be eliminated by adding an AGP card?

Parimal Rajkuntwar, Via e-mail

A The games that are giving you the errors require full DirectX 8.0 compliant graphics card. The on-board graphics of your motherboard is not compliant with this requirement. These games also require hardware transform and lighting, which the on-board graphics lacks. You will require a DirectX 8.0 compliant card, which means at least an NVidia GeForce 3 or an ATi Radeon 8500 to be able to play these games. Since these cards are no longer available, you can opt for any of the GeForce FX series cards, such as the FX 5600 which are available at a reasonable price.

Standalone DVD As Drive

Q **I have Pentium IV, 1.8 GHz, 256 DDR RAM, Mercury Main board. I wanted to know if I could use my DVD player as a DVD drive.**

Ujjawal Goel, Via e-mail

A If you are referring to a standalone DVD player, the answer is No, you cannot use it as a DVD drive for your computer.

TV Tuner Card Concerns

Q **I have a Pentium 4 3.0 GHz (that supports Hyper-Threading technology), Intel D865 GBF motherboard, 512MB of KINGSTON DDR memory and a 40 GB Seagate hard disk running Windows XP Professional SP2. I have disabled on-board sound and installed a Philips PSC705 5.1 surround sound card. I have also installed Pixelview Play TV Pro Ultra TV Tuner Card version 3.3. After installing the TV Tuner Card, I noticed that there is some disturbance in sound quality (popping and crackling) when playing songs and games. I disabled Conexant 2388x video capture driver from the sound, video and game controllers. After disabling it, the sound is clear. But to watch TV, I need to enable it again. Doing this repeatedly is getting to be a chore Please tell me how can I get a clear sound without disabling the driver of TV tuner card?**

Sugat Tuladhar, Kathmandu (Nepal)

Use Mail Merge In MS Word

Simplify your mass mailing tasks

Jayesh Limaye

Mail merge is a powerful tool available in Microsoft Word that helps create a set of documents that are the same, but each document contains its own unique elements. A good example of this is, where one document contains a list of addresses whereas, another contains a letter, the third contains your company logo and the three documents are merged onto a unique document that will contain the addresses and the letter such that the letter is individually mailed to each address in the list.

In other words, you can mass mail using the Mail Merge feature of Word. You can create a set of envelopes or labels where the return address is the same but the destination addresses are unique on each one.

Similarly, a set of form letters, faxes or e-mail messages can be created whose basic content is the same but each one of them contains information specific to the individual recipient, such as the name, address, etc. We shall see how mail merge is used.

STEP 1

Start Mail Merge

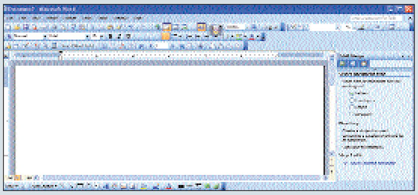
To start the Mail Merge process, start MS Word. On the 'Tools' menu, point to 'Letters and Mailings', and click on 'Mail Merge'. The 'Mail Merge Wizard' will open in the task pane on the right.

STEP 2

Choose Document Type

Choose the type of document you wish to create. Options include Letters, Envelopes, Labels and Directory. If you wish to send personalised letters to a group of people, choose 'Letters'.

Choose 'Envelopes' if you wish to print addressed envelopes for group mailing. Choose 'Labels' to print address labels for a group of people. To create a single document containing a catalogue or printed list of addresses, choose 'Directory'. We shall choose 'Letters' and click on 'Starting Document' at the bottom of the pane.

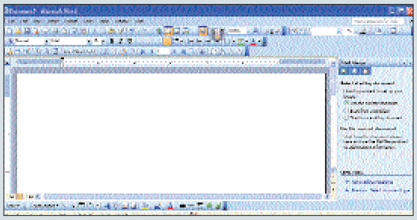


Select the document type

STEP 3

Select Mail Template

Now you have to choose the main document you want to use. If the document you are working on is the one that you want to use, select 'Use the current document'. You may also opt to use a ready-to-use mail merge template by selecting 'Start from a template'. Choose 'Start from existing document' to use an existing mail merge document and make changes to the content or recipients. We will select 'Use the current document' and click on 'Select recipients' at the bottom of the pane.

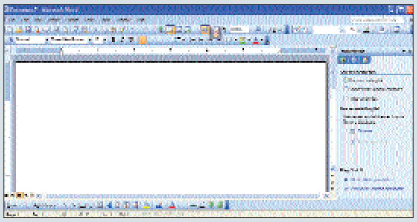


Select the starting document

STEP 4

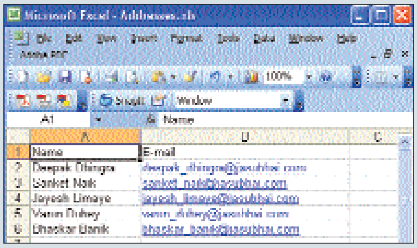
Insert Recipients List

This step involves selecting the list of recipients of the letter. You may select 'Type a New List' to create a new list. You may also add recipients list from Outlook contacts. But a simpler way of doing things is to create an Excel file with the field names in the top row and the columns serving as different fields. Now save this file.



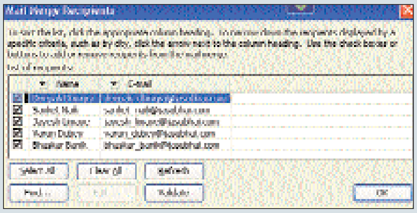
Select the recipients

Select 'Use an existing list' in the 'Mail Merge wizard' and browse and select this file. Click 'OK' to use the fields on Sheet 1 of the Excel file that you saved. The 'Mail Merge Recipient' list from this file is now displayed for you to review. Select the necessary recipient and click OK. Click on 'Write your letter' at the bottom of the pane to proceed.



	A	B
1	Name	E-mail
2	Deepak Dhingra	[illegible]
3	Sanket Naik	[illegible]
4	Jayesh Limaye	[illegible]
5	Varun Dubey	[illegible]
6	Bhaskar Banik	[illegible]

Create a recipient list in Excel

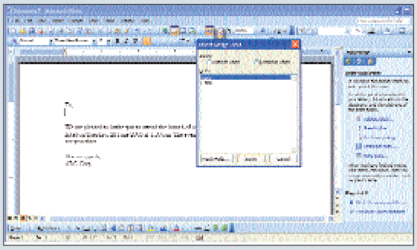


Mail Merge Recipient list

STEP 5

Insert Data Fields

Write the basic letter. Now place your cursor on the position where you wish to place the 'Name' field form the database. Click on 'More items', select 'Name' and click on 'Insert' to place this field. Similarly, insert the e-mail field. Now, click on 'Preview your letter' at the bottom of the pane to proceed.



Insert Data fields into the document

STEP 6

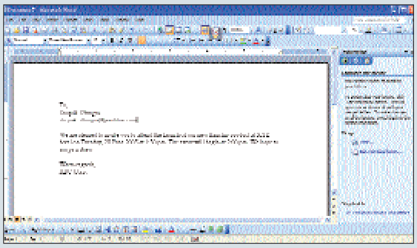
Preview the Merged Letter

You will now be able to preview one of the merged letters. You may even edit the recipient list if you so desire. Click on 'Complete the merge' to go to the final step.

STEP 7

Finish Mail Merge

In the final step, you are given a choice to either print the merged document or create it. Clicking on 'Print' will print the final document whereas clicking on 'Edit individual Letters' will create the final merged document. Click on the latter and opt to merge all records to create the final merged document.



Complete the mail merge process

Partition Woes

Q **I have P 4 2.6 GHz, 80 GB hard disk and 512 MB RAM and currently, there are four partitions on the hard drive. I would like to have only three; two of 30 GB and one of 20 GB. I want to keep Windows 98 SE and XP on one of the 30 GB partitions, and create a 20 GB dump. However, I have heard that you cannot increase the size of the partition that has an OS on it. How do I go about doing this?**

QUESTION OF THE MONTH

Gacarot, Via e-mail

A First, you need to create a Windows 98 Start-up Disk. To do that, insert a freshly formatted 1.44 MB floppy disk in the floppy drive. In the Windows 98 Control Panel, double-click on 'Add-Remove Programs' and click on 'Start-up Disk' tab and then on the 'Create Disk' button. Boot using this disk and at the 'Start-up' menu, opt to boot with or without CD-ROM support.

At the command prompt, type FDISK and press 'Y' when prompted to enable support for large disk drives. Since you already have multiple partitions on your hard drive, you will need to delete them first. In the first screen, press '3' to delete partition or logical DOS drive. In the next screen, press '3' to delete the logical DOS drive in the extended DOS partition and press 'Enter'.

You will be asked "What drive do you want to delete?" Enter the drive letter and press 'Enter'. Next you have to enter the volume label, enter it and press 'Enter' and press 'Y' and 'Enter'. Press 'Esc' to return to the previous screen and delete the other two remaining partitions in the same way. Press 'Esc' twice to return to the main FDISK menu and press '3' to delete partition or logical DOS drive and press 'Enter'. Press '2' to delete the extended DOS partition and press 'Enter'. Now press '1' to delete the primary DOS partition in a way similar to the logical drives.

After deleting all the partitions, press Escape twice to return to the main FDISK menu. Now press '1' to create a DOS partition or Logical DOS Drive and press 'Enter'. In the next screen, press '1' to create a Primary DOS partition and press 'Enter'. You will be asked if you wish to allocate the maximum available space to this partition, press 'N' and enter the size of the partition required as 30,000 MB and press 'Enter'.

You will then be returned to the previous screen where you have to press '2' to create an Extended DOS partition and press 'Enter'. Choose to use all the available disk space for this drive because this extended partition will hold all the remaining partitions that you will be creating. You will once again be returned to the previous screen and you must now press '3' to create a Logical DOS drive in the Extended DOS partition and press 'Enter'.

Choose 30,000 as the size of the partition and press 'Enter'. Thereafter, you will be asked if you wish to create a partition in the remaining space. Press 'Y' and hit 'Enter' to use all the remaining space to create the last partition. Press 'Esc' to exit FDISK and reboot your PC and after formatting, your partitions are ready to use.

It is not possible to change the partition size of a drive on which your operating system resides unless you use a partition managing utility such a Partition Magic.

A To solve your problem, download and install the latest version of the Philips PSC705 sound card drivers from **www.philips.com** and the latest drivers for PixelView PlayTV Pro Ultra from **www.pixelview.com**. Also install the latest version of your display drivers and DirectX 9.0c. Your problem will be solved and you will be able to get clear sound without disabling your TV Tuner card.

Which Motherboard Do I Have?

Q **I have a Compaq Presario 5600, P 5 1.5 GHz, 128 MB SDRAM, nVidia VANTA 16 MB video card running Windows XP. However, on my motherboard, it says 'PC 133 SDRAM' only. Can I install DDR RAM on it? How can I determine which motherboard I am using? Would upgrading my SDRAM or buying a new motherboard with DDR RAM slot be beneficial? Also, I've heard that DDR RAM slots can be inserted in any motherboard. Is this true? I am an average gamer and particularly play racing games.**

Prateek Rajput, Via e-mail

A The Compaq Presario 5600 supports only SDRAM and hence, you cannot install DDR RAM modules. To install DDR RAM modules, a motherboard must have DDR RAM slots. Not all motherboards are equipped with DDR RAM and hence cannot have DDR RAM. Upgrading to a new motherboard with DDR RAM would definitely benefit you due to the high memory bandwidth on these motherboards. Utilities such as SiSoft Sandra 2005 from **www.sisoftware.net** and Everest 2.00 from **www.lavalys.com** can be used to determine the motherboard details of a PC in addition to other hardware and software details.

Need info on Hard Disc Drives?
Call 1600 180 11 04
Seagate

Get Help Now!

E-mail us your computing problems along with your contact details to **sos@jasubhai.com**, 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!

Removing Colour Profiles

Q **When I go to shutdown the computer, a blue screen appears and displays the following message: A fatal exception OE has occurred at 0187:BFF9DFF.The current application will be terminated.**

*** Press [CTRL] + [ALT] + [DEL] to restart your computer. You will lose any unsaved information in all application.**

Press any key to continue.

Arka Banerjee, Via e-mail

A A graphics/image program that you have installed is changing your monitor/printer ICC profiles. These are files that calibrate the colour for all the input and output devices. Find out which program is doing this and if there is an option to disable profile settings.

Alternatively, you can reset Windows to use the standard colour profiles by opening the 'Display Properties' in the 'Control Panel'. To do this, click on **Settings** > **Advanced** > **Colour Management**, where you will be able to view all colour profiles installed on your computer.

Remove all these profiles by clicking on each of them and then clicking on 'Remove'. Click on 'Apply' to apply the new settings. ■

PDA-phone Calling

Agent 001 hunts for the latest PDA-phones in the market and gets a prize catch

Of late, keeping up with the hectic schedule of being Agent 001 has been taking its toll. My daily chores include hunting for the right hardware, replying to the hundreds of e-mails you guys send me, at times helping colleagues in the Test Centre—and lots more. That kind of workload is enough to induce mild amnesia in most people, and I'm not among those who've been spared.

I tried using sticky notes on my PC, but that didn't help much. Also, my old faithful Palm m105 PDA has given up on me completely—it needs frequent battery changes, and the touch screen seems to have developed a snag. I nearly lost my job once for having relied on this piece of junk (OK, call me fickle)—it failed to notify me of a meeting with our CEO!

Even my Nokia 6600 is useless—synchronising it with my PC is a real pain. It could just be that I'm hooked to the good old 'Palm way' of doing things.

I needed something that would help me organise my daily work. A good PDA was my choice. However, that would entail carrying around both—a cell phone and a PDA. So why not a PDA-phone?

Now that was a good idea... worth a try at least. I quickly decided to look for a good PDA-phone that would help me stay organised, and at the same time, connected.

The best place in Mumbai for such stuff is Lamington Road, right? You're wrong; Heera-Panna (Haji Ali) and Alfa (Vile Parle) are the best places to get cell phones, PDAs and other fancy electronics.

I decided to visit Heera-Panna to get a feel of things. First visit: a shop choc-a-bloc with cell phones. I put up my requirements—a good PDA-phone, no more, no less.

A salesman urged, "Sir, try Nokia's new 7710—it's good." Quite a departure from the traditional design Nokia employs, the 7710 has a horizontal screen layout. The vendor told me it was based around Symbian's new Series 90 OS, and had some good features.

Illustration **Pradip Ingale**

The full QWERTY keyboard on the Treo 650 is a big plus for quick data entry

I test-drove it for a while. The phone indeed felt good, but the data input was not as slick as Palm's Graffiti, and was also sluggish at times. Priced at around Rs 21K, this is a good phone for beginners though. I was also shown the Communicator series of phones, but they're just too big and slow for my liking.

Being a Palm faithful, I wanted to try out the Treo series of PDA-phones. They even had the older Treo 600. Wow! The full QWERTY keyboard makes a huge difference. But the 600 doesn't have Bluetooth—a must-have feature, in my opinion. Also, it's relatively old. I then thought about the new Treo 650, but the shop didn't have it readily available.

In the next shop, I found a Treo 650. Nothing much had changed since the 600. I test-drove this baby, and found myself at ease—thanks to my familiarity with the m105. I was offered a best-price of Rs 35K for this one. Just as I was mulling over that figure, the salesguy offered to show me some new *maal* that had recently arrived from Dubai.

I wondered what it would be—a Motorola? Perhaps a Siemens? But out came an Xda II mini. This cute little thing is based around Microsoft's Pocket PC OS, and offers great integration with a standard PC. The device has a small form factor and is cute. I tried the data input and found it was as good as that on the Palm, in fact, even better at times. But the lack of a keyboard was a bit of a deterrent.

The salesperson sensed this and presented the new Xda IIs. Wow, another great device! But what about the price? It turned out to be Rs 40K. OK, I got the idea. I would rather get myself a flesh-and-blood personal secretary for that kind of money.

So eventually, what I had to decide between was the Treo 650 and the O2 Xda II mini. As far as specifications go, these devices are on par with each other. The O2 mini looks much better than the Treo 650, but then I don't give a hoot about looks. The full QWERTY keyboard on the Treo 650 is a big plus, and the Treo 650 also happened to be a little easier on my pocket.

So, in keeping with my Palm tradition, I opted for the 650—the latest Palm in the market. ☒

Want more of Agent 001? Turn over to read his answers to your buying questions

Ask Agent 001

Pinnacle For Video Capture?

Q I have an analogue Sony TRV 218 handycam, and I use my AVIOSYS TV-Tuner card to capture the video content on to my PC, a Pentium IV, and then convert the data to MPEG files. However, I am not satisfied with the results as the video doesn't turn out too well. I've decided to buy a capture solution from Pinnacle, the DVC 90. Do you think it's a good buy? Will it give me satisfactory results in terms of picture quality?

Dr S K Chowdhury

Although TV-Tuner cards support video capturing, they can't deliver good quality output due to hardware limitations. Pinnacle enjoys a good reputation in the market when it comes to capture devices, so despite not having tested the solutions, we can say that you won't be disappointed with their products. The DVC-90 is an entry-level video-capture solution, and should prove sufficient for your home videos. Since we haven't tested it yet, see a demo before buying it.

Should I Go Dual-Core?

Q I own an Intel processor-based assembled PC, and want to upgrade it. I have the AMD Athlon 64 in mind, but have heard about some heating problems associated with it. Also, there are two types of Athlon 64—754 pin and 939 pin; which would you recommend? Regarding compatible motherboards, ATi and nVidia offer various chipsets. Which one should I go for?

Do you know about any motherboard for the AMD Athlon 64 with inbuilt Bluetooth support? Can you tell me something about dual-core processors from Intel and AND? Are they any good for desktop computing, and will I be able to assemble a PC incorporating one at around Rs 35K to 45K?

Malkeet

The current generation of Athlon 64 processors run cooler than their predecessors. There are no heating issues; overheating was a problem with older Athlon XP processors. Based on the pin configuration, there are two types of Athlon 64 processors i.e., 754-pin and 939-pin. The former makes do with a single-channel controller, while the latter has an inbuilt dual-memory controller. Memory-intensive applications such as Photoshop, Maya and 3D Max will benefit from the extra memory bandwidth provided by 939-pin processors.

ATi and nVidia have chipsets for AMD processors. If you want to keep open an upgrade path for your AMD machine, bank on a chipset that supports PCIe. Consider motherboards based on nForce4 from nVidia and the Xpress 200 chipset from ATi as they support PCIe. For a good solution, look at boards based on ATi's RS480 chipset.

Both Intel and AMD have announced desktop dual-core processors. If you want to buy an Intel-based dual core solution, contact HCL, Zenith and LG, they have some ready-to-take-home models.

AMD is yet to launch dual-core processors in India; these will start shipping somewhere in October or November. Are they good? Well, they are, but to exploit their full potential, you need multi-threaded applications, which you don't have as of now.

If you want to keep open an upgrade path for your AMD machine, bank on a chipset that supports PCIe

Ask Away

Want a tech product, but don't know how to go about buying it? E-mail **agent001@thinkdigit.com** with your complete contact details and get your queries answered. Please mention your PC's detailed configuration to ensure consideration for this section

Good Gaming For 20K

Q I want to assemble a good gaming rig. I want to buy MSI's K8N Neo Platinum motherboard, AMD Athlon 64 3400+, and 512 MB of DDR RAM. Please suggest a PCIe graphics card that can play most of today's games, such as Prince of Persia, Half-Life 2, and more? My budget for the graphics card is Rs 15K to 20K.

Arun Kishore

Your choice of components for the motherboard and processor is spot on, and I don't need to advise you on those. However, try to get 1 GB of memory. For the graphics card, you can opt for an nVidia 6600GT chipset-based card from MSI, Asus or XFX. These cards cost Rs 13K. If you can stretch your budget to Rs 20K, an X800 chipset based-card could power your system to deliver the ultimate gaming experience.

More Bass, Please

Q I want to buy an MP3 player. The iPod Shuffle sounded good, but it doesn't have a display screen. Can you recommend a good MP3 player for about Rs 10K? I am looking for one with a display screen and good sound output with deep bass.

Shalabh Agarwal

The iPod Shuffle doesn't offer a display screen—that's about the only chink in its armour. Apple didn't tack on a display, so as to increase playback time and preserve battery life.

For around Rs 10K, I'd suggest you go for the iPod Mini 4 GB player, which retails for just a little over Rs 10K. If 10K sounds a little stretched, look at Creative's MuVo series. The MuVo series has many feature-rich models and are available in varying memory capacities—from 128 MB to 1 GB.

As far as deep bass is concerned, it'll mostly depend on the phones and not on the player. Buy good-quality earphones or headphones; ones provided with the players are seldom good.

6600 Or K750i?

Q I want to upgrade my mobile handset. Can you suggest one that has video capture, Bluetooth, display, and MP3 support? My budget is around Rs 13K. The Nokia 6600 is available for around that price. Is it true that the 6600 can only record 10 seconds of video? Can that limit be increased by adding a memory card? What do you think of Sony-Ericsson's K750i? Is it better than the 6600? If so, how much does it cost?

D Srinivas

Considering your budget, I'd advise you go for Nokia's 6600 or SE-T630. Both these phones have features you asked for. I am not sure about the video recording on the SE T630; check it with a dealer. But yes, the Nokia 6600 supports only 10 seconds of video capture. Adding a memory card will not increase the recording time, since it is an OS limitation and not a memory-related issue.

The Sony Ericsson K750i is superior to Nokia's 6600 in both features as well as performance; hence you shouldn't compare them. The K750i retails for around Rs 19,000. ☒

94 Testing Printers & MFDs
110 Are You Game?
112 Monitoring E-mails

Case Study

A Lossless Compression

Compressing, transmitting and archiving important medical reports is just what the doctor needed

Mithun Kidambi

Ever wondered how hundreds of echocardiograms get stored in a hospital? Actually... how many of us even know what an echocardiogram is? Simply put, an echocardiogram is a study of the heart using high-frequency sound waves.

The objective of an echocardiogram is to visualise the heart chambers, thickness of the muscle wall, heart valves and major blood vessels located near the heart. A non-invasive procedure, there is no cutting and sewing involved. The picture obtained is more detailed than an X-Ray image. This test is used in the diagnosis of a number of heart conditions.

Now that you are familiar with an echocardiogram, let us understand the importance of image and data compression technology to store multiple echocardiogram records without any quality loss.

Archiving, A Necessity

A lot of hospitals and clinics around the world keep an archive of these records in an analogue format, such as cassette tapes. In the West, the law makes it necessary for clinics and hospitals to maintain these records for a period of at least seven years, whereas India has no such law pertaining to medical records.

