March 2006 www.thinkdigit.com YOUR TECHNOLOGY NAVIGATOR

# The Sound Of Tech

**What Makes A Concert Rock?** 



10 Laser Printers Compared **Now Take Your Pick** 



**Battle Of The Browsers-**A Feature Comparison of The Big Three



# **Editorial**

# Levelling The Field

ALL THROUGH MY fist visit to Europe way back in 1997 I had a tough time correcting the snake charmer and poverty-ridden perception of India. Whenever I said I was from India, the discussion would invariably veer to cows and dogs on streets, slums, or mystic gurus. Europeans just didn't seem to understand that India had moved on: to them, the fact that cable television had taken off in India and that we had 40 TV channels was a revelation.

It's not hard to guess that India's success at IT has changed that perception. Today when I go abroad, I don't need to mention India's increasing GDP growth rate: they now know it, and regard us as having arrived. What seems surprising—but shouldn't—is that they also want to be associated with us, forging alliances with our companies, and opening up their markets for us.

Recently, at the NASSCOM India Leadership Forum 2006, a large Chinese delegation walked in on the first day, listening quietly to Indian success stories, and possibly also picking up a tip or two on organising such events to attract business.

At the same event, the UK Trade & Investment body hosted a special evening in an attempt to entice Indian IT companies to invest in the UK. This made me ponder. I mean, wasn't India up until now scouting around for big MNCs willing to invest in our country and set up their manufacturing units in our hinterlands?

The tables seem to have turned. Was it possibly the beginning of reverse colonisation? A time when India is wooed for its *rupees*?

I attended the Intel Developer Forum in Bangalore a few months ago, where not just the Intel team, but also companies from Europe, Asia-Pacific and the North America participated, putting on display their hardware, software and IT services. I was greeted at every exhibit, and the companies took a keen interest in tending to my queries. The fact that it's usually been us Indians who have been at the other side of the table—ready to serve foreigners—almost made me wonder what was wrong!

With our promising GDP figures, it seems we now have the opportunity to not just play the international trade game, but also reinvent the rules. The fact that the UK and many other countries are vying for a share of India's FDI in their



"The tables seem to have turned. Is this the beginning of a time when India is wooed for its *rupees*?"

territory brings to mind the title of Pulitzer Prize winner Thomas Friedman's book, *The World Is Flat*. If you don't believe me about us being able to reinvent the rules, here's Friedman on Russia, China and India: "Three billion people who were out of the game walked onto the playing field."

Yes, we've walked onto the playing field. And it's being levelled. So now, I don't need to wonder what's "wrong" when I see a Westerner coming up to me and asking me, "How may I help you?"

deepak\_ajwani@thinkdigit.com

Dimmi



#### March 2006 • Volume 6 • Issue 3

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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

Design Solomon Lewis **Imaging Pradip Ingale** 



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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

#### **Products Reviewed This Month**

#### Hardware

Mono Laser MFDs ......104 Canon MF3110 Lexmark X215 Samsung SCX-4100 Samsung SCX-4521F Samsung SF-565P Sharp AM-400 Xerox Workcentre PE220

Laser Printers ......66

Brother HI-2700CN Brother HL-6050DN Brother HI-5170DN Canon LBP 2900 Canon LBP 5200 Epson AL-C1100

Epson EPL-6200L Samsung ML-2010 Xerox Phaser 3117 Xerox Phaser 3425

New and Notable .....81 Asus EAX1800XT TOP Δsus PW191

JVC GR-DF570AC mini DV Camcorder MSI Mega Player 540 Western Digital Raptor X WD1500ADFD Creative Sound Blaster X-Fi

Internet Explorer 7 Beta, Firefox 1.5. Opera 9 Beta

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Place of Publication	Mumbai
Periodicity of its Publication	MONTHLY
Printer's Name	MAULIK JASUBHAI
Nationality	INDIAN
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(b) If foreigner, the country	NOT APPLICABLE
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#### **Enter**



Jimmy Shergill has so many gadgets, "it's difficult to name them all"!

16 Will the companies that control Internet pipes also control what flows through them?

24 You're likely to have heard of AJAX. So what is it?

#### **Digital Passion**



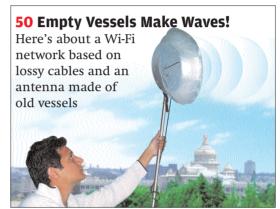
**44** Songs From The Wood **A** Jethro Tull recently performed in Mumbai. Which gave us a good chance to get a behind-the-scenes look at all the tech that goes into the making of a rock concert

#### **27** A Window To Change

Here's what many of you have been looking forward to—a probe on Vista. The new look, the deeply-ingrained search paradigm, the whole "live" thing, the powerful security features—we go into all these, and more



It had to happen some time: newer technologies making iron-oxide storage obsolete. What are these newer technologies?



# **Contents Magazine**

#### **Digital Tools**

# **66** Smaller, Zippier: Laser Racers Might it be time to upgrade to a laser printer? Sure, they're larger and more expensive, but they're cheaper in the long run

#### 78 New & Notable

An iPod-like music player, a hard disk for gamers, an amazing camcorder from JVC, a lifestyle LCD display from Asus, and the latest Creative SoundBlaster are amongst this month's New and Notable products

#### **61** X Marks The Spot

XML has been the buzz amongst developers for quite some time now. Need you bother? Well, here's what you can do with XML



MP3 player

**74** Spam Filters **▶** Do Spam filters really decrease your headache and increase your productivity?

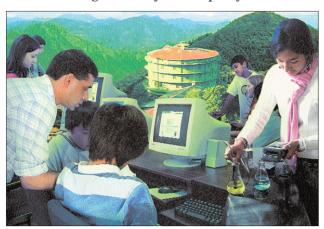


95 Agent 001

#### **Digital Business**

#### 97 From Blackboard To Blackbaud

Woodstock school in Mussoorie is spilling over with tech. Presenting a view beyond the pretty mountains...



#### 100 Free For All!

Growing Pains? We found a few useful tools to get your small business running smoother. And they're free!



#### 104 The Do-It-Alls ▲

For small and medium businesses, MFDs often make much more sense than standalone devices. If you're planning on buying an MFD, our test should help you choose one from all the makes and models available

#### 114 Call-A-Career

Many seem to be rushing to the well-paying jobs in the BPO sector. We find out the why, why not and the scope ahead for this field.

# March 2006

#### **Digital Leisure**

# 117 Are Viruses **▶** Alive?

Imagining the spectre of smart, living viruses makes Agent 001 wonder whether we really want AI to progress beyond the current state of the art!



#### 119 The E, The O, And The Fox

Everyone has a favourite browser, but there seems to be no objectivity to it. We decided to bring some of it to the issue of what browser is best

#### 125 "We Built This Alley!"

An NGO called Katha is tech-empowering youngsters from a backward area of New Delhi—setting a precedent



#### **127** Tech Critique **△**

Reveiwed! Prince of Persia: The Two Thrones, Gun, Rainbow Six: Lockdown and Ultimate Spider-man

#### **Escape**



If it weren't for Bud Tribble and his mates, we might have still been labouring at a DOS prompt!

#### 137

In this age of convergence, is it a surprise that Bible will converge with games?

EGULARS

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#### **DIGITAL PASSION**

#### Adobe GoLive CS2

Adobe GoLive CS software delivers what you need to create professional Web sites. Work with Adobe Photoshop, Adobe



Borland

Illustrator, and Adobe Portable Document Format (PDF) files directly within GoLive without switching between applications.

#### Jbuilder 2006

Borland JBuilder, is the leading cross-platform environment for building industrial-strength enterprise Java applications and the only IDE that supports virtual peer programming

#### First Page 2006

First Page 2006 is designed for professional Web development. Create, edit, and deploy Web sites with absolute ease and precision.



#### DEVELOPER TOOLS

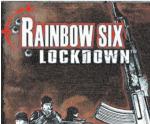
- n BlueVoda Website Builder 7.7
- n Komodo 3.
- n Macrovision InstallAnywhere 7.1 Standard
- n PHP 5.1.2
- n REALbasic 2006 release 1
- n Shopping Cart for PayPal 3.94p

#### GAMES

 $_{\mathrm{n}}$  PanzerElite



n Rainbow Six: Lockdown Demo



n TimeShift Demo



If you encounter an error when installing TIMESHIFT, it's probably due to a corrupt InstallShield installer.

To fix this, go to [DRIVE]:\Program Files\ Common Files\InstallShield\Professional\ Runtime\0701. Delete everything in this folder. Try installing the game again now.

#### **DIGITAL TOOLS**

#### **Sound Forge Audio Studio 8.0**

This is audio editing and production software and its everything you need to produce professional-quality audio on your home computer.



#### MULTIMEDIA

- n ACID XPress
- n Audio Studio 2005
- n AudioLabel CD/DVD Labeler 3.2
- $_{\rm n}$  Digital Photo Maker 2.0  $\,$
- $_{\rm n}$  DivX Play Bundle with DivX Player 6.1
- n Jam Trax XPress
- n ProgeCAD LT 2006 6.1.7





- n JetAudio Basic 6.2.6
- n Music Manager
- n TerrainView-Lite 3.1.1.4
- n Vegas Movie Studio Trial
- n Ulead VideoStudio 9.0



#### INTERNET

- n CrunzhMail 3.2
- n Firefox 1.5
- n HTTrack Website Copier 3.40
- n Mentations 0.54
- n MSN Webcam Recorder 7.2
- $\rm _n$  MyJabber Instant Messaging Client 3.5.7
- n Opera 9 Technology Preview 2



- n NetMail v 8.3
- n Offline Explorer 4.1.2327
- n Thunderbird 1.5

#### SYSTEM

- n Template Package for Nero Vision 4
- n 3DMark06 basic edition
- n AutoPatcher for Windows XP Service Pack 2 (32-bit) - December 2005
- n Nero Template Pack
- n AutoPatcher XP January 2006 Update



#### DIGITAL BUSINESS

#### T++ 1.5



Create invoices, orders, delivery notes, stock journals, and rejection notes. Track outstanding payments, overdue bills, negative ledgers, negative stock, stock reorder level, cash flow, and fund flow.

#### CTCnet 2.1



cTCnet is a collaboration and knowledge management software tool. Available to

users through a standard web-browser, it provides comprehensive project, document and process management functionality, combined with version control and powerful search.

#### PRODUCTIVITY TOOLS

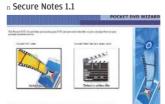
- n Altova Authentic
- n Dynasoft Cybercafe SurfShop Free 1.28
- n Ethereal Network Protocol Analyzer
- n Free Accounting 1.0 build 0.7
- n GroupMail Free Edition 5.0.0.813
- $_{\rm n}$  Idea 2 / Free Edition build 2.1.5.62
- n Internet Caffe 5.2.6 n Marratech Manager 3.3
- n netMailshar e-mail server
- n PagePlus SE 1.0
- n PDF-XChange Pro 3.5 build 098
- n SimpleTODO 1.4
- n TheKBase 1.0.01a
- n Ultimate Business Plan Starter 3.0.18
- n Volutive 1.2.4

#### MOBILE APPS

- n OfficeSuite Professional 7.30
- n Cell Phone Manager 2006 6.0.5



- n FPC Bench (Symbian) 2.5.2
- n Idokorro Mobile Admin 3.1
- $_{\rm n}$  IM+ for Symbian Series 80 1.37
- n MobiChat 1.1
- n Newsland for Windows Mobile 5.0 1.2
- n Oxygen Express 1.2 n Pocket DVD Wizard 2006 4.5.4



n WordBook Speaking English Dictionary 3.6

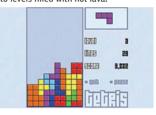
#### DIGITAL LEISURE

#### SMALL GAMES



#### **Mario Forever**

Super Mario 3 Mario Forever is really a classic Mario remake. Once again you strap on your wrench and hardhat and guide the chubby plumber through many skillfully made levels. The diversity of the levels is very impressive. You will have to get through levels ranging from underwater caverns to levels filled with hot lava.



#### **Tetris Planet 5.01**

Tetris Planet is a reworking of the classic Tetris game with some extra features and variations. It's in fact four Tetris games in one: the original Tetris, Pentix, Colour Tetris and Crazy Tetris.

#### VIDEOS

#### ice Age 2 Teaser

Diego, Manny and Sid return in this sequel to the hit Ice Age. This time around, the Ice Age is over and is starting to melt, which will destroy their valley. So they must unite and warn everyone about the situation



- n Mission: Impossible III
- N for Vendetta



# **Contents Interactive**

#### **DIGITAL PASSION**

#### CoffeeCup HTML Editor 2006C



CoffeeCup HTML Editor is two editors in one. To make pages fast or without knowing HTML, use the drag-and-drop WYSIWYG Visual Editor. You also can go back and forth between the Code and Visual Editors to create remarkable Web sites in a snap.

#### Bloodshed Dev-C++ 4.9.9.2



Bloodshed Dev-C++ is a full-featured programming environment and compiler for creating software in C++. Included in the Dev-C++ environment are all of the standard features necessary for writing, compiling, debugging, and executing programs written in C.

#### **DEVELOPER TOOLS**

- n Colour To HTML 5
- n Daphne 1.26
- n Dragon UnPACKer 5.2.0.167
- $_{\rm n}$  Forms To Go 2.6.1
- n Gentee 2.0
- n GhostClip 1.01
- n Hoo WinTail 3.4.0.572
- $_{\rm n}$  JavaScript HTML Debugger 5.10 n Notepad++ 3.4
- n Paessler Site Inspector 4.0.1
- n Ubercode 1.1.0102
- n Ufasoft Common Lisp
- n VB.Net to C# Converter 1.48
- n W32DASM 8.94
- n WebSide 1
- n WYSIWYG Web Builder 2.7.2

#### LINUX

- n AmaroK
- $_{\rm n}$  KDE Kontact
- n KPersonalTrainer 1.1
- n KTorrent
- n Linuxconf 1.34r3 n Mixxx
- n X MultiMedia
- n Olive r1 n MPlayer



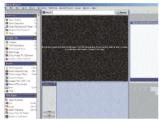
#### **DIGITAL TOOLS**

#### **ArtRage 2**



ArtRage is a fun and easy-to-use painting tool that lets you play with realistic paints on your computer.

#### Media Purveyor 2.3.2



This user friendly image viewer and media player uses a description system to quickly and accurately find content with only a few clicks.

- n AV Music Morpher Basic 2.0.112
- n Cole2k Media Codec Pack
- Advanced 6.0.4
- n DVD Shrink 3.2
- n MusicMagic Mixer 1.5c
- n Smile Pps2Jpg 6.1
- n Sgirlz Morph 1.2e n The GIMP 2.2.10

#### INTERNET

- n Avant Browser 10.1 build 40
- n BitTorrent 4.4
- n FilePipe P2P 2.11
- n FlashGet 1.71
- n Link200 3.1.0.10
- n Movies Extractor Scout LITE 2.11
- n Parental Filter 0.251
- n Star Messenger 2.3
- n TrustyFiles Classic 2.4.1.2
- n Turbo Internet Booster 1

#### SYSTEM

- n 4Diskclean 2
- $_{\rm n}$  Advanced Spyware Remover 1.80
- n Blue Frog 1.7
- n DiskAnalyzer Professional 1.5
- n DVD to VCD AVI DivX Converter 3.1.43
- n Foxit PDF Reader 1.3 build 0104
- n Remove Startup Programs Buddy 2.1
- n ShutDown After 1
- $_{\rm n}$  The Ultimate Calculator 1
- n ZSoft Uninstaller 2.3

- n Adobe Acrobat Reader 7.5
- n Avast Home Edition 4.6
- n IrfanView 3.97
- $_{\mathrm{n}}$  Kazaa Lite Mega Codec Pack 1.40
- n Kerio Personal Firewall 4.2.2
- n Spybot S&D detection updates
- n Spybot Search & Destroy 1.4 n Winamp 5.13
- n WinRAR 3.51

#### DIGITAL BUSINESS

#### **PDF Explorer 1.5**

PDF Explorer is a PDF file management software. It allows you to easily index all your pdf documents to a database file using the metadata fields: filename,

#### PDF Explorer

file size, file date, title, subject, author, creator, producer, creation date. modification date and number of pages.

#### PRODUCTIVITY TOOLS



- n Belarc Advisor 7.0t
- n CIA DRIVE.net Freeware Version 2
- n CommView 5.1 build 493
- n Essential NetTools 4 build 180
- n Free Serial Port Data
- Terminal/Protocol Analyzer 4 n FTP Now 2.6.33



- n VNC Admin Console NG 2.1.2
- n IsItup Network Monitor 4.9.5
- n LanTool Professional 0.2.0.1 n Smart NTFS Recovery 2
- n vServ 4.2.4

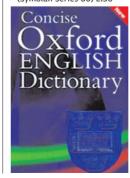
#### MOBILE APPS



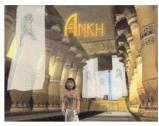
- n Opera Mini 1.2
- n AnvSoft Video to 3GP Converter 1



- n BuddyPing Mobile 0.9
- n iFD Bundle 1.6
- n Power Call 1.41
- Concise Oxford English Dictionary (Symbian Series 60) 2.30



#### DIGITAL LEISURE



#### SMALL GAMES Ankh

#### Cairo... the ancient city of thousand shapes, colors and flavours. And of Pharaohs, crocodiles and assassins, It won't be easy for Assil to get an audience at the palace to get rid of his death curse.

#### **MX vs ATV Unleashed**



MX vs. ATV Unleashed allows gamers to explore immense Free-world areas, compete with an array of vehicle types and vie for off-road supremacy in a multitude of racing modes.

- n 15 Puzzle 4
- n 3D Live Pool 2.57



- n Fight Terror 2.01
- $_{\rm n}$  Kea Coloring Book 3.5
- ${\rm _{n}}$  MX vs ATV Unleashed
- ${\tt n}$  Overgod
- n Pawn 2.86
- n Rhodes 3D 7.26
- $_{\rm n}$  Scott's Space Invaders 1.6

#### VIDEOS

- $_{\rm n}$  Cars
- n Goal
- $_{\rm n}$  Pirates Of The Caribbean 2



#### **By Demand**

Total votes 18,083

You get to choose what goes in *Digit* **Interactive**. This month, you chose:

Ankh

Rainbow Six: Lockdown Demo





#### **Digit Patrons**

It really does pay to be loyal! Find out more on www. thinkdigit.com

# Digit Reader Poll Last Month's Question: Where do you primarly get your

What career would you

like to pursue?

☐ Hardware
☐ Software

☐ 2D/3D Animation☐ Graphic Designing

☐ None of the above

and vote!

Log on to www.thinkdigit.com

# This Month's Question



Due to technical errors the January poll results published in Feb 2006 issue were illegible. Here are the results: Q. How concerned are you about Spyware/Adware? 

What WARE? 3.3% 

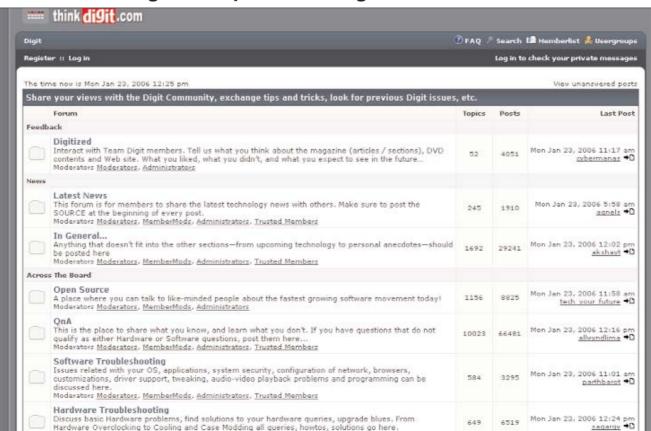
Live and let live, I say 0.70% 

Only if it starts to bug me 3.6% 

Just obsessed enough 2.8%

# taste technology at www.thinkdigit.com

### There's something for everyone on the Digit Forum www.thinkdigit.com/forum



#### **Chat Within Gmail!**

Gmail is rolling out a chat feature that's browser-based and integrated into Gmail. If you don't know whether you already have this feature, log in to your Gmail account. If you're presented with a full-page help text on the chat feature, then you have it.



#### The Death Of The Password

Bill Gates has predicted the demise of the traditional password. Security firm RSA is working with Microsoft to develop a SecurID technology for Windows. SecurID is a two-factor authentication system. It generates a constantly-changing sequence of numbers that one has to type in alongside the regular password.



# **Enter**

#### Jimmy Shergill

Actor

Ever since his debut in *Maachis*, Jimmy Shergill has been making intermittent appearances with films such as

Mohabbatein, Charas and Dil Vil Pyar Vvar. He was last seen in Yahaan. Here, Jimmy is 🦶 giving us his take on technology.

#### What does technology mean to you?

I find technology indispensable. I am a complete gadget freak, and have most of what is available.

#### What gadgets do you own?

I have so many gadgets, its difficult to name them all. But the gadgets that I use most are my Apple laptop and the iPod nano. Then, there is also my mobile phone-the Nokia N70

# What do your online activities

I spend my time online when not at work or with my family. I love cars and use the Net to look up features on new models. Besides, the Internet is a tool through which I stay connected to my family when away on shoots.

#### Ever had a make or mar situation with technology?

Most gadgets are quite helpful. But I've had my share of the downs. Once, at a shoot in a remote location, I felt stranded due to unavailability of signals on my phone. Also, there are no data cards available for my Apple Mac and this is a huge impediment. I await the day when the cards will be available.

THE COMING WAR

# **Paid Pipes?**

The telcos in charge of the \_\_fat Internet pipes in the US could soon be meddling with the content that travels along those pipes, going by recent developments. The idea is for content providers to pay ISPs money for data packets to and from their Web sites to get priority. What does this mean to the user? The telcos' proposals have the potential to alter the flow of information, and therefore your personal experience, on the Internet.

In theory, if Yahoo! paid for such a service, and Google didn't, your searches at Yahoo! would be faster. Now, it's only the bigger players who'd be able to afford (or would want to spend on) the prioritisation schemes, so a small Web site that's just starting up might end up being too slow, and therefore losing out on visibility. What would have happened if such a scheme had existed back when Google was a startup, and AltaVista had paid... Google might just have died out!

There are several issues involved. At the basic level, companies would say, why not? They're just promoting their business! And packet prioritisation is one means to that end. It seems perfectly OK if you think about it from the site operators' point of view. But not so OK if you think from the user's perspective: it's sort of infringes on your rights. It borders on the undemocratic. You feel vou have a right to see what you

want to on the Internet; with the network favouring certain sites, someone is controlling what you see. Of course, access to "nonpremium" sites wouldn't be blocked, but when you see a site is slow, you're probably going to trash it and go to the next search result. Similarly, if iTunes was a "premium customer," for example, you'd get faster downloads from their site. and you probably wouldn't switch to a fledgling music downloads site that actually had a better selection.

Content prioritisation can be taken even further. Consider that many US ISPs offer services-such as music downloads-that compete with those of other vendors. So would people be pulled into subscribing to their ISP's offerings?

Common sense seems to indicate that Internet pipes should be neutral. Controlling content over the pipes is like allowing, for a fee, some newspapers to get

is the first time we're coming across something that contradicts this, but it turns out network neutrality (or the lack of it) is not a new concept. However, it's only recently, with more broadband penetration and improvements in packet-analysis technology, that ISPs are finding it

worthwhile to consider using the technology and creating services out of it.

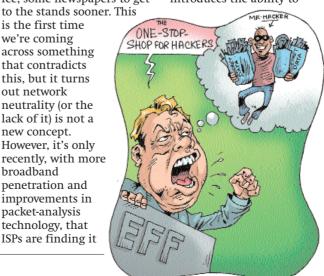
The telcos say these proposed prioritisation schemes would not alter the nature of the Internet: giving priority to a company that pays more, they say, is just like offering another tier of service.

It will be up to the US congress to decide whether packet prioritisation will be allowed; what decisions are made could spell out the fate of the Internetwhether it will remain democratic, or whether we'll create a Net where only wealthy sites get seen and heard.

#### **ANOTHER PRIVACY CONCERN**

## **Google Hosts** Your Data!

oogle recently released **J**Google Desktop 3, which introduces the ability to



Illustrations Harsho Mohan Chattoraj

#### **Security Watch**

#### **Vulnerabilities in the JRE**

#### The Problem

On February 8, seven vulnerabilities were reported in the Sun JRE (Java Runtime Environment). The following releases are affected by one or more of the seven vulnerabilities on Windows. Solaris, and Linux platforms: 1. JDK and JRE 5.0 Update 5 and prior versions 2. SDK and JRE 1.4.2\_09 and prior versions 3. SDK and JRE 1.3.1 16 and

You might not know what version of the JRE you have installed on your machine. You can find out what version you have by two methods: go to Control Panel > Add or Remove Programs, then scroll down to "J". You should see your version there. Or else, at a command prompt, type in "java fullversion".

#### **The Damages**

prior versions

The vulnerabilities can be exploited by nasty people to take over a user's system. It's been found that with the affected versions, malicious, untrusted applets can read and write local files or execute local applications.

#### **The Solution**

Upgrade. If you have JDK or JRE 5.0 Update 5 or prior installed, the update is available at http://java.sun.com/j2se/1.5.0/d ownload.jsp If you have SDK and JRE 1.4.x, head to http://java.sun. com/i2se/1.4.2/download.html If you have SDK and JRE 1.3.x, head to http://java.sun.com/ j2se/1.3/download.html

search the contents of one computer from another. Using the optional "Search Across Computers" facility temporarily stores text copies of searchable items on Google's servers for up to 30 days!

'Search Across Computers" makes the usual file types-including Web histories, Office documents, PDF files and text filessearchable from other computers. Users can log on using their Google password to find data on files they've worked on regardless of which PC they used while working on them.

Secure Web pages are excluded from the list of file types, and users can also exclude file types or locations from indexing as they see fit. But privacy activists such as the **Electronic Frontier** Foundation (EFF) have said the feature "greatly increases the risk to consumer privacy." It describes the tool as a convenient "one-stop-shop for hackers" who've obtained a user's Google password. Users should avoid using Google Desktop 3, the EFF advises. "Unless you configure Google Desktop very carefully-and few people will-Google will have copies of your tax returns, love letters, business records..." EFF Staff Attorney Kevin Bankston said. "The government could then demand these personal files with only a subpoena...'

It's not just the EFF: security experts at

Kaspersky Labs warned that hackers are now more likely to launch phishing attacks in an attempt to obtain users' Google account passwords. "If an attacker can obtain your Google login details they will be able to access your confidential files," the company noted on its blog. Kaspersky Labs, too, has advised users not to use Google Desktop 3.

Google, of course, argues that the growing use of multiple computers by users makes the feature useful. "Too many people are working across multiple computers now," Google vice president Marissa Mayer told USA Today. "This makes their lives easier." And a Google spokeswoman recently said, "Privacy was an important consideration in the development of this feature, and we've taken a number of steps to protect the privacy of our users."

Another chapter in the Search-Engine-To-Big-Brother book...

#### **GETTING PAST THE FILTER**

# **AOL** And Yahoo! To **Charge For** E-Mail

on't be alarmed-vou Won't need to pay to send mail through Yahoo! It's about legitimate massmailers: the two companies are offering the chance to pay to avoid their spam

# нот

#### **RAM Drives**

Why not use RAM as permanent storage? Atomchip (www.atomchip.

com) is doing it-memory is much faster than hard disks. and you don't need to wait for programs to load into memory-they're right there!

#### The Interface

Current generation memory chips can transfer



data at blinding speeds approaching 6 Gbps, but RAM drives today use the SATA II interface, which is capable of only 300 Mbps. What a waste!

filters. By paying between a quarter (11 paise) and one cent (45 paise) per message, companies will get preferential delivery of their messages. So, a "business class" e-mail will go straight to a user's Inbox, marked with a stamp saying something like "Certified Email," while a free mail will have to go through the spam filters. Free mails may also have images and Web links removed.

Companies must adhere to a code of practice to send "business class" mail, and AOL and Yahoo! say the system will help them reduce spam and phishing attacks. "We want e-mails sent using the technology to have a stamp of authentication, so consumers know an e-mail that appears to be from a bank really is from that



"If Shammi Kapoor shouted Yahoo!, who shouted Google?"













"Hrithik."

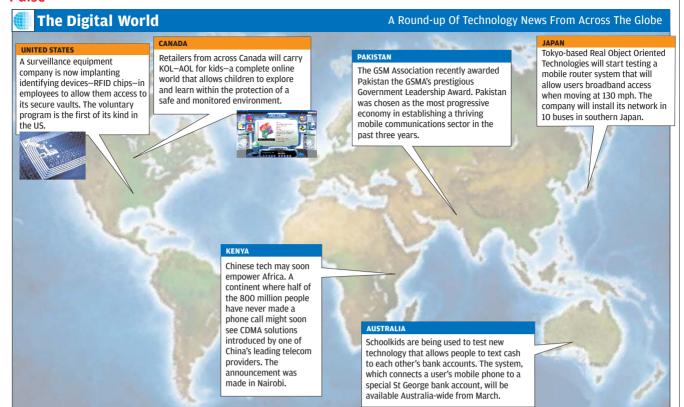
Manvi Singh, Delhi







"Bobby Deol!" Eshan Singh, Dehradun



bank," AOL says. "We think that will help cut down on spam, but we don't want consumers to pay any extra."

The technology for this will be provided by Goodmail, whose paid-for certified system has been tested by the US Red Cross. Goodmail promises to prevent senders of bulk spam from using the service.

So analyse this-will the scheme be helpful? Spammers won't pay, so their mails will be routed through the spam filters and be caught; legit mails, sent by, say, your bank, will come through promptly. It sounds a reasonable idea, but when you think about it, it's not, really. Industry experts said the plan is "dead on arrival" because it will have little impact on spam. What's more, it's likely to prompt a huge consumer backlash, since users wouldn't be able to control what kind of e-mails they receive.

"It guarantees delivery of paid-for bulk e-mail based on the sender paying, not based on users' preferences," said Andrew Lochart, senior director of marketing for Postini, a managed e-mail service provider. "In other words, it will allow more, not less, unwanted e-mail through to users." Lochart added, "AOL and Yahoo plans don't actually prevent spam, and they ask legitimate senders to pay for the sins of the real spammers."

The idea of allowing only legitimate businesses to pay to send e-mail also raises questions about who will play the role of deciding what's legitimate and what's not, said other industry experts. Who will decide if incoming mail is truly high-value? It may be high value for AOL or Yahoo!, but is it high-value for the user?

#### AN IMPENDING SPLIT

# MSN To Focus On Content

Microsoft will soon rebrand its e-mail, IM and Web search under the



#### www.webmd.com



#### WebMD

WebMD is a site with so much medical information, we can't possibly describe it in this space! There's news, guides, message boards, blogs, a symptom checker, expert views, health topics discussed in detail, the latest headlines from the world of medicine, solutions to common problems... the list goes on!

#### www.w3schools.com



#### **W3 Schools**

If you want to learn a programming language, your search ends here. This site provides free tutorials with plenty of examples for most programming languages. There are also references, quizzes, "Quick Starters," and also a validation section for when you've already built your program! Like they say, the best things in life are free!

#### www.lifeorganizers.com



#### LifeOrganizers.com

Whether your personal life is going haywire or your house is in a mess, this site is for you. It helps you to "organise" anything—your home, office, clutter, time, finances, school, family, spirit, mind and soul ... It's a guide-to-life of sorts, with hundreds of useful tips and in-depth articles.



and beat the Digit team at their own game! Entries accepted by the 15th of this month.

name "Live". As one example, MSN Messenger will now become Windows Live Messenger. MSN will be "split" into MSN and Windows Live, though we don't know exactly how the split will be implemented.

Photograph Abhijit Roy, Kolkata

Microsoft is heavily touting Live as a foray into offering software and services over the Internet. Analysts say it's a way to

better compete with Google. Yahoo! and others.

With the original MSN portal being stripped down, John Nicol, the executive recently put in charge of MSN, said the changes will allow MSN to focus more on providing content such as entertainment and home videos. Nicol said the revamped MSN will include more opportunities for users to contribute their own

content, such as posting their own videos or rating hotels on

> A major focus will be on providing more video content, aiming to go beyond re-broadcasting television.

MSN's travel site.

But there are the doubters. Matt Rosoff, analyst with independent researchers Directions on Microsoft, said he's still waiting to see what Microsoft plans to devote to the new MSN. especially since the

company is so heavily focused on the Live effort. "Until I actually start seeing new products, or even updates to the existing ones, I'll remain sceptical that it's really a focus for the company," he said.

#### REWRITING HISTORY

# Character **Revamping** At Wikipedia

There seems to be a  $oldsymbol{\mathsf{L}}$  Wikipedia controversy every month or so now: the online reference site has accused US Congress staff of changes to several political biographies, changes that portrayed the politicians in a more positive light. Computers traced to Capitol Hill had removed "unpalatable" facts from articles on senators, while other entries were "vandalised," Wikipedia said. An inquiry was launched after staff for Democratic representative Marty Meehan admitted to having spruced up his biography.

#### **Digit Caption**

"Ring out the new, ring in the old!"

#### **Last Month's Winner!**

Akarshak Tanwar 'Desh ki Jaan–



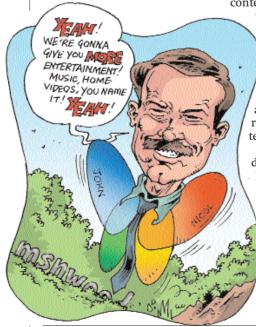
E-mail your caption with the subject 'Beat That', and your postal address, to beatthat@thinkdigit.com and win

**SHAKTI Movie** DVD Directed by Ramesh Sippy

The site lists six prominent biographies that had been changed by Senate computers.

One senator's office has confirmed that his staff made a number of changes to his online record: where Mr Coleman was described as a "liberal" back in college, it was changed to "activist." Senator Coleman's chief of staff, Erich Mische, said editing was done to correct inaccuracies and delete information that was not reflective of the politician. "They've got an edit provision on there for the sake of editing when things are not accurate," Mr Mische told the Associated Press. "I presume that if they did not want people to edit, they wouldn't allow you to edit."

Wikipedia says the controversy raises questions about whether it is ethical for those with a vested interest in the subject to edit entries about it. It said the Congressional computer network has been blocked from editing for brief periods on a number of



**GENDER** 

**BENDERS** 

Rathi vs. Ashish

#### Changing the path of the 'Mv Documents' folder





Rathi was incredulous when we first told her what she was required to do-perhaps it sounded too simple! At the word "Go," she right-clicked on 'My Documents', then clicked Properties and changed the content in the Target Folder Location box to 'D:\' After clicking on Apply, she hesitated for a second when a dialog asked, "Would you like to move all of your documents in your old location to the new location?" She chose 'No', and with a click on OK, she was our winner, scoring





More assured than his competitor, Ashish was all set to beat Rathi's time. He, too, started by right-clicking on 'My Documents'. But then, when at the Target Folder Location box, instead of changing the whole path, he just replaced "C:\" with "D:\" and clicked on Apply. The computer would not accept his command, and a baffled Ashish took a few more seconds to figure out what was wrong. He did finish the task in respectable time, although he was the runner-up by a considerable margin.

occasions in the last six months due to the inappropriate contributions.

The Siegenthaler controversy of the month before last was one of "character assassination"; this one is about "character spruce-ups." How many more controversies will it take before Wikipedia

becomes paid, with fulltime, dedicated editors? Is Wikipedia merely a brief chapter in Internet history, like Napster was? Or perhaps we'll see two sections—one open for editing by the public, and one edited by paid employees? Perhaps we'll see a multi-tiered system with different levels of

access? Whatever it is, we foresee a radical change happening sometime in the next couple of years!

"MORE DIVERSE THAN EVER"

# The **Changing Face Of Online** Security

 $S_{\hbox{University of South}}^{\hbox{ponsored by the FBI, the}}$ Florida and Raymond James Ltd, the Cyber Security Summit was held February 8 and 9 in St Petersburg, Florida. It attracted more than 200 security experts, law enforcement officials and academics. Some of the reports from the summit made us go ho-hum ("The problem isn't going away anytime soon"), but we're also informed that progress has been made in recent times on the security front. Take this case: an e-mail scam was sent from South America; a victim in California responded to it and had his data stolen: the data was sent to Germany and then to Michigan, where it was controlled by someone in Romania. And all this had been tracked, which was seen by the summit as a success.