In the event of such legislation here too, hospitals will have to invest lots of money into setting up and maintaining databases, analogue or oth-

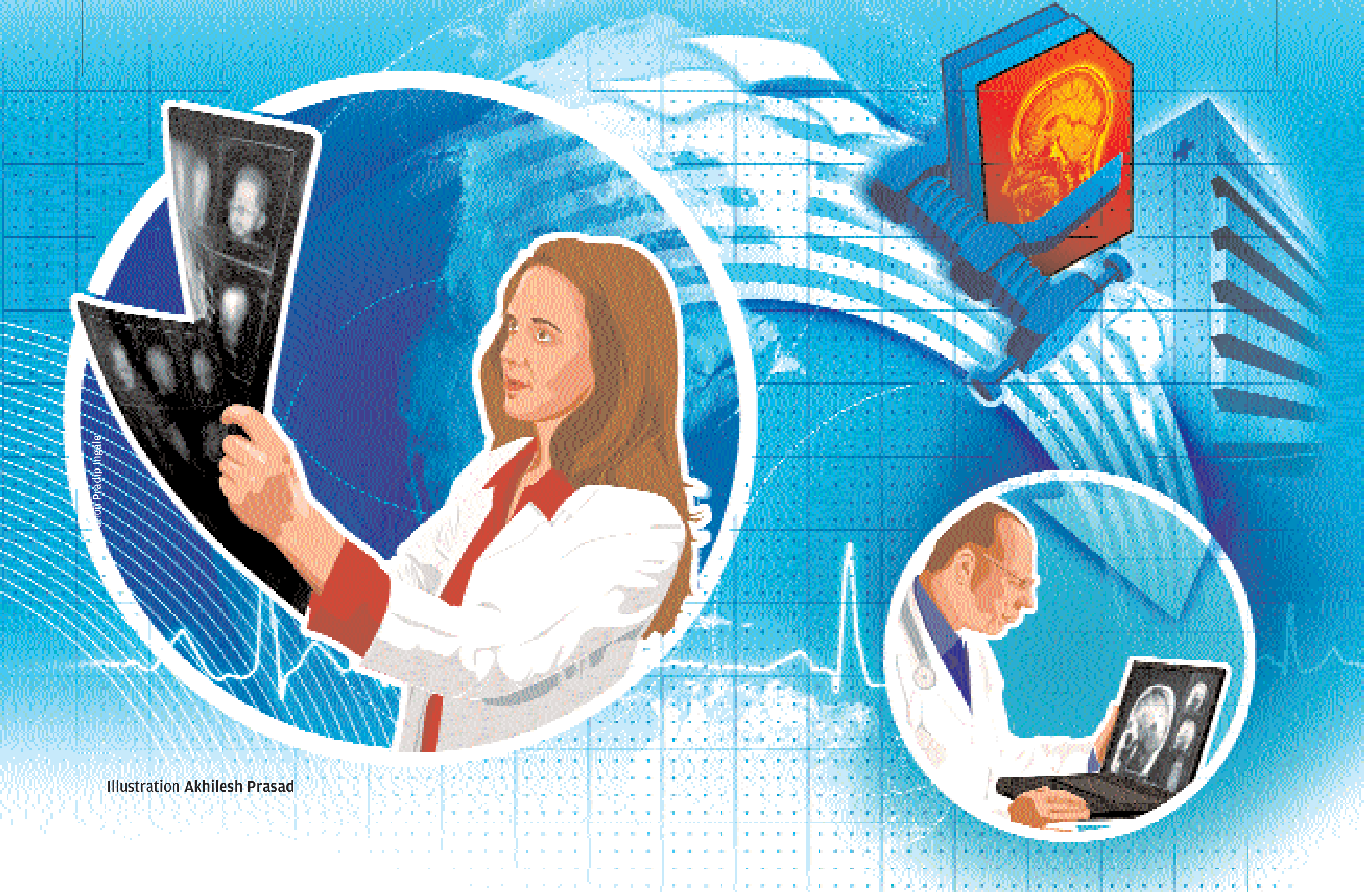

Pradip Ingale

Illustration **Akhilesh Prasad**

erwise. Now, any analogue storage system can deteriorate under humid conditions. Also, maintenance of these tapes needs considerable time and money. If the hospital has a large number of records then indexing, labelling and retrieval of data would need a separate department. What do you do in such a situation—computerise?

However, if the data to be stored is huge, you would also need to compress it. As such, compression involves some loss of quality, the loss being directly proportional to the compression ratio. This is where the new technology comes into play. Called 'EchoView Convert', this compression technique was developed by the Singapore-based MatrixView Technologies who also have a research centre in Chennai.

MatrixView claims its compression technique as the "world's first completely digital echocardiogram storage and retrieval system at mathematically lossless quality and high compression ratios."

A Step Towards The Future

Sri Sathya Sai Institute of Higher Medical Sciences at Whitefield, on the outskirts of Bangalore, is one of MatrixView's clients in India. The institute is a hospital set up by the Sathya Sai Trust. Though the hospital renders its services for free, it has state-of-the-art equipment and technologies in place.

Keeping with the idea of providing the highest quality medical aid for free even to the poorest, the hospital converted all its VHS (analogue tapes), and patient records into a digitised format. This allows doctors to pull up patients' records, at any given time, on their systems. The hospital also has a 1 Gbps LAN (Local Area Network) connection.

To facilitate the conversion and archiving of analogue tapes is where MatrixView came into the picture with their proprietary EchoView system. Recommended by a visiting surgeon from the USA, who saw EchoView in action in a few Auatralian hospitals, Sri Sathya Sai Institute decided to do away with its analogue archiving systems in favour of the new technology.

As mentioned earlier, EchoView is a hardware solution that captures the Echocardiogram directly while the scan is in progress. These images are then optimised with ABO (Adaptive Binary Optimisation), a proprietary compression technology, and archived in MatrixView's .mvu format. Using an existing LAN network, such images are easily retrieved.

The Upside

Does EchoView help the institute to get the desired results? What about the cost involved? How does it benefit the patients and the hospital? Praveen Vemula, Technical Officer in charge of Hospital Administration at the institute answers, "EchoView has reduced costs and increased convenience. Doctors can now take an echocardiograph of every patient with a heart ailment and refer to it by just logging on to the local network. This ensures an easier tracking of a patient's record."

The system has been in use for six months now. The personnel of the Cardio OPD (out patients department) of the hospital, which sees a large number of patients daily, are highly impressed. However, what about the USP of software—compression of all the data with almost zero loss in quality? "Earlier we used the JPEG compression technology. This afforded us a compression of up to five per cent the original file size," says Praveen.

> **The compression ratio is so high that even after a high inflow of patients, storing all their echos and ultrasound scans is not a problem"**

Praveen Vemula
Technical Officer,
Hospital Administration,
Sri Sathya Sai Institute of
Higher Medical Sciences

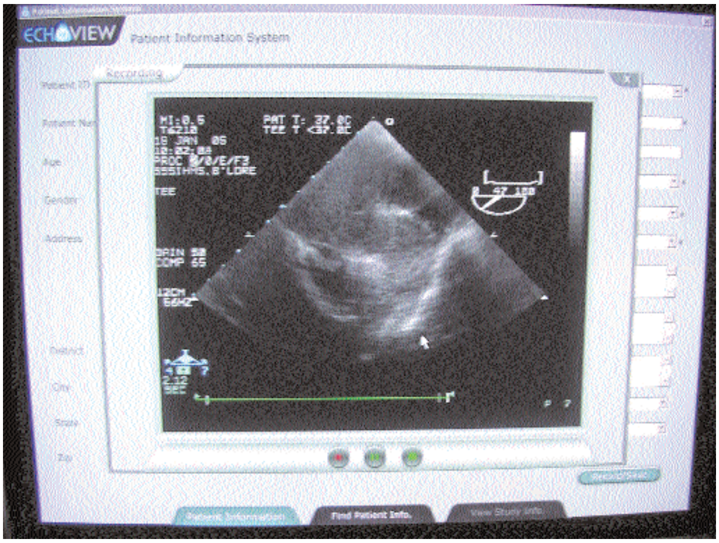
Compression Ratio Comparison

	EchoView	JPG	JP2
Average Compression Ratio	32.9 times	7.3 times	8.5 times

Source: Ernst & Young Test Report

Medical images and files such as an echocardiogram are highly detailed, and therefore, huge. Typically, each raw image, which means each file (an MRI scan or an echo), is around 2-3 GB. A five per cent compression still leaves a file size of around 1 GB. With EchoView, which uses the ABO compression technology, the image can be compressed by around 35 times.

So instead of storing a 3 GB file, you're left with a 70 MB file. "Considering the Cardio OPD sees close to 120 patients a day, the EchoView system has saved us a huge amount of disk space, without affecting the quality of the image," opines Praveen.



Doctors can view the patients medical reports in detail

The Flipside

Coupled with space saving, minimal loss of quality, zero maintenance cost and the 24-hour accessibility, EchoView is a killer application. What could the possible grouses be? "Doctors prefer the software to be customised as per their requirements. This is taking a bit longer. Being a turnkey application this problem was expected. The hardware compatibility issues that cropped up were due to limitations of the hardware than any glitch in the software," says Praveen.

With digitised archiving of important records such as the echo and ultrasound scans, Sri Sathya Institute has taken a step further in keeping its equipment and technologies among the best in the world. ■

mithun_kidambi@thinkdigit.com

Making An Impression

Photograph Jiten Gandhi Imaging Pradip Ingale

Continued evolution in printers and MFDs has ensured improved features and reduced prices. So, which is the right one for you?

Varun Dubey and **Jayesh Limaye**

It's been roughly a year since our previous laser printer tests and boy, have the markets changed since then! During this period, the fight between inkjets and lasers has intensified, but the laser camp is rejoicing—they have some solid, positive reasons working for them.

Gone are the days when laser printers were the domain of only the rich multinational corporations that had the capacity to shell out way too much money for bulky, ugly-looking devices, which seemed more appropriate in a boxing ring than in a swanky office.

Even in terms of market size, the equation has changed. The market has grown tremendously, as a recent survey revealed. According to a survey by US-based research agency AMI, Indian small and medium businesses spent nearly half a billion dollars on printers in FY 04-05. What's more, the market is expected to grow at a fair clip of about 20 per cent this fiscal.

So with all this action happening, it seemed wise to take the plunge and find out what the fuss was all about. This test will help you decide which laser device is ideal for your business! We segregated the devices into three broad categories for the tests: colour laser printers, mono laser printers and mono laser MFDs.

MONO LASER PRINTERS

The mono lasers, based on their duty cycles, were divided into two groups—with duty cycles of 15,000 pages per month and below, and those with duty cycles of over 15,000 pages per month.

The former category is aimed at the SoHo segment—SoHo printers aren't required to print many pages on a daily basis. Printers that could easily print in excess of 15,000 pages per month were put into the 'Workgroup' category—ideal for larger businesses that need a workhorse for a printing machine.

SoHo CATEGORY

Features

The mono lasers (black and white) we received were surprisingly small and nothing like the bulky devices we are used to. Once unpacked, the extensive packing made us suspicious of their build quality.

The Samsung printers beat everyone quite comfortably, as they were the sturdiest of the lot—a noteworthy mention is the Samsung ML2250, which had a smooth, classy finish. Keeping with tradition, the Lexmark E230 looked sturdy and classy as well. This black-and-silver beauty will add to the looks of your designer office!

Once we were done with the exterior inspection, we proceeded to note down their other features. We started with the capacity of the paper trays—because all of us have, at some point or another, been in a rush to print out a report and seen the "Paper Tray Empty" message.

Judging by their compact build, we weren't too hopeful. Again, we were surprised! Almost all printers in this category matched the capacity of the Workgroup category—a 250-page tray.

The exceptions in this were the Canon LBP 2900 and WeP 1600, which had 150-page trays. In fact, WeP decided that even their workgroup printer would not need too many pages at once, and included only a 150-page tray in their WeP 2500 model.

The Canon LBP 2900 and Lexmark E230, allow you to add a paper tray; something the others don't. Not one of the printers we received, though, could perform automatic duplex printing.

In terms of box contents, the Canon LBP 2900 was the only printer to ship without a data cable. For their '1600' printer, WeP decided to go retro and shipped a Parallel Port cable. Thankfully, the rest shipped with USB cables. USB 2.0 was the overall choice, but if you need them, all the printers also had Parallel ports.

The Canon LBP 2900 and 3200 came without a troubleshooting guide. The concept of providing manuals in PDF form is catching on fast, as it saves the manufacturer a bundle in printing costs.

However, we should here mention that connecting printers has become easier and a troubleshooting guide isn't really required anyway! Lexmark, however, bundled every manual you could possibly think of!

One observation was that all SoHo printers were missing LCD screens and just had some buttons placed on the device, coupled with a few blinking LEDs.

One major thing we found missing was support for different OSes. As a business, the last thing you want is to have to bear the cost of deploying separate printers for each group of OSes that run on your network.

Here, the Samsung and Lexmark printers outshone every other printer with support for Windows, Linux and even MACs. The rest only support Windows and/or Linux. Keep this in mind if your company uses MACs.

We then came to one of the most important features in an office printer: Network support. You will need Ethernet support if you plan to deploy the printer on an office LAN. Unfortunately, none of the printers were network-ready. The Lexmark, both Canons and the Samsung ML 1710P, at least had the option of upgrading to one later. So, if you feel your business might grow and need a network-capable printer in the future, choose one of these for your office.

One observation was that all SoHo printers were missing LCD screens and just had some buttons placed on the device, coupled with a few blinking LEDs

Performance

With inspections and observations out of the way, it was time to get on with the tests.

We started by noting down their warm-up times. This is the time a printer takes to get 'ready' to print its first page. Despite claims by Canon about zero warm-up time, we found that their LBP 2900 and 3200 printers took 6.1 and 5.2 seconds respectively.

Though the Canon LBP 3200 had the shortest warm-up time, the Xerox 3116 was a close second at just 5.4 seconds. Samsung's ML 1710P and WeP's 1600 came in last with times of 10 and 9.8 seconds respectively.

Keep in mind, however, that although some printers may take longer to warm-up it's the printing speed and quality that eventually matter more. For a SoHo environment, a 10-second wait for the first print may not matter so much!

In terms of print speeds, the fastest were the Canons—the LBP 3200 being the fastest. It managed to print our text test pages in a mere 9.06 and 9.16 seconds at 'Normal' and 'Best' qualities respectively.

The Canon LBP 2900 took 11.33 seconds at Normal quality, and 11.4 seconds in Best quality mode. A pattern was emerging: hardly any time difference between printing in Normal or Best modes was being thrown up. The sole exception to the rule turned out to be the WeP 1600. At 14.2 and 24.6 seconds respectively, it finished last.

Photographs Sandeep Patil Imaging Sivalal S

Xerox Phaser 3116

If you need to print a large volume of documents, but do not really need photo-quality printouts, the Canons are perhaps your best bet—they'll save you a great deal of time. At an average rate of 3 seconds saved per print, your employees will wait 3,000 seconds less for every 1,000 documents printed—or more succinctly, close to an hour of work time saved per 1,000 prints!

Since these printers are meant for offices, they will be called on to print documents containing graphs, charts and text. We also tested all the printers with our combi-document.

Here, the Xerox 3116, with a score of 12.43 seconds, narrowly beat the Canon LBP2900 and LBP 3200 with scores of 12.55 and 12.57 seconds respectively. Coming in last, again, was the WeP 1600 with a time of a little over 16 seconds. Quantifying this further, a 4-second deficit means 66 minutes wasted for every 1,000 prints!

Surprisingly, apart from the WeP and Xerox, all printers were even faster when printing in 'Best' quality mode, returning faster scores than when printing in Normal mode!

We really were disappointed with the WeP 1600, which took over 27 seconds to churn out the page. This is probably due to a slower buffer memory, but the fact remains that it took twice as long as the Canon LBP 3200.

Speed, however, is not always the deciding factor when buying a printer. No client will be

How We Tested

Our test bed comprised a Pentium 4 3.2 GHz processor plugged onto an MSI 75P Neo FISR2 motherboard with 512 MB of Corsair 400 MHz DDR RAM, a Gainward nVidia GeForce FX 5950 graphics card, and a 250 GB 7200 rpm SATA Maxtor hard disk. We used Windows XP with SP1 as the OS, and the system was loaded with the latest chipset and graphics drivers. We also installed the USB patch for XP and connected the devices on the USB 2.0 port for optimal performance. We used 100 g/sm paper from Berga (A4 size) for printing.

Categorisation

The printers were categorized as colour printers and monochrome printers.

We further divided monochrome printers into two sub-categories: those with duty cycles of less than 15,000 (SoHo) and those with more than 15,000 duty cycles (Workgroup).

Laser printers

Features: Printers were rated on various features: Duty cycle, memory card readers, duplex printing, input and output tray capacity, input buffer, maximum resolution supported by the printers, and so on. They were rated on the basis of features they supported.

Performance: We tested the performance on three parameters; speed, quality, and efficiency.

Speed and Quality Test: We used a text document to test the raw print speeds of the printer. The quality settings used were Normal and Best. To test their ability to handle various aspects of a regular document, we created a combi-document with black text, interspersed with graphs and images. We clocked the time it took them to print this document in normal and best quality modes, and analysed the print quality. The final test for colour printers was the photo test, where we printed an A4 size image. We clocked the time taken to complete the print and examined the quality of the print. The settings used here were the highest quality available.

Laser MFDs: MFDs have a scanner, printer and copier. Some even have fax facility. MFDs with fax facility earned bonus points.

Features: The printer part of the features that were noted remained the same as in the laser printers. In the scanner part, the maximum scan resolution, bit depth, scanner type, scanning element, scanning area, etc., were noted. In the copier and fax part, the ability to work as a standalone device, maximum number of copies in multi-copy mode, memory for storing fax pages, and more, were noted.

Printer Test: The test process here was exactly the same as that of the laser printers.

Scanner Test: We tested the scanners for speed using an average of five previews of an A4 size image. This was done when the scanner was fresh out of the box to incorporate the warm-up time. Scanners with a higher warm-up time didn't fare as well as the others. We also tested the warmed up scanners to negate any possibility that a scanner might scan faster than the others once warmed up.

We imported the same A4 size image at 150 dpi and 600 dpi, in Adobe Photoshop, and scanned a full text document in B&W mode at 200 dpi. The scanner then underwent a test to determine its colour differentiating abilities using a Kodak IT8 card with different shades of colour-each with a little difference from the preceding one. Next, we tested the resolution card to figure actual scanning capabilities by checking for its native resolutions. We scanned the card at 300 dpi at threshold colour depth to see how many boxes it could differentiate in between the lines. Finally, we did an OCR test to check the scanner's ability to differentiate light and dark areas. A print article was scanned into ABBYY FineReader Pro 7.0, and verified for wrongly-interpreted letters in the software. We then gave a percentile value to the devices.

Copier

We copied a text document in B&W and rated the MFDs on their speed and quality of the printout.

Warranty and Price: The number of years of warranty, type of warranty, number of authorized service centres, price of the printer and the toner and the rated cost per page were also taken into account and rated accordingly.

How the Awards Are Given

The scores from features, performance and price were given weightages suitable to the category. An overall score out of 100 is calculated. The product that scores the highest here is adjudged the winner of the Best Buy Gold award for this category. The second highest score gets the Digit Best Buy Silver award.

BEST BUY
digit
AUGUST 2005

Canon LBP 2900

impressed by the fact that you have a 10-second printer—it's the quality of print that matters most.

Smudged and faded printouts are a definite no-no for business prints, and we checked the printers for the quality of text print, using our point size document.

The first printer we tested was the Canon LBP 2900. The quality of print was simply amazing, with a crisp, bright look, and even the smallest of point sizes perfectly legible. The Samsungs (ML1710P and ML1520P) and Lexmark's E230 matched the Canon letter for letter, with good quality prints.

Judging by the quality of prints, we felt that the Lexmark focussed more on quality than on speed. Throughout our quality tests, the Lexmark took the Canon 2900 head-on, and even edged ahead a few times.

The printer that disappointed us, throughout was the WeP 1600. It spat out some dull-looking prints. The Canon LBP 3200 was not much better, and seemed to have sacrificed greatly on quality to gain speed, and ended up second last in the text printout quality test.

Another point to note here is that the Samsung printers had only 300 and 600 dpi resolutions, while the others had 1,200 dpi as their best. Yet the Samsungs held their own...

All this testing showed us that the Canon LBP 2900 was the fastest and among the best in terms of the quality. So, if black and white text printouts are all you need, buy this one now!

Getting back to the tests, the difference in resolutions would become clearer if we used image- or graph-heavy documents, and so, obviously, we did a quality check of our combi docs as well. We tested in both, Normal and Best modes and the results were more or less identical. This proved the very impressive quality of the printers, even in Normal mode.

The clear winner, in terms of performance, was the Canon LBP 2900. This printer sacrifices marginally on speed, but gains an incredible advantage in terms of quality.

The Xerox 3116 had the worst results, and the Samsung ML1520P matched it smudge for smudge! In both cases, the reverse document, with white text on a purely black background, was nowhere close to legible.

The Samsungs faltered because of the 600 dpi limitation, and Xerox was a disappointment in terms of scores.

BEST BUY
digit
AUGUST 2005

Lexmark E230

There were surprises to come, especially when we saw the WeP 1600 tying for second place with the Samsung ML1710P.

Although this printer could print at the same resolution as the 1520P, it gave us our best scores on the white text on a black background box and just about edged out the others in the resolution of the pie-chart test. Here, it was joined by Xerox, which scored the same.

We were quite sure that the 3200 would win all speed tests, but once we were through with the quality tests, everything went haywire...

The final tests also included a warranty check. A long warranty period with on-site warranty is naturally preferred. In terms of number of years, all except Canon and Lexmark provided a 3-year warranty, and all, except WeP and Xerox, provided on-site warranty.

At 100, Samsung in India has a fairly large number of service centres, WeP has 190. Xerox had only 100 service centres, and was beaten to fourth place by Canon with 130.

Coming in last was Lexmark, which offers only a 1-year on-site warranty, and just 34 service centres across the country for support.

Now the biggest cost you will incur (apart from buying the printer) will be the cost of printing the pages. A few manufacturers will give you the printer with a starter toner that has less capacity than the ones you would buy in the market. When it runs out, you will to buy a new one. So we did a per page cost comparison.

We noticed that only WeP and Xerox were shipping their printers with starter toners, which can print about 1,200 and 1,000 pages respectively. A fresh toner can print roughly 3,000 pages—almost thrice as much.

The Canon LBP 2900 was the least productive, with a toner life of 2,000 pages. Lexmark offered 2,500, and all the others promised a toner life of about 3,000 pages.