But the issues involved in handling such cases. from the technical to the legal, are daunting. The baddies move fast, and have no jurisdictional issues in their way. And once law enforcement officials catch

up with one scheme, the crooks alter techniques or targets.

The hot-spots for online scams and high-security threats are being identified: West Africa remains one (remember the Nigerian scam mails?), but it's being challenged by Eastern Europe, and, increasingly, China. Law enforcement must now contend with the differences in laws from country to country, which can be hatefully complex. And that's one of the reasons the crooks tend to get away.

Some new terms turned up at the summit: "Botnets" are networks of infected computers that can be used for spam and, more dangerously, to attack specific targets. Law enforcement found one network with more than 1 million infected machines. "Reshippers" are unwitting crime participants, lured by "work-at-home" ads, where they think they're just forwarding packages or financial transactions. In reality, they've been duped by crooks who are using legitimate addresses to cover purchases made with stolen or fraudulent credit cards.

"The threats we face are more diverse than ever," said Carl Whitehead, special agent in charge of the FBI's Tampa office.

In a more recent development, the National Cyber Security Alliance, a central clearinghouse for cyber security awareness and education for home users, small businesses. and the education community, teamed with the Department of

#### MacIntelTosh



Steve Jobs made his landmark announcement last doing the rounds. June to deliver Mac models using Intel In January of t microprocessors by this year, and to transition all its two computers in this series, the MacBook Pro and Macs to using future versions of Intel's x86 processor architecture. Much creativity has since been exercised by hacks, wags and blogs to name the new OS X that would fire these machines "MacInteltosh." "MacIntel" is a more sober version

In January of this year, Jobs announced the first the iMac Core Duo, both using an Intel Core Duo chip.

Traditional Mac users are concerned about the lack of support for Classic, the emulator from Apple that helped run pre-OS X software, on the x86 architecture.



#### ΔΙΔΧ

#### What is AJAX?

AJAX stands for Asynchronous JavaScript and XML. It is a Web development technique for interactive Web applications—a method that defines how Web pages interact with the server and the client.

#### When was it developed?

The technique was used way back in 2000, when JavaScript Remote Scripting was first used. But back then, it was purely based on JavaScript.

## Why is AJAX gaining in popularity?

The concept is very simple, and the programmer doesn't have to lean a new language. With Ajax, you can create richer, more dynamic Web application user interfaces that approach the immediacy and usability of native desktop applications.

### How is AJAX better than just HTMI?

AJAX makes Web pages more user-friendly—the entire HTML page doesn't need to refresh each time a change is made. It allows for updating, deleting, and fetching of small queries without the entire page needing to be submitted. This makes the page more interactive, and quicker. AJAX also reduces interaction with the server.

#### Where will AJAX be used? AJAX will be used in almost all Web pages that need to be more interactive, and to reduce response time.

#### Who has used AJAX?

The technique has been extensively used by Google in their applications such as Gmail.

Another example is portal applications, which bring up information from multiple sources and provide application services to the portlets that comprise the portal Web application. To the user, the portlet applications are similar to windowed applications on a desktop. Most portals are in a scenario where an action in one windowed application causes content in all other applications to be refreshed! Web developers employ AJAX-style programming to combat this behaviour.

Homeland Security to create a list of emerging threats for 2006. Their report said four main emerging threats are likely to grow: hackers using instant messaging to spread viruses and worms; phishing becoming more widespread; virus attacks on cell phones and PDAs; and hackers targeting online brokerage accounts.

#### **PAY TO PATCH**

# \$49.95 To Protect Windows!

A new security service from Microsoft will charge users \$49.95 (Rs 2,300) per year to protect Windows better from spyware, viruses and such. The subscription service is called Windows OneCare Live, and Microsoft plans to release it in early June. The service will compete with security products by traditional Microsoft partners, including Symantec and McAfee.

OneCare is already available for free in test form, and promises to provide regular tune-ups to help keep computers running smoothly. It also offers users a way to back up and restore data. The system will automatically update with the latest protections and occasionally add new features. Sounds to us like a piece of software for people who have no clue about what's going on in their computers.

It is questionable whether Microsoft would have any more luck than its competitors in persuading people to safeguard their systems. Analyst Ted Schadler with Forrester Research said, "The big opportunity is to get to people who don't have any security," he said, but "Microsoft doesn't have any better way to get to those people than anybody else."

What strikes us most about all this is that apart from the frills such as the tune-ups, an operating system is supposed to be complete. It is supposed to have inbuilt security, but naturally, threats change, and that's what patches are for, but aren't the patches free? Why the \$49.95? Let's spell it out: your computer runs Windows. There are threats to Windows because of all the security holes in it. If Windows didn't have these many security holes, there wouldn't be so many threats. Therefore, in our opinion, the manufacturer of Windows should protect it for free.

It's a smart product idea, we must admit—the "one-Windows-companion-package" concept.

#### AIMED AT COLLABORATION

# MS Office 2007 Due This Year

What was supposed to be called Microsoft Office 12 has been rechristened Microsoft Office 2007. Microsoft will bundle a host of additional products along with the next version of Office. These will include specialised tools to help employees work together across continents.

Microsoft is also adding a new, higher-end version of the suite aimed at businesses that need sophisticated ways to collaborate. In addition, Microsoft will release some new and updated desktop and server software aimed at helping businesses with specialised tasks such as managing forms.

In Office 2007. Microsoft has totally revamped the user interface—only the tools relevant for the current job would be highlighted. Running across the top of the screen is something called the Ribbon, which replaces the traditional menus and toolbars with a set of graphical command tabs that correspond to the task at hand. Essentially, the Ribbon highlights oftused features in a contextsensitive way.

Office 2007 will support XML-based document types. It will also be based on the fast search technology of Vista, which will enable document search from within Office applications.

The various versions of the suite, due out late this year, will cost about the same as Office 2003. ■





**Rust In Peace** 



44 Songs From The Wood



50 Empty Vessels Make Waves!

# Digital Passion

Fuelling the pursuit of technology knowledge

In Sight

# **A Window To Change**

Here's a look at what the next version of Microsoft Windows offers

#### **Ahmed Shaikh**

hen the successor to the Windows XP throne was being touted, seemingly eons ago, it promised heaven on earth—a pass to the utopian kingdom of computing, wherein everyone is happy and malware happens only to other people.

As with any promise, reality eroded the ideal, and product delays forced Microsoft to freeze upon a more realistic goal for their next-generation operating system. This product was then code-named Longhorn, and now answers to the marketing moniker of Windows Vista.

Although not the product it once was, Vista still offers a vast landscape of features. Much has happened since Windows XP was released—built on the Windows NT kernel, XP was never prepared for the Internet at large, nor for the several mini-revolutions which have since shook the technology space.

Vista hopes to provide a fertile ground and a secure ecosystem within which seemingly

disparate elements will thrive—the WWW, wired P2P networks, wireless networks, ad-hoc networks, high-capacity hard drives, high-density displays, cell phones, mobile audio and video players, the rise of the laptop, the proliferation of the LCD screen, and our everincreasing need to communicate.

Here, we offer a bird's-eye view of the immediate changes Vista will bring to our computing experience, along with a superficial look at some of the underlying technologies driving that change.

**Defining The New Look** 

The most visible—and thus the most talked about—feature of Vista is its new look. Both with Vista and its Xbox 360 gaming console, Microsoft is betting on the High-Definition (HD) era to come. HD will bring in displays with a much higher dots-per-inch density (dpi) than is currently offered by typical monitors. The idea is to offer fonts, icons and other user interface elements that will scale according to the size and density offered by your monitor. So, if you're one of the lucky few to possess a widescreen 24-inch LCD monitor, Vista will offer

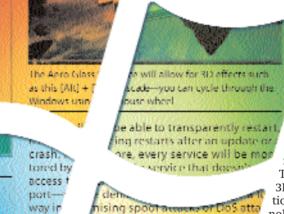
larger, more pleasant fonts and icons.

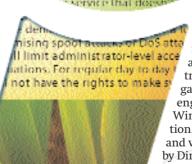
This is done by using a vector-based graphics engine, replacing the bitmap or raster engine that powers XP. Since every visual element on Vista will be a vector image, scaling and resizing will be a simple matter of maths, hardware willing. This is very similar to how 3D games or Flash animations handle data. This technology will bring in text anti-aliasing, animations, transparencies, and advanced gamma functions. The vector engine will be part of the Windows Presentation Foundation, an API built on XML, .NET, and vector graphics, and powered by Direct3D technology.

Beta builds of Vista currently showcase this technology through the Aero Glass interface, which offers transparent window borders (hence "glass"), drop shadows, scalable icons and fonts, and animations.

#### **Information On The Side**

Microsoft has embraced XML, and a modified variant of that data markup language called XAML will be ubiquitous under Vista. The Windows Sidebar, which will perhaps share





Imaging Shrikrishna Patkar

unio

#### Digital Passion I In Sight

visual prominence with the Start button on a Vista desktop, makes considerable use of this markup language. Essentially, the Sidebar is a data aggregator that uses XML to gather sundry bits of information, presenting them using vector images and animations.

In terms of functionality, the Sidebar will be a collection of what Microsoft calls Gadgets. The concept of Gadgets is meant to blur across networks, and will function both online (via Start.com) and offline. Some Gadgets will extend online functionality to the desktop and viceversa. When offline, a Gadget can take the form of a calculator, games, sticky notes, slideshows and such. Online Gadgets can connect to Web services to deliver weather information, news updates, traffic maps, online photo albums (such as from within flickr.com), Internet radio, and more. A Gadget can also integrate with your desktop applications. It can bring you your daily calendar, let you control music or play video, or even offer a window to your Messenger contacts.

#### They're Live

To underline the user-friendliness of the interface, Vista will offer Live Icons.

Today, you can set XP to show you a thumbnail view of the contents of a folder—or for an image or video file, a snapshot of its content. Vista will extend this concept to all content—a Live Icon for a Word document, for example, will display the content of the first page of the document. The benefits are obvious—"untitled4.doc" will immediately show what it contains, without



Vista's Internet Explorer will offer a phishing filter

your having to open it.

RSS feeds will be deeply integrated with Vista. The OS will maintain a central store of RSS data which you subscribe to—regardless of which RSS reader you use—thus, while Internet Explorer 7 will come with an RSS feed reader, Vista will also store feeds gathered by Firefox, for example. This repository will be available to any application via an API. Vista will also add the concept of lists to RSS feeds—this will allow you to create a feed of, say, the Top 10 Bollywood Albums—something not currently possible.

Along with RSS, another notable technology of our time—peer-to-peer (P2P)—will be integrated with Vista. The most visible form that P2P will take

The search paradigm has deep roots in Vista. Every user element—from the Start menu to Windows Explorer and the Save dialog boxes— will enable you to search for content

is termed the Windows Collaboration client. This application will let you create a P2P network with up to ten other friends, family members or colleagues. Within such an environment, you can share your desktop with others, exchange data and notes, and collaboratively edit documents. Windows Collaboration will support both wired and wireless networks. If no network is detected, it can even start an ad-hoc network, detecting and connecting to other users via Wi-Fi.

Vista is also set to bring a calendar to the experience sans Outlook. The Windows Calendar will be a rudimentary task manager that will be able to work with Internet-standard calendaring formats. You can use this application to set up a Web-based calendar, or to subscribe to one. The application will be able to notify you of an upcoming event even when it is not running, thanks to deep integration with Vista. The Calendar and Collaboration are two positive steps to blurring physical boundaries while working in this connected age.

#### **Dude, Where's My Data?**

Microsoft toyed with the idea of entirely doing away with the folder/directory/drive letter paradigm that is currently used to store content. They envisioned a single data store that would encompass every file type, and which, with the help of metadata, would be exposed to the user via an almighty search engine. This vision has taken a backseat to practicality—Vista will offer the traditional folder model and marry metadata to it.

Metadata is, of course, bits you can add to a file to render it as unique as possible, thus making it easier to find. Just as an MP3 file can store album, artist, track, and genre information, a Word document can be tagged with author, keywords, and category; a photograph can be tagged with camera information, when it was snapped, and so on. All of this is currently possible, but what Vista offers is a means to best use this wealth of information—via its search and via virtual folders. Of course, you will have to manually enter all this information at some point.

Vista uses the concept of Virtual Folders to leverage the foundation of metadata. A Virtual Folder is just an XML-based search query that automatically and continuously updates its contents based on the search criteria. Thus a search on "jazz music from the 80s" will find every music file with the relevant metadata (genre: jazz, year of release: 1980-1990), which you can then save as Virtual Folder. The contents of this folder would then be updated live, as and when you add or remove relevant content.

This means of storing metadata-rich content will also bring along the concept of stacks. Think of a stack as related data, for example, a stack of books written by Arthur C Clarke. Similarly, Vista will offer a stack of jazz albums, a stack of spreadsheets created in the year 2004, and such. All of this is customisable, of course, and works similar to the way you can ask Windows Explorer under XP today to show all PDFs from the past week.

The search paradigm has deep roots in Vista. Every user element—from the Start menu to Windows Explorer and the Save dialog boxes—will enable you to search for content.

#### **Device Independence**

Vista will offer a printing engine code-named Metro. Similar to the PDF functionality offered by Mac OS X, this will ensure that any application can print to a common format. Metro, or XML Paper Specification as it is now called, will also be instrumental in ensuring that a document retains its formatting across devices—from a PDA to a cell phone to a personal computer.

In a demonstration of the technology, Bill Gates showed how saving a Word file or a photo will automatically generate a Metro document alongside. The Metro avatars can then be distributed across devices or printed.

Metro is built on top of Vista's XML-based Windows Presentation Foundation. The technologies will also let you create, and annotate documents, as well as to digitally sign and apply rights management to your creations.

This awareness of devices other than the desktop PC is inherent in Vista. The OS also offers better synchronisation capabilities—between PC and laptop, or between PC and other mobile devices such as a PDA. Vista will let you synchronise documents, photos or music across devices. This function also extends to the network, where the OS can cache files to a client system and only update changes across the client/ server link.



Icons will be scalable in Vista

PC-to-laptop interaction will also be underlined by the Mobility Center, a gathering of resources and applications to enhance and manage a portable computer.

Furthermore, Vista will bring better power management to both desktops and laptops. Vista will offer a Sleep



A Live Icon

mode that aims to marry the best of the current Hibernate and Standby modes. When a laptop's lid is closed, the unit will go into Standby mode, ready to be awakened in seconds. After a period of time spent under Standby (which can be changed), the laptop will hibernate.

Another feature touted by Vista, and which is already seeing support from laptop manufacturers such as ASUS, is the concept of SideShow.

SideShow basically takes advantage of falling LCD prices, and offers a solution to the very urgent need to conserve the battery life of a mobile device. A SideShow display for a laptop, as an example, can be a small monochrome LCD or an LED panel, attached on the lid of a laptop. Such a display will then offer a glance at important information such as new mails, your to-dos, battery life, appointments, and more.

A SideShow auxiliary display is not limited to the laptop—it could also be a desktop clock notifying you of new instant messages, for example.

#### Security

Microsoft is attempting to graft good security practices onto the very genes of Vista. To begin with, all Vista code is signed and certified by Microsoft, and can be monitored for changes. This level of code integrity is just the first step to building a stronger OS.

A software service under Vista will not have deep access to the system, so a service crash will be unlikely to bring the entire system down. A



The Aero Glass interface will allow for 3D effects such as this [Alt] + [Tab] cascade—you can cycle through the Windows using the mouse wheel

service will also be able to transparently restart, if needed, reducing restarts after an update or a crash. Furthermore, every service will be monitored by the OS, and a service that doesn't need access to a certain hardware—say to a network port—will be denied access. This will go a long way in minimising spoof attacks or DoS attacks.

Vista will limit administrator-level access to unique situations. For regular day-to-day tasks, a user will not have the rights to make system-



Power Management in Vista will be a simpler affair

A software service under Vista will not have deep access to the system, so a service crash will be unlikely to bring the entire system down

#### Digital Passion I In Sight

level changes. Much like Linux or OS X handles them today, an admin-level task will require you to enter the pertinent password, or at least click on a confirmation.

Since a service under Vista will inherit the rights of its user or application, a service will therefore be unable to make those changes as well. As a practical example, Internet Explorer 7 will be able to run in a low-level mode, wherein it will be able to access all Web sites. However, it will be difficult to launch a malicious attack from this instance of IE, since IE will have no rights to system or user documents.

Notably, Internet Explorer 7 will also offer antiphishing functionality via blacklists and sniffing of spoof URLs. Add to this a firewall that will be able to block and filter both incoming and outgoing packets, and an integrated anti-spyware engine, and Vista will offer a first line of defence against the most common attack vectors.

With the introduction of Windows Vista, Microsoft will also offer a decent palette of parental controls to the millions of Windows users. This feature will allow you to control your child's activities on a computer; it will even main-



The Windows Sidebar will collate information from both Web sites as well as your desktop computer

tain a log. This can be something as simple as blocking a game based on its ESRB rating, blocking specific programs, and enforcing Web restrictions and time limits. A parent will thus be able to specify that his or her child cannot use the computer between 6 PM and 9 PM on weekdays, and further, that the child can only use it for three hours on weekends, with access to pornography blocked and with downloading disabled.

Vista will offer data encryption under specific Intel Trusted Platform Module hardware. The OS will be able to encrypt the entire hard disk, thus preventing data theft. It will also be able to deny booting with devices such as DVD drives, floppy disks, or USB drives: this will prevent malicious break-ins and avoid data theft. IT administrators can also use Group Policy in Windows Vista to block the installation of removable storage devices.

Under the operating system, security updates and system patches can happen in small increments. It can monitor network inactivity and trickle in an update, thus reducing overhead and making the most efficient use of bandwidth.

Perhaps the most interesting element of Vista is that the OS is "componentised" by design. This is roughly similar to how Linux works—a central kernel, connected to services and daemons that



The Sync Center: Vista will allow data synchronisation with both mobile devices and servers

add functionality as and when needed. Similarly, Vista will have a core operating system, called the Windows Pre-Installation Environment (WinPE), which will be language-independent and a subset of all the versions of Vista that Microsoft plans to release.

WinPE will be available as a single image on a Vista install disk. The setup routine will only need to copy this image to the system and reboot it to detect hardware—this will vastly reduce the setup time for the OS. Furthermore, you can also back up an installed system to an image, adding incremental changes to the image as and when needed.

Such an incremental means of data backup is pervasive in Vista. Notably, Windows Backup is enhanced by a new task-scheduling system that allows for status-based triggers, along with the usual timed events. For example, Vista can trigger a backup of your data if 80 per cent of your hard disk has been used up.

Interestingly, Vista will also offer a state-tracking system called Previous Versions. This will track folders, documents and such for changes, and if you desire, it will roll back the tracked element to a previous version. If you've ever opened a document, experimented with it and pressed [Ctrl] + [S] accidentally, thus losing the original, you can understand why this feature will be a boon.

#### Ringing In The New

In many ways, Windows Vista is a parting with old ways and ideas. Compatibility with legacy applications has been sacrificed for greater security. Bleeding-edge hardware, especially video cards and high-definition screens are being embraced. The OS is very network-aware, and the data flood that this awareness brings will hopefully be reined to control using metadata-driven storage. Mobile devices are embraced, and data portability and interoperability is enhanced.

Most importantly, like its predecessors, Vista promises to be a great platform for even more radical ideas than those dreamt at Redmond. With XAML and the .NET platform's evolution to WinFX, Vista offers a comprehensive bundle of technology that will allow a developer to quickly build applications—both online and off.

Windows Vista offers change. It will certainly demand its pound of hardware upgrades and will come with teething problems, but is perhaps the most intriguing release from Microsoft since Windows 95 first replaced the command prompt with the Start button.

readers letters @think digit.com

# **Rust In Peace**

Hard disks might soon be dead. **But what will** replace them? Here's a look at seven technologies that could be called "hard disk killers"

**Ram Mohan Rao** 

torage researchers have their work cut out all nice and neat: "all" that's needed is 🗾 a way to make 1s and 0s. A Yes and a No; a hole and a bump; a groove and a ridge. This means a lot of freedom to experiment—there are a lot of materials and mechanisms researchers can tinker around with, with the goal of finding what materials can be in two states (or be brought into two states), and how to go about making those state changes. Given a decent lab, you could probably think up a storage mechanism yourself-with the caveat that what's needed is higher densities!

When you look at what's being researched and actually think about our current storage devices (and those in the past, such as punch almost seem stupid. Holes in paper-how

nanotech, the science of the extremely small. And small is, of course, good news when it comes to storage, because it means higher densities. In what follows, we discuss several storage techniques in various stages of research and implementation, and with very different theoretical caps-from the one CD per square centimetre achieved using a type of rubber stamp, to the beyond-the-imagination one crore CDs on a square inch that might be achieved with the help of carbon nanotubes. Some of these technologies you'll see in the next couple of years; some you'll see sometime in your lifetime. Some will die because of competing technologies, some will tame the world's information. But they all demonstrate that innovation is alive, and kicking as hell!

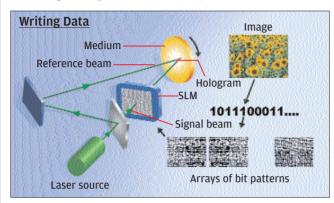


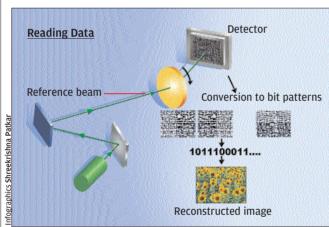
### **Holographic Storage**

Holographic Storage has been talked about for a long time; indeed, the Holographic Versatile Disc (HVD) is being eagerly awaited by people around the world. This technology uses lasers to record data in the *volume* of the medium, rather than on the surface. The idea, surprisingly, is not new, but it's only now that the technology seems to be getting up to speed.

#### **How Does It Work?**

A laser beam is split in two, the reference beam and the signal beam (called so because it carries the data). A device called a spatial light modulator (SLM) translates 1s and 0s into





an optical pattern of light and dark pixels, as in the figure above. These pixels are arranged in an array (or "page") of about a million bits.

The signal beam and the reference beam intersect in the storage medium, which is light-sensitive. And at the point of intersection, a hologram is formed because of a chemical reaction in the medium, and gets recorded there. (A hologram is the interference pattern that results when two light waves meet; for more on interference, visit www.physicsclassroom.com). For reading the data, only the reference beam is used: it defelcts off the hologram, and a detector picks up the data pages in parallel. The 1s and 0s of the original data can be read from the data pages.

By varying the angle or wavelength of the reference beam, or by slightly changing the placement of the media, lots of holograms can be stored in the volume of the medium.

#### What Work Is On?

Optware Corporation of Japan have already come out with their HVD: the HVD holds 1 TB (a terabyte), and is the same size as a regular optical disc. Enterprise versions were planned for this year: the estimated costs were something

like \$20,000 (Rs 9 lakh) for players and \$100 (Rs 4,500) for discs.

In the meanwhile, InPhase Technologies, Optware's main competitor, is coming out with products of its own. In partnership with Maxell, InPhase has already come up with a 300 GB disk, with an 800 GB disc expected in 2008. And if the 1 TB of HVD weren't enough, Fuji Photo Film USA has demonstrated a type of HVD with a claimed capacity of 3.9 TB!

#### What Promise Does It Hold?

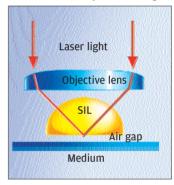
Besides high storage densities, holographic storage means fast access times, because there are no actuators as in hard disks—laser beams can be focused around much more rapidly.

Holographic storage can kill off the hard disk within the next 10 years, but that's again speculation—some technologies step out quickly and graciously, but some are pretty stubborn!

# **Near-Field Optical Recording Using A Solid Immersion Lens**

Think of a CD or DVD; while recording, the lens focuses the laser onto a tiny spot on the medium. This spot is tinier for DVD than for CD, and is even tinier in Blu-ray, for example.

Near-field optical recording (NFOR) refers to the extremely sharp focusing of a laser beam, which means an extremely small distance between the lens and the recording medium. NFOR using a solid immersion lens (SIL) would be the child of Blu-ray and HD-DVD, and therefore, the grandchild of the DVD.



#### **How Does It Work?**

The density of the data that can be achieved on a disc is roughly proportional to the square of the numerical aperture (NA) of the lens, and inversely proportional to the wavelength of the laser (refer *The Battle Of The Blue, Digit* December 2005). The NA of a lens dictates how sharply it can focus the beam falling on it. The NA of a SIL is made very high, and the achievable data densities are therefore that much higher.

In NFOR using a SIL (refer figure alongside), the laser is very sharply focused: it converges at a point within the lens, instead of on the medium. The air gap between the lens and the medium is just about 25 nm! The photons "tunnel" through the air gap onto the surface of the medium (See *Jargon Buster*).

#### What's Being Done?

About half a year ago, Philips researchers reported "significant progress" in developing NFOR. Up to 150 GB of data on a dual-layer disc would be possible, they said, although they also said the technology was several years away from commercialisation.

#### What Promise Does It Hold?

NFOR using SILs seems in no way to us a hard disk killer, but it's the natural progression from blue-laser systems. NFOR is therefore a potential "Blu-ray killer." The promise NFOR holds all seems to hinge on how much comes in in terms of research dollars. Will the HVD have already taken over by the time NFOR takes off?

### **MEMS-Based Storage**

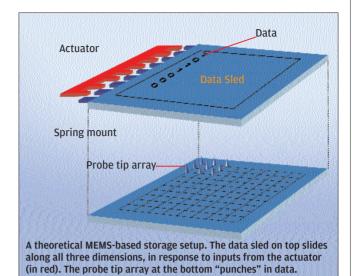
MEMS (Micro-Electro-Mechanical Systems) is, according to memsnet.org, "the integration of mechanical elements, sensors, actuators, and electronics on a common silicon substrate through microfabrication technology." The mechanical elements referred to here, range in size from a few micrometers to a millimetre. Actuators are just devices that convert an electronic signal to a physical action—for example, the device in the hard disk that is responsible for positioning the head precisely. In fact, we can take the example of a MEMS-based storage system to better explain what MEMS are.

#### **How Does It Work?**

Different MEMS storage systems work differently, but we can describe the concept. Take a look at the figure along-side. This isn't a working system, but just an example of a general MEMS storage system. The data "sled" at the top can move in all three directions; it is spring-mounted over the probe tip array, an array of mechanical tips that do the reading and writing (we aren't getting into the details here). There's an actuator on each side of the data sled, and it moves the sled in response to electric currents. Now when the first bit is written, the sled and the tip array are aligned, and then the sled moves along one axis while the tips do their work—writing a 1 or a 0. Note that the sled doesn't rotate; it slides. Also note that everything in this arrangement is mechanical and electronic.

#### What's Being Done?

At CeBit 2005 in Hannover, Germany, IBM showed off a MEMS-based storage device that it said could achieve densities in the range of 1 TB per square inch. The device is called the Millipede, because of the thousands of probe tips. The tips are of silicon, and the data substrate is a material called "plexiglass." To write a bit of data, a tip is heated to 400 degrees C. When it "pokes" the plexiglass, it softens it and makes a dent there. To read data, the tips are heated to 300 degrees C and pulled across the surface



of the plexiglass. When it falls into a dent, the tip cools down because more surface area comes in contact with the (cooler) plexiglass. The temperature drop reduces its resistance, which can be measured. Finally, to erase a bit, a hot tip is passed *over* the dent, making it pop back up.

#### **What Promise Does It Hold?**

Plenty! MEMS-based storage devices such as Millipede could well be hard disk killers, depending on the research dollars spent. Seek times are lower and more stable than those of hard disks.

In the range of 1 to 10 GB, MEMS-based storage has the lowest cost per byte compared to non-volatile memory and hard disks. Data transfer rates can reach 1 gigabyte per second. Also, MEMS-based devices are smaller and use considerably less power.

#### V

#### **Jargon Buster**

#### **Spatial Light Modulator (SLM)**

An SLM consists of an array of optical elements—pixels—in which each pixel acts independently as an optical "valve" to adjust or modulate light intensity.

#### **Solid Immersion Lens**

A type of lens that has a high refractive index, hemispherical in shape, optimised for precision.

#### **Polymers**

These are natural or synthetic plastic-like structures where two or more like molecules are joined to form a more complex molecular structure.

#### **Photolithography**

This is a process used in semiconductor device fabrication to transfer a pattern from a "photomask" to the surface of a wafer or substrate. Here, a chip, typically of silicon, is coated with a chemical called a photoresist. Flashing a pattern of light and dark onto the photoresist causes it to harden in the areas exposed to light. The parts not exposed to light stay soft and are etched away. (A photomask is a high-precision plate containing microscopic images of electronic circuits.)

#### Electron beam lithography (EBL)

As opposed to photolithography, in EBL, electron beams are used to create the patterns directly on-chip.

#### **Scanning Tunnelling Microscope**

The STM allows scientists to visualise regions of high electron density and hence infer the position of individual atoms.

Atomic Force Microscope (AFM)

This kind of microscope works by scanning a semiconductor tip over a surface. The tip is positioned at the end of a cantilever beam. As the tip is repelled by or attracted to the surface, the beam deflects. The magnitude of the deflection is captured by a laser that reflects at an oblique angle from the very end of the cantilever. A plot of the laser deflection versus tip position on the sample surface provides the resolution of the topography of the surface.

#### **Tunnelling Current**

Tunnelling is a quantum mechanical effect. A tunnelling current occurs when electrons move through a barrier that they "shouldn't" be able to move though. In the quantum mechanical world, electrons have wave-like properties. These waves don't end abruptly at a wall or barrier, but taper off quite quickly. If the barrier is thin enough, given enough electrons, some will move through and appear on the other side. When an electron moves though the barrier in this fashion, it is called tunnelling.

#### Cantilever

Simply speaking, a cantilever is a projecting structure supported only at one end, like a diving board.

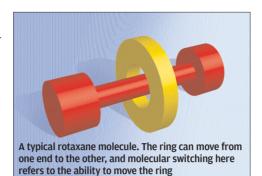
# **Molecular Switches**

Since we're talking miniature, let's go all the way: how about storing a bit in a single molecule? Short of using a single atom—which is more difficult—this is about as small as it gets. (Later, we do talk, though, about single atoms!) Like we've said, it's all about 1s and 0s; so what one needs is a molecule with two stable states, and a means of switching the molecule between these states.

# How Does It Work?

A molecule currently being researched

is "rotaxane." Now this may sound way out: the rotaxane molecule has a thread-like section, with a ring structure that moves around it. The ring doesn't fall off because of the dumbbell-type bulbs at the ends of the thread. Ways have been found to move the ring from one end of the thread to the other, both of which are stable states for the molecule.



The reading procedure is complex, and cannot be discussed in this space.

#### **What Is Being Done?**

Scientists successfully demonstrated, in January 2003, that they could store information using rotaxane molecules. They reportedly achieved storage densities in the range of 1 to 10 gigabits per square inch.

#### **What Promise Does It Hold?**

There's currently more research going on in terms of using molecular switches as logic gates and such. But researchers are already envisaging fully-molecular computers, where the storage mechanisms, too, would be molecular. This is looking way into the future, but fully-molecular computers are an important idea—they represent the smallest you can get!

### **Atomic Storage Using STMs And AFMs**

Take a look at the figure alongside. Notice the "IBM"? It's not a photograph, but it depicts what researchers have etched at the atomic scale: each of the little hills is an *individual xenon atom*! The thing was produced using an Scanning Tunnelling Microscope (STM) operating a few degrees above absolute zero.

#### **How It Works**

An STM has the ability to give a view of surfaces at the atomic scale, and researchers have envisioned the application of the technique to achieve ultra-high-density storage. The STM has an ultra-sharp tip placed extremely close to the substrate being written onto. A voltage applied between the tip and the substrate gives rise to a tunnelling current. The tunnel current depends on the separation between the tip and the substrate. As the tip is moved over the surface, the tunnel current is monitored, and the position of the tip is changed such that the current is constant—this way, the topology of the surface can be mapped out. The beauty of the STM is that it can be used not only to map a surface, but also to modify it.

There are difficulties with the STM approach—one is the problem of maintaining the distance between the tip and the surface at the angstrom level (an angstrom is 0.1 nm). To

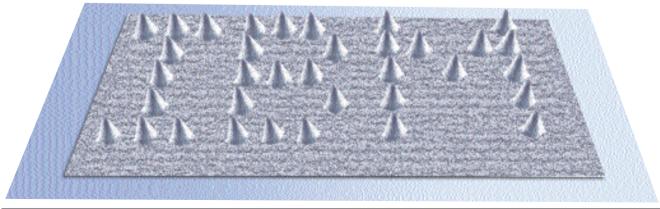
overcome these difficulties, researchers are concentrating more on the Atomic Force Microscope (AFM). Here, the tip rests on a cantilever spring. This allows for two things: first, the tip can actually touch the surface, because of the "bounce" enabled by the spring. Second, by monitoring and controlling the spring, extremely small forces can be sensed as well as applied.

#### **What's Being Done**

The letters "IBM" have been etched on a surface using an STM, as mentioned above. Researchers are playing around with the idea of using an AFM in contact with a hard disk-like surface to etch data pits. It will take a long time for this to materialise, but remember that we're talking about a "hard disk" that writes *individual atoms!* Disk storage just cannot get any denser than that now, can it?

#### What Promise Does It Hold?

The use of STMs, AFMs, and similar devices are almost the ultimate application of nanotechnology to data storage. The potential storage capacities are enormous—for example, the etched letters in the figure represent a storage density of 1 *million* gigabits per square inch! That's 2 lakh CDs on a square inch!



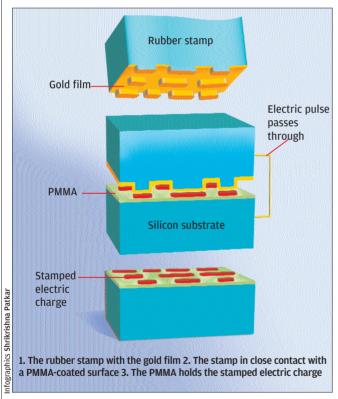
### **Rubber Stamps**

SIn 2001, two Harvard University researchers designed a high-capacity data storage device based on the concept of a rubber stamp transferring patterns—1s and 0s, of course—onto a plastic film. The system could hold about 650 MB (one CD) of data on a square centimetre.

#### **How Does It Work?**

The method works on the idea of using electric charge—rather than magnetic orientations—to store bits. First, a pattern of 1s and 0s were etched on a piece of semiconductor. This piece was a mould for a liquid polymer, and solidifying the polymer resulted in the rubber stamp (see figure along-side). The 5-mm-thick stamp was then coated with an 80-nm gold film.

To write the pattern, the researchers placed the stamp on a silicon wafer covered with an 80-nm film of a substance called polymethyl methacrylate (PMMA), a polymer that can hold electric charge. They then applied an electric pulse to the gold plate. The current passed right through the PMMA film to the silicon wafer, and what resulted was an electric charge in the areas of the PMMA film that were in contact with the stamp. Where there's an electric charge, it's a 1; where it's not, it's a 0.



#### What Promise Does It Hold?

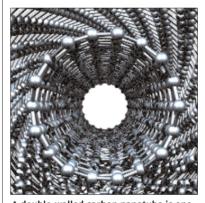
The system is low-cost, which is its main advantage. But this seems to us an exotic piece of research, and its immediate or long-term value is not clear. What is also not clear is how data would be transferred between two systems: the rubber stamp was created using photolithography and electron beam lithography, so how would data patterns be created on an everyday basis? Still, the research shows that it is possible to use electric charge storage as an alternative to magnetic storage; and that it can lead to high data densities. So OK, here's yet another nanotech hard disk alternative!

### **Multiwalled Carbon Nanotubes**

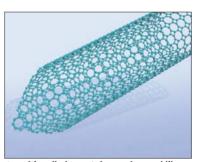
Carbon nanotubes have been much researched. They are folded sheets of carbon atoms, as in the picture alongside, where several nanotubes are shown in different colours. Multiwalled nanotubes are concentric tubes that hold together as a structure, as in the picture shown below. They're "nanotubes," so, of course, they are measured on the nanoscale—a nanotube can be smaller than a nanometre in diameter. It turns out that nanotubes can be used to write data: the tube is treated like a needle to make fine changes in a medium.