In terms of cost per page, the Canon LBP 3200 reigned at only Rs 1.16 a page. The Xerox 3116 came in second costing Rs 1.25 per page, while a Lexmark printer would set you back by Rs 1.3 per print. A Samsung, though, will cost you all of Rs 1.49 per page.

Surprisingly, the Canon LBP 2900 was more expensive to use in this regard despite being one of the cheapest printers. It sets you back by Rs 1.74 per page.

So it is clear that the speed and quality of the Canon 2900 comes at a slight premium in terms of cost per page. Though a difference of 60 paise might not seem like much, when you extrapolate this over the life of a toner, you end up spending Rs 1,200 more per toner than with the Canon 3200. The cost per page becomes a deciding factor for businesses that have high volumes of printing.

Conclusion

As you may have guessed, the fight was extremely close. The verdict is that the Canon LBP 2900 just about edged out the Lexmark E 230 to take the *Digit* 'Best Buy Gold' award.

The Lexmark E 230 was a surprise winner here. We thought it would lose out hugely in terms of speed but it seemed it had more than made up for it in terms of quality, features and price. So, the *Digit* 'Best Buy Silver' award goes to the Lexmark E230.

WORKGROUP LASER PRINTERS

Having just finished working with printers from the SoHo category, one startling difference we noticed when moving on to workgroup printers was the size. Not all of these printers were as compact as the previous category—the Samsung 2551N and Brother 6050D, for instance seem to be saying "bigger is better".

Since our last test with inkjets, the Brother printers have improved incredibly in terms of ease of installation. There were no hiccups this time around, and even the earlier infamous Brother installer program has been has been improved upon. The signs are encouraging!

It was Samsung, though, that won the ease-of-installation award! There's AI at work for sure, because the installer just magically does everything quickly and automatically without any nagging questions or instructions.

In contrast, the Brother installer prompts you to connect the printer, and if you tried to be cheeky and connected it earlier, the printer is just not detected.

Samsung 1520P

Buying Guide

When buying a laser printing device, you must consider your options carefully. Unlike software, there are no upgrades to features, so if you miss out on a feature that you may require later, you have no option but to buy a new device.

Options You Should Look For

At the end of the day, a couple of seconds here and there in terms of printing speeds don't really make much of a difference, but what matters really are the features provided 'on-board'.

Duplex Printing: This means printing on both sides of the printer automatically. This option is very important as printing on only one side of the paper is a waste, and results in increased paper costs. A lot of laser printers come with Automatic Duplex print as an option, and should be preferred over printers that don't have this feature, or only provide manual duplex—you need to manually flip the paper and put it back in the printer.

Networking: This is extremely important if you are using your printer in a business or SoHo environment, where multiple users need to be able to print using one printer. You can just set up and share a networking printer and allow all users to print directly to the printer. Some printers offer networking as an option, so you need not pay for the feature now, but you need it later you can add a network card.

Memory Buffer: This feature becomes important when considering a networked printer. You should have an adequate memory buffer to speed up the printing process if a lot of people will be using the printer.

Additional Paper Trays: As your company grows, your printing needs too, will grow. You should look for a printer that allows you to add additional paper trays, so that people are saved the hassle of filling up the paper tray.

Size: Although not as important as the first four aspects, size does matter, especially if your office is small and space is at a premium. Bigger devices can generally handle heavier workloads, so factor this in as well accoording to your company's printing requirements.

Keep the points mentioned above in mind when making your final decision. Choosing the right device can save you a lot of hassle and money in the long run.

Feature Set

In terms of resolution, the Samsung ML 2250 and 2551N were the only ones to offer a real 1,200 x 1,200 resolution, while the rest managed 600 dpi.

In terms of paper tray capacity, the Samsung 2551N and the Brother HL-6050D were way ahead of the competition and provided a 500-page tray as compared to 250 pages for the majority and a mere 150 for the WeP 2500. Except for the WeP 2500, all printers provided an option of adding another tray to boost paper input capacity.

One feature that was found sorely missing on Samsung's 2250 and 2551N as well as the Xerox 3420P, was automatic duplex printing. All other printers offered this.

In terms of the bundled accessories, almost all printers were similar, except for the Brother HL 5170DN, which did not have a data cable, and the WeP 2500, which came with a parallel data cable.

As for operating system support, every printer in this category supported Windows, Linux and Mac. The exception was the WeP 2500, which also had support for Unix—the only printer we've come across in all categories to offer this.

For a workgroup printer, a screen is essential, because you need to be able to set certain functions without having to muck around with the printer drivers.

The Brother HL 5170DN, Samsung 2250 and WeP 2500 were the only ones without one. While the lack of a screen is forgivable in the SoHo category owing to lower prices, it is sacrosanct for a Workgroup printer.

As for operating system support, every printer in this category supported Windows, Linux and Mac

Thankfully, all printers in this category had USB 2.0 capability, as well as a parallel port connection. Networking was more important though, and all except the Xerox 3420P were either network-ready or offered an upgrade option. We fail to fathom how Xerox omitted a networking option on their heavy duty printers.

In terms of build quality, the Samsung ML2250 was a clear winner, with the Samsung 2551N coming in second. Both these printers are extremely sturdy.

Rounding up the bottom half was was the WeP 2500, which really looked shoddy compared to the Samsungs. To be fair to it, though, it's not like the WeP would crumble if you touched it, and was reasonably sturdy—it's just that the Samsungs are just built like brick walls!

Performance

We now come to the part where we stop judging a book by its cover, and put these devices through the rigours as we did in the SoHo category.

In terms of warm-up speeds, none could touch the Brother 5170DN and 6050D. They clocked just 5.9 and 6 seconds respectively for their warm-ups.

The worst performer here was the WeP 2500 with a whopping 20-minute load up time. The first time you insert a toner cartridge, it loads a lot of toner to enable subsequent faster printing, which was apparent later on, as this was one of our faster printers from here on! The Xerox Phaser 3420P came in third behind the Brothers with a time of 19 seconds.

Though warm-up times are important, if you need to print documents continuously, you need not pay too much attention to these times.

Moving on with the speed tests, the WeP 2500 easily outclassed everyone here with text print times (Normal and Best) of 9.35 and 9.377 seconds respectively, followed by the Brother 6050D at 10.95 and 13.29 seconds respectively.

Coming in last was Xerox with scores of 13.52 and 15.11 seconds respectively.

For the combi-document, the Samsung beat the WeP with ease, logging times of 12.75 and 14.53 seconds, as compared to 16.3 and 18.12 seconds for the WeP 2500.

BEST BUY
digit
AUGUST 2005

Brother HL 6050D

WISDOM OF THE ORIENT SERIES #25

申
午
(一)
酉
丙
(二)

"Wise men subscribe
when the time is ripe.
The unwise keep
waiting for a better offer
that may never come"

BHEJ TU CHEK, PHILOSOPHER

A public interest message issued by digit

Scoreboard

SoHo Laser Printers

BRAND	**Canon**	**Canon**	**Lexmark**	**Samsung**	**Samsung**	**Wipro**	**Xerox**
Model	**LBP 2900**	**LBP 3200**	**E230**	**ML-1520P**	**ML-1710P**	**WeP 1600**	**Phaser 3116**
Features	17.34	15.12	21.17	14.61	17.38	9.96	11.25
Printing							
Printing technology	Laser	Laser	Laser	Laser	Laser	Laser	Laser
Resolution (dpi x dpi)	600x600	600x600	600x600	600x600	600x600	600x600	600x600
Paper capacity for Default tray	150	250	250	250	250	150	250
Additional paper tray facility	✓	✗	✓	✗	✗	✗	✗
Dual Side Printing	✗	✗	✗	✗	✗	✗	✗
Accessories							
Data cable	✗	✓	✓	✓	✓	✓ (Serial)	✓
Power cord	✓	✓	✓	✓	✓	✓	✓
Detailed User Manual	✓	✓	✓	✓	✗	✗	✗
Troubleshooting guide	✗	✗	✓	✓	✓	✗	✓
Quick setup guide	✓	✓	✓	✓	✓	✗	✓
Misc features							
Printing Languages Supported	CAPT	PCL6/PS3	PS3/PCL6	GDI	GDI	PCL5e/PS3	NA
OS Support	Win/Linux	Win/Linux	Win/Lin/MAC	Win/Lin/MAC	Win/Lin/MAC	Win/Linux	Win/Linux
LCD Screen (Color/B/W)	✗	✗	✗	✗	✗	✗	✗
Interface (USB 1.1/2.0/Parallel)	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel
Menu structure							
Ease of use (scale of 5)	No Screen	No Screen	No Screen	No Screen	No Screen	No Screen	No Screen
Toner Duty Cycle (Bundled - No. of Pages)	2000	3000	2500	3000	3000	1200	1000
Toner Duty Cycle (New - No. of Pages)	2000	3000	2500	3000	3000	3000	3000
Networking capabilities (Y/N/Optional)	Optional	Optional	Optional	✗	Optional	✗	✗
Build Quality							
Breakable flaps/moveable parts (Out of 5)	3.75	2	4	4	4	3	3.25
Transport locks/tapes parts (Out of 5)	2.5	2	4	4.25	4.25	4.25	3
Moveable parts in cartridge bay (Out of 5)	4	3	4	4	4	4	4
Performance	23.18	23.29	20.44	19.06	19.45	16.30	20.23
Speed test (Seconds)							
Warm Up Time	6.1	5.2	8	8	10	9.8	5.4
Text print (B/W) Normal	11.33	9.06	12.15	12.11	12.74	14.2	11.82
Text print (B/W) Best	11.4	9.16	12.13	12.36	12.37	24.06	12.58
Combi document- Normal	12.55	12.57	16.8	14.45	15.1	16.22	12.43
Combi document-Best	11.31	10.9	15.81	14.2	12.37	27.69	14.89
Quality Test							
Text quality (Point Size Document - Out of 5)	4	3.25	4	4	4	3	3.75
Image quality (Combi, Normal, Out of 5)							
Text print (B/W)	3.75	3	3	3	3	3	3.5
Resolution of circles on concentric pattern	3	2	3	2	2.75	2.75	2
White text on black background	3.75	2.5	2	1.5	1.5	2.25	1.75
Minimum readable text point size	3.25	2.5	3.25	2.5	2.25	3	2
Image quality (Combi, Best - Out of 5)							
Text print (B/W)	3.75	3	3.25	3.25	4	3.25	3.75
Resolution of circles on concentric pattern	3	2	3.25	3	3.25	2.75	3.25
White text on black background	3.25	4	2	2.25	2.75	2.5	2
Minimum readable text point size	3.25	3.25	3	3	3.25	3.25	2.25
Warranty Details	6.82	6.82	3.80	8.13	8.13	7.25	5.92
Number of Years	2	2	1	3	3	3	3
Type (Onsite/Carry In)	Onsite	Onsite	Onsite	Onsite	Onsite	Carry In	Carry In
Number of Authorised Service Centres	130	130	34	165	165	190	100
Price	13.02	12.27	14.86	11.56	8.89	13.54	13.87
Price of Printer (Rs)	9995	11995	8999	11990	16990	9999	9990
Price of Toner (Rs)	3495	3495	3365	4499	4499	4200	3750
Rated Cost Per Page (Rs)	1.75	1.17	1.35	1.50	1.50	1.40	1.25
Overall Score (Out of 100)	**60.36**	**57.50**	**60.27**	**53.37**	**53.85**	**47.05**	**51.28**

In our combi-document test, we were surprised by the Samsung 2551N, which took a confusing 156 seconds to print in Normal mode and 160 seconds to print at Best quality. These figures made it lose out immensely.

The results suggest that in an environment where you need to only print text documents, you should opt for the WeP 2500, since it will print all your documents fast, and without compromising on anything visible in terms of quality.

Having finished with the speed tests, it was time for the quality tests...

In the text quality test, the Xerox reigned supreme, followed by Brother's 6050D and 5140. The worst performer in this test was was the Samsung 2551N.

In the 'white text on black background box' in our combi-document, the Brother 5170DN, WeP 2500 and Samsung ML2551N tied for the top honours, but sadly, were still nothing special.

Others, such as the Xerox Phaser 3420P, smudged the prints. All manufacturers, except Xerox and WeP, offered a 3-year on-site warranty.

In terms of economy, the Brother HL 6050D was the most economical with a cost of just 63 paise per page.

BEST BUY digit AUGUST 2005

BEST BUY digit AUGUST 2005

Workgroup Laser Printers

Brother	**Brother**	**Brother**	**Samsung**	**Samsung**	**Wipro**	**Xerox**
HL-5140	**HL-5170DN**	**HL-6050D**	**ML-2250**	**ML-2551N**	**Wep 2500**	**Phaser 3420P**
24.33	25.97	26.69	22.44	26.62	15.96	17.78
Laser	Laser	Laser	Laser	Laser	Laser	Laser
600x600	600x600	600x600	1200x1200	1200x1200	600x600	600x600
250	250	500	250	500	150	250
✔	✔	✔	✔	✔	✖	✔
✔	✔	✔	✖	✖	✔	✖
✔	✖	✔	✔	✔	✔(Serial)	✔
✔	✔	✔	✔	✔	✔	✔
✖	✖	✖	✖	✔	✖	✔
✔	✔	✔	✔	✔	✖	✔
✔	✔	✔	✔	✔	✖	✔
PCL6	PCL6/PS3	PCL6/PS3	PCL6	PCL6/PS3	GDI	NA
Win/Lin/MAC	Win/Lin/MAC	Win/Lin/MAC	Win/Lin/MAC	Win/Lin/MAC	Win/MAC/Linux/Unix	Win/Linux
✔ B/W	✖	✔B/W	✖	✔B/W	✖	✔/B/W
USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel
4	No Screen	4	No Screen	3.5	No Screen	2.5
3500	3500	7500	5000	10000	3000	5000
3500	3500	7500	5000	10000	6000	10000
Optional	✔	Optional	✔	✔	Optional	✖
3.75	3.75	4	4	4	3	4
4.25	4.25	3.75	4.25	4	2.5	4
4	4	4	4.25	4.25	4	4
20.65	23.03	23.49	18.74	15.00	19.36	16.23
20.63	5.9	6	30	8.26	1200	19
9.63	10.41	10.95	11.36	14.08	9.35	13.52
13.72	13.63	13.29	16.8	18.85	9.77	15.11
14.77	12.8	12.75	11.79	156.33	16.3	29.99
16.84	15.03	14.53	17.96	160.96	18.12	66.69
4	3.75	4	3.5	3	3.25	4.25
4	4	4	3.25	3	3	3.25
3	2.75	3	3	3.25	3	3.5
2.5	3	2.75	2.5	3	3	2.5
3.5	3	3.5	2.75	3	2.75	3.5
4	4	4	3.25	3.25	3.25	3.5
3	2.75	3	2.75	2.75	3	3.25
2.5	3	3	2.5	3.25	3	3
4	3	3.5	3	3.25	3	3.25
7.25	7.25	7.25	8.13	8.13	4.85	4.77
3	3	3	3	3	1	1
Onsite	Onsite	Onsite	Onsite	Onsite	Onsite	Onsite
105	105	105	165	165	190	100
15.15	10.24	10.29	12.28	7.44	12.66	9.03
19450	31550	35100	22990	45990	22499	36750
3030	3030	4760	6999	9999	7660	9000
0.87	0.87	0.63	1.40	1.00	1.28	0.9
67.36	66.48	67.72	61.59	57.20	52.83	47.81

TOSHIBA
FREE YOUR LIFE
Smart Solutions For Your Office
e-STUDIO
Access Your Dreams
HCL
For Live demo visit Toshiba e-studio at Prakash Deep Building, Tolstoy Marg, New Delhi - 110001 or call 23310479/499. HCL INFINET OFFICES: NEW DELHI: 9810008388, 26849314, MUMBAI: 9821238623, 22832018, BANGALORE: 9845021788, 25586844, BHOPAL: 9826066669, 2461248, CHANDIGARH: 9417092660, 2720646 LUCKNOW: 9415501506, 2238652, KOLKATA: 9830992677, 22821724, GUWAHATI: 9864015576, 2606872, PUNE: 9822434992, 26122102, AHMEDABAD: 9825500295, 26584778, CHENNAI: 9840615615, 28291702, COIMBATORE: 9894021685, 2213574 MADURAI: 9894326007, 2587214, COCHIN: 9895242801, 2366914, HYDERABAD: 9849599374, 27765302

The Brother HL 5170DN and 5140 were joint second, with a cost of 87 paise per print out. The most expensive here was the Samsung 2250, which will set you back by nearly Rs 1.50 per print—more than twice as expensive as the Brother HL 6050D.

If you are looking at a printer that can output reams of prints at a reasonable speed and quality, printers such as the HL 6050D, will cut your printing costs down hugely and bring them to manageable levels. The printer will give you roughly 7,500 pages on a single toner. The toner cartridge, too, is not as expensive as those from rivals Samsung and WeP.

Conclusion

Unlike the SoHo category, the winner here was quite clearly one of the Brothers as they had consistently outperformed or at least matched the rest of the pack. The question was, which one?

When the smoke cleared, we had our winner but it was the closest fight we have ever seen! The Brother HL 6050D won by less than a hair's breadth from the Brother HL-5140 to secure the *Digit* 'Best Buy Gold' Award. The Brother Hl 5140 gets the *Digit* 'Best Buy Silver'. The competition was close enough to even warrant a tie.

If you need out and out performance and features and don't mind paying for it, the HL 6050D is the printer for you.

However, if you are budget conscious and don't mind trading in a few features and performance to save some money, you need not look beyond the HL5140.

The third Brother, the HL-5170, came in a close third, and definitely deserves a mention. This printer has great features, but average performance considering its price.

Brother HL 5140

Samsung SCX-5315F

The Samsung SCX-5315F was in a class of its own, and hence was not included in the comparison. It was priced much higher, at Rs 64,999, and was the only copier-based MFD we received. It had a black toner drum and cartridge system.

A maximum print resolution of 1200 x 1200 dpi was supported. The input tray could hold 550 sheets of paper, while the ADF tray could hold 30. The input paper capacity can be enhanced by adding an optional paper tray. It also has a side-sliding bypass tray to input special media, such as cards and labels. This MFD supported automatic duplex printing, and the monthly duty cycle of this printer was an impressive 18,750.

A scan resolution of 600 x 600 dpi at 24-bit colour is supported by the CCD scanner, for up to A4 size. A maximum of 999 copies in multi-copy mode is supported. At 21.3 kg and with a footprint of 43.4 x 45.9 cm, this *is* a heavy and large MFD.

There is an option to install an internal network card, and a 33.6 Kbps modem. There is also a special 'Toner Save' button that reduces the size of the printed dots and saves ink, in turn, reducing the cost per copy. It also has advanced features such as 'Clone' copy, which reduces the original document into a number of smaller copies on print media. There is also an 'Auto Fit' copy mode using which, the scanned document is automatically enlarged or reduced to fit the size of the media. Its 'Power Save' button saves power by putting the MFD into standby mode, and the 'Paper Save' button reduces two pages of a printout to fit on a single page.

In the printing speed test, though, this MFD scored just about average. But the quality was the best. In the scanning speed test, it was slower than every MFD that we tested and took 689.03 seconds to scan a photograph at 24-bit and 600 dpi—more than 50 per cent higher than the closest competitor. But the quality, again, was excellent and the colour differentiation, outstanding.

If you have an office with large volume of printing, this must be considered.

COLOUR LASER PRINTERS

The printers in this category were every bit as big as the workgroup printers and would more than fulfil your colour requirements—unless you are looking for photo quality prints. That said, the photos we printed on regular paper came out rather well, making these printers an excellent buy if you need occasional working drafts of your designs or reference photos.

Features

Even here, as was the case with mono lasers, the paper tray capacity varied between the Canon LBP 5200 that offered only a 125-page tray, Epson offering a 180-page tray and both, Samsung and Brother providing 250-page trays.

Canon again did not bundle any data cable, and Samsung, true to its style, bundled everything you could think of. Canon was also the only printer to support just one OS—Windows. Epson and Brother supported Windows and Mac, while the Samsung supported Windows and Linux!

Apart from the Canon 5200, which had no screen, all the others featured a monochrome display with simple menu functions configurable from the printer itself.

Only the Epson AcuLaser C1100 and Brother HL-2700CN were network-enabled. The Canon and Samsung CLP500 offered networking as an optional 'accessory'.

In terms of sheer build quality, none of the printers could hold a candle to the Brother 2700. A rock solid and extremely sturdy-looking printer.

The Samsung CLP500, though not flimsy overall, seemed as though some of its side trays or doors could break easily.

Performance

If anyone knows how to make a printer warm-up quickly, it is Canon. The warm-up time of the LBP 5200 was a mere 4 seconds, as compared to the second-best time of 8 seconds by the Samsung CLP 500.

The Brother HL2700CN needed marginally

more at 9 seconds. Epson lost out hugely here, taking a cool 20 seconds to get warmed up.

Though the Epson took 20 whole seconds to charge itself up, it redeemed itself in our speed tests—completely decimating the competition.

Clocking just 9.42 seconds to print the text page in normal mode and 9.5 seconds in best mode. This isn't even comparable to the second-best times of 14.91 seconds by Brother and 15.25 seconds by Samsung for normal mode.

Canon did surprisingly badly and came in last with a time of 20.17 seconds.

The Epson needed only 19.5 seconds to spit out our combi-document in Normal mode, and 20.74 seconds in Best modes. Samsung came in second with 26.2 and 37.9 seconds respectively, and surprisingly, Canon beat it in the High Quality test by a cool 5 seconds—just 32.7 seconds in best mode.

So, basically, if you need to print out lots of reports, company charts and presentations, the Epson will get the job done faster.

Since these were colour printers, we decided to put them through a photo quality print test as well. It was only fair to check this out.

Epson did not disappoint us and gave us a crisp, clear printout in under 25 seconds. The Canon took 37 seconds and came in a respectable second. The Samsung and Brother took 52.79 and 102.36 seconds respectively, in the Best mode.

Though the Epson was clearly the fastest printer, we wanted to make sure it also offered quality. The Brother won the text fight, followed closely by Samsung. Epson while Canon tied for third place.

Canon, again, was the best in terms of colour differentiation and got the difference between the colour bars the best. All the others just stumbled through this test scoring roughly the same, except for the Brother, which did such a bad job that the photo was totally blurred.

In terms of results, what the above translates into is, if your office work basically comprises text documents and you don't need large photographs to be printed, it is advisable to opt for the Brother, but then, don't expect photo quality performance.

On the other hand, if you feel that you will need to print photographs or brochures (even rough drafts), you should definitely consider the Epson, as it offers far better performance.

In High Quality mode, Epson did a lot better than the rest and secured first place. Canon was close behind and finished the race only slightly behind. The Brother did rather badly, and came in last behind the Samsung CLP500.