A bunch of single-walled carbon nanotubes. This isn't a photograph, but represents nanotube structure



A double-walled carbon nanotube is one tube inside another



A multi-walled nanotube can be used like a pen to write data onto a polymer

# What's Being Done

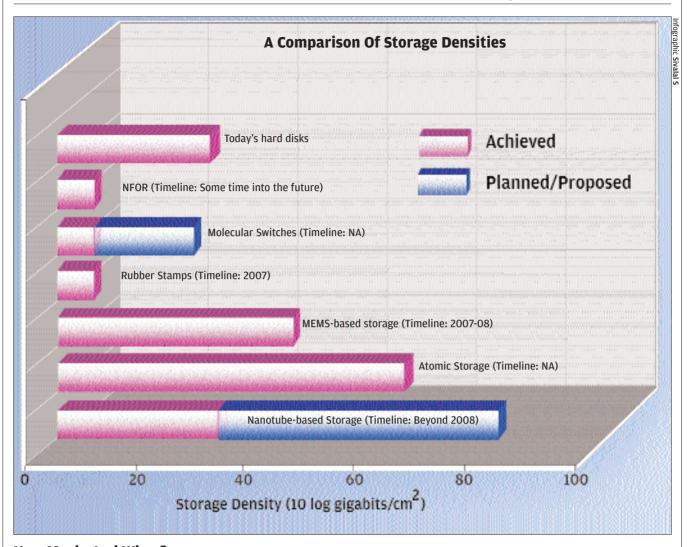
Researchers from IBM Research in Zurich, Switzerland. Japanese Nanotechnology Research Institute, and Osaka Prefecture University in Japan, have demonstrated a storage density of 250 gigabits per square inch, using the tips of multiwalled nanotubes to write bits onto a film of a certain polymer. The nanotube works something like a probe, pressing 1s onto the polymer surface; obviously, the absence of a 1 means a 0.

# What Promise Does It Hold?

The Swiss and Japanese researchers said that using nanotube tips in practical devices could

not be possible until around 2008. 250 gigabits per square inch is high, but not astronomical by any means; what *is* astronomical is the *50 million* gigabits per square inch that is being envisaged in a different scheme! That's *one crore* CDs on a square inch! Here, nanotube tips are used to place hydrogen atoms on a diamond or silicon surface.

The state of the art certainly does not match up to what is possible in theory, but you never know when a nanotech breakthrough just happens!



#### How Much, And When?

If you've read this far, you probably want to know exactly when you're going to be able to upgrade! The graph above indicates storage densities (on a logarithmic scale) and timelines. Though the hard disk seems pretty mighty in this graph, there are other considerations—for example, they've pretty much reached their theoretical limit; there's only so much you can pack onto a single platter; and access times are shorter with,

for example, MEMS-based and holographic storage.

With so many labs doing so much work, standardisation is going to be a huge issue. Also, the technologies will directly compete with each other—so even just two years down the line, the scene is likely to be quite different. In any case, it's almost time to look lovingly at your hard disk and pay your last respects!

 $ram\_mohan@thinkdigit.com$ 

**AD** 



THIS MONTH'S CHALLENGE

Want to hide some personal files? How would you hide one or more drives of your computer from appearing in your Windows Explorer?

Write in with the subject 'Take a crack', and your postal address, to takeacrack@thinkdigit.com with your solution

# How would you hide one or more drives of your computer from appearing in your Windows Explorer?

**LAST MONTH'S CHALLENGE** 



Take a Crack and win Ice Age Movie VCD

#### LAST MONTH'S WINNER

P.O. Burnpur, Dist. Burdwan West Bengal

# Rules and Regulations Readers are requested to send in their answers by the 15th of the month of publication.

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# Ripping Audio CDs in Windows Media Player version 9 and 10 is a piece of cake! Can do you do it in WMP8?

#### Rip Audio CDs To MP3 In Windows Media Player 8

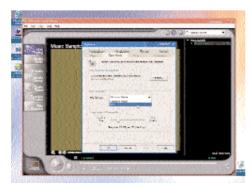
1. Open the Registry Editor (**Start > Run**, type "**regedit**" and press [**Enter**])

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You can set the various MP3 encoding bitrates in the registry

2. Go to the key HKEY\_LOCAL\_MACHINE\SOFTWARE\Micr osoft\MediaPlayer\Settings\MP3Encoding

Here, you'll see sub-keys for LowRate and LowRateSample, which of course equates to the single 56 Kbps sample rate



MP3 Encoding in Windows Media Player 8

you see in Windows Media Player 8.

To get better sampling rates, you have to create the following DWORD values (right-click on the free space on the right pane and select "New". Select "DWORD Value"

from the menu that pops up):

"LowRate" with a DWORD value of "0000dac0"

"MediumRate" with a DWORD value of "0000fa00"

"MediumHighRate" with a DWORD value of "0001f400"

"HighRate" with a DWORD value of "0002ee00"

This corresponds to 56, 64, 128 and 192 Kbps.

You may need to restart your PC. You can change this to your liking using the following DWORD Hex values:

320 Kbps = dword:0004E200

256 Kbps = dword:0003E800

224 Kbps = dword:00036b00

192 Kbps = dword:0002EE00

160 Kbps = dword:00027100

128 Kbps = dword:0001F400

112 Kbps = dword:0001B580

64 Kbps = dword:0000FA00

56 Kbps = dword:0000DAC0

3. Now, when you launch Windows Media Player 8 and go to Tools > Options > Copy Music, and you will see four encoding choices for MP3: 56 Kbps, 64 Kbps, 128 Kbps, and 192 Kbps.

Note: You will not get a higher bit rate encoding unless you have installed an MP3 codec separately on your machine. ■

# **Songs From The Wood**

Concerts rock, right? But do you know just how much technology drives them?

Nimish Chandiramani

e're big rock fans here at *Digit*, and we're borderline obsessive-compulsive when it comes to the way our music sounds. We want guitars to gently weep, cymbals to crash just so, and drums that would rock the Casbah; "compromise" is a word whose use we don't condone. Perhaps that's why you will often find us trying new and strange ways to tweak and position our speakers—yes, even paltry two-speaker systems—in our quest for the ultimate music experience.

Sometime during said quest for perfect audio, we wondered how sound engineers at big concerts manage to keep thousands of people happily bouncing away to the sound of their favourite bands, and it boggled the mind.

And then we heard that Jethro Tull—one of the greatest rock bands of all time—was performing in Mumbai on January 31.

Hmm...how convenient.

# "Just Don't Trip Over Anything" So we endeared ourselves to the guys at

So we endeared ourselves to the guys at sound.com (see box sound.com)—the sound engineers and audio equipment suppliers for the concert—and convinced them to let us tag along as they went about weaving their magic.

We inflicted ourselves upon Sunil Karanjikar, systems/mix engineer at SOUND.COM, who was our guide in this magical journey through a strange and wonderful mix of wires, musical instruments and mysterious odours at the Shanmukhananda Hall in Mumbai. Sunil is quite obviously the electronics geek—his face lit up as he told us about frequency responses, noise gates, power distributions and signal processing.

On the morning of the concert, our heroes were already bleary-eyed from a night of setting up the huge speaker rigs, guided by the JBL Line Array Calculator—an Excel sheet provided by the manufacturer of the speakers—which suggests a starting point for their setup, based on the dimensions of the hall.

#### **Men At Work**

Shanmukhananda is an auditorium with three levels, and the first order of the day is to ensure that the sound reaches all parts of the hall—which is why the speakers arch upward. High sound frequencies are more directional than lower frequencies, so while they don't have to worry much about the bass, they do need to ensure that everyone gets the full effect of the highs.

To make sure the sound reaches its intended recipients, the gang uses a somewhat crude but useful tool—the laser pointer. "This way, we at least know that the speakers are pointing towards the *people* and not the wall or ceiling."

We wondered about the speakers lining the front of the stage. "Those are for the people in the front rows. The speaker arrays at the side will have their effect only from the fourth or fifth row, so without these, all that the front rows would hear is bass", Sunil explains.

Next step: getting the music to the back rows without having to blow out the ears of people in the front. You deserve the best sound even if you were a cheapskate with the tickets, so there is a set of speakers towards the end of the hall to make sure you get it.

#### Interlude—The Heart

In the thick of the action is the XTA DP428



Audio Management System—a Digital Signal Processor (DSP) whose responsibility it is to send the right frequencies of sound to the right speakers-splitting the sound into bass, mids, and high frequencies. A seemingly simple task, but as Sunil explains, "Lower frequencies tend to move speaker cones a lot, so bass must go to the bigger, heavier speakers built to handle this movement." And what happens if we were to try playing bass through the other, lighter speakers? "They'd blow up..." Clearly not a fitting end to crores worth of equipment.

The DSP also adjusts sound volumes in such a way that speakers meant for the front of the hall deliver a softer sound than the speakers meant for the back. This is called Amplitude Shading, and this is why your head doesn't explode when you're in the first row. To control all these settings, the SOUND.COM guys use Audio Core-XTA's own software designed to work with the DSPs they manufacture.

To analyse the sound in the hall, they use SIA's SmaartLive, which measures the difference between the sound that is supposed to come out of the speakers (the electric signal sent to it from the DSP) and the sound that actually does. SmaartLive and Audio Core interact with each other, so when SmaartLive detects any problems with the sound, Audio Core can be used to compensate.

#### **An Equal Music**

Now that the speakers were positioned, and everyone was convinced they weren't going to topple over and kill innocent people, it was time to configure them for the Ultimate Music Experience we keep hankering after.

The first hindrance to the said experience is the fact that sound travels slowly, so if you happen to be towards the end of the hall,



Even with better technology, nothing sounds as good as the older vacuum-tube guitar amps. We actually use one that was built in 1959!"

Sunil Karanjikar Systems/Mix Engineer SOUND.COM

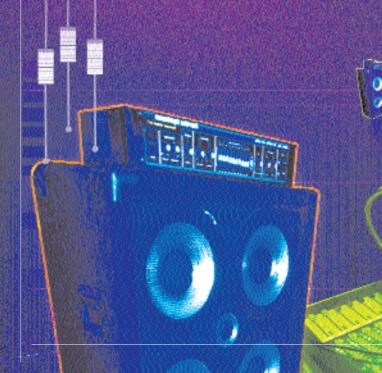


These speakers at the front of the stage ensure that the front rows aren't left out

you're first going to hear the sound from the second set of speakers we mentioned, and then, albeit softer, you're going to hear the sound that came from the speakers at the front of the hall. Up front, too, you'll face a similar situation-you'll first hear the sound from the speakers, and then from the instruments themselves—all extremely unpleasant. To get around this, Audio Core delays the sound going to all the speakers so that all sounds hit your ears at the same time.

We took a trip to the back to see this in action, and sure enough, we first heard a drum beat from the speaker closest to us, quickly followed by another from the speakers close to the stage—a decidedly unpleasant echo, echo, echo... Put simply, if you say the infamous "Mic Check, one, two, three," the audience at the back would hear, "Mic(Mic) check(check) one(one), two(two), thr(th)ee(ree)". And it sounds worse than it looks, too.

There was a microphone near the speakers at the stage, and another next to the second set near the end of the hall, and they recorded the time it took for sound to travel from the stage to the back. This information was then fed to Audio Core, and soon enough, the delay



was adjusted to the point where we couldn't

the difference between the two speakers. Having now satisfied themselves that nobody in the audience would be disappointed, the time had come for the gentlemen to start setting the stage for the concert.

#### Stick To The Plan

"What's the big deal?" we asked when we witnessed some animated discussions and a few profuse apologies involving last-minute changes to the stage plan.

As Sunil put it, "Audio is a funny thing. See that curtain there?" (We did.) "If they were to open it or close it a little more, the sound we hear is going to change, and we'll have to adjust the setup even for small things like that. Instruments also sound different the moment we change their positions, so we need to fix a stage plan in advance.

It isn't just the audience—the artists need to hear themselves play as well, and "monitor" speakers are set up where they're supposed to stand. These can give a monitor engineer (the

guy controlling the monitors) some memorable nightmares-if the band's microphones were to get too close to the monitor, sound from the speakers would enter the microphones, come out of the speakers, re-enter the microphone, come out of the speakers again...this is a deadly loop, and creates the horrible whine called feedback.

And if you think that's not complicated enough, rock guitarists use feedback enhance their playing style and get some weird sounds-so not only do the guys have to make sure that microphones don't, they also have to make sure that the guitars do provide feedback when required.

"More artists today are starting to prefer in-ear monitors, so there's no chance of feedback there", says Sunil with an unmistakable sigh of "Lower frequencies tend to move speaker cones a lot. so bass must go to the bigger. heavier speakers built to handle this movement"



#### Jethro Tull

Jethro Tull was formed in Blackpool, England in 1967. Their first major success came with 1971's Agualung, an album that still enthrals rock fans all over the world. Over the years, they have experimented with strange and wonderful sounds while the music community struggled to decide whether to classify them as Hard Rock, Folk Rock, Progressive Rock, Blues Rock or any other Rock, for that matter.

They are: Ian Anderson-Flute, Guitar, Bouzouki, Mandolin, Harmonica and Vocals Martin Barre-Electric/Acoustic Guitar, Flute Andrew Giddings-Keyboards Jonathan Noyce-Bass Guitar Doane Perry-Drums and Percussion On the web: www.jethrotull.com

relief, "and almost no Indian classical musician uses a monitor at all—they just work off the sound that the audience hears."

With separate speakers for the audience and the artists, it stands to reason that there would be two different people to cater to them—the Front Of House (FOH) engineer sits at, well, the front of the "house" (that's hall, auditorium or stadium to the rest of us), and hears what the audience hears. It's his job to ensure that everything is just so for the audi-

For their own needs, the artists turn to the monitor engineer, conveniently located near the stage, who will tweak the sound in their monitor speakers—even right in the middle of a song!

#### One By One

As the band begins to trickle in, blood pressures run high as everyone runs around making sure everything is ready for the Moment of Truth—the Sound Check.

We were a tad taken aback when Sunil whipped out a Tablet PC, a microphone, and a Wi-Fi router at this point. "All the equipment-the amplifiers, the signal processors-



The Crown ITech amplifier powers all the speakers

#### **The Goods**

The Speakers: JBL VT4889 Line Array Loudspeakers—the main loudspeaker system

JBL VT4880 Line Array Subwoofers-also on the main loudspeaker system JBL VRX 900 Line Array Loudspeakers-for the front row audience

Mackie SRM 450 Monitor Speakers-Monitors for the artists

#### The Mixers

Midas Verona 48 Input Console for the House

Allen & Heath 40 Input VCA Console for the Monitors

The Amplifier: The Crown ITech, which can also be fully controlled through a standard Ethernet connection.

The DSP: The XTA DP 428 and the XTA DP 226 Audio Management System, which manage the entire loudspeaker system.

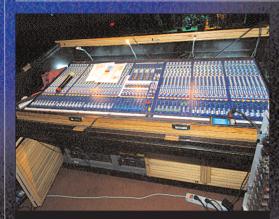
The Equalisers: The Klark Teknik DN 370 Graphic Equalisers and the XTA GEQ 600 Graphic Equalisers are always on hand to cut out any feedback that might occur during the performance.

The Laptops: Acer Tablet PCs with 1.6 GHz Pentium Ms. 1 GB of RAM, and a Digigram

VXPocket Sound Card ("because it's the best-it has almost no self noise, so what it records is a pretty accurate reproduction of what is actually there")

The Software: XTA Audio Core to control the XTA Processors SIA's SmaartLive for all the tests and measurements Crown's IQWic to control the Crown Amplifiers Gossip Corporate client for the FOH and Monitor Engineers to chat while the concert goes on

Approximate cost of aforementioned equipment (plus non-aforementioned equipment): Rs. 2,40,00,000 (Rupees Two Crore, Forty Lakhs and Paise Zero Only)



The Midas Verona 48 Input Mixing Console at the Front of House to ensure the audience gets the best possible sound

can be controlled over a standard Ethernet connection, so we can adjust the output from anywhere in the hall", he says. They spoke of it with cool nonchalance, boredom even, while we were replacing our eyes in their sockets and wiping the drool that had begun to show.

So while the band played their instruments (first one at a time and then all together), Sunil did the rounds of the hall, using SmaartLive to measure the sound output at different locations and then using his Tablet PC to remotely change settings in Audio Core.

The band continued to practise for a while, for the benefit of the FOH engineers who kept monitoring the sound so that the audience is kept happy, and for the monitor engineers, who can then learn the artists' preferences.

So is it all about technology? "The human ear does play a very important role in the whole process—even with all the measurements, it has the final say in how the system sounds", Sunil tells us.

On a tangent, watching and listening to a band practise before a concert can be a whole lot better than the concert itself, and is an experience that's highly recommended by this writer.

#### Showtime!

In a startling show of fortitude, we were still able to watch the technology even while one of our favourite bands was playing on stage. We'd thought that now that the sound had been adjusted over and over again, even the engineers could sit back and enjoy the music. Apparently not.

Even something as seemingly harmless as the audience's entry into the hall can change the sound, so the guys still have to keep monitoring the sound quality and changing settings from time to time.

Thanks to the day's efforts, the audience was happy, the band was happy, we were happy, and a good time was had by all. The satisfaction and relief on everyone's face just spoke for itself.

The JBL Line Array speakers. The bigger speakers at the bottom are the subwoofers. Together, the lot blasts sound to nearly the entire hall

Even something as seemingly harmless as the audience's entry into the hall can change the sound

#### **SOUND.COM**

Mumbai-based sound.com—the sound engineers and audio equipment supplier for the event—has an impressive clientele that includes names such as Remo Fernandes, Sivamani, Pentagram, Anoushka Shankar, Paul Van Dyk, Jethro Tull (obviously), and many more.

The Klark Teknik graphic equaliser for the Monitor Engineer to cut out feedback, if any, from the performers' monitor speakers



#### **Endnote**

Don't tell anyone, but all we really wanted was an excuse to spend the day at the concert (free), and still get our daily bread. As it turns out, there's a lot more to setting up a concert than just a few good speakers and a ear for sound. As an observer, you need to fortify yourself against scary-sounding terms such as frequency responses, signal conditioning, electro-acoustics, low-pass filters... you get the picture. This writer would probably have fallen asleep with all the electronics jargon if he hadn't paid attention in class those few years ago.

The guys at SOUND.COM probably breakfast on transistors and capacitors (they may not admit this, though) and make light snacks of ICs. The most difficult question we could possibly ask them? "Do you love electronics more, or music?"