We then obviously checked the photo printing capabilities of these printers and once again, Epson raced ahead to take the top spot beating Canon and Samsung to third and fourth places respectively.

For the Brother, we found that the skin shade looked yellowish. A similar problem was noticeable for contrast, where colours were smudged.

As we mentioned, if you are going to print photographs or graphics, stick to Epson.

We noticed that Samsung provided a 3-year on-site in warranty, while Canon gives

BEST BUY digit AUGUST 2005

Scoreboard - Colour Laser Printers

BRAND	**Canon**	**Epson**	**Brother**	**Samsung**
Model	**LBP 5200**	**AcuLaser C1100**	**HL-2700CN**	**CLP-500**
Features	17.10	25.29	26.02	24.85
Printing				
Printing technology	Laser	Laser	Laser	Laser
Resolution (dpi x dpi)	600x600	600x600	600x600	600x600
Paper capacity for Default tray	125	180	250	250
Additional paper tray facility	✗	✓	✓	✓
Dual Side Printing	✓	✓	✗	✓
Accessories				
Data cable	✗	✓	✓	✓
Power cord	✓	✓	✓	✓
Detailed User Manual	✓	✓	✗	✓
Troubleshooting guide	✗	✗	✓	✓
Quick setup guide	✓	✗	✓	✓
Bundled Software	✗	✗	✗	✗
Misc features				
Printing Language Supported	CAPT	ESC	PCL6/PS3	SPL
OS Support	Windows	Win/Mac	Win/Mac	Win/Linux
LCD Screen(Color/B/W)	✗	✓/B/W	✓/B/W	✓/B/W
Interface (USB 1.1/2.0/Parallel)	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel
Menu structure				
Ease of use (scale of 5)	No Screen	3	2.5	3.75
Toner Duty Cycle(Bundled)	2000	1500	10,000	2000
Toner Duty Cycle(New)	5000	1500	10,000	7000
Networking capabilities (Y/N/Optional)	Optional	✓	✓	Optional
Build Quality				
Breakable flaps/moveable (Out of 5)	4.25	4	4.25	4
Transport locks/tapes (Out of 5)	3	3.5	4.5	4
Moveable parts in cartridge bay parts (Out of 5)	4	4	4	4
Performance	**20.91**	**24.58**	**13.62**	**18.02**
Speed test (Secs)				
Warm Up Time	4	20.19	9	8
Text print (B/W) Normal/Best	20.17 / 20.59	9.42 / 9.5	14.91 / 17.75	15.25 / 18.75
Combi document - Normal/Best	30.16 / 32.7	19.51 / 20.74	160.49 / 165.61	26.21 / 37.9
Photo Printout (Best)	37.01	24.87	102.36	52.79
Quality Test				
Text quality (Point Size Document Out of 5)	3.25	3.25	4	3.75
Image quality (Combi, Normal) (Out of 55)	41.5	36.5	30.25	33.25
Image quality (Combi, Best) (Out of 55)	41.5	42	30.5	31.5
Photo Quality (Best) (Out of 35)	22.25	24.5	14.75	21
Warranty Details	**6.63**	**6.10**	**4.69**	**7.89**
Number of Years	2	1	1	3
Type (onsite/Carry In)	Onsite	Onsite	Onsite	Onsite
Number of Authorised Service Centres	130	211	105	165
Price	**15.19**	12.91	**12.96**	12.36
Price of Printer (Rs)	34995	37500	45900	45990
Price of Black Toner (Rs)	5495	4675	8200	6999
Price of Color Toner	6495 x 3	6675 x 3	8200 x 3	7999 x 3
Rated Cost Per Page (B/W A4 Size)	1.099	3.12	0.82	0.999857143
Overall Score (Out of 100)	**59.82**	**68.87**	**57.30**	**63.12**

BEST BUY
digit
AUGUST 2005

Epson AcuLaser C1100

you 2-years and Epson just 1-year on-site warranty. Not very friendly, is it?

The reason you need to worry about warranty for this category is the recent problems you are bound to face thanks to the heavy load.

Conclusion

There was no mistaking the winner here. It was a complete Epson show. The AcuLaser C1100 beat the rest comprehensively on the performance front. No printer was even near it in terms of the sheer speed and quality of printouts. It had almost all the features you can think of and was also priced very attractively considering the performance. It did lose out slightly in terms of warranty with just 1-year on offer.

It was also the most expensive printer to maintain at Rs 3.12 per page, but it won thanks to sheer performance and a superb price to match it. Without doubt, it was the *Digit* 'Best Buy Gold' in the colour laser category.

MONO LASER MFDS

As with printers, the criteria for categorisation was the duty cycles except that we felt that the Samsung SCX-4720F, despite having a duty cycle of 15,000 pages, deserved to be in the higher performance (workgroup) category, since it is priced at Rs 50,000.

But price notwithstanding, its feature set—duplex printing, networking and additional paper tray—were on par with the MFDs in the higher category, so despite a lower duty cycle, it was placed there.

SOHO MFDS

This category consisted of the MFDs that have a monthly duty cycle of 15,000 pages or lower. There were four MFDs in this category including a Canon, a Lexmark and two from Samsung.

Features

Of all the MFDs, only the Canon MF 3110 could print at a maximum resolution of 1200 x 600 dpi. The rest could not go beyond 600 x 600 dpi. All the MFDs had an input paper tray capacity of 250 sheets. This will be enough for a SoHo set up.

The Samsung SCX-4216F and Lexmark X215 came with an ADF (Automatic Document Feeder), which is good considering the fact that this category consists of lower-priced MFDs. An ADF is not, strictly speaking, a necessity for a SoHo, but having one sure doesn't hurt!

A higher printer duty cycle is always advantageous, since it is a statement of the reliability and performance of the MFD. Only the Canon MF 3110 had a duty cycle of 15,000 pages, while the other three had a much lesser duty cycle of 10,000. Toner duty cycles were somewhat identical, at 3,200 pages for Lexmark and 3,000 for the rest.

The cost per page of the Lexmark and Canon were neck-and-neck at Rs 1.13 and Rs 1.17 respectively due to the almost identical toner cartridge costs and duty cycles, while the Samsung MFDs had a higher cost per page of Rs 1.67, courtesy their costlier toner cartridges.

The cost per page is calculated as the cost of the toner cartridge divided by its duty cycle.

For the scanner part, the Canon MF 3110 sported the highest optical resolution of 1200 x 2400 dpi, while the others were at 600 x 600. We saw the same thing in the interpolated scan resolution, with Canon bettering the others with 9600 x 9600 dpi, while the others could only manage 4800 x 4800. Note that interpolation is implemented using software and hence, is not as important as the optical resolution.

All scanners in every MFD were flatbeds, and could scan at 24-bit colour depth. All of them had CCD scanning elements, except the Samsung SCX-4100, which has a CIS scanning element. Remember that a CIS scanner produces poorer scans as compared to a CCD scanner. All scanners had the usual functions like scan to e-mail client.

In the copier aspect, too, all scanners had similar features such as standalone copying, reduce or enlarge, and up to 99 copies in multiple-copying mode. Since these were grayscale printers, copying, too, was limited to grayscale. Ninety-nine copies is normally more than enough for a SoHo.

There was also a Fax unit on the Lexmark X215 and the Samsung SCX-4216F, while the Canon MF 3110 and the Samsung SCX-4100 didn't have one.

Features like broadcast faxing and scheduled faxing were available on the X215 and the SCX-4216F. Both these units had 4 MB of Fax memory, which is approximately 320 pages. While a Fax is indeed a good feature, SoHos don't often require

Samsung SCX-4216F

Samsung 4100

one. We'd leave it up to you to decide whether you want this feature at a cost premium.

A look now at the various miscellaneous features on these MFDs: the Canon and the Lexmark MFDs had the option to install a network card. Again, the SoHo segment may or may not use this option, and it's up to you to decide whether you really need it. All MFDs had USB2.0 as well as a parallel interface, except the Canon, which had only the USB2.0 interface. The Canon MF 3110 featured a large 64 MB buffer memory—way more than the others. This large amount of RAM is probably behind the considerably higher printing speed of the MF 3110.

All MFDs supported all versions of Windows, while the Samsung SCX-4100 even supported Linux. All of them came with quick-start guides and manuals (some with manuals on CD). Without exception, they were all bundled with some OCR software. Power cables and USB cables, too, were provided with all MFDs.

MFDs weigh more than printers, of course. The Lexmark X215, weighing in at 13.6 kg was the heaviest, followed by the Samsung SCX-4216F at 13 kg. The Samsung SCX-4100 was the lightest of them all at 8.85 kg. It also had the smallest footprint of 42.2 x 40 cm, while the SCX-4216F had the largest footprint of 47.4 x 43.6 cm.

In terms of build quality, the SCX-4216F wins hands down. But if looks are important, none of the others match up to the Lexmark X215. It has a sleek, contoured gray-and-white body.

The Lexmark X215 is priced at Rs 20,999, and comes with the Fax feature, whereas the highest-priced MFD was the Samsung SCX-4216F at Rs 34,995, which seems slightly on the higher side, especially when you are getting almost nothing extra for the premium.

Performance

We measured printing performance as we did with the laser printers. The first thing we clocked was the warm-up time. The Canon MFC 3110 and the Samsung SCX-4100 clocked similar warm-up times of 6.65 and 6.0 seconds respectively. The Lexmark was the slowest with a really slow 31 seconds, and the Samsung SCX-4216F stood third with 21 seconds.

Round Two saw the Canon taking over abd beating the other MFDs hollow. It printed our text document in a mere 11 seconds, while the best of the rest, the Lexmark X215, took 13.19 seconds for the same job. The Samsungs had a near-tie with times of 13.5 seconds and 13.53 seconds for the SCX-4100 and the SCX-4216F respectively.

We saw the same rankings in the Best mode text quality tests, where the Canon, with a time of 13.04 seconds, was a clear 1.3 seconds faster than the second-placed Samsung SCX-4100. The Lexmark was third with 15 seconds and the Samsung SCX-4216F came in last by a small margin, clocking 15.44 seconds.

In the combi-doc speed test, Canon's advantage was further emphasised: it clocked 12.57 seconds, and was at least three seconds faster than any of the others. It was, in fact, the fastest printer in the entire test! SoHo users usually print a lot of documents, usually a mix of text and graphics. So the score in the combi-doc test matters the most.

In the quality check tests, the MFDs were all closely matched, and we had a hard time finding faults with their output!

The Samsung SCX-4216F was marginally better; the other MFDs all scored the same. We were impressed with the quality, especially considering that these are entry-level MFDs.

In our combi-doc quality tests, we looked at the resolution of the pie chart, and despite a higher rated resolution of 1200 x 600, found that the Canon MF 3110 was not as good as Samsung's SCX 4100, which was the best. Samsung's 4216 and Lexmark X215 tied for second position, and the Canon was the last by a good margin.

The 'white text on black background box' disappointed us: none of these printers passed the test well, scoring strictly average points. Again, the Samsung SCX 4100 beat the others marginally. When we tried to read the different point sizes, we found that with every printer we could read all the point sizes, right down the smallest.

Things didn't change at the top when we tested our Best Quality combi-prints. The Samsung SCX-4100 maintained its lead! This printer is all about performance, whether it's speed or quality. Second-placed here, was the other Samsung, the SCX-4216F.

In the scanner tests, the first test was, obvi-

Why Laser?

Laser Printers/MFDs	Inkjet Printers/MFDs
Laser printers print, roughly, three times faster than an inkjet when printing a large amount of copies	For a single printout, an inkjet might actually be faster, but only because lasers have a warm-up time. An inkjet is no match for a warmed-up laser printer, though
The print quality is crisp and excellent	Print quality is good, but again, not comparable to a laser. Printouts can also get smudged
Costly. Entry-level printers start at about Rs 8,500	Cheap. Entry level printers start at around Rs 3,000
Though the printers are expensive, the running costs can be as low as 65 paise per page	The running costs are quite high. In most cases, for entry-level printers, cartridges may cost as much as a new printer!
Heavy-duty toner cartridges available, with higher page yields of even 2,000 pages or more	Cartridges are of a lower yield and can print only about 200 pages

HP Color LaserJet 2840

The HP Color LaserJet 2840 was the only colour MFD we tested. This colour MFD is targeted at SoHo users that want to have laser quality printouts.

The footprint of the MFD is 49.8 x 53 cm, which is a little larger than the other MFDs. The software and driver installation part was a whole new experience: the first part of the installation introduces you to the MFD and its various components-how to use and take care of them. The installation was simple, but took about 15 minutes, which is a too long.

This MFD is packed with features to the gills. It featured 96 MB buffer memory that is upgradable to 224 MB with one 100-pin SD-RAM module. The interpolated scanner resolution is 19,200 x 19,200 dpi is the highest we have yet seen.

Various types of memory cards such as CompactFlash Type I and II, xD-Picture card, SecureDigital, MemoryStick, MemoryStick Pro, SmartMedia and MultiMedia Cards are supported. A 10/100 network interface is available for connectivity along with a 33.6 Kbps modem.

This CMYK printing MFD comes with four toner cartridges—one for each colour. The printer's monthly duty cycle is a huge 30,000 pages, putting it way ahead of all the MFDs that we tested.

We were disappointed by the average performance of the 2840 during our speed tests, though. The black text page was printed in 19.74 and 64.44 seconds in Normal and Best modes respectively. The combi-document also printed at a slow pace, and the photo printout in Best mode took 167.53 seconds—much higher than that taken by any other colour laser printer.

The text print quality was found to be very crisp and this MFD scores in this area. It took a minute-and-a-half to scan an A4-size colour photograph at 24-bit colour depth, which is not bad, but it isn't great either. The colour differentiation of the scanned IT8 card was also above average, which means that the scanner is good for scanning colour photographs. In the colour copying test, the colour copy was found to be almost identical to the source document. It took 41.15 seconds to copy the colour document.

The LaserJet 2840 comes with 1-year on-site warranty, and HP has a whopping 273 service centres in 104 cities. At Rs 69,990, this workhorse is surely worth considering.

---

ously, how fast the MFD's scanner could scan a test image. The clear winner here was the Samsung SCX-4216F, with a score of 6.7 seconds. The second-placed—only just—was the Lexmark X215 which logged a time of 7.47 seconds, followed by Samsung's SCX-4100 at 7.61 seconds.

The Canon was a disappointment here, taking an eternal 13 seconds to do the job. If your work involves bulk scanning, you might want to look elsewhere.

After speed, we came to our quality tests, and we were not surprised. The Canon scored much higher than the others. Scan quality was simply superb. The Samsungs tied for second spot and the Lexmark was last. We can conclude that if you don't scan too much, but want decent quality scans, you should opt for the Canon MF 3110.

SoHos sometimes require that a document be scanned and converted to a soft copy in a word processing application. An OCR application facilitates this and the output depends on the ability of the scanner to scan discrete characters in the document. In our OCR test, we tried to get these scanners to read a newspaper. The Canon and the Samsung SCX-4216F disappointed us, getting twice as many characters wrong as the Lexmark X215 and the Samsung SCX-4100, which tied for first place.

The single biggest use of an MFD is perhaps a combination of scanning and printing, i.e., copying. That makes this next test rather important. As always, we judged speed and quality and noted the tradeoffs.

The Samsung SCX-4216F was the faster copier and churned out a page in 11 seconds, while the Lexmark X215 took 11.38 seconds. The Canon took 13.8 seconds, and the Samsung SCX-4100 took a whopping 23 seconds to copy our test document. This translates to about six copies per minute.

In terms of quality, though, the SCX-4216F was a wee bit ahead of the SCX-4100. The Canon and Lexmark tied for third spot.

Coming to warranty and servicing, we were surprised to see that only Canon gave a 2-year warranty; the others provided just 1-year. All MFDs except the Lexmark X215 provided on-site warranty; Lexmark, for some reason, decided it would only give a carry-in, which would make life difficult if the MFD breaks down. You would have to carry it to a service station, of which Lexmark has only 34 in India!

Remember that the running costs of a MFD are far more that the purchase cost. The Lexmark was the cheapest here, requiring only Rs 1.125 to print a page. Only marginally, though, as Canon's cost per page is Rs 1.165. Compare this to the most expensive printers, the Samsungs, which cost Rs 1.667 to print a page.

Conclusion

At the end of the tests, the undisputed *Digit* 'Best Buy Gold' winner was the Canon MF 3110, even though it lacked a Fax unit. This was because of its printing and scanning speed. One other thing in its favour was the low price—Rs 19,995—and the higher duty cycle of 15,000. If you do not intend to use the Fax, opt for the Canon MF 3110 without another thought.

Choosing the 'Best Buy Silver' was not an easy task—the Lexmark X215 and the two Samsung MFDs were separated by just over a single point. But the Lexmark had a Fax, which the slightly lower-priced Samsung SCX-4100 didn't; besides, the Lexmark was priced considerably lower at Rs 20,995, while the Samsung SCX-4216F is steeply priced at Rs 34,995. Also, the Lexmark's duty cycle of 15,000 surpassed the 10,000 of the Samsungs.

The Lexmark X215 was therefore the *Digit* 'Best Buy Silver'.

BEST BUY
digit
AUGUST 2005

Canon MF 3110

Lexmark X215

THE WORKGROUP MFDS

MFDs with a monthly duty cycle of more than 15,000 were placed in this category, with the exception of the Samsung SCX-4720F, which has a duty cycle of 15,000. It was placed here because of its higher price and better feature set. Along with three MFDs from Brother, this category comprised four devices.

Features

As far as print resolution is concerned, the Brother DCP-8040 and MFC-8440 supported a maximum of 1200 x 600 dpi. The lowest in the category was the Brother MFC-8220, at 300 x 600 dpi. All MFDs had an input paper tray capacity of 250 sheets and an ADF tray capacity of 50, with the exception of MFC-8220, whose ADF held 30 sheets. All MFDs supported additional input paper trays. An additional input tray is a bonus, and is useful in the workgroup MFD category.

Since an MFD in this category will be subject to a large workload, it's a good thing if it has a higher duty cycle. All the Brother MFDs boasted of a monthly duty cycle of 20,000 pages—considerably higher than that of the Samsung SCX-4720F, which trailed behind at 15,000.

The Samsung had a toner duty cycle of 5,000 pages while the Brother MFDs lagged behind at 3,300. However, the Samsung's toner cartridge was priced considerably higher at Rs 6,999, whereas those of the Brother MFDs were priced at Rs 3,030. The cost per paper of the Brother MFDs was, therefore, lower at Rs 0.91, while that of the Samsung was Rs 1.40. The cost per page of the Brother MFDs is too low to ignore, since it is 50 per cent lower than that of the Samsung as per the rated toner duty cycle.

Brother's DCP-8040 and MFC-8440 supported a highest optical scanning resolution of 600 x 2400 dpi, while the MFC-8220 could not do more than 300 x 600 dpi, which is lower than even that supported by the MFDs in the SoHo segment.

When it came to interpolated scanning resolution, the Brother MFDs supported 9600 x 9600 dpi, while Samsung's SCX-4720F was restricted at 4800 x 4800.

The Samsung SCX-4720F sported only a flatbed scanner, and the Brother MFC-8220 had only a sheetfed scanner. The MFC-8440 and DCP-8040 came with a sheetfed *and* a flatbed scanner.

A sheetfed scanner is useful when scanning documents longer than the conventional A4 size. We were surprised to find that the MFC-8220 supported only grayscale scanning, unlike the others, which supported 24-bit. All the Brother MFDs had a CIS scanning element, while the Samsung had a CCD element. As mentioned earlier, a CCD element is better than a CIS.

Only the Samsung SCX-4720F supported the 'scan to USB Flash drive' and 'print from USB Flash drive' features, where you can connect a USB Flash drive to the USB port on the MFD. You can then scan a document and save it to the USB drive as a BMP, TIFF or PDF file. You can also print a PRN, TXT, TIFF or BMP file from the USB drive without having to connect to a PC. This feature is helpful when, say, you need to scan a document, convert it to PDF and mail it to a client.

As far as copying goes, all scanners had similar features like standalone copying, reduce or enlarge, and up to 99 copies in multiple-copying mode. We think this is a bit low for the workgroup segment, though.

All the four MFDs had a Fax unit with the exception of the Brother DCP-8040. The Brother MFDs had memory that could hold 600 Fax pages, whereas the SCX-8720F could hold only 320 pages. This memory enables the unit to receive faxes and hold the pages even when in Standby mode.

The Brother MFC-8220 came with a handset for the Fax; a welcome feature.

In miscellaneous features, all MFDs with the exception of the Brother MFC-8220 had the option of adding a network module. All of them also had USB2.0 as well as a parallel interface. They all had 32 MB of buffer memory, which isn't really enough. But this issue is addressed by the memory upgradeability, which was available in all four MFDs.

The Samsung MFD supported Windows and Linux, while the Brother MFDs supported Windows and Mac. All of them came with quick-start guides and manuals (Samsung came with the manual on CD). The Samsung came bundled with AnyPage OCR, whereas the Brother MFDs came with OmniPage OCR software.

Power cables and USB cables were provided with the Samsung MFD. The Brother MFDs shipped without either.