We thank SOUND.COM for putting up with our constant

harassment. especially Sunil, who was always happy to answer questions even at the busiest times during the show! We would also like to thank Tower of Power and Only Much Louder-the organisers of the show-for permitting us to descend upon the venue. And

finally, Jethro Tull and Alms for Shanti. For the music.

nimish\_chandiramani@thinkdigit.com

# **Empty** Vessels Make **Waves!**

A Bangalore student's improvised Wi-Fi network is inspiration for the do-ityourself-er in all of us! **Kailas Shastry** 

here are a few people who won't let a technology or resource limitation cow them down. They try and tweak with vengeful perseverance until they find a way out. Meet Ravi Sharma, a final year B.Com. student in Bangalore who has set up a Wi-Fi network using low-cost TV cables and a simple yet brilliant directional antenna made from trashed utensils!

Making one's own antenna may not be unusual for Ham radio veterans, but a lossy cable and used utensils for a Super G Wi-Fi computer network? Yes, that's what this soft-spoken 20-year-old has done!

#### The Challenge

Like they say, necessity is the mother of all inventions: in Ravi's case, he wanted to network the computers in his father's drug distribution godown and the administration office, which are about a hundred metres apart.

A conventional wired LAN was out of the question, since the area is thickly populated—any kid with a blade or a pair of scissors in his itchy hands could bring the network down. The next thing to consider was to go the wireless way.

Cost immediately became a concern because of the distance between the buildings, and also because of the distance between the godown computer and the terrace from where line-of-sight could be achieved. Ravi could not afford commercial setups that cost upwards of Rs 50,000. He therefore started trying to figure how to build his own setup.

#### The Solution

To keep costs low, Ravi used an ordinary RJ58 TV cable, which costs about Rs 10 per metre—the typical low-loss cables cost about Rs 400. This in itself is some serious cost cutting! With such a cable, he was able to get just about enough signal strength to take data to an access point located 50 metres away on the terrace. From here, the access point had to talk to the WLAN card on the other machine 100 metres away. Ravi could not get this working immediately with the omni-directional antenna that came with the WLAN card. Rather than invest in a commercial high-gain directional antenna, he thought of making one himself.

He figured that all he needed was an old aluminium utensil. He placed the antenna in front of the inner curve of the utensil. Thus was formed a brilliant yet simple zero-cost directional antenna with an estimated 20 dB gain! Ravi similarly placed another scrapped aluminium vessel behind

the 5 dB antenna of the access point. The range was increased by at least 50 per cent with the use of the vessels, which act as reflectors. He has also weather-proofed them by applying a coat of a anti-rust paste.

Getting his setup working

was difficult-first, he could not

find a connector to connect the RJ58 cable to the WLAN card's antenna port. At a point where many would have given up and opted for more expensive cables, Ravi again made one himself! Mind you, that's no easy task! With the cable connected at one end, it was only half the problem solved. To attain line-of-sight, he had to place the antenna high on his terrace, and doing this needed some serious wall climbing skills. In his own words, "The biggest challenge was to climb

Imaging Shrikrishna Patka

up on both terraces and check the transmission rate with my laptop... I had to stand at the edge of tall buildings, and could have fallen 40 metres with even the slightest of pushes. Planting that antenna was risky."

Thankfully, we were provided with a makeshift ladder when we went there to check it out!

#### The Prize

After a few bouts of trial and error, Ravi managed to align the antennas and ping each machine from the other. It was then time for jubilation: he finally saw his dad's EAI (Enterprise Application Integration) solution working from both machines. This meant someone sitting in the administrator's office could easily check and operate on inventory maintenance in the godown. PHARMA ASSIST, the EAI solution Ravi's father uses, comes with multiuser support across a network.

Ravi has managed to set up videoconferencing and has enabled sharing of inventory data between the two machines with a throughput of about 80 Mbps. This is commendable, considering that the theoretical maximum of 802.11 Super G is 108 Mbps. Ravi admits, however, with a sigh of relief, that he has been lucky not to have interference from other Wi-Fi networks—something Wi-Fi (especially Super G) system administrators are plagued by.

#### **Entrepreneurship, Anybody?**

What started off as a hobby to help his dad's business has blossomed into a prospective business plan. Ravi is currently working on a plan to make higher-gain antennas to increase the propagation distance of Wi-Fi.

The road ahead for this is not easy. Making a project for his own use is one thing; product placement and marketing is a different ballgame altogether. For this, Ravi has teamed up with XITECH Solutions, a company that provides networking solutions, to help him explore business opportunities. Work continues on the tech front in his own testing centre in a Bangalore suburb.

Ravi's ideas have many takers, including a Government of Karnataka project for which he made a presentation of his ideas. The project—called GramPatra—aims to give villagers land record information using Wi-Fi, as part of a larger e-governance plan.

There is a broad smile on Ravi's face when he says he is working on finding loopholes in the current system at GramPatra and developing high-gain directional and omni-directional antennas for the project.

Of late, he has been approached by network solution providers asking if he could work on some turnkey projects.

"My plans for the immediate future are to

#### V

#### **Jargon Buster**

Antenna Gain: The ratio of the signal, usually expressed in dB, received or transmitted by the antenna as compared to an isotropic antenna, when both are supplied the same power. An isotropic antenna is a theoretical antenna: if it existed, it would radiate a signal equally in all directions.

**Directional Antenna:** An antenna that radiates waves in only one direction, such that energy is not transmitted in unwanted directions.

**Lossy Cable:** A cable or wire in which a signal experiences

considerable "loss" while being transmitted, meaning the signal strength is reduced at the end point of the cable.

**Omni-Directional Antenna:** An antenna that transmits signals equally in all directions.

**RJ58:** An inexpensive, coaxial TV cable suitable for cable TV transmission across short distances.

**Super G Wi-Fi:** An extension of the 802.11 g Wi-Fi standard, which transmits in the 2.4 GHz band and has a theoretical data transfer rate of 108 Mbps.

take Wi-Fi installations to apartments, societies, hotels, and the corporate world. This would be on the existing technology, and I would work on the R&D of my topology and come up with solutions offering longer ranges, especially for specific corporate needs," says Ravi.

The fascination with the building of one's own antenna seems universal. Network geeks in the US have come up with what they call a "cantenna" for Wi-Fi. The "C" simply stands for "can." A can of anything, but most popularly,

an empty Pringles chips can! This, however, is another story for another time.

For Ravi, experimenting is a not a one-off thing. He had earlier designed a pollution-reducing add-on to two wheelers using calcium carbonate, which converts carbon monoxide to the less harmful carbon dioxide. That project had won him awards.

Ravi comes across as an extremely unassuming person—it was only when his lecturer approached a news daily that he got the media attention his innovation deserved. Asked where he gets his ideas from, given his commerce background, he says "common sense," with no second thoughts and not so much as a blink of an eye. It's a pity this breed of sense isn't more pervasive!

We wish Ravi all the best, and hope to see a lot more of the DIY spirit! ■

kailas\_shastry@thinkdigit.com



#### The Costs

Two WLAN cards	Rs 4,000
One access point	Rs 9,500
Connecting wire	Rs 300
for 30 m	
Utensils used as	FREE!
reflectors	
Total: (Less than)	Rs 15,000

Art is married to technology in a keyboard that has tiny, customisable OLED screens for keys! The Optimus wireless keyboard—designed by Art. Lebedev Studio, one of the biggest design firms in Russia—is a technological as well as an aesthetic marvel. It can be configured according to individual need, has small OLED (organic light emitting diode) screens for keys, and is made of brushed aluminium—very chic.

What totally sets this keyboard apart is the fact that the OLED screens—the keys!—light up to show their function. The keyboard can be customised for languages and layouts: you can, for example, easily switch between the QWERTY and Dvorak layouts. Commands such as Save or Print will show up when the Optimus is configured under Windows, and "hot keys" will show up when it's set for games such as Quake.

When you reconfigure the settings, the

keys will display their function, so you don't have to remember what function you assigned to what key.

The Optimus is still in the developmental phase; don't expect it to hit the market any sooner than end of 2006. As a teaser, Art. Lebedev has come out with a three-key version of the keyboard—the Optimus Mini, which is expected to retail at around \$100 (Rs 4,500).

Art. Lebedev promises that the keyboard is

for real (it's not just a concept!). They say it will cost less than a "good mobile phone," and that it will be OS-independent. We're waiting!



# Sony Ericsson K750i

March 2006

#### Sanket Naik

Pired of my old Nokia 3350 cell phone, I invested in a new Sony Ericsson K750i. The phone is touted as "feature-rich," and it is—but there are a few niggles. And then there's the homelessness you feel when you get away from Nokia this didn't last too long, though. Anyway, it's been an eventful 30 days... Day 1:

Robert had just bought a new K750i, and I couldn't buy anything lower-I had to safeguard my geekhood! I first thought of getting myself the W800i, but the price pinched, so I decided to settle for the K750i.

#### Day 3:

Almost two days with the phone, and I'm still struggling to get out of the Nokia mindset—I stumble on nearly every count! But actually, the keys are big enough and messaging is quite comfortable. The dinky joystick is dodgy, however, and sometimes results in false clicks.

The processor is powerful enough to drive the jazzy interface. Just to satisfy the geek in me, I ran JBenchMark v1.0.4, and it returned a score of 3928—which is great!

#### Day 5:

Things are much easier now that I've become more accustomed to the interface. But the menu structure is simply too long—it was a good 20 minutes before I found the calculator!

#### Day 9:

I'm trying to get some MP3s onto the phone; the Bluetooth connection, though convenient, is too slow for my liking, and the bundled 64 MB card is simply not enough. And despite setting the Music button to default to the media player, I keep getting a message to attach the hands-free quite silly, considering the phone has a speaker!

I borrowed a 1 GB memory stick and transferred songs to the phone using the DCU-60 cable. The phone is detected as a USB device, though you need to install the drivers and software.

#### Day 13:

Ram's birthday! A perfect occasion to test the camera. The 2.0 megapixel camera offers a lot of options and feels like a standalone digicam. I clicked 40 pics; my gripe is that the recording time is slow—you have to wait and wait before you can click the next picture. Perhaps a firmware upgrade could fix this. The pictures came out really well, though, especially the daylight ones, and the night photos were pretty good, too—provided you use the flash.

#### Day 17:

Power cuts are making life miserable in Mumbai. Thankfully, the K750i has a nice torch feature. And, if you ever get stuck on a lonely island, the blinking LED can send SOS messages in Morse Code! A completely useless feature for most, but completely cool, too!

#### Day 20:

Playing Java games is a snap on this phone, courtesy the fast processor.

#### Day 25

I've found a few more firmware glitches, and I need to get the updating client from the Sony Ericsson Web site. Gosh, 33 MB—is this software or bloatware? Later, for updating the firmware, the client insists the phone should be fully charged— Arrrrgh! Anyway, with some perseverance, I finally managed it.

#### Day 29:

The firmware upgrade has certainly resulted in improvements to the camera. One thing I would love to see happening in the next upgrade is the boosting of signal reception—it's a tad lower than what Nokia phones offer. Nevertheless, I'm happy with the K750i.

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# **How P2P Works**

### How Napster Worked

In Napster, a centralised server had information about who had what files. You just asked the server, and it would point you to the person who had the file. And you then downloaded the file directly from that person.

The system was easy to shut down because of the centralised server: it actively helped people establish connections!

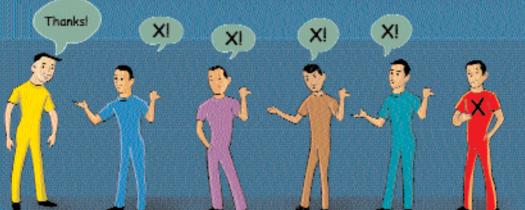






### **How Regular P2P Works**







In P2P networks such as Gnutella, your request for a file is broadcast to your immediate neighbour, who passes on the file to his neighbour and so on, until someone who has the file is found. The response, which indicates who has the file, propagates back along the same path. You then download the file directly from the person who has the file.

This system is hard to shut down because there is no central server. Also, all the responsibility for the download of a file rests with the downloader, because the uploader doesn't know who is going to download the file—he just said he had it! It's something like having a library and leaving the door open—no-one can prosecute you if someone comes in and takes something!

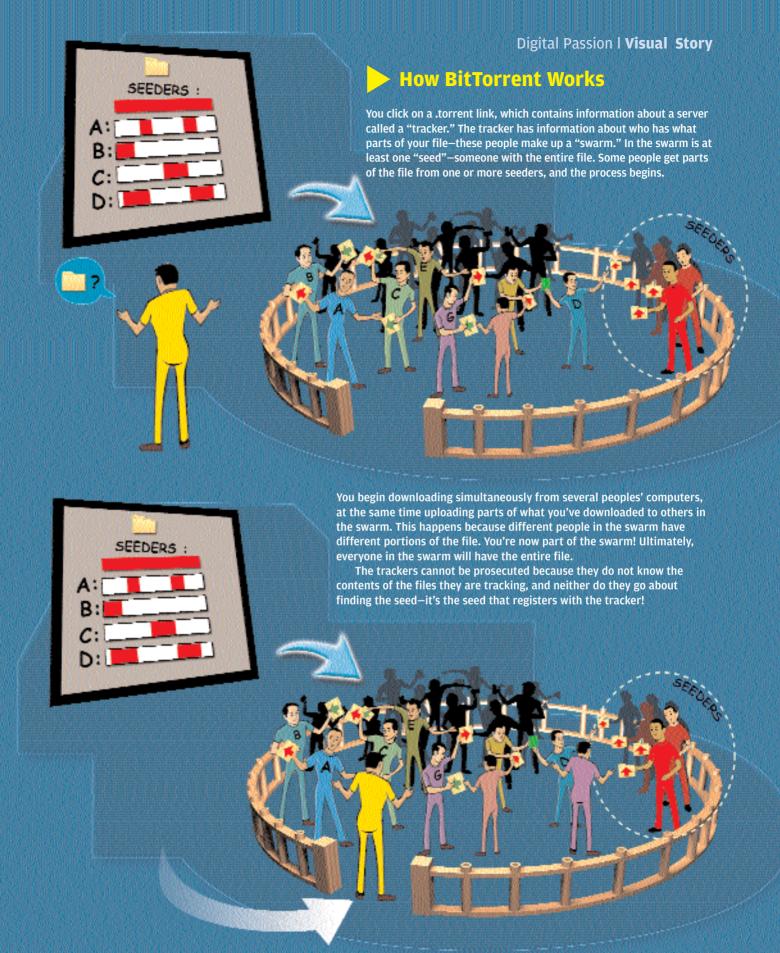


Illustration Pradip Ingale, Chaitanya Surpur Text Ram Mohan Rao







74 Spam Filters



95 Agent 001 & MP3 Players

# Digital TOOS

**Technology For Personal And SoHo Productivity** 

**Enhance** 

# X Marks The Spot

Why do developers treasure XML? And why should you?

#### Nimish Chandiramani

If you've ever had someone do a job for you—be it setting up a Web site, making a Flash presentation, or bigger—even building a whole application for you—you know the dreadful feeling that overcomes you when you have to change the content. Getting in touch with the person, checking if he's free to do the job, the waiting, the watching, the possible paying, it's just too much! What if you could just use Notepad—yes, Notepad—to edit your content, and just sit back while it appears on your site automatically? The solution is close at hand. In fact, it's everywhere.

#### What Is It?

XML (eXtended Markup Language) is a document format that's been doing the rounds for many years now. Its purpose is to bring to the Web, and other areas, a way to represent structured data in a way that it can be used easily and quickly, without having to invest in a full-fledged database application. Why are we telling you about it? Because while it is mostly developers who keep fawning over it, there's a lot you can do with XML too. Its beauty lies in its simplicity—while it's really easy to learn, it's still ridiculously powerful. You can use it to organise your personal data, create and edit the content for your site or presentations, and even

make your own RSS feeds.

Imaging Vikram Kathare

#### **Digital Tools I Enhance**

Even better, you can use the *same* file for all these purposes, without ever being limited to a particular operating system or software—XML works everywhere!

A document written in XML is like a database in itself. And just like a database, its data can be brought into any application that supports it, and then manipulated or presented in any way you choose. So you could make just one XML file and use the content for your Web site or to print a brochure or magazine. You could also share this XML file with someone, who could then use the information for his purposes as well.

#### Yes, Yes, But What Is It?

XML is, to put it a little simplistically, an extension of HTML (HyperText Markup Language). In fact, its roots are in a format called XHTML—EXtended HTML. All these use the *tag* approach—content is enclosed within markers, called tags, which are then processed by programs called *parsers*, which interpret the meaning of these tags. It looks something like this:

#### <title>This is the Title</title>

The first <title> tells the parser that the page title begins here. The final </title> indicates that this is where the title ends. But this is where the similarity between XML and HTML ends: HTML is designed to display information; XML is designed to store it.

While HTML has a defined set of tags, each to denote something specific (like <head> for the page header), XML lets you specify your own tags to represent what you want to put in it. For example, if you wanted to put in a phone number, you'd just use:

#### <phone>92724575</phone>

And this is where the eXtensible part comes in. You can just keep creating tags to suit your fancy, so there are virtually no limits to what you can do with your XML file. You can even use XML to build a specification for your *own* language!

#### **Rules Are Fun**

Of course, we can't have people making XML documents any way they please. In order to make it easier to share and use XML files, the W3C (World Wide Web Consortium) decided to lay down some rules to make sure that all XML files share the same general structure—a tree layout, starting at a node and branching out into sub-nodes.

#### Rule #1: Thy XML should describe itself

The XML *declaration* is used to define the XML version and its encoding format. It starts the document, and looks like this:

<?xml version="1.0" encoding="UTF-8"?>

#### Rule #2: Thy XML shall have only one root.

Your XML can contain as many tags as you want, but just like a tree, it should start with only one tag, called the "root".

#### Rule #3: Thou shalt finish what thou started.

Every tag should have both an opening as well as a closing. This denotes the beginning and end of your data. A closing tag uses a forward slash—the "/" sign—to indicate that the field ends.

#### Rule # 4: Thou shalt pay attention to case.

XML tags are case-sensitive, so <Phone> is different from <phone>. Such details are important.

Let's now apply these rules and make an XML file to store the details of a music collection.