The SCX-4720F was the heaviest of the four at

Brother MFC-8440

	BEST BUY digit AUGUST 2005	BEST BUY digit AUGUST 2005					BEST BUY digit AUGUST 2005
Scoreboard	**SoHo MFDs**				**Workgroup MFDs**		
BRAND	**Canon**	**Lexmark**	**Samsung**	**Samsung**	**Brother**	**Brother**	**Brother**
Model	**MF 3110**	**X215**	**SCX-4100**	**SCX-4216F**	**DCP-8040**	**MFC-8220**	**MFC-8440**
Features	14.41	17.31	12.48	16.92	18.22	19.99	25.88
Printing							
Resolution (dpi x dpi)	1200x600	600x600	600x600	600x600	1200x600	300x600	1200x600
Paper capacity (No. of Pages)	250	250	250	250	250	250	250
Additional paper tray facility/Duplex printing	✗/✗	✗/✗	✗/✗	✗/✗	✓/✗	✓/✗	✓/✓
Printer/Toner duty cycle (No. of Pages)	15000/3000	15000/3200	10000/3000	10000/3000	20000/3300	20000/3300	20000/3300
Scanning							
Max Optical Resolution (dpi)	1200x2400	600x600	600x600	600x600	600x2400	300x600	600x2400
Interpolated Resolution (dpi)	9600x9600	4800x4800	4800x4800	4800x4800	9600x9600	9600x9600	9600x9600
Bit Depth	24	24	24	24	24	8	24
Scanner Type/Element	Flatbed/CCD	Flatbed/CCD	Flatbed/CIS	Flatbed/CCD	Flatbed & Sheetfed/CIS	Sheetfed/CIS	Flatbed & Sheetfed/CIS
Scan Area	A4	A4	A4	A4	A4	20.73 cm wide	A4
Scan Image directly to mail client	✓	✓	✓	✓	✓	✓	✓
Other Scanning Features	✗	✗	Scan to Folder	Scan to Folder	✗	✗	✗
Multiple copying in standalone mode (No. of Pages)	99	99	99	99	99	99	99
Fax							
Handset Provided	NA	✗	NA	✗	NA	✓	✗
Memory for storing (No.of Pages)	NA	320	NA	320	NA	600	600
Broadcast/Scheduled Faxing	NA/NA	✓/✓	NA/NA	✓/✓	NA/NA	✓/✓	✓/✓
Menu: Ease of use (scale of 5)	3.5	3.75	4	4.5	3.75	4	4
Networking capabilities (Y/N/Optional)	Optional	Optional	✗	✗	Optional	✗	Optional
Build Quality							
Breakable flaps/moveable parts (scale of 5)	3.5	3.75	4	4.5	4	4	4.25
Transport locks/tapes parts (scale of 5)	3.5	3.25	4.25	4.5	4.25	3.5	4.25
Moveable parts in cartridge bay parts (scale of 5)	3.5	3.5	4	4.5	4	4	4.25
Software Bundled	Application Suite (with OmniPage OCR)	Application Suite (with Page Manager 6)	SmartThru (with AnyPage OCR)	SmartThru 3 (with AnyPage OCR)	MFL-Pro Suite (with Omnipage OCR)	MFL-Pro Suite (with Omnipage OCR)	MFL-Pro Suite (with Omnipage OCR)
Misc							
Weight (Kg)/Dimensions (h x w x d) cms	11/44.9x46.1x36.9	13.6/43.18x47x41.9	8.85/23.9x42.2x40	13/41.7x47.4x43.6	16.6/46.9x53.2×44.4	11.5/46.2x43.2x45.2	16.6/46.9x53.2x44.4
Interface(USB 1.1/2.0/Parallel)	USB 2.0	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel	USB 2.0/Parallel
Input buffer (MBs) Memory upgrade option	64/✗	16/✗	8/✗	8/✗	32/✓	32/✓	32/✓
ADF	✗	✗	✗	✓	✓	✓	✓
Printing Language Supported(PS3/PCL6)	CAPT	Host based GDI	SPL	SPL	PCL6, PS3	PCL6, PS3	PCL6, PS3
OS Support	Win	Win	Win/Lin	Win	Win/Mac	Win/Mac	Win/Mac
Other Special Features	✗	✗	✗	✗	✗	✗	✗
Performance	**22.51**	**20.71**	**20.88**	**21.89**	**22.32**	**18.51**	**22.62**
Printing (Seconds)							
Warm Up Time	6.65	31	6	21	11	12	17
Text print (B/W) Normal/Best Quality	11.03/13.04	13.19/15.56	13.5/14.34	13.53/15.94	14.28/19.41	16.16/20.6	11.5/13.22
Combi print (B/W) Normal/Best Quality	12.57/14.19	15.07/17.88	15.28/19.4	15.44/18.29	17.12/29.22	17.97/28.53	17.6/27.9
Text quality (Point Size Document Scale of 5)	3.75	3.75	3.75	4	3.5	3.25	3.75
Image quality Normal/Best (Combi, Out of 20)	8/12.25	9.5/13	10.75/13.5	10/13.25	13/14.5	11.25/12.75	14/14
Scanning							
Speed Test (Out of 30)	13.11	7.47	7.613	6.739	13.14	28.31	13.62
Image Quality Test (IT8 card Out of 40)	28.94	21.88	24.55	24.61	30.98	9.82	29.67
Resolution Test (Out of 20)	12	12	12	12	12	8	12
OCR TEST (Out of 10)	4	8	8	4	8	1.6	8
Copying							
Quality (scale of 5)	3.25	3.25	4	4.25	3.5	2.75	3.5
Speed (time taken to print test Doc)	13.81	11.38	23.11	11.1	11.15	13.99	11.78
Warranty	**4.89**	**1.99**	**5.40**	5.40	**4.53**	**4.53**	**4.53**
Number of Years/Type (On site/Carry in)	2/On site	1/Carry in	1/On site	1/On site	3/On site	3/On site	3/On site
Number of Authorised Service Centres	130	34	165	165	105	105	105
Price	**15.32**	**14.80**	**14.56**	**9.08**	**12.29**	**12.98**	**10.51**
Price of Printer (Rs)	19995	20999	19995	34995	28150	26150	35000
Price of Toner (Rs)	3495	3600	4999	4999	3030	3030	3030
Rated Cost Per Page (Rs)	1.17	1.13	1.67	1.67	0.92	0.92	0.92
Overall Score	**57.13**	**54.81**	**53.32**	**53.29**	**57.36**	**56.01**	**63.54**

Why HP Is Missing?

Despite repeated efforts on the part of *Digit*, HP sent only one product within the specified deadline. However, we could not discount the efforts and commitment of other vendors who did meet their deadline. HP is the market leader in printers but unfortunately, is not part of this test.

Samsung SCX-4720F	Samsung SCX-5315F
25.53	**27.59**
600x600	1200x1200
250	550
✓/✓	✓/✓
15000/5000	18750/6000
600x1200	600x600
4800x4800	4800x4800
24	24
Flatbed/CCD	Flatbed & Sheetfed/CCD
A4	A4
✓	✓
Scan to USB drive as BMP, TIFF or PDF	Scan to Folder
99	999
✖	✖
320	320
✓/✓	✓/✓
4.25	4.25
Optional	Optional
4.5	4.5
4.5	4.5
4.5	4.5
SmartThru 3 (with AnyPage OCR)	SmartThru 3 (with AnyPage OCR)
17/45.7x45x43.5	21.3/45.9x56x43.4
USB 2.0/Parallel	USB 2.0/Parallel
32/✓	8/✖
✓	✓
SPL	PCL6
Win/Lin	Win
Print TIFF, BMP, TXT, & PRN files from USB drive	✖
23.75	**21.16**
17	20
11.23/13.78	13.56/13.63
23.71/32.94	29.53/29.39
4	4.5
14/14.25	14.5/14.5
14.66	6.41
29.18	27.44
12	12
2.67	8
4.5	3.5
9.87	11.84
5.40	**5.40**
1/On site	1/On site
165	165
7.22	**6.88**
49995	64995
6999	5999
1.40	1.00
61.90	**61.03**

17 kg, and the Brother MFC-8220 was the lightest at 11.5 kg. The Brother MFC-8220 also had the smallest footprint of 45.1 x 33.5 cm, while the other two Brother MFDs were at 44.4 x 46.9 cm.

The SCX-4720F wins as far as build quality is concerned. It also looks much better than the Brother MFDs.

The Brother MFDs enjoy a 3-year on-site warranty, as opposed to Samsung's 1-year onsite warranty. But Samsung has a higher number of service centres across the country—165 to Brother's 105.

At Rs 49,995, Samsung SCX-4720F is the most expensive of the lot. Brother's MFC-8220, which has a Fax and a hand-set, costs Rs 26,150.

Performance

These being workgroup devices, we expected to see something good, but were disappointed on several counts. Take the warm-up times for example: the fastest time of 11 seconds, clocked by the Brother DCP 8040, was almost twice the fastest time in the earlier category.

However, the devices in this group are a lot more heavy-duty, and are not directly comparable to the previous group. The second-fastest time was logged by the Brother MFC 8220 at 12 seconds, while the 8440 and the Samsung SCX-4720F tied for third place at 17 seconds.

When printing our text documents, the SCX-4720F clocked 11.23 seconds and came first, marginally beating the Brother MFC-8440, which clocked 11.5 seconds. Third placed was the Brother DCP-8040 with a score of 14.28 seconds. Hence, if your usage will be mainly text oriented, we suggest you stick with the SCX 4720F. That said, we were surprised by these scores; we expected all devices to be much faster.

Getting to the quality tests, the Samsung printers outshone the rest easily with razor-sharp printouts in Best and Normal modes.

Coming a close second was the Brother MFC-8440, which kept up with the SCX-4720F for the most part, but lost out a bit on the 'white text on black background' tests. Hence, if you're planning on doing any kind of graphic-intensive printing, you should seriously consider the Samsung and the Brother MFC-8440.

In our scanner tests, the DCP-8040 at 13.14 seconds stood first, and the MFC-8440 was a close second, clocking 13.62 seconds. The DCP-8040 was also the best performer, providing one of the clearest scans we've seen so far.

In the OCR tests, the Brother MFC-8440 and DCP-8040 tied for the top spot with next-to-none errors in character recognition.

The Brother MFC-8220 performed poorly in this test. If you think you'll be scanning a lot of documents to text or PDF for editing or for direct printing with slight modifications, OCR becomes an important feature and you must look for an accurate OCR reader, as that would mean lesser time spent in editing and correcting the scanned document.

In our copier tests, the SCX-4720F was the fastest, clocking only 9.8 seconds to copy the document. Amazingly, it was also the winner in the quality department. The second here was the Brother DCP-8040, which took considerably longer than the Samsung printer, and was also much lower in terms of quality. But it tied with the slower MFC 8440, which took 11.78 seconds.

Samsung SCX-4720F

In terms of cost per page, the Brothers were the cheapest, costing only Rs 0.91 per printout, while the Samsung SCX 4720 is very expensive, at Rs 1.39 per page!

The 50 paise difference means that if you use the Samsung SCX 4720 for 3,000 documents per month, you would end up paying an additional Rs 1,200 every month!

Once again, given the heavy duty usage, the warranty offered becomes important. Brother provides a 3-year carry-in warranty with 105 authorised service centres, while strangely, Samsung provides only a 1-year on-site warranty. Samsung, though, has more service centres.

Conclusion

The *Digit* 'Best Buy Gold' award went to the Brother MFC-8440. It is a top-notch performer, and only the Samsung SCX-4720F performs better. But since the MFC-8440 boasts of a 20,000-page monthly duty cycle, and is also priced considerably lower—Rs 35,000—than the Samsung SCX-4720F, it earned the Gold award. Despite its high price, though, the Samsung SCX-4720F, clinched the *Digit* 'Best Buy Silver' award. ☒

varun_dubey@thinkdigit.com
jayesh_limaye@thinkdigit.com

Jiten Gandhi

Salil Bhargava
Chief Marketing Officer
Paradox Studios Ltd

Essentially, there are two ways in which gaming is used to increase the brand recognition and attract consumers. Firstly, it's used as a promotional tool—as a game on mobile phones provides entertainment and gives incentive to the users.

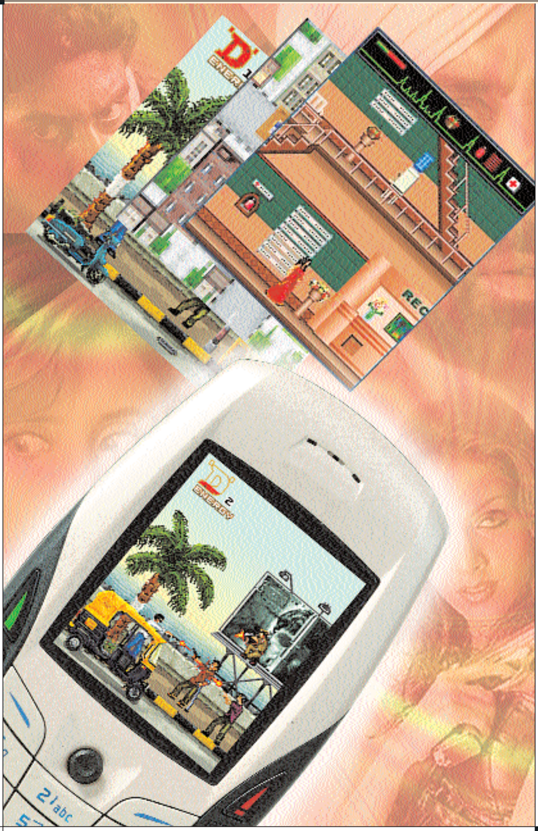
This year, we released the mobile game 'Jurm' prior to the film's launch. It was available to 10 million Reliance subscribers, free of cost, and had a 'meet the stars' contest for winners.

The other way is through royalty-based games, which is not yet a sustainable business model in India. Nevertheless, Bollywood has a huge fan following throughout India; and a game (video or Flash-enabled) based on movies is a great way to attract consumers.

Even for FMCGs (fast moving consumer goods), the uptake of games is remarkably high—when we launched the Thumbs-up promotional game, it was used by 3,50,000 users in the very first week! Gaming definitely helps reiterate the message of the brand.

ARE YOU

Leveraging games and technology to attract consumer eyeballs seems to be the new marketing mantra for films, FMCGs, and just about any new product or brand. We spoke to a few who have deployed this unique marketing idea



Imaging Vikram Khatare

Vishal Gondal
CEO
Indiagames Limited

The uptake for branded gaming content is high in India. As a matter of fact, half-a-million games are sold in the country every month.

We developed the *Kaun Banega Crorepati* game for users of Airtel recently, and a game on cricketer Zaheer Khan, to name a few. The time taken to develop a typical game can be anywhere between two to six months. These games are more popular among the younger net-savvy and mobile-using generation.

This is one trend that will continue to grow at a higher rate. It's an interactive way for producers to reach their audience, while carriers get fresh content and consumers get entertainment. The trend of using branded gaming content will definitely grow big in the future.

Arun Gupta
COO
Mauj.com

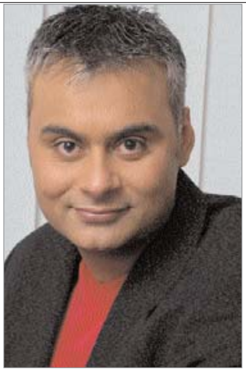
The cell phone has become a ubiquitous device. The key benefit of mobile gaming content is that it brings interactivity to the table by providing those five minutes of entertainment, and thus making it an exciting marketing avenue. The uptake for some games is fantastic, as long as they are developed and promoted well. There are five crore consumers in India using cell phones.

Mauj recently powered the *Sarkar* video game (a strategy-based game) on Cell One Galaxy, BSNL's GPRS portal prior to the film's release. *Sarkar* was one of the most-awaited movies of the year. So, its game launched with much fanfare also attracted many users.

It would take anywhere between one to five months to produce such a game—a lot depends on the complexity of the game, licensing, whether it's multi-player or not, and so on. Some film producers and product manufacturers are more involved than others. In such a case, the process is well-planned, detailed and done to perfection. We are developing videogames for the forthcoming movies—*My Wife's Murder* and *Shaadi Karke Phas Gaye Yaar*.

It's easier to make a videogame based on films as compared to other products, as films have an inherent entertainment value. While the TV and print media promote the product extensively, gaming is another weapon in the arsenal of marketers to reinforce the brand image.

GAME?



Neeraj Roy
MD and CEO
Hungama.com

Mobile and online gaming is, in any event, a popular genre of entertainment. However, wireless gaming is only accessible to mobile users with access to GPRS. The lack of it, shrinks the digital consumer population that can access mobile gaming content.

If you want to launch a game based on a film prior to its release, you need to understand the basics of film-marketing. A pre-release of the game promotes the film and helps build up the crescendo till its actual opening weekend. So, the launch of a game prior to the release of the film (or a product) goes hand-in-hand.

In India, promotional games are largely a last-minute addition, with 95 per cent offering poor game-play. Early involvement is vital for better ideation, as it takes two-three months to produce a high-quality game.

On the whole, though, it's a win-win situation for all—consumers get to win prizes, brand owners get high quality interactive time with their target audience, game developers are compensated and develop their own Intellectual Property.

Alok Kejriwal
CEO
Contests2Win

Gaming allows technology to be 'wrapped' cleverly, as brands deploy technology to manage consumers using the age, sex and location filters. Here, consumers 'play' with brands proactively and not 'avoid' them reactively, such as, switching channels when a commercial starts.

Time spent on a game exceeds a 30-second TV or Radio spot or a five-second visual glance at a print ad. Even, the timeline to produce a game is very short compared to a TV ad and is at 1/10th of the cost! A high quality game can deliver nearly one lakh plays in a month if promoted well.

In India, respondents are typically male, aged 20-30, and residing in the top 10 metros. For games in the predominantly female category (e.g., cosmetic products), responses are 50 per cent skewed towards females.

Clients spend nearly five to 10 lakh rupees per campaign to develop the game and the reach media plan. Planning is always done in advance, as the games are heavily customised! We've even made games for condom brands!

We will now see a 'fusion' marketing model emerge—as traditional marketing will create awareness and build brands, gaming will deliver the immersion and belief in the product that could lead to a sale. It seems to point to the future of interactive marketing, as specific mobile enabled games become *de rigueur*...

As told to Renuka Rane (renuka_rane@thinkdigit.com)

FACE OFF

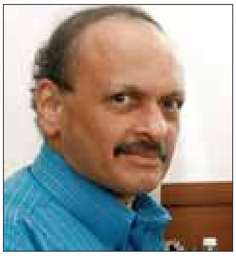
Should A Company Monitor Employees' E-Mails?

Employers want to prevent confidential information from leaking out. Is keeping a tab on employee e-mails justified?

"We monitor e-mails to prevent misuse of confidential data"

Launched in 1948, Rallis India, an agro-chemical company, is now part of the Tata group. Among Rallis India's portfolio of products are pesticides, seeds and fertilisers. It has also invested in research focusing on toxicology studies and development of new formulations and manufacturing methods.

"Rallis monitors employee e-mail, but in a very small way. Only the e-mails of our Research and Development team, consisting of 25 people, are monitored. It's necessary for us to monitor the R&D team's e-mails, as the kind of information they deal with is confidential.



Photograph **Jiten Gandhi**

Vikas Gadhare
Chief Information Officer
Rallis India

"It's just a precautionary measure. We don't want to act as the police, but we would like to discourage employees from doing anything wrong"

"What normally happens is, a copy of the domain address to which an e-mail has been forwarded is made and sent to the department head's mailbox. The exact e-mail may not be sent—only the subject matter and the domain address are sent.

"Besides, it's not possible to monitor each and every e-mail that is sent by an employee. Only suspicious e-mails get monitored. The department head looks at all the e-mails and if he thinks there is a fishy e-mail, then that particular mail is checked further.

"Mostly, the e-mails of employees who have resigned are scrutinised. This is done because there's a possibility that the employees who quit might tamper with confidential information. It is important to ensure zero damage on our R&D efforts.

"It's only been a year since we have started monitoring employee e-mails. Till date, we haven't come across any discriminating correspondence. It's just a precautionary measure. We don't want to act as the police, but we would certainly like to discourage employees from stealing company secrets.

"Employees are not yet aware that their e-mails are being monitored. Maybe at a later date, we shall inform them of this practice. I am sure, employees will not object once they understand the purpose of the system."

"At present, we don't find the need to monitor employee e-mails"

Konkan Railway Corporation Limited, a Government of India Undertaking, was formed in 1990. It provides commuting solutions for business and leisure travellers. Konkan Railway's 760 km railway route (built in five years), covers the states of Maharashtra, Goa, Karnataka and Kerala.

"Monitoring employee e-mails is not a part of our organisational policy. In fact, all these years, all official correspondence used to take place the old way—through the postal department. The electronic mailing system was introduced to Konkan Railway only a year ago. Although we frequently use e-mail now, the paper work has not been completely eliminated.

"As and when a need to monitor employees arises, we shall do so. Presently, we don't have the resources to monitor their e-mails"

Photograph **Jiten Gandhi**

Bindu Murlidharan
Senior Manager, IT
Konkan Railway

"At present we do not find the need to monitor e-mail correspondence of our employees. As and when a need to monitor employees arises, we shall do so. Presently, we also do not have the resources required to monitor employee e-mails.

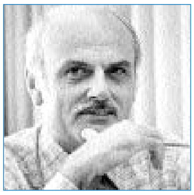
"Although there is no proposal for such an action as of now, I will not rule out its occurence in the near future. As a matter of fact, there is a possibility that we may start monitoring employee e-mails within a year. Once such a decision is taken, resources have to be acquired and only then can the system be in place.

"Moreover, it is not up to me alone to decide whether employee e-mails can be monitored or not. It is the entire management who decides the course of action under the given circumstances. We will put forward a proposal and once a decision is declared as final, it shall be implemented.

"When we decide to have such a policy in place we will surely inform the employees. For their part, employees have to follow what is stated in the policy. As you are aware, the rules in a government organisation are different from other offices, so whenever a policy is passed, the employees comply."

As told to Preethi Chamikutty (preethi_chamikutty@thinkdigit.com)

134 Cricket 2005



139 The Database Man

152 Made In Japan

Touched By Tech

A Café For The Blind

Text-to-speech software can help open up the world of the Internet to the blind

Mithun Kidambi

As you walk down the seafront, the salty spray lands softly on your face. Unwelcome on a sweltering July afternoon, the same would have evoked a sense of poetry on a better day. You ignore the play of light on the foam, the multitude of reflections and imagery that the sunlight lends to the waves. You ignore it because you can see it.

You'd more want to look at nature's little ditties if you couldn't see at all.

We've all realised, at some point, how difficult it is to function in the dark. But just to refresh your conscience, imagine sitting in front of a computer with a blindfold across your eyes. Now try to navigate to a link.

You wouldn't be able to without assistance, of course. Let's try voice prompts, or software that reads what's on your screen. The text-to-speech tool is cumbersome, and for those stuck on point-and-click, it's difficult to navigate from one window or link to the next following voice commands.

But then, isn't it difficult to walk a few steps with a blindfold on? If you throw in a couple of turns there's sure to be a lot of tripping and falling.

It is indeed difficult for us to visualise, if one may use the term, moving around in the real world or in cyberspace without the aid of our eyes. But spare a thought for those who do it every day, and are pretty adept at it.

Imaging Pradeep Ingale

The National Association for the Blind (NAB) in India has been offering lessons in technology to the visually impaired for a long time now. But with the arrival of the Internet and with computer skills becoming mainstream, it had become imperative to incorporate these into their training and knowledge programmes.

Converting books into audio files using software, and creating Braille transcripts when the need arose, are some of the activities the NAB has been a pioneer at.

This, however, did not fill the lacuna that was created due to lack of access to the Internet. To address this, in May 2002 in Mumbai, the NAB, with assistance from Microsoft, launched a cyber café aimed at catering to the needs of the visually impaired. The café consists of five customised computers, each of which is loaded with software to help the blind browse the Internet as effectively as anyone else. The café also has people volunteering as instructors.

The computers have a broadband connection to the Net. Configured to meet the needs of the visually impaired, they enable effective word processing, and the blind can also use some basic multimedia applications. "We never need anything more than the word processing or browsing software," says a regular user. "On some occasions, we do use the computers to listen to e-books or a couple of MP3 tracks," he adds.

The browsing software that guides the blind through cyberspace is called JAWS (Job Access With Speech) for Windows. This text-to-speech software by Freedom Scientific, creators of technology for the visually- and learning-impaired, can read out text appearing on the screen.

JAWS streamlines keyboard functions, automates commands, and eliminates repetition, allowing the user to work faster. It's based upon a whole new approach to talking computers—that of designing software with the priorities of the blind user in mind.

The sighted trainer or supervisor has not been forgotten: JAWS offers both aural and visual flexibility, with simple keyboard commands to help navigate through cyberspace, as well as to change the voice, tone and speed of reading.

JAWS has the ability to read almost every page on the Internet using IE. With a simple keystroke, pages with graphics, complex columns, and even frames are reformatted into an easy-to-read single column format.

In addition, with another single keystroke, the user has access to all the frames or links on the page in a list box. Once in the list box, all he or she needs to do is type in the first letter of the link that is to be viewed.

The computers are attached to a scanner, which is equipped with specialised software known as Kurzweil 1000, which converts print to speech.

The Internet is one truly open forum. Even people like us can chat, mail and surf without much difficulty

"The advent of the cyber café has opened up a number of vistas for the blind," says Ketan Kothari, manager, NAB Mumbai. "A lot of us out here are computer fanatics," he adds. Visually-impaired Kothari is as computer- and technology-savvy as any other technophile.

Our discussion veers from mail clients that are most suited for the blind to networking sites such as Hi5 and Orkut. You know the man is on solid ground as far as technology and computing is concerned when he starts discussing the pros of different Internet gateways. "It was always the lack of a viable avenue that stopped people like me from digging too deep into technology," says Kothari. The cyber café designed for the blind has certainly changed all that.

Users at the café enjoy JAWS' easy-to-use features. But like any other piece of code, JAWS has its glitches. Just as we're chatting about the viability of setting up similar cafés across the country—the only other one being in Delhi—the software runs into a Flash Web site and goes silent.

Kothari taps furiously at the keyboard. "See, this is what I was telling you about," he says. "The software works fine as long as it is dealing with simple HTML or other such scripts." The Flash script has totally flummoxed JAWS. "Anyway, Flash is almost always a visual treat, not something we can enjoy," chuckles Kothari.

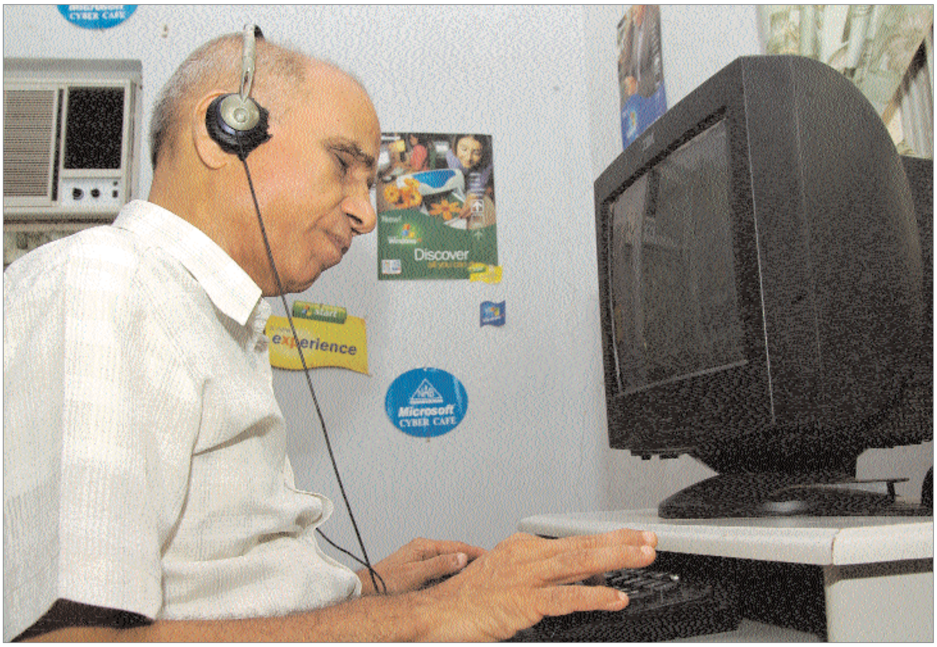
"The Internet is one truly open forum. Even people like us can chat, mail and surf without much difficulty," opines a regular user. And what sites do they visit most often? "Chat and mail sites," says Sameer, one of the instructors. "A lot of us also visit online encyclopaedias."

Walking out of the café, one notices a surfer listening intently to JAWS reading out text from an adventure sports Web site.

This particular link is actually giving details on how to scale tricky overhanging cliffs. His interest is evident, and so is the resilience of his spirit.

The discomfort of walking back into the sweltering afternoon now seems rivial. ☒

mithun_kidambi@thinkdigit.com



The NAB cyber café has opened new vistas for the visually impaired

*Located at the NAB Worli Centre, the cyber café is open to all for a nominal fee of Rs 10. **Timings:** 12 PM - 8 PM. Closed Sundays.*

Of Nobel Laureates

Got an interesting question? Send it in with the answer to **tq@thinkdigit.com** Mark 'TQ' in the subject area.

1 **In which year did Winamp become a free MP3 player?**

a. 1996
b. 1997
c. 1998
d. 1999

2 **In 1958, the first video game was created by William Higginbotham. It was played on a Brookhaven National Laboratory oscilloscope. What was the video game about?**

a. Scrabble for Two
b. Checkers for Two
c. Chess for Four
d. Tennis for Two

3 **What does the term Ajax (a Web development technique to create interactive Web applications) stand for?**

a. Authorised Java and XHTML
b. Asynchronous JavaScript and XML
c. Advanced JavaScript and XML
d. Apache, JavaScript and XHTML

4 **What is the code name for Microsoft's upcoming operating system?**

a. Windows 2005
b. Windows YP
c. Longhorn
d. GenNext

5 **Noted engineer Jack Kilby passed away in June this year, at the age of 81. For what 1958 invention did Kilby receive the Nobel Prize in 2000?**

a. The semiconductor
b. The integrated circuit
c. The portable calculator
d. The thermal printer

6 **Identify the software giant and consumer electronics maker who recently joined forces to develop high-definition DVD players.**

a. Microsoft and Toshiba
b. Apple and Sony
c. Dell and Toshiba
d. Sun and Philips

7 **PHP is a server-side HTML embedded scripting language. Expand the acronym.**

a. Pre-Hypertext Processor
b. Hypertext Pre-Processor
c. Post-Hypertext Processor
d. Pro-Hypertext Processor

8 **The .db extension refers to what type of a file?**

a. Paradox database
b. Hypertext related file
c. Image file
d. Backup file

9 **What is the term for an attack in which thousands of copies of a mail are sent to a single mailbox?**

a. Mail Attack
b. Spambot
c. E-mail Bomb
d. E-mail Overload

10 **What does the 'Sun' in Sun Microsystems stand for?**

a. Stanford University Network
b. Silicon United Network
c. Silicon Union Networking
d. Stanford Unified Network

Did You Know?

The Florida LambdaRail in the US connects 10 universities through previously unused fibre optic cable, and moves information at 10 Gbps

Answers

1. 1998
2. Tennis for Two
3. Asynchronous JavaScript and XML
4. Longhorn
5. The integrated circuit (microchip)
6. Microsoft and Toshiba
7. Hypertext Pre-Processor
8. Paradox database
9. E-mail Bomb
10. Stanford University Network

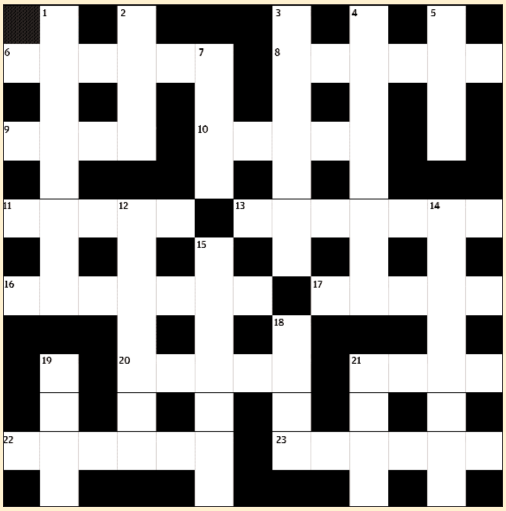
Crossword

Across

6. Locate information on the Internet (6)
7. 3.5-inch diskette hanging limply (6)
8. Isarithm (6)
9. Unwanted e-mail destroys maps (3)
10. Arangement of text to a margin (5)
11. Interactive reality contests for entertainment (5)
13. Wireless Local Area Network adaptor (3,4)
16. Software sellers (7)
17. Application Server Provider Industry Consortium (abbr) (5)
20. Self-Scanned Amorphous Silicon Integrated Display (abbr) (5)
21. ---- mode-alternative boot method for Windows (4)
22. The uncompiled code of a computer programme distorts its course (6)
23. Perception of musical notes (4)

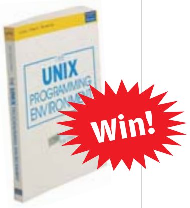
Down

1. Style sheet in word processing application (8)
2. Unit of mass misleads marg (4)
3. Short for digital camera (4,3)
4. Communication lines between a computer and the Internet (8)
5. Frequency (4)
7. Transfer of kinetic energy through radiation, conduction and convection (4)
12. Person who ultimately uses a computer product (3,4)
14. Temporary loss of a satellite programme due to heavy rainfall (4,4)
15. In-operation of a computer system (7)
18. A data management System (abbr) (4)
19. Footwear to load an operating system into RAM (4)
21. Last changes by random string of data used in password protection (4)

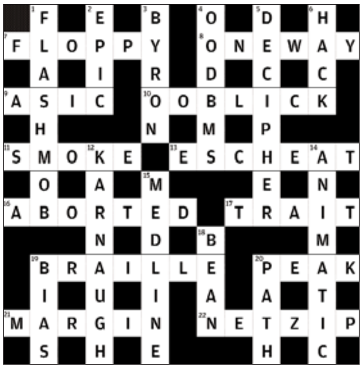


Crossword by **Nitta Jaggi**

Send in your answers to the crossword with complete contact details to **TQ@thinkdigit.com** on or before **Aug 15.**
One lucky participant will win: ***The UNIX Programming Environment*** by Brian Kernighan and Rob Pike published by Pearson Education (Singapore) Pvt Ltd (Indian branch in New Delhi)



July 2005 Solution



■	1 F	■	2 E	■	3 B	■	4 O	■	5 D	■	6 H	■
7 F	L	O	P	P	Y	■	8 O	N	E	W	A	Y
■	A	■	I	■	R	■	D	■	C	■	C	■
9 A	S	I	C	■	10 O	O	B	L	I	C	K	■
■	H	■	■	■	N	■	M	■	P	■	■	■
11 S	M	O	12 K	E	■	13 E	S	C	H	E	14 A	T
■	O	■	A	■	15 M	■	■	■	E	■	N	■
16 A	B	O	R	T	E	D	■	17 T	R	A	I	T
■	■	■	N	■	D	■	18 B	■	■	■	M	■
■	19 B	R	A	I	L	L	E	■	20 P	E	A	K
■	I	■	U	■	I	■	A	■	A	■	T	■
21 M	A	R	G	I	N	■	22 N	E	T	Z	I	P
■	S	■	H	■	E	■	■	■	H	■	C	■

The winner for the July 2005 crossword is Shantanu Mishra, New Delhi.

LET'S GET IT out of the way... this game is hard! Even in 'Easy' mode, you're bound to lose to the computer team a few thousand times before you get a fluke victory—if at all! If anything, there's a little too much reality here when batting, and Sachin Tendulkar would struggle to reach double figures!

Graphics: Average

Let's start with the graphics, as all gamers would want to: two words, "nothing special!" Sure, fans of EA's *Cricket* series will now commission mercenaries to fetch them my head on a platter, but the truth is the truth! Look at it from my point of view, I've just finished playing *Half-Life 2* for the 9,826,283,745th time, and then I pop this game in and roll on the floor laughing uncontrollably at the pixellated look of the players!

Interface: Good

Next comes the menu interface: simple, easy to use, and with a decent amount of tweaking allowed in the settings. So far so good.

I'm impatient, so I decide to start a quick game just to see what all the fuss is about. Ahh! A screen that shows me the controls. Huh? Where did it go? What was that second button for? Yes, the keyboard controller map is shown before the start of each game, but only for about 0.0023485872534 seconds. So I had to read the manual, just to see which button did what. Any game that makes me read a manual isn't very user-friendly in my humble opinion.

Controls: Good

Oh well, on with the game. It's Australia vs Bangladesh, and I am Australia (obviously!). Gilchrist walks in with Hayden, the stadium is beautiful, and packed to the brim with screaming fans. Gilchrist takes his stance, some Bangladeshi bowler runs up, I keep [**Shift**] pressed (this is the "Six Hit" button) and press [**S**] + [**Down Arrow**] + [**Left Arrow**]. The ball goes sailing over the long on boundary and into the second tier of fans amidst much cheering. "I love this game," I yell!

Five minutes later, Australia are all out for 9, and those three extra runs came from leg byes or no balls! Every time I play a shot, it goes straight to a fielder. Every time I try a "Six Hit", I get caught!

AI: Ridiculous

I can never seem to find the gaps—well actually I do, but these fielders make Jonty Rhodes look like Lord Nelson running a marathon!

Yes, to say the fielding is a little too good is an understatement! Every single player can run faster than the wind, has the throwing arm of Hercules, and can break the world long jump record *AND* take a catch—all at the same time!

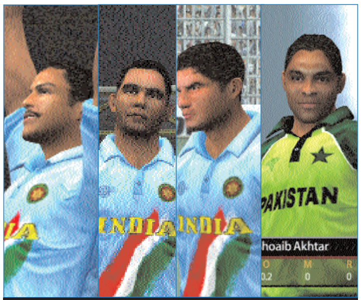
Practise: Good

I realise I have jumped straight into the fire and decide I need a little practise. I head off for the nets. Bowling isn't really that hard, so I choose to practise my batting.

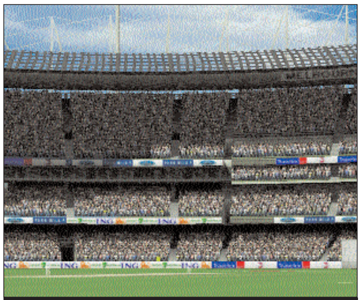
I learn that it's almost impossible to time a ball to perfection, and that you should never try a sweep shot to a bouncer! After an hour, I figure out how to time the ball. I think I'm ready!

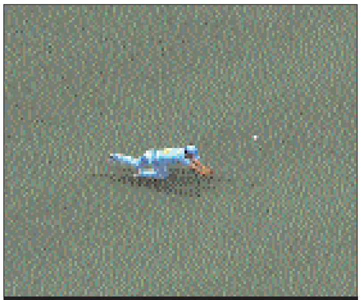
Next I do what most Indians would do: choose to be India, and play a match against Pakistan. I should have opted to be Pakistan!

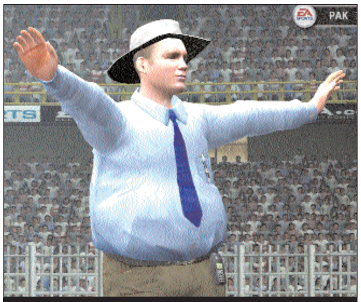
And you thought games were easy to play...



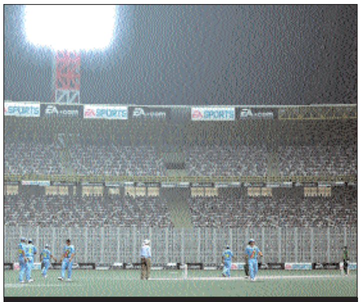
L to R: Tendulkar, Ganguly, Yuvraj, and Shoaib. Only Shoaib looks believable

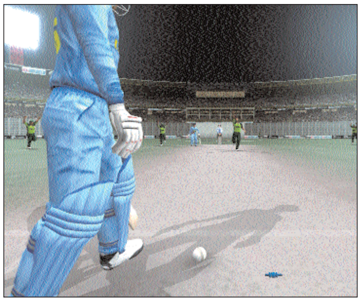

Stadiums look good in the day, and it's always a sold out affair

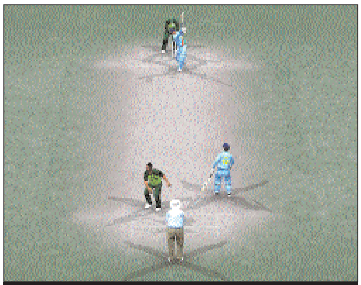

This Indian fielder ran 30 yards and took a diving catch—yeah right!



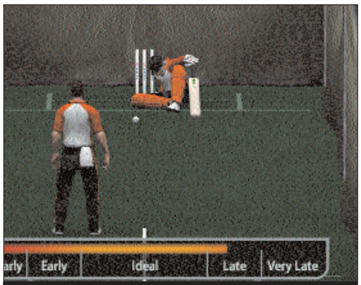
All the umpires have paunches. At least there's consistency


Even under the lights, you feel like you're really watching a match

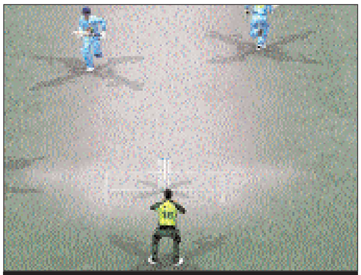

There's even a pretty decent stump vision camera angle



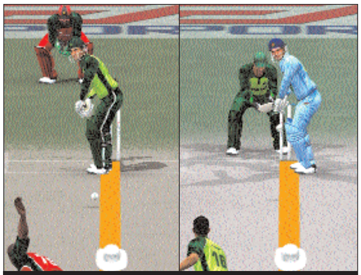
Bowler delivers a ball; I hit it; he's already turning as I play my shot...



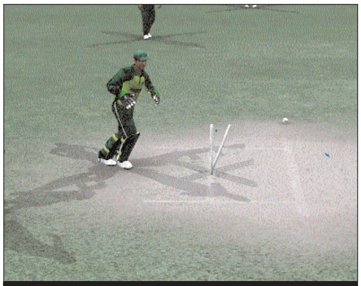
Timing is everything, especially when fending off a bouncer—ouch!



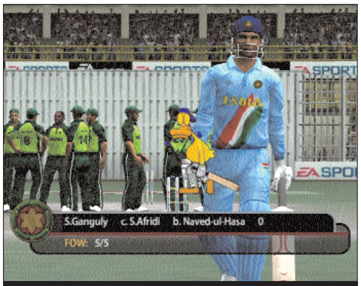
Caught and bowled before the batsman can take three steps...



Standing outside the line—out. Plumb in front—not out. Match fixing?



A replay of a run out is pretty similar to what you see on TV—good!



Dada gone for a duck! Told you it's a little too real, didn't we?

5 TOP SELLING GAMES

1. **Maxpayne 2**
   Rs 999
   E-xpress Interactive Software Pvt Ltd
2. **Grand Theft Auto: San Andreas**
   Rs 2,999
   E-xpress Interactive Software Pvt Ltd
3. **True crime**
   Rs 999
   Worldwide CD-ROMs
4. **Cricket 2005**
   Rs 999
   Gayatri Impex
5. **Constantine**
   Rs 699
   E-xpress Interactive Software Pvt Ltd

List Courtesy **Crossword Mumbai**

The Game: Average

Pakistan wins the toss and elects to bat—typical! Afridi tries to hit Zaheer Khan for a six, first ball up, and holes out in the deep—also expected. Then Inzamam smashes a six, and I start bowling length and short out-swingers to end the over. Ajit Agarkar gets smashed for a six as well, and then next ball clean bowls Inzi. It's the same throughout... bowl a loose delivery, or try anything new, and you're smashed for a six—even by tailenders! Every now and then, a bowler gets a "power-up", which lets him bowl a "special delivery," but nothing seems special about it!

Attention to Detail: Poor

I should also mention that EA has done a terrible job with the player's faces. No Indian player looks anything like the real deal. And will someone please send the folks at EA a picture of Sachin Tendulkar! The master blaster is depicted as a skinny, tall, dark-skinned player with a moustache!

Commentary: Hilarious

The commentary from Richie Benaud is boring at best, with stupid comments about why players wear coloured clothes for day and night matches. Then I start to notice the bugs... he often mentions that India needs to pick up the run rate, but it is Pakistan that's batting! Then I bring Tendulkar on to bowl, his first four balls are smashed for sixes, and Benaud says something like, "This is turning out to be a good over for India." While I contemplate on whether to laugh or cry, Pakistan are all out for 92.

Batting: Impossible

Now comes the dreaded time, batting.

At least Shoaib Akhtar looks like his real self, and his bowling is just as lethal. The score goes from 1 for 1, to 2 for 2, then 3 for three, and India are soon bowled out for 14. I knew I should have opted to be Pakistan!

Only once did a smile appear on my face during the torturous 10 overs of batting, and that was when "Dada" got out for a duck!

Overall: 5/10

Overall, this game loses out on three factors: it's too tough to play, the graphics (especially character depictions) are pathetic, and the AI (fielding) is too powerful to be enjoyable!

It does win in terms of replay-ability, and other options such as creating your own player, playing different tournaments, playing domestic cricket, training in the nets, etc.

If you have money to blow, are a sucker for punishment and love to have the stuffing beaten out of you in games... play *DOOM 3* in Nightmare mode without cheats. EA Sports' *Cricket 2005* is strictly for cricket fanatics in India, and since there are millions of them, this game might do pretty well. The rest are advised to check out the demo first.

robert_smith@thinkdigit.com

Cricket 2005
Publisher **EA Sports,** Price **Rs 999**
Web site **www.eaplay.com**
System requirements **Windows 98/SE/Me/2000/XP, 700 MHz CPU, DirectX 9.0 compatible card, 256 MB RAM, IE6**
Distributor **Gayatri Impex**

eWeek.com, July 14

How Can Anyone Oppose Internet Sales Tax?

DAVID COURSEY HAS been writing for over two decades on hardware and software. Here, he wonders why people in the US are opposing the proposed Internet Sales Tax

Hot news: Sales taxes are going to be collected on purchases made over the Internet. It will take a new federal law and a clearinghouse arrangement to handle distribution of the revenue, but it's going to happen. That's not a prediction, that's a promise. And it will happen within five years, too.

I am not sure why people oppose this. Not collecting these taxes saves people a few bucks, but it's at the expense of community services and disadvantages local merchants.