You can write this in any old text editor, and save the file as "[filename].xml". You will then be able to open it in any Web browser or program that supports XML.

As you can see, tags can even be repeated within the XML. You will also notice that in the "Artist" tag, we've mentioned a *name* as well. These are called attributes, and are usually used to assign unique IDs or names to your tags. You could also have a <name> tag under the Artist tag to serve the same purpose. There are no real

```
File Edit View Favorites Tools Help
 Dack r 🕝 - 🔣 🙎 🀔 🔎 Search 🤺 Favorites 🤪 🥱 - .
Agilress 🕝 C:\Documents and Settings\Administrator\Desktop\blah.xml
  <?xml version="1.0" encoding="UTF-8" ?>

    coollections

  - <Artist name="Some Band">
     <track>Some Song</track>
      calbum>Debut c/album>
      <vear>1999
    </Artist>

    cArtist name="Some Other Band">

     <track>Some Other Song</track>
     <album>Greatest Hits</album>
     cyear> 1992 c/year>
    </Artist>
  </collections
```

The music collection XML as seen in IE

rules when it comes to this, but most who have experience with XML will tell you that you'd rather avoid attributes. The opening tag, closing tag, and the content within are collectively known as an *element*.

#### So, Now What?

Well, you've made your XML, but what good is it? It still doesn't *do* anything, apart from mocking you from where it sits.

What you do with your XML now really depends on your own expertise and how willing you are to get your hands dirty with some development. When it started out, the purpose of XML was to separate Web pages into the interface - the pretty colours and effects we all see - and the data, the information that is presented using those pretty colours. Indeed, this is the simplest thing we can do with XML.

#### **Style Me Up!**

The first way to beautify an XML is the *Cascading Style Sheet* (CSS). It's usually used for HTML, but since its job is to recognise tags and apply colours or effects to them, it works just as well with XML too. This is what a CSS for our music collection would look like:

```
Collection
{
background-color: #ffffff;
width: 100%;
}

Track
{
display: block;
margin-bottom: 30pt;
margin-left: 0;
}
```

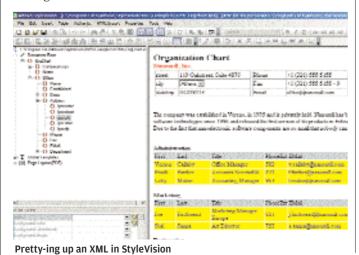
...and so on, for each tag. As you can see, the CSS can be used to assign height, width and even background colours, as well as display styles and margins.

You can write this style sheet in any text editor, and save it as "[filename].css". To apply this style sheet to the XML, you will need to put this line in the XML file:

<?xml-stylesheet type="text/css" href="[file-name].css"?>

This tells your browser to display the XML using the style sheet you just made.

CSS isn't a standard set by the W3C, and is quite limited in what it can do, so the Wise Men of XML don't advise its use. Instead, they point towards XML Stylesheet Language, or XSL. XSL offers a huge number of capabilities-it's practically a whole new programming language on its own. You can even specify conditions for formatting, using the classic: "if (condition) then (do this) else (do that)" structure that is common to all programming languages-like if you wanted your favourite artist to be shown in red, leaving the others in blue. Unfortunately though, XSL is a lot more difficult to learn than CSS, but there are a lot of tools that you could use to generate an XSL style sheet without having to know XSL itself.



1/2 pg V Ad

The best of these tools is Altova's StyleVision, which lets you display XML data in HTML, Rich Text Format and even PDF.

#### Click!

There's just so much to learn about XML that it's mind boggling. For lots more information and some extremely useful tutorials on anything XML, head to www.w3cschools.com—a free educational site by the W3C.

When it comes to XML editing, even Notepad is enough, but sometimes you just need a lot more features. By far, the most powerful tool for XML editing and development is Altova's XMLSpy. It's shareware, though, and we know how irritating that can be. For the freeware buff, Wattle Software's XMLWriter is a pretty powerful XML editor, too. Its interface is a little similar to XMLSpy, so it's easy to switch to after your XMLSpy trial expires.

#### What's up, Doc(Book)?

Now that we've looked at the basics of XML, it's time to talk about an application of XML that is increasingly making its way as a standard for documentation—DocBook.

If you were to write a book and use XML to do so, you would follow the rules set by the DocBook standard. It started out as a format for just technical documentation, but its potential isn't limited to that. As it proliferates, you need not be tied to just one platform or software—there are plenty of tools that support DocBook, including the increasingly popular OpenOffice.org.

When you make XMLs in the DocBook standard, you are creating a book that can be easily rendered into various formats - be it print or the Web. If you are an open source buff, Doc-Book is also a part of the open source movement, and no doubt some blessings will come your way. There's also the future to consider - if DocBook does come to be as widely used as hoped, a day will come when all the DocBook documents on your PC will be part of one massive, easily-searchable index. You might soon even be able to select a document and decide on the fly whether you want to see it as it would appear on the Web, in print, or in a PowerPointlike presentation - a great deal better than having your stuff strewn about in different formats like it is today.

Most XML editors offer you templates for Doc-Book books and articles. For example, the following is a template for a DocBook article:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE article PUBLIC "-//OASIS//DTD DocBook XML V4.2//EN"
"http://www.oasis-open.org/docbook/xml/4.2/docbookx.dtd">
<article>
<title>Article Title</title>
<sect1>
<title>Section1 Title</title>
<para>Text</para>
</sect1>
</article>
```

Or if it's a book you are writing, your XML would look something like this:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE book PUBLIC "-//OASIS//DTD DocBook XML V4.2//EN"
"http://www.oasis-open.org/docbook/xml/4.2/docbookx.dtd">
<book>
 <bookinfo>
             <title>Book Title</title>
             <author>
                  <firstname>Author First Name</firstname>
                  <surname>Author Last Name</surname>
             </author>
             <publisher>
                  <publishername>Publisher Name</publishername>
             </publisher>
             <isbn>ISBN#</isbn>
             <copvright>
                  <year>Copyright Year</year>
             </copyright>
   </bookinfo>
             <part>
                  <title>Part Title</title>
                  <chapter>
                  <title>Chapter Title</title>
                  <sect1>
                            <title>Section1 Title</title>
                            <para>Text</para>
                  </sect1>
                  </chapter>
             </part>
</book>
```

(Both these templates were generated in Altova's XMLSpy.)

In both templates, you'd have noticed the "!DOCTYPE" tag. This tells whichever program that is opening the XML that it conforms to the DocBook standard—a Document Type Definition (DTD) file that enforces a structure on the XML.

For everything DocBook related, visit **www.docbook.org**. There's even a Wiki you can use to collaborate with other users of the DocBook standard.

#### **Really Simple Stuff**

Unless you've been in a coma these past months, you couldn't have missed the orange "RSS" button on so many sites.

Yes, the most popular way to feed content to users today *is* based on XML. What's more, its shockingly easy to make one for your site too! All you have to do is stick to the RSS standard structure, and *voila!* Your own newsfeed.

#### Have XML. Will Use

XML is the future of the way data will be shared on the Internet. It's simple, it's small, and because it's truly platform-independent and can be edited in even the most basic of text editors, nothing really stops it from becoming ubiquitous.

Wannabe developer or just your average user, there's really no excuse for you not knowing at least the basics of XML. ■

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# Smaller, Zippier:

A laser printer is still a significant investment—and not least because of its running costs. You certainly need help choosing one, and help is right here! Read on...

**Anup Nair** 

eing as expensive as they were initially, laser printers were only to be seen in large offices. Besides, early laser printers were huge, and occupied entire desktops. Few at the time-the mid 1990s-would have imagined a laser printer shootout like the one that follows, for the Small office / Home office (SoHo) segment. Costs have indeed dropped drastically. And so has the cost per printed page, which is now less than a rupee. They've gotten smaller, too: one can now buy laser printers as small as a cubic foot.

Roughly speaking, monochrome laser printers—with the exception of a few that are meant for office use—are reasonably affordable, and colour lasers are still on the expensive side. Even if the colour printer itself is affordable, the running costs are too much for the typical home user: a colour cartridge costs nearly Rs 6,000, and a printer needs three colour cartridges/toners in addition to a black toner.

In what follows, we've compared affordable and compact monochrome laser printers from Brother, Canon, Epson, Samsung and Xerox—one from each manufacturer—all of which are targeted at the home user segment. We also have two heavy-duty printers from Brother and Xerox, but these were not compared with the rest, since they are meant for office use. See the boxes on the Brother HL-6050 DN and the Xerox Phaser 3425 for information on these.

In the colour laser printer section of this test, we had three printers—one each from Brother, Canon and Epson—set against each other.

We hope this test takes some of the guesswork out of the decision making if you're opting for a laser printer.

#### **MONO LASER PRINTERS**

The cost of an inkjet printer may be less than that of a mono laser printer, but the cost of printing isn't—and that's why getting yourself a mono laser makes sense, assuming you do a lot of printing.

#### Features Resolution And Memory

A salesperson for a printer may tell you about high resolutions, great processors, and lots of memory. These factors are indeed very important, but are not the only considerations.

The resolution of a printer determines the precision of the prints—technically, it indicates the sharpness of pixel reproduction on paper. Most of the printers we tested support a resolution of 600 x 600 dpi; Brother's HL-5170 DN and Canon's LBP2900 are a notch ahead, supporting 2400 x 600 dpi.

The installed memory and processor play an important role in the speed of the printer. The installed memory on the Epson EPL-6200L is the lowest in the category at 2 MB, whereas Brother's HL-5170DN has a remarkable 32 MB. The others feature 8 MB of memory, which is sufficient for a home user.

#### **Build Quality**

Both Samsung's ML-2010 and the Xerox Phaser 3117 were compact, but seemed fragile, especially the input trays. At the other end, the Brother HL-5170 is the most rugged.

#### **Indicators And Buttons**

An LCD screen on a printer is very useful, especially for sig-

nalling problems with a print job or with the printer itself. However, none of the printers have one-except for the two heavyduty ones which we've covered separately. Except for the Canon LBP2900, all the others have more than one LED; of these, one was dedicated to error signalling. The Epson EPL 6200L doesn't have any buttons except for an on/off switch, so job cancellation can only be done from the computer. Brother's HL-5170 has three LED indicators, and buttons that can be used to cancel and pause/ resume a print job.



# Laser Racers



#### **Digital Tools I Test Centre**

#### **Network Support**

Network support is not necessary for home users, but since we're also considering small offices, this could be a decisive feature. The Brother HL-5170DN is the only printer in our comparison that has Ethernet installed; it is an optional feature on the Canon LBP2900, meaning you can buy a compatible network card and install it if and when you feel the need.

#### The Driver Interface

Drivers are necessary to install and run the printer. But a driver is also an interactive tool for setting up print jobs and more.

We found the Epson EPL 6200L's driver a little awkward. It didn't malfunction, but it doesn't have settings for Normal, Draft and Best. In sharp contrast, the Canon LBP2900 has an overfriendly driver interface. It offers printing modes such as 'Standard', 'Text/Lines', and even 'Web Pages'. The Canon LBP2900's driver interface includes a progress indicator—in case of an error, the interface either stalls the print job or cancels it, and issues an error message on the screen.

#### **Performance**

Figures for the sub-sections under performance—speed and quality—



have been mentioned in the comparison table for monochrome lasers so you can get a better idea of how each printer performed.

You might notice that neither of our winners lead in the performance department; also, there isn't much difference between the two. The Samsung ML-2010 ranks second—next only to the Canon LBP2900—in the performance department.

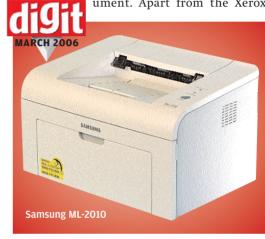
#### **Ouality**

The stated resolution is an important aspect when judging a printer, but the best way to know about a printer's print quality is by actually comparing printouts by various printers. This is not

always possible, as outlets normally do not let you take demo printouts. Our performance analysis therefore concentrates on real-world tests, where we use different types of test documents containing graphs, textures, varying point-size text, images and colour gradients.

One of the key discriminators in the tests was white text on a black background with varying text sizes. The Canon LBP2900 and the Brother HL-5170DN produced good contrast, and hence scored better. The Canon LBP2900 topped in the quality

analyses by producing much better prints of our combi-document. Apart from the Xerox



#### $\mathcal{M}$

#### **How We Tested**

#### The Test Bed

The test bed we used comprised an AMD 64 3000+ (socket 754) processor fitted on an MSI K8T Neo motherboard. The combination was well supported by 1 GB of DDR 400 RAM and an nVidia GeForce 5950 GT 128 MB graphics card. The hard disk was a Maxtor 120 GB SATA, and the OS was Windows XP with SP1. The system was loaded with the latest chipset and graphics drivers. We connected the sample printers to our test bed via the USB interface. To derive optimum performance, the USB 2.0 patch was loaded onto our Windows installation. Berga (A4 size) paper served as the medium for printing.

#### **Features**

The many parameters we considered were weighted differently. Parameters such as resolution, memory, network support, etc. were given more importance.

#### **Performance**

Performance was broadly categorised under speed and quality. The speed tests were done by timing the printer from the instant we clicked on the Print button in the Print dialog box to the time the page dropped out onto the output tray. These tests were carried out using different types of source files such as a regular text document, a combi-document (containing text, images, concentric circle patterns, a colour gradient bar, etc.) and a business type document that had graphs, logos and photos apart from text. A full-page photo printout was timed for the colour printers.

Under Quality, we looked at certain distinguishing patterns in each of our source files; for instance, in the photo printout test, where we used a photograph of a face, not every printer could properly reproduce skin colour and wrinkles under the eyes and forehead. The printers were rated on how well they could reproduce such details. The quality of the printouts from the mono laser printers was judged mainly on the basis of text, graphs, concentric pattern reproduction, and the quality of white text on a black background.

#### **Price**

The price of the toner was given more consideration than the cost of the printer, but that's not to say that the cost of the printer didn't affect the results.

#### **Narrowing Down The Winners**

The overall score is based on the scores obtained from the Features, Performance and Price segments. These segments are again weighted over each other, keeping in mind the typical home or small office user. Performance was rated over features and price—price was given the lowest weightage in the tests for both colour and mono printers. That said, price was given relatively higher consideration in the case of mono laser printers, because those who opt for colour laser printers would be more concerned about performance and features.

We chose the winners based on the final score obtained upon applying all three parameters.

Phaser 3117, which scored somewhat lower than the others, the differences amongst the rest are negligible.

#### Speed

We clocked the printers for warm-up times and print speeds. The Xerox Phaser 3117 was the fastest in the speed tests, but that alone wasn't sufficient to make it the winner. The Brother HL-5170DN performed remarkably better than the Brother HL-6050DN when printing our 36.9 MB PDF file.

#### The Verdict

The Price as a factor also plays a role in the final tally, especially the price of the toner/cartridge. The Brother HL-5170DN scored only reasonably well in performance, but it raced ahead in the features departments. It is priced at Rs 21,900, and the toner is Rs 4,315. The Samsung ML-2010 is affordable at Rs 9,990 but it isn't as feature-rich as the Brother HL-5170DN.

The HL-5170DN from Brother is the Digit Best Buy Gold winner, and the Samsung ML-2010 gets the Digit Best Buy Silver.

We should make a special mention here of the Canon LBP2900 for the output clarity it delivered. At Rs 8,995, it is the most affordable printer amongst all the ones we tested.

## COLOUR LASER PRINTERS Features

In the tests we conducted last year and the year before, we also received printers with 300 x 300 dpi resolution. This year has seen a change in this figure: all three printers in this segment have a minimum resolution of 600 x 600 dpi—a step above 300 x 300.

#### **Network Support**

The Epson Al-C1100 and Brother HL-2700 CN are higher up in the features segment as their printers are network-ready; Canon LBP5200 preferred to provide Ethernet as an optional interface. We think they should reconsider this, since network support is important for offices—printers as large as colour lasers are much more likely to be shared over a network than to be used as desktop printers.

#### **Physical Considerations**

All three printers are very heavy. The lightest is Canon's LBP5200, at slightly over 15 kg. Since the printers are huge, we considered the dimensions in our comparison, taking the footprint (base area) into account. Canon's LBP5200 is unusually large, particularly because its tray capacity is 125 (A4) sheets, and because of its different toner/cartridge arrangement.

#### **Displays And Memory**

Only the Brother and the Epson have an LCD display. Moreover, the Canon LBP5200 has a meagre 8 MB of installed memory, and they actually justified it by stating Hi-SCoA—a compression technology. Brother HL-2700 CN and the Epson AL-C1100 have 32 MB of installed memory, upgradeable to 576 MB and 256 MB respectively. In addition to this, the Brother has a Compact Flash memory card reader slot.

The usefulness of a memory card reader varies; for example, those using the printers on a network would have little need for one, whereas a photographer might. But in general, this feature is not a real value-add, since



**BEST BUY** 

Epson AL-C1100

#### V

#### The perfect machine for a small office setup

If your specifications are simple—that is, if you need a mono laser printer that produces good printouts while being cost effective—your search ends here. Brother's HL-6050 DN is a network-ready printer for your office that has an input tray capacity of 500 sheets (A4). The printer measures 40 x 42.5 x 31 cm, and weighs 20 kg. The drawer-based paper tray has a nifty arrangement to display the paper level in the tray: we liked this idea, since there's no way you can otherwise deduce the paper level once the tray is shut. An LCD panel with a sufficient number of buttons enables proper interaction with the printer; note that very few mono laser printers incorporate an LCD display. There's also support for Linux in addition to Mac and Windows.

The installed 32 MB of memory can be upgraded to up to 160 MB. Speaking of memory, Brother's HL-6050 DN was the only printer in the mono laser segment to feature a Compact Flash (CF) memory card reader. The printer supports three resolution modes—300 x 300, 600 x 600 and 1200 x 1200 dpi. For text-only printing, the 300 dpi setting is sufficient, and for documents that involve graphs and patterns.

600 dpi is ideal—1200 dpi for a mono laser is not something you'd often need to use.

To test the printer on the performance front, we printed various types of documents, from text to graphs, and also clocked the printer for these jobs. The HL 6050 DN did not disappoint us as far as the quality of printouts was concerned, but it did take too long to print our large (36.9 MB) PDF file—a little over four minutes. Windows XP's printer task dialog box showed the file being transferred at a very low 5 kbps. The delay could have been due to a bug in the

printer driver, since the printer itself supports the high-speed USB 2.0 interface, and so does our test machine. Apart from this, the printer's response was spot on!

The Brother HL 6050 DN delivered better clarity than most in our sample business document test. The document featured graphs, logos, textures and pictures in addition to text. Other test printouts were very clear as well.

Cost of printer: Rs 27,750 Cost of toner: Rs 4,980 Rating: 4/5





Scoreboard LASER PRINTER MONO					
BRAND	Brother	Canon	Epson	Samsung	Xerox
MODEL	HL-5170 DN	LBP 2900	EPL-6200L	ML-2010	Phaser 3117
Features	25.67	19.13	20.43	21.07	20.89
Printing					
Resolution (dpi x dpi)	2400x600	2400x600	600x600	600x600	600x600
Paper Capacity For Default Tray (sheets)	250	150	150	150	150
Cartridges Or Toner Included	4	4	4	4	4
Additional Paper Tray Facility	4	6	6	6	6
Installed Memory (MB)	32	8	2	8	8
Dual Side Printing	4	6	6	6	6
OS Supported *	Windows and Mac	Windows	Windows and Mac	Windows, Mac & Linux	Windows and Linux
PPM	21	12	20	22	17
Dimension (L x B x H) mm	382 x 401 x 252	370 x 251 x 217	378 x 275 x 274	358 x 300 x 215	354 x 297.4 x 210
Weight (rated) (in Kg)	12	5.7	7.9	5.5	5.5
Accessories					
Data Cable	USB	6	USB	USB	USB
Driver CD	4	4	4	4	4
Power Cord	4	4	4	4	4
Adapter For Indian Power Outlets	NA	NA	NA	NA	NA
Quick Setup Guide	4	4	4	4	4
Miscellaneous Features					
Memory Card Reader (types of cards read)	6	6	6	6	6
LCD Screen (Colour/B&W)	6	6	6	6	6
Available Interface (USB/LPT/Ethernet)	4/4/4	4/6/6	4/4/6	4/6/6	4/6/6
No. Of Buttons For Settings	3	2	1	2	2
Ease Of Use (Scale Of 5)	Good	Very Good	Good	OK	OK
Ethernet Port Provided (Y/N)	4	6	6	6	6
Optional LAN Interface	6	4	6	6	6
Build Quality - Scale Of 5 (SO5)					
Quality Of Flaps	3.25	3.75	3.5	3	3
Hinges	3.5	3.5	3.75	3.5	3.5
Input Paper Tray	3.75	3.25	3.5	3	3
Performance	26.46	28.19	26.27	27.20	27.05
Printing					
Speed Test (in Secs.) (in %)	61.04	71.23	60.25	68.23	75.00
Text Print (B&W) Normal	12.79	13.1	14.23	11.61	11.51
Text Print (B&W) Best	15.88	14.12	14.5	13.04	11.93
Combi-document - Normal	12.48	13.14	14.25	13.4	12.01
Combi-document - Best	16.92	14	14.93	12.6	12
Warm-up Time	18	7.14	20	21	12.7
Quality Tests (in %)	68.92	70.08	68.62	67.88	63.65
Text quality (SO5)					
Text quality in Speed document	3.5	3.5	3.5	3.5	3.25
Text Quality in Point size Document	3.5	3.5	3.5	3.25	3.25
Text quality in Combi Document	3.5	3	3.5	3.25	3
Image quality (Combi, Normal) (SO5)		2.75		2.05	
White text in black background	3.5	3.75	3	3.25	3.25
Concentric circle patterns	3.75	3.75	3.25	3.5	3
Image Quality (Business-Combi, Best) (SO5)		2.05			
Clarity of Colour-Graph in B&W	3	3.25	3.75	3.5	3.25
Clarity of Jasubhai logo in B&W	3.5	3.75	3.5	3.5	3.25
Price	4.245	2.005		4.200	
Toner Price (in Rs)	4,315	3,995	3,380	4,200	4,250
Printer Price (in Rs)  Overall Score	21,900 <b>66.83</b>	8,995	10,800	9,990	10,500
	+ Good build quality, Ethernet	+ Good print quality, speed	+ Good print quality - Low memory	+ Good Speed, Small size	+ Good Speed, Small size
	- Slow	- LPT not available		- Poor build quality	- Poor build quality
				, , ,	quanty



<b>Scoreboard</b>	LASER COLO	IR PRINTERS	· ·
BRAND	Brother	Canon	Epson
MODEL	HI-2700 CN	LBP 5200	AL-C1100
Features	25.91	18.77	23.96
Resolution (dpi)	600x600	600x600	600x600
Interface (Parallel/USB/Ethernet)	4/4/4	6/40ptional	4/4/4
Memory/Upgradeable To (MB)	64/576	8/6	32/256
Memory Card Reader (Y/N)/Type	4/CompactFlash	6	6
Paper Capacity (pages)	250	125	180
LCD Screen	4	6	4
PPM (black/colour)	15/4	19/4	25/5
Dual-side Printing Support	4	6	4
Dimensions (LxBxH) (mm)	480x420x385	482x451x325	445x445x439
Weight (Kgs)	30	15	25
Supported OS	Windows and Mac	Windows	Windows and Mac
Usability Of Driver	3.5	4	3.25
Build Quality	/		
Quality Of Flaps/Hinges	3.5/3.5	3.5/3.75	3.5/3.25
Input Paper Tray	3.75	3	4
Manuals And Documentation			
USB/Power Cable	4/4	6/4	6/4
Quick Setup Guide	4	4	4
Performance	26.79	32.42	41.27
Speed Test (in sec)			
Text Print - Normal/Best	14.9/19.35	24.1/25	10.79/10.9
Combi-document - Normal/Best	93/104	30.61/32.28	19.61/20
Photo Printout (Full color supported)	83	37.95	29.98
Warm-up Time	44.1	137	30.98
Quality (Combi document, Normal)			
Resolution Of Circles On Concentric	4	3.5	3.5
Pattern (So5)			
Seven Color Bars (how many differentiated?	7	8	10
No.) (Out of 10)			
Yellow Text On Black Background (So5)	3.75	4	4.25
Quality Of Small Photo (So5)	3.25	3.5	4.5
Highlights On Red Berries (So5)	3.25	3	4.5
Details On Fruit (So5)	2.5	3.25	4.5
Blue Shading On The Wall (So5)	3.25	3	4
Grille On The Wooden Plate (So5)	2.5	3	4.5
Minimum Readable Text Point Size (pt)	3	4	5
Quality (Photo, Best)			
Clean White Teeth - No Dithering	3	4.25	4.5
Natural Color Of Skin	2.5	4.25	4.75
Good Contrast In Dark Areas Of Plant	2	4.25	4.5
Clear Specular Effect On Bracelet	3	4.25	4.25
Wrinkles Between The Eyes On Forehead	2	4.25	5
Overall Image Not Overly Bright Or Dark	2	4.25	4.75
Quality (Business Document)			
Text Reproduction	4.5	4.5	4.5
Colour Reproduction In Graphs	3.5	3	3.5
Edges In The Jasubhai Logo	3.5	3.25	3.25
Contrast In Photographs	3.25	3	3.5
Warranty	3 yrs onsite	2 yrs. Return to Bench	1 yr
Price			
Toner Price	Cyan- Rs. 8,200	Colour- Rs. 6995 for	Colour - Rs. 5445 for
	Magenta- Rs. 8,200	each colour	each colour (3 Colours)
	Yellow- Rs. 8,200	Black- Rs. 5,995	Black - Rs. 3,735
	Black- Rs. 8,200		
Printer Price (in Rs.)	39,850	34,995	35700
Overall	64.11	61.01	76.38
		To the second	
	+ CF card reader,	+ Fast, Good prints	+ Excellent photo prints

Ethernet

- Poor photo quality

- Network support is

optional, no LCD

- Only 1 year warranty



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#### The Xerox Phaser 3425

The Xerox Phaser 3425 is as bulky as the Brother HL-6050DN. It has the same tray capacity of 500 sheets, 32 MB of memory upgradeable to 160 MB, and is network-ready. The input tray features a paper level indicator similar to that on the Brother HL-6050DN.

The buttons are well placed below the LCD screen. Print jobs can be paused, resumed and cancelled right from the printer. The prompt response of the printer to button actions is impressive.

One gripe we had was with the power-on button, at least in the case of the sample we received: you need to push it real hard.

The printouts from the
Xerox Phaser 3425 often
topped the comparison chart,
and this printer was often
used as a reference point for
clarity—thanks to the fine 1200 x 1200 dpi
resolution. It is not easy to compare printers on

the basis of the black and white copies they produce from colour graphs and images: the printer that produces the best resemblance tops the chart. In our tests—including the other mono lasers—the Xerox Phaser 3425 led the rest, and it narrowly tipped the Brother HL-6050DN in

the overall performance segment.
Printing the 36.9 MB PDF
document took quite some time
even on the Xerox Phaser 3425,
but it was faster than on the
Brother HL-6050DN.

The running costs for a printer matter more than the initial printer cost. This is where the duty cycle of the toner comes in.

To sum it up, the Xerox Phaser 3425 is a very good printer, but it's expensive as running costs go.

Cost of printer: Rs 32,250 Cost of toner: Rs 9,000 Duty cycle of toner: 10,000 pages (A4) at 5% coverage Rating: 4/5

there's only a two-line LCD display. An image from a digital camera cannot be previewed on a two-line dot matrix LCD screen; moreover, a file name such as "DSC0046.jpg" doesn't tell you much about the image!

#### **The Driver Interface**

The Canon LBP5200 has an interactive driver that shows the progress and status of a print job. The interface is user-friendly as well. This only somewhat makes up for the absence of the LCD.

#### **Performance**

This part of the test was a one-sided affair. Here, we tested the printers for speed and quality. Speed was assigned lesser weightage than quality. Brother needs to do something about its drivers! The Brother HL-2700 CN did not perform as badly as the HL-6050DN, but the fact is that it did take a lot of time to transfer our 36.9 MB PDF document: other printers in the test did it on an average of less than

thirty seconds.

Epson's AL-C1100 flabber-gasted us with its clarity and precision in the photo printing test. And, it also clocked lesser time than its competitor. The Brother HL-2700CN's colour reproduction of a photo fell short of our expectation; and so it was nowhere near the quality delivered by the Epson AL-C1100.

The Canon LBP5200 managed to give some competition, but didn't really match up to the Epson AL-C110—which is undoubtedly the top performer, particularly in the quality comparison.

#### The Verdict

It was not hard to judge our winner. With an output nearly as good as the actual image on the screen, the AL-C1100 from Epson cannot be denied top spot on the podium. It did not lack in the features department, and isn't too expensive either. There was a tussle between Canon LBP5200 and Brother HL-2700CN; the latter set itself

apart in the features and price departments, but the former was much better when it came to performance—both in terms of speed and quality.

The Canon LBP5200 lacked in the features department; whereas Brother HL-2700 CN had most features we were looking for. Every buyer must consider the cost of toner-both colour and black when buying a printer because people tend to forget that there are three colour toner and one black toner in a colour laser printer.

#### **A Parting Word**

Laser printers are definitely a cheaper alternative to inkjets when you're talking about bulk printing and speeds, but the initial investment is high. Another concern is size: most laser printers are massive, particularly colour lasers. Although the size may not be as important as the features and performance, it does matter if your office is small and space is at a premium.

We might see developments in this area, and laser printers might get smaller. They'll certainly get cheaper, of course, and we hope to bring you a more wide-ranging comparison next time round.

 $anup\_nair@think digit.com$ 

Contact Sheet Laser Printers				
Brand	Company	Phone	E-mail	Web Site
Brother	Lipi Data Systems Ltd	022 -22882960	sharatk@lipidata.com	www.brother.com/
Canon	Canon India Pvt Ltd	0124-516 0000	info@canon.co.in	www.canon.co.in
Epson	Epson India ltd	080-3051 5000	aculaser@eid.epson.co.in	www.epson.co.in/
Samsung	Samsung India Electronics Pvt Ltd	011-41511234	vikram.negi@samsung.com	www.samsungindia.com
Xerox	Xerox India Ltd	0124-2561940	kuldeep.malhotra@xerox.com	www.xerox.com

## **Spam Filters**

To use or not to use? Spam filters—especially those with AI—work great, but do they really decrease your headache and increase your productivity?

Ram Mohan Rao

People have different reactions to spam. Some occasionally click on spam-looking messages out of curiosity; some just hit the [Delete] key; some use a non-learning spam filter and let it quietly do its job; some go all the way, training their Bayesian spam filters for months.

There's something about spam that triggers off a primal sort of hatred in us. If you think about it rationally, just how long does it take to delete all your junk mail, one keystroke at a time? Two minutes? Out of 24 hours? But still, we whine and groan at the spam "menace."

OK, it is indeed a menace, because if you put together all the man-hours dedicated to deleting spam, it actually makes a difference to the economy! It's been documented, at least in America: the total cost of spam in terms of lost productivity was \$21.6 billion (Rs 97,000 crore!) in 2003, for 1.2 billion hours of lost productivity, according to Talkgold.com.

But forget the figures—you aren't bothered about the economy. The point is, what do you do with your spam? It probably depends on how much spam you get. The smart thing to do, of course, is to prevent spam from getting to your Inbox in the first place: use a dedicated junk mail account for Web forms, visit that account once a month, and delete everything (except the one or two valid mails that get there). Also, if

you've got a Web site, put up your address in the format "agent underscore 001 at thinkdigit dot com"—spell it out instead of writing it the normal way.

It's when you must use your primary address that the spam problem—and therefore spam filters—come in.

#### **Smart And Smarter**

The first step is to consider using Outlook 2003, if you don't already. There's an inbuilt spam filter, and you can set it at two sensitivity levels—Low or High. High, of course, is stricter on what messages get through to your inbox.

Outook's spam filter is not Bayesian, meaning it doesn't use AI, and it doesn't learn from experience. There are several Bayesian filters available, which do learn from experience—including SpamBayes, POPFile, and K9, which is not an exhaustive list in the least.

There are a few small differences amongst the filters we've mentioned. K9, for example, is very light on system resources. Also, it doesn't ignore words such as "the" and "and", which could make a difference to the analysis. It has an interface of its own, which displays all your mail. SpamBayes and POPFile are pretty neck-to-neck in terms of fan followings, and use your Web browser as the interface. They also offer more configuration options than does K9.

Installation of these filters is straightforward enough—the only "tricky" parts are configuring your mail client's POP server address, and setting it to put the messages into different folders.

"Learning from experience" means you train the software when you first install one of these

▼ Some Popular Free Spam Filters		
Name	URL	Comments
SPAMfighter	www.spamfighter.com	Includes an anti-phishing tool
К9	http://keir.net/k9.html	Lightweight
SpamBayes	http://spambayes.sourceforge.net	Has an "Unsure" rating
POPFile	http://popfile.sourceforge.net	Considered by many the best
Spamihilator	www.spamihilator.com	Has plugins for it
Blue Frog	www.bluesecurity.com	Works on the principle of actively reporting spam
SpamAssassin	http://spamassassin.apache.org	Very powerful

programs, it doesn't know anything. You tell it about each message whether it is spam or not—and after a while, the software figures out which of your messages is spam.

There's another utility to spam filters: in POPFile, for example, you can classify messages as not just spam and good mail, but also into any category you like, such as "work," "home," "subscriptions," and so on. You could even filter out mail from your mother-in-law this way!

Now, how does Outlook filter mail without being trained? According to David Coursey of ZDNet.com, "Microsoft has looked at millions of spam and non-spam e-mails and created a filtering mechanism based on some 100,000 variables." Coursey's method for the Outlook spam filter is to first set the filtering level to Low, which offers about a 95 per cent accuracy level, and diligently check your Deleted Items folder for good mail. If you find good mail there, put the senders on your Allowed Senders list. Do this for a couple of weeks, and then set the filtering level to High-you can get up to 98 per cent accuracy, he says.

#### **A Ouestion Of Maths**

So what's not to like about spam filters? Accuracy can get to 95 per cent or even 98 per cent! Great, right? Not in the least! The entire problem with spam filters is false positives-good mail that ends up in the Spam folder. Instead of two minutes a day deleting junk mail, you now spend a minute and a half checking your Junk folder for good mail. And worse, since you expect that folder to be full of junk, you skim through it, making for a good chance that you'll miss a valid mail! What's worse-having to delete 50 spam messages, or losing one good mail?

Let's do some maths. If the system is 98 per cent accurate, one in 50 mails gets misclassified.

So let's say one in 100 spam messages gets to your Inbox, and one in 100 good mails gets sent to the Spam folder. The former is very acceptable indeed. But the latter just isn't! If you get 20 good mails a day, that's one good message trashed every five days!

And that's precisely where Bayesian filters come in. They learn, and accuracy can be improved. 99 per cent, for example, would mean one good message trashed every 10 days; 99.5 per cent would make that 20 days; and 99.9 per cent would mean less than one good mail trashed in three months! Now *that* is a figure we'd be quite happy with, but it would take a rather long time to reach 99.9 per cent accuracy.

You could speed up the process: go to your junk e-mail account and forward all your junk to your main address-and train your filter based on all these. You could also tell your friends to forward all their junk mail to you! But then again, there's a catch: SpamBayes, for example, warns you if the spam and ham (good mail) it's been trained on are imbalanced, "Too much spam and too little ham," it'll say. "SpamBayes works best with approximately equal numbers of each." Now how are you to manage that? Write yourself good mails and train the filter based on those? Tell your friends to mail you mails more often? ("I'm training my spam filter! Write me!")

That apart, we must mention that since Bayesian filters learn, they evolve with spam! About three years ago, it was common to see spam with such subject lines as "Cheap Viagra", coming from "Online Pharmacy". Now, the same message is more likely to come from "Dave Perry", and the subject line is more likely to be "Azure eucalyptus"! Bayesian filters, therefore, are recommended over Outlook's "hard-coded" filter, because they evolve with the spammeisters' tricks.

## Is The Solution Worse Than The Problem?

Just like people have different reactions to spam, people have different reactions to spam filters. Some feel they can't live without them, some feel it's made life a little easier, and some can't see any utility to them.

One of the problems in choosing a spam filter—and, in fact, in deciding to use one—is the lack of solid data on how good they are. There are dozens of forums that discuss just one thing: how good a certain filter