Sure, I like buying stuff "tax-free" over the Internet, but I like my local police and schools more. I also like my local merchants, who hire local folks, some of whom are getting hammered by customers who shop locally and then buy over the Internet and out-of-state.

eWEEK
Simple, automated backup for small business servers.
How Can Anyone Oppose Internet Sales Tax?
EXTREMENANO
The Tiny Future Revealed
211300
Clairvoyant

Frankly, the only reason I can imagine for not already collecting sales tax on Internet purchases is a pesky Supreme Court ruling that linked tax collection to physical location. With the Internet and rapid shipping of goods purchased there, location isn't what it used to be.

OK, there's the other reason: We need a mechanism that makes it easy to collect sales tax and send it to the 50 states without the merchant having to file for 50 state tax permits, write 50 checks, file 50 reports, etc.

I see no reason why accounting software couldn't create an electronic transaction report that could be attached to an electronic payment and sent to a clearing house. There, the file would be read and the taxes properly divided.

As for collecting the proper tax, downloading tax tables is not a very big deal. You might occasionally have to ask a shopper what county they live in, or something similar.

What might slow it down, however, is the need for some new tax regulations in the states after Congress gives its OK.

Chris Nolan's readers notwithstanding, I really don't understand how anyone could oppose this. Well, anyone who doesn't think that all taxes are bad. To those people, any kink in the taxing system that lets money slide seems like a good thing.

Fairness is an important issue here. Why should brick-and-mortar vendors, who contribute far more to their communities than just tax revenue, be discriminated against?

I think a fair case could be made that Internet vendors should pay more taxes than those selling from retail storefronts.

It is very important to make these payments as transparent to merchants as possible. But, beyond the need for a technological solution, I can see no reason why someone interested in tax fairness wouldn't support collecting sales tax on all Internet transactions.

Sales taxes are bread-and-butter revenue for local government. They are what helps pay for the community services we use every day. If the federal government feels for some reason that Internet businesses need a break, they should implement it through the IRS code, though I see no need. Internet businesses never were on life-support.

Local governments and brick-and-mortar business deserve a break, too.

Want to read more? Visit http://snipurl.com/digit1

WashingtonPost.com, July 3

Google Earth: Officially All Over the Map

ADDRESSING ISSUES RELATED to personal technology and monitoring the changes and advances taking place in today's fast-changing wired world are just some of the things Rob Pegoraro has been writing about. In this column for The Washington Post, he takes on the newly-launced Google Earth and gives it a thumbs up.

You can't accuse Google of thinking small. Having sewn up, upended or merely rejuvenated the markets for Web searching, Web-mail services, digital photography and file searching, it's now set its sights on something slightly larger: the Earth.

Google Earth takes the Google Maps service into multiple dimensions. Instead of presenting top-down views of maps or satellite photos, this software wraps those high-resolution satellite photos on a three-dimensional model of our planet's land surface that recreates every molehill and mountain, then lets you eyeball the scenery from any angle you wish.

By selecting options from an extensive menu of "layers," you can then add more details. The program starts you off with a view of the world as a sphere in space. The first cue that you're looking at a different sort of atlas comes when you type in a search for a place: Google Earth sends you hurtling toward that spot, plummeting faster and faster until you finally, smoothly glide to a halt in the sky above it.

washingtonpost.com
THE SITUATION with TUCKER CARLSON
Fast Forward
Google Earth: Officially All Over the Map
IT'S OUR BUSINESS TO KNOW YOUR BUSINESS.
VONAGE
RATE PLANS STARTING AT $14.99 A MONTH

At that point, you must wait a moment or two as Google Earth downloads and displays the details of your location. It doesn't store all this data on your computer, instead fetching it as needed from Google's own computers.

Once you land, you can start to ladle on the data Google has archived. This is what makes Google Earth more than a nifty replacement for a globe: You can take the measure of a place in many ways, combining the sources of data offered in Google Earth's "Layers" toolbar.

With a few clicks, for example, you can produce a map that illustrates which Metro stops offer the best access to both pizza and ATMs. You can plot out nearby churches and coffee shops, add clickable buttons that display crime rates for the year 2000, and inspect outlines of school district, Zip code and congressional district boundaries.

One of Google Earth's most useful features is the "Measure" command. It calculates distances between points A and B, whether by a straight line or along the path of your choice.

You can add "placemarks" for any interesting spots you find, then share them with other Google Earth users via an online bulletin board. Users of Google Earth have accumulated a massive library of shared placemarks that span a wide range of geo-trivia. One individual, for example, has assembled a set of placemarks that point to historic lighthouses; another is mapping the locations of publicly accessible webcams.

And yet this free program is still one of the most useful free downloads I've seen in a while. It should make other mapping-software competitors nervous.

Want to read more? Visit http://snipurl.com/digit2

BusinessWeek Online, July 25

Home Is Where The Work Is

"SOFTWARE WRITERS WITH solid skills are finding plenty of jobs stateside," says Steve Hamm, and goes on to suggest that US programmers should not be stuck in routine programming jobs that could eventually be hijacked by Indian "upstarts"

Remember two years ago when the sky was falling for software programmers? Indian upstarts were putting tens of thousands of low-salary coders to work on projects that once would have been done by Americans.

Sun
Share the fast lane.
BusinessWeek online
Home Is Where The Work Is
ERICSSON

But the latest data from the Bureau of Labor Statistics contain a pleasant surprise: The ranks of "computer and mathematical occupations," which include many programmers, actually rose in the second quarter. While software companies themselves boosted jobs, employment at establishments providing custom programming services increased 5.6 per cent. By contrast, tech manufacturing jobs were up just a tad and telecoms are still cutting staff. Why the shift?

A couple of reasons. High-end programmers' skills are in demand as corporations adopt a slew of new technologies from wireless computing to Web services—pieces of software that fit together like Lego blocks. That makes it easier to add new features and to integrate one program with another. A second factor: While Indian service firms and their Western rivals are hiring lots of programmers overseas, they're also recruiting people with design skills and business knowledge close to their clients in the U.S. and Europe.

But American programmers are not out of harm's way. The pressure is still on to avoid getting stuck in routine programming jobs that can easily be moved offshore.

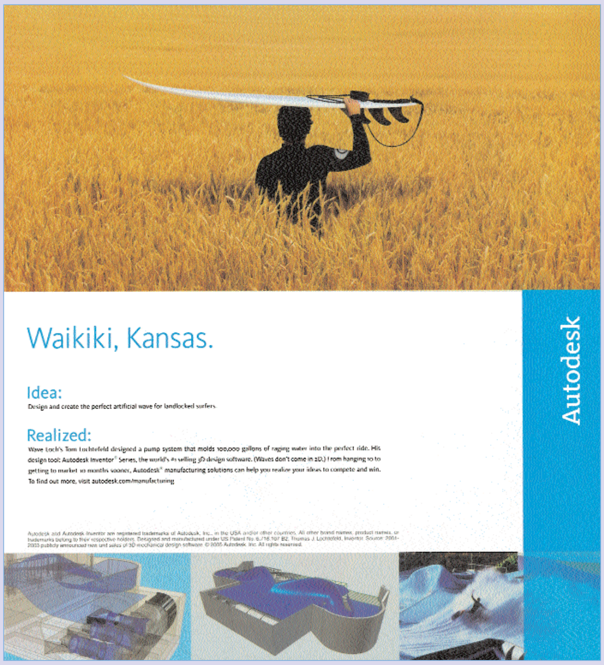
Smart Package Design

CMU's elite grads have had little trouble finding jobs. This is partly to the fact that CMU teaches them to design software packages, rather than just routine programming. But having the latest coding skills is vital, too. Rick A. Kessler, CIO of shipper Horizon Lines Inc., is nearly through a five-year project to retool Horizon's run-the-business applications using Microsoft Corp.'s Web services technologies. He's been hiring two to three highly skilled developers a month to help get the job done. They concentrate on translating business processes into a software design. Then he gets about 60 contract programmers, some in his offices and some in India and the Philippines, to do the routine coding.

The hot strategy for tech services companies these days is delivering services from around the world. This goes for giants like Accenture and IBM as well as the Indian upstarts. They staff software projects with a combination of U.S.-based programmers who make design decisions along with others in Asia, Eastern Europe, or even the US who can produce high-quality programming at a low price. India's Tata Consultancy Services, for instance, has 10 software centers in the US, plus eight others outside India.

Software likely won't be a jobs growth engine in the future. Still, so long as US companies continue to innovate and schools produce grads with top-flight skills, many American programmers will find jobs at home.

Want to read more? Visit http://snipurl.com/digit3



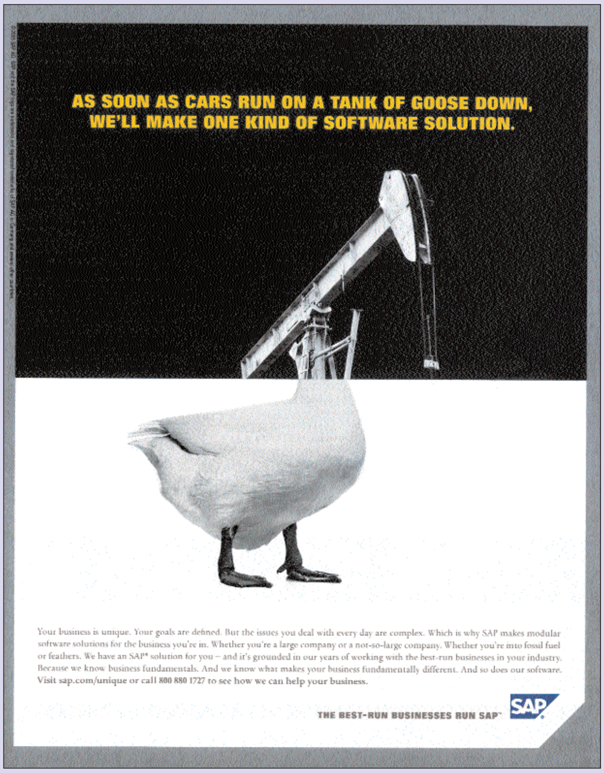
Idea:
Design and create the perfect artificial wave for landlocked surfers.

Realized:
Wave Loch's Tom Lochtefeld designed a pump system that molds 100,000 gallons of raging water into the perfect ride. His design tool: Autodesk Inventor® Series, the world's #1 selling 3D design software. (Waves don't come in 2D.) From hanging 10 to getting to market 10 months sooner, Autodesk® manufacturing solutions can help you realize your ideas to compete and win. To find out more, visit autodesk.com/manufacturing

Autodesk and Autodesk Inventor are registered trademarks of Autodesk, Inc., in the USA and/or other countries. All other brand names, product names, or trademarks belong to their respective holders. Designed and manufactured under US Patent No. 6,716,107 B2, Thomas J. Lochtefeld, Inventor. Source: 2001-2003 publicly announced new unit sales of 3D mechanical design software. © 2005 Autodesk, Inc. All rights reserved.

⏶ Wild Suring?

Surfer gone astray? Not quite. Autodesk, one of the world's leading motion picture digital manipulation software companies makes a strong point about their software: Realise your ideas. And no, Waikiki is still in Hawaii!


AS SOON AS CARS RUN ON A TANK OF GOOSE DOWN, WE'LL MAKE ONE KIND OF SOFTWARE SOLUTION.
THE BEST-RUN BUSINESSES RUN SAP™
SAP

Your business is unique. Your goals are defined. But the issues you deal with every day are complex. Which is why SAP makes modular software solutions for the business you're in. Whether you're a large company or a not-so-large company. Whether you're into fossil fuel or feathers. We have an SAP® solution for you – and it's grounded in our years of working with the best-run businesses in your industry. Because we know business fundamentals. And we know what makes your business fundamentally different. And so does our software. Visit sap.com/unique or call 800 880 1727 to see how we can help your business.

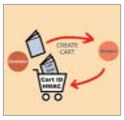
⏶ Goosing Around

Now that's a tall claim! But SAP seems sure they can create a software solution when our cars start running on goose 'down'. Point: They (will) have a solution for every type of business. Point: Taken.

Two Days, A Million Podcasts

Apple's new iTunes is going great guns. The company recently said people have already subscribed to more than 1 million Podcasts through the new version of its iTunes software, released July 5. In a speech to developers in early July, Steve Jobs called Podcasting "the hottest thing going in radio".

Online-only Brands 'Lack Trust'



Online shopping just turned 10. But nearly two out of three consumers prefer to buy a known and trusted brand that also exists offline, a new study claims. A survey of over 1,000 customers by insurers Direct Line shows shoppers still do not trust online-only brands.

CHANGING ONLINE HABITS

The Threat Is Real

According to a survey of US Net users from the Pew Internet and American Life Project, the threat of spyware and other unwanted programs is changing the way people use the Net. Nine out of 10 users said they had "adjusted their online behaviour" due to the threat of malware.

A quarter of users have spotted new programs or desktop icons on their PCs that they hadn't installed. One in five users (18 per cent) has had their homepage inexplicably changed. Both these are common signs of malware infection. Of those polled, 68 per cent have experienced problems with their PCs over the last year, problems that seem to be indicative of either spyware or viral infection, although 60 per cent of those who had problems weren't sure of the cause of their difficulties.

Illustrations: **Harsho Mohan Chattoraj**

The survey has several other interesting findings to offer: 81 per cent of users said they stopped opening unsolicited e-mail attachments (finally!) 48 per cent said they stopped visiting untrustworthy Web sites out of spyware concerns. A fourth of those polled even said they had stopped downloading music or video files from P2P networks in order to avoid unwittingly downloading unwanted programs. And a minority of surfers—18 per cent—said they changed their Web browser in order to avoid malware attacks.

There's another perspective to this: Net users are changing their surfing habits, but it's not perhaps due to security advice from vendors. As an example of this, only one in three Windows XP users in the US have applied Service Pack 2, which promises improved defences against hacking and computer virus attacks. "We know that the percentage of people using Windows XP SP 2 is lower than we would like it to be. One in three machines that run Windows XP is running SP 2. Customers are still reluctant to upgrade," Mario Juarez, a security product manager at Microsoft is reported to have admitted.

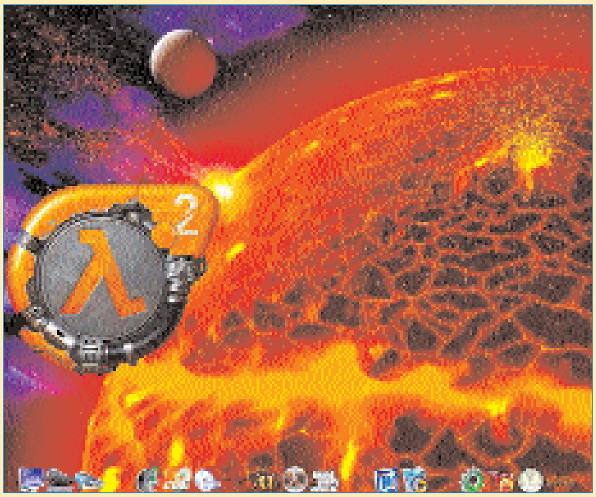
Win!

My Desktop

Think you have the most beautiful, most innovative desktop around? e-mail with subject **'My Desktop'** and your postal address to **mydesktop@thinkdigit.com,** and Digit will publish the most eye-catching of them each month.

The winner receives a copy of Fundamentals of Digital Image Processing by Anil K Jain published by Pearson Education (Singapore) Pte. Ltd

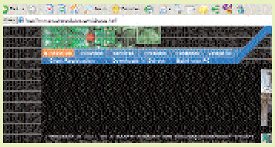
FUNDAMENTALS DIGITAL IMAGE PROCESSING
ANIL K JAIN



Charan's desktop spews fire all the way.
Sent in by Charan Reddy (crec_charan@rediffmail.com)

UNUSABLE!

www.systemsnsolutions.com



Systems and Solutions is an "A to Z Computer Store"—at least that's what it says on their Web site. However, after navigating through it, one realises that the meaning of either the term 'A to Z' or 'Computer Store' needs to be redefined.

Surfing this site gives you the feel of a newly constructed building with a neat external appearance but an incomplete and raw interior. The design and layout look professional, but hardly any of the links actually function.

Under the 'Products' section appears a Flash-animated picture of a desktop with the usual peripherals. The idea is to display a catalogue, but none of the links work. If you click on the 'Speakers' picture in this image, all you get is a window with the word 'Speakers' in bold.

The same goes for the rest of the links and sections. The section titled 'Build Your PC' inspires interest, but does nothing at all. A blank page comes up when you click it, . Some indication like "coming soon" would have been appreciated.

'Feedback' and 'Client Registration' use the general principle of the page of displaying nothing.

The saving grace is the 'Contact Us' link, which does what it should—show the contact details of the owners.

DigiPick of the month

Dual-Layer Shave!

Sponsored by Canon

This month's winner is
Prabhu Prasad Patra
107/M, Bhimtangi
Bhubaneswar-02, Orissa

He is the lucky winner of a Canon Pixma iP 1500 MRP: Rs. 4,495/- Redefine your printing experience with Canon Pixma

iP 1500

PHOTO PERFECTION BY PIXMA

WIN!

Send in your entry and you could win a **Canon Pixma iP 1500** just by sharing an amusing picture with a tech angle to it. The picture should be shot by you, and should not have been published anywhere earlier. E-mail your picture with the subject **'DigiPick'** and your postal address **on or before 15th of this month** to **digipick@thinkdigit.com.** One prize-winning picture will be published each month.

TOO HARSH?

Death To Virus Writers!

Sven Jaschan was recently convicted for creating the Sasser worm that wreaked havoc on the Internet last year. He was given a 21-month suspended sentence and 30 hours of community service. Critics say this is too light a sentence.

New York Times columnist John Tierney thinks it is *much* too light. In a column on July 12, he says he is almost convinced by a theory that society might benefit more from executing a virus writer than from killing a murderer.

The theory comes from economist and columnist Steven Landsburg. He published it in a column in *Slate* in late May, which he started like this: "If we execute murderers, why don't we execute the people who write computer worms? It would probably be a better investment."

Landsburg argues that if the effect of executing a murderer is deterrence, it is worth more to execute a worm writer than a killer. He estimates that the benefit of executing a murderer is roughly $100 million (Rs 436 crore), the value of the 10 murders prevented by the deterring effect of an execution.

Viruses and the like cost the world $50 billion a year, Landsburg writes. If a single execution of a virus writer could deter just one-fifth of one percent of all that malicious coding for just one year, the world would gain the same $100-million benefit we earn by executing a killer, he writes.

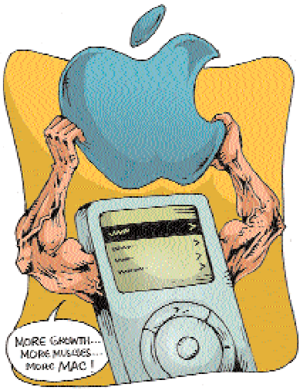
Landsburg's theory could hold water if such things could be reduced to numbers, but of course they can't. And no-one is suggesting that the death penalty is anywhere on the horizon for virus writers. But it's an idea.

THE IPOD EFFECT

More Macs In The Market

The iPod hasn't just been a product that revolutionised the portable music industry. It's exposing people to the world of Apple—and helping boost Mac sales, too!

A consumer survey by S G Cowen & Co in June lays out a convincing case for a 'halo' effect for Apple's Macs. The effect refers to the impact that one product, in this case, the iPod, is having on sales of other products, namely, Macintosh computers. Industry watchers and analysts have speculated on the effect for some time, but the Cowen survey actually attempted to document it by surveying over 1,400 people.



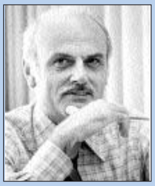
MORE GROWTH... MORE MUSCLES... MORE MAC!

Of the 1,443 households surveyed, three per cent owned only Macintosh computers, while seven per

People Who Changed Computing

The Database Man

Edgar Codd was responsible for the creation of relational databases. While working at IBM's Almaden Research Center in the 1970s, Codd's paper called *A Relational Model of Data for Large Shared Data Banks* was path-breaking, and proposed a shift from the then-chaotic navigational database systems to a more ordered row and column system. You can read the paper at http://snipurl.com/g9pa.



Edgar F Codd

Because of Codd's work, we are able to transact online, have server scripted pages that read from databases, use our credit cards anywhere in the world and perform a myriad of other functions. Almost every task in a group or organisation needs data to be read from a database, and thanks to Codd, an airline will allow you to book tickets on any flight from anywhere in the world.

Though Codd's theory spawned a multi-billion dollar IT database industry, he never made any money off his ideas himself! No one at IBM paid heed to his theories, and by the time they realised their true potential, it was too late. IBM was beaten to the market by Lawrence J Ellison, who used Codd's theories to build a product and a start-up that is today known as Oracle.

Codd won the A M Turing Award in 1981—the highest honour a person can achieve in the field of computer science. He died of heart failure at the age of 79 in 2003.

Bluff YOUR WAY THROUGH

Linux

Linux is catching on fast, but perhaps not fast enough. Those of us who are purely Windows or Mac users sometimes get lost when a conversation involves Linux fans. Now you can at least try and hold your own end up in such situations...

BASH: The Bourne-Again Shell is the default shell (command line interface) in most Linux distributions.

Console: When you log into Linux in text mode (command line) from the X Window System, you are said to be in the console.

Daemon: A program that runs actively in the background.

GNOME: The GNU Network Object Model Environment is a Windows-style desktop window manager.

GNU: A recursive acronym, GNU stands for "GNU's Not Unix". It is a project that was launched in 1984 to develop free Unix-like OSes.

GPL: The GNU 'General Public License' is a licensing that requires software coders to make the source code (for programs they create) available freely, in order to qualify for the certification. The Linux kernel and most of the bundled applications in Linux have this license.

KDE: A window manager similar to GNOME.

Man: Short for 'manual', it is the user manual that accompanies most GPL software.

Open Source: Software that distributes its source codes openly, such as all software under the GPL.

Usage: "I reinstalled the Linux kernel the other day. Something happened to GNOME and KDE though, I rebooted and all I got was the BASH prompt! I looked at all the man pages available online, but nothing! Sometimes I feel Open Source isn't all it's cracked up to be!"

So now you know!

Things get a little crazy around 'issue closing'—rather a notorious time—when the magazine goes into print. Readers write in to us all the time and ask how we handle the pressure, deadlines and the knowledge that over 6 lakh readers, at some time in their lives, bet good money on Digit's suggestions. Well, let's take a peek into life during issue closing!

The cast: DA-the don (Deepak Ajwani), AK [47] (Aditya Kuber), Dee Dee (Deepak Dhingra), EDO RAM (Ram Mohan Rao), RoboT (Robert Sovereign-Smith)

DA-the don: What the hell! Everyone forgot about Digit Diary?
EDO RAM: Huh?
Dee Dee: The Test Centre is too busy to write anything more now.
DA-the don: All of you... In my cabin NOW!
AK [47]: *pensive*
RoboT: *doubly pensive*
EDO RAM: Huh? Wazzat?
Dee Dee: I say we write about the Test Centre! We broke our backs lifting those heavy MFDs!
DA-the don: OK, write it!
Dee Dee: "*Arrey*, but the Test Centre is too busy to write anything more now."
DA-the don: Who volunteers to write it then?
AK [47]: No way, I'm still piled with proof-reading and last-minute editing!
EDO RAM: Huh? I'm sleepy!
RoboT: Why don't we write what just happened?!
DA-the don: Hmm...why not?
Now you know.

To be honest, there's just been so much work and testing and writing that we have all forgotten about the smaller things. All for you, dear reader... all for you.

DIGIT DIARY

---

cent had both, Windows PCs and Macs. But of the 36 per cent of respondents who owned digital audio players, more than half owned iPods.

Now, of the respondents who said they had decided to buy a computer in the next 18 months, 7.5 per cent said they were planning on buying a Mac. This won't mean much until you consider the fact that Apple's marketshare in the US is only 3.3 per cent. If all the buying intentions pan out, and the survey is representative of general PC buyers, Apple could conceivably double its marketshare in the not-too-distant future.

As a matter of fact, Apple's revenue and unit shipments of Macs have been growing, and seem to bear suggestions of a halo effect. For some people, the iPod has been their only exposure to Apple products. It appears that that exposure is raising interest in other Apple gear. The survey's bottomline is that overall, only three per cent of people primarily using Windows definitively planned on Mac purchases. However, iPod owners with Windows computers were more than three times as likely to buy a Mac.

SPEEDING UP SEARCHES

Free Plug-In For IE

A free plug-in released July 13 for Internet Explorer allows users to mouse over Web search listings for an instant view of the content, rather than having to wait for the full page to download. The software, created by San Francisco-based Browster, uses patented 'pre-fetching' instant page rendering, which serves up a copy of the Web page in milliseconds in a new window on top of the original search page.

Users can click on links and information in that new window and download data from that Web site. They can exit by moving the mouse back to the main search site or click on an icon in the new window for viewing the previous or next search item in the list of results.

Browster 1.0 works with search sites such as Google and Yahoo, e-commerce sites such as eBay and Amazon, and other Web sites that can be searched for items. The plug-in works with IE 5 and later versions. Other

---

browsers will be supported in the future, said Browster CEO Scott Milener.

NOTEBOOKS, NOT TEXTBOOKS

Finally, An All-Electronic School

For a few hundred Arizona high school students, it's going to be laptops over textbooks: the Vail Unified School District is gearing up to open the doors of the state's first all-wireless, all-laptop high school. Students will use electronic and online articles as part of lesson plans.

About 350 students at Empire High School will be lent $850 (Rs 37,000) laptops for the school year, and district officials hope to eventually increase enrolment to 750, according to The Associated Press. A set of textbooks runs about $500 to $600 (about Rs 24,000).

While computers in schools are becoming increasingly common, experts say Vail's decision to become an 'e-school' is rare. Cost, insecurity, ignorance and institutional constraints often prevent the switch to

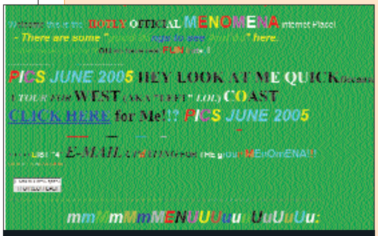
whatweretheythinking.com

www.menomena.com

Ok, so you're a band. What are all the crazy things you are "allowed" being a band (and one that has seen popularity surge in recent days)?

A mind-boggling Web site seems to be one. Menomena (www.menomena.com) has been created with enormous care and eye for detail. But all the resources have been targeted at making this site look as garish and outlandishly obscure as possible. Why? To grab attention, silly! All links—without exception—are childishly worded and let's not even start with the quality of the 'Engrish'. The group's based in the US (Portland, we think) and we would strongly request them to stay there.

So while there are links that work on the page (yes, that's credible), they are first visible only after about two screens and then, you wish you hadn't found them. Clicking on the links gives no respite either (unless, of course, you navigate away from the site) and the garish colours continue to boost the headache you just acquired.



www.menomena.com

Now as a concept, it's all well and fine to be 'different' in an attempt to grab headlines and attention. But we always thought that the objective of a Web site was to attract repeat visitors. To be a repeat visitor to this site, you would have to be (a) blind to start with, but that raises other questions (b) stupid (c) very stupid (if you came back a second time, that is).

We choose (d)—none of the above, and strongly recommend the same to all sane minds.

an all-wireless classroom, said Mark Schneiderman, director of education policy for the Software & Information Industry Association, which represents corporations that develop classroom software.

Vail's move is aimed at urging teachers to be more creative when making up lesson plans, and keeping kids more absorbed in their studies. Calvin Baker, superintendent of Vail Unified School District, told the Associated Press, "We visited other schools using laptops. And at the schools with laptops, students were just more engaged."

MORE CONTROL

Three-In-One Allboards

Microsoft announced July 12 that it will unveil two new devices designed to make PC entertainment more enjoyable. The first product is a three-in-one control centre for a Windows XP-based Media Center PC. The device contains remote, keyboard and mouse capabilities in one unit designed specifically for the living room. For digital camera owners, Microsoft has introduced a mouse, keyboard and digital-image-software suite designed to turn desktops into virtual darkrooms.

The remote keyboard for Media Center PCs lets users turn up the volume, type a message or point and click around the screen. "What remotes did for TVs, Microsoft's three-in-one control centre does for Media Center Edition PCs. With this device you can now get rid of all the other remotes, reducing living room clutter," said a Microsoft spokesperson.

Both products will cost $104.95 (Rs 4,575). They will be widely available by September. ■

Compiled by Aditya Kuber, Ram Mohan Rao and Renuka Rane

Blog WATCH

In this month's peek at the world of blogs: the Hamster seems to think getting a Mac is the solution to every one of your computing woes, while Jeff Jarvis is bound to disagree. We're told that it's dangerous to use iPods on public transport—find out why. Also, will the Nintendo Revolution fall behind the Xbox 360 and the PS3?

the Hamster
http://angryhamster.com/archive/2005/07/01/1927.aspx

Get a Mac

Simple enough. But it needs to be said. Get a Mac.

Have a computer problem? Get a Mac. Spyware? Get a Mac. Anti-virus subscription expired? Get a Mac. Want to enjoy using your computer? Get a Mac. Breathe oxygen? Get a Mac. Use soap in the shower? Get a Mac.

The evils of Window based computing have become all to apparent to me. As you may have guessed, I got a Mac. A beautiful shiny iMac G5. Running OS X Tiger, the pinnacle of quality computing in todays world.

The truth of the matter is the average user spends more time attempting to decipher error messages, finding the right drivers for their new printer or digital camera, finding amazingly complicated methods for removing spyware from their machines, or updating their anti-virus programs to detect the latest string of malicious windows viruses, than doing anything resembles "enjoying" their computer.

badhairboy
http://believethehype.be/hype.html

Your iPod or your life

A 15 year old boy was stabbed to death for his iPod. Already a few months ago both New York and London police warned people against using iPod earbuds in public as the white headphones are a telltale sign for thieves looking to hijack iPods. Theft is one of the best ways to measure the popularity of this MP3-player. In NYC, subway crime rose 18 percent in the first three months of 2005 but, if iPod thefts were taken out of the equation, crime actually dropped 3 percent.

IGNIQ
www.igniq.com/2005/07/no-revolution-til-after-ps3.html

No Revolution until after PS3?

Nintendo president Satoru Iwata recently said that the Revolution console may be the last to launch. Iwata announced the Revolution may fall behind Sony and Microsoft. Stockholders asked if the Revolution had the potential to lag behind PS3 and Xbox 360 in the next-gen console wars, to this Iwata replied:

There is no possibility that the Revolution's launch will fall behind by too much, but there might be some small changes [in its release schedule].

Jeff Jarvis
http://www.buzzmachine.com/wp/?p=13

Dell hell: nearing the end (and aren't you glad?)

Yes, I bought the Powerbook. It feels like moving to Paris and not speaking French. There is as much illogic in part of the Mac world as in the Microsoft world. I damned near didn't get my printer working. I damned near didn't get my Treo to sync. But I have it. And so, next week, I'll send the Dell back.

Digit Forum

Kya paise paed par ugtey hain?

gxsaurav
Digitized Flooder
Location: Lucknow
Abe Y increase? The Rs 100 price is good already, I mean it's not like for Rs 25 more digit is going to give one more DVD!

****

Sourabh
Trusted Member
Location: LoSt
All i have to say is its almost 4 yrs of Digit and they have still been priced at 100 Rs. for newstand buyers. Cmon 100 rs for 4 years and now 125 Rs. Is this a big deal?

Just check the rates of petrol/diesel in the last 4 years, LPG prices , everything has increased. I was expecting a price hike in digit. Now subscribers would get it at Rs 100.

My views : This had to happen. But readers expecting something more from a price increase is justified. Who knows 2 CD and 1 DVD offer may be round the corner!

****

expertno.1
Digitized Flooder
Location: expert planet
I want 2 dvds dude

****

icecoolz
Brainiac
Location: Bangalore
I for one dont mind the 25 Rs increase. Come on guys... am sure u can forego one pack of ciggies a month for this!

****

chinmay_d
Warmed-Up Nerd
Location: Gurgaon, India
Hmm...well i think that the new rate is terribly over- priced with the content quality DIGIT is offering currently. Its not DVD or CD but the mag which matters. Now when almost every Digit reader in India has got a minimum of narrow band connection, softwares could be downloaded easily but what matters is article quality of the magazine. I think the new price will be justifiable only when they work upon contents. As for including one more DVD there is no point at all. It also seems a way over priced when you compare it with other tech magazines in India.

****

raj14
Warmed-Up Nerd
Location: Kanpur
Hey look at the freebies digit Gives, fast track, Game Cs,DVD, The mag, the Cd! extra Cds, i am fully comfortable to pay Rs 125 as digit's price.

To post your comments on Digit Forum, visit www.thinkdigit.com/forum

Price Hike Unfair

I have a lot of complaints about your recent price hike to Rs 125. I guess the magazine has enough ads that you can maintain the price at Rs 100. Not all of us can subscribe because of the location.

Sometimes we buy *Digit* , sometimes we cannot. Your competition is providing the same for Rs 100, which I think is much reasonable.

I mean that there are good sites that also provide reviews and there are some sites for benchmarking as well.

They should I invest *Digit*? With broadband connections getting cheaper, we can download what you provide on the CD and DVD easily

I would request you to rollback the price to Rs 100 again especially considerating your student readers.

Arnov Sarkar
Via E-mail

Dear Arnov,
I agree that the price rise will pinch a bit, but to maintain our quality standards, we had to do it. For the last 11 months, we have postponing this decison but we could no longer do this. The Rs 100 price was an introductory price and eventually, we had to come to a fair price.
In the last four years, *Digit* has consistently added value to itself. We have raised the quality and quantity of content, evolved from sharing just CD's to include a DVD and lately, the monthly insightful 200-page *Fast Track* series book.

We agree there are other magazines in the market that are cheaper and claim to give more but you are aware of the difference in quality.

Eventually, there comes a point when inflationary pressures and the economics demand such a move! We were never going to compromise on quality or quantity. Bearing in mind the incremental costs for printing and distribution over the last four years, we are compelled to increase the price of *Digit*, albeit by a mere Rs 25.

We hope to have your continued patronage.
—Associate Editor

Hooked!

I am working with TCS as a systems administrator and I read the July issue of *Digit* and found it to be a very good magazine. I bought the magazine accidentally seeing it in a bookshop. I was searching a book for my father who is learning the basics of MS Office. So the booklet you had provided free with *Digit* attracted me. The presentation of news and articles are very good compared to contemporary IT magazines. I read other IT magazines, but now I feel that I should read Digit too.

Sarath Sivan
Via E-mail

digit
Fast Track to
MICROSOFT
OFFICE

Dear Sarath,
The *Fast Track* series of books is aimed at doing just what you wanted. We hope your father found this book more useful than any other he may have read. We have had a chance meeting but hope our friendship develops and turns into a long term one...
– Associate Editor

Why Give Old Issues?

I am a faithful member of the *Digit* fan club for over a year now. I enjoy reading the articles in the magazine. The CD also has useful software. I like the idea of *Digit* Patron. It is a nice way of rewarding regular readers.

But I think you should not include old issues of *Digit* in the list of gifts. *Digit* Patron is a program to reward customers who are with *Digit* for a long time and I think they would have old copies of *Digit* with them anyway.

Instead, may I suggest inclusion of CDs of some games, software, computer hardware or peripherals as gift items?

Niraj Mehta
Via E-mail

Dear Niraj
That is a good idea, however, a lot of the readers may not have all issues and some may require a particular issue. Hence the scheme. But we will try and incorporate your suggestions too.
—Associate Editor

Are You Cyborgs?

Usually I receive my copy of *Digit* around the 9th of every month. But I don't know what you guys have been up to... I was amazed yet again! I received the latest copy on the 4th of July!

Looking at it from a different perspective, the answer may lie here in the fact that "You all must have been transformed into Cyborgs". If so, it sure has helped mankind albeit in a teeny-weeny way! Keep up the good work and more importantly, the spirit.

Abhirup
Via E-mail

Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul, Navi Mumbai 400 706

Digit will publish the best letters on these pages. Letters may be edited for clarity. **You must include your complete address in all communication.**

For subscription queries, call the Help Desk at 022-27629191/9200, Fax 022-27629224, or send an e-mail to **help@jasubhai.com**

Inbox

Dear Abhirup,
Let me assure you that none of us have turned into Cyborgs (not yet anyway)! The prime mover for us to try and bring each issue as early as possible is the continued support of readers like you.

We know you want your fill of tech (like us) and we want to make sure that you get it on time, every time. I can also assure you that we will continue to improve and hope you will continue to support us.

—Associate Editor

5GB Of Goodies!

Kudos for the decision of making the CD and DVD content unique! Earlier, since the data on the CD and DVD was the same, the CD wasn't of much use to those who had a DVD drive. I knew you would take a decision like that some day. I wonder how you people manage to put 1 CD + 1 DVD + 1 *Fast Track* book + 1 *Digit* magazine in just Rs 125! No doubt you people are clearly the market leaders with no real contender in sight.

I buy *Digit* from newsstand and I'm really touched to know that you take care of your newsstand readers by providing a replacement April DVD.

I want to buy a subscription of *Digit* but am waiting for an even better offer than the current one. Can you offer options like you earlier had, like 15 issues of *Digit* for Rs 1200?

Now, columns like 'Unusable' and 'Whatweretheythinking.com' are just waste of time. Who would like to read about Web sites which are already useless? You can add more space to your 'Three Incredibly Useful Sites' instead...

Rajdeep Singh
Ludhiana, Punjab

Dear Rajdeep,
First of all, thank you for your confidence. Yes, it was just a matter of time and at *Digit*, we like to offer more with every issue. You now have 5GB of goodies every month!

As for the subscription offer, these will change from time to time and while I cannot assure that the older offer may come back for sure, you just never know! To be on the safe side, though, why don't you make the most of this offer and if an even bigger one comes along, you could subscribe again and extend your subscription period and get more gifts.

About your suggestions, while they may be valid given your interests, *Digit* has a varied audience and each has their own favourite sections in the magazine. There is an overwhelming audience for the two sections you mentioned. Moreover, this is also a way to highlight the madness that is the Internet.

As for more sites in the 'Incredibly Useful Sites' section, we will definitely try and implement that suggestion.

—Associate Editor

I Will Subscribe

I had recently said I would not subscribe to *Digit* again. But don't be disheartened to hear this. I will subscribe again because I don't want to be stranded in the middle of an ocean. I want a navigator and it's undoubtedly *Digit*. It's just matter of time when I will have hard cash in hand.

I bought and read the July issue. I have read it more than 10 times and I want to read it again just because it is mind-blowing. Also, please take care when packing the DVDs. My DVD in the jewel case was not in its position.

K Ganesh Prabhu
Via E-mail

Dear Ganesh,
Thanks for clearing that up! You almost had us there! Also, we appreciate your confidence in us and will continue to navigate you through the labyrinth of technology. As for the DVD and CD packing, we will ensure that this is taken care of.

—Associate Editor

Corrigendum

For the motherboard comparison published on page 46 of our July issue, we received MSI motherboards from three of their distributors. However, contact details of only one were published. Here are the model-wise contact details of MSI motherboards featured in the test. We apologise for the oversight:

Model	Company	Phone	E-mail
MSI 915GVM-V	Maxtone Electronics Pvt ltd	0-9821551801	maxtone@vsnl.com
MSI PM8M2-V	Maxtone Electronics Pvt ltd	0-9821551801	maxtone@vsnl.com
MSI K8MM-V	Priya Ltd	022-56663100	sales_del@priyagroup.com
MSI RS480M2-IL	Priya Ltd	022-56663100	sales_del@priyagroup.com
MSI K8M Neo-V	Priya Ltd	022-56663100	sales_del@priyagroup.com
MSI RS350M-ILSR	Tirupati Enterprises	033-22251192	mail@tirupati.net
MSI RS480M	Tirupati Enterprises	033-22251193	mail@tirupati.net

Digit, My Partner

LETTER OF THE MONTH

Recently, a senior citizen had written to *Digit* sharing his experience, which prompted me to write as well. I am sure that like me, many of your regular readers are senior citizens. I was working in the R&D department in a multinational prior to retirement.

Around 1998, some old computers were dumped in a spare room in our department. And my new hobby was born.

I started tinkering with the systems. At the time, I was just four years from retirement. After fiddling around for a while, I bought my first computer in 1998 and it was a Celeron 400 CPU that cost me about Rs 48000.

I then started looking for more guidance and a computer magazine which could give me information about all aspects of computing. I tried several and found *Digit* as the number one choice.

I have been a subscriber of *Digit* since its inception. I have learned a great deal about hardware and software from every issue.

My hobby soon became my passion and I assembled my own P III 800 MHz processor and a Mercury 810E M/B. For guidance, I always refer to *Digit*. I spoiled my Mercury M/B when I wrongly tried to flash and upgrade my BIOS. It was a small amount to pay if you really want to gain knowledge.

After retiring in July 2002, I did a six-month hardware course. In 2004, I assembled my new system; a P IV 3.0 GHz HT with Intel 865 M/B, which I am still using.

Now, my relatives and friends ask me to assemble systems for them. This month, I assembled an AMD 64 3000+ with SR480M2 M/B by MSI for one of my relatives. I enjoy doing this and looking proudly at my creations. It gives me great happiness to do something creative even in my retired life and it keeps me occupied all the time.

I have preserved all old issues of *Digit* since 2002. The credit of my happiness in retired life goes unflinchingly to *Digit*.

D S Bapat
Vashi, Navi Mumbai

Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

Hire Me!

A hacker who calls himself 'Apocalypse' defaced Microsoft UK's Web site late on the night of July 5, with a message in support of Venezuelan hacker 'RaFa'. Defacement archive Zone-H reported that the well-known defacer hacked into Microsoft's UK site (microsoft.co.uk) and uploaded a picture with the message "FREE RAFA - HACK IS NOT A CRIME".

The site was soon restored, and the offending GIF removed. But in an interesting development, the following week, Apocalypse wrote to *The Inquirer* suggesting Microsoft hire him as well as RaFa. He said he just wanted to show Microsoft that any server or any company is vulnerable.

"As long people build something, somebody else is two steps ahead," he said.

Apocalypse also implied that if he had the new X-Box 360 with a lot of games, he would not have done it.

"Remember, I don't damage or erase or destroy anything; just post a message of support of my friend RaFa. They are charging him with a thing he didn't do and that's why I piss up," he said. He added: "If Microsoft can give and my friend RaFa a job, we can made (sic) sure it will never happen again."

I Want My Game Items!

Battles for rights over computer game accounts are becoming more vicious. According to the *Chongqing Business Post*, a Mr Wang and Ms Ye from Huibei in China fell in love last September on Shanda's online game *Legend of Mir 2*. Wang romantically saved Ye's character from being killed by another player. They were soon married, but the real-life marriage didn't work out.

The couple decided to get a divorce in June. During their marriage, they jointly played over ten *Mir 2* accounts, attaining level 40 to 50 statuses for all of them. That, apparently, is pretty good. The characters and virtual items are estimated to be worth 40,000 to 50,000 Yuan (approximately Rs 2,36,000).

The divorce has taken an ugly turn: Wang told the court that Ye can keep the apartment and all he wants is the accounts and virtual items. But Ye wants to split the apartment and game items equally.

Made In Japan

Celebopedia (www.celebopedia.com), the Internet's leading celebrity encyclopaedia, recently announced the 10 most-searched-for celebrities for the week of July 4 to July 10. Maria Sharapova led all searches for a third straight week in the aftermath of Wimbledon. The record is five straight weeks by *Herbie* actress Lindsay Lohan.

Angelina Jolie came in second place on news of her new adoption, while *Dukes Of Hazzard* starlet Jessica Simpson came in third amidst controversy surrounding the film's release.

Interest in Sharapova extends offline: a Japanese firm has come up with pillows shaped in the form of her breasts and lap. The breast pillow by the firm Sharanpowan is made with a cover in the style of a tennis shirt that can be removed to reveal more intimate details. The breast pillow costs $17 (Rs 740), while the lap pillow costs $29 (Rs 1,265). Apparently, the Japanese find the lower part of Sharapova's body more attractive.

We've Seen The Screenshots

We reported last month that a mod of the game *Grand Theft Auto: San Andreas* contains sexually explicit material. Now, the Australian Office of Film and Literature Classification is planning an examination into claims that the game becomes sexually explicit if players download and install the mod. According to *The Sydney Morning Herald*, if the claims were true, the game would be banned.

The mod was first noted by a US media watchdog group, the National Institute on the Media and the Family, who wanted the game banned, saying that the plot is objectionable as it is.

Rockstar Games, which made the game, is not commenting on whether its programmers created the sex scenes and whether the mods just unlocked them.

But hey, the sex screenshots were posted on the Web. Why an inquiry is required, we don't understand.

3-Easy-Steps to Freebies!

1 Log on to www.thinkdigit.com/digitpatron to register.

2 Enter this 16-digit code and score points (you will find your code at this place every issue)

3 Your points get added every month and can be redeemed for exciting gifts!

digit PATRON

For any quiries regarding Digit Patron e-mail us on digitpatron@thinkdigit.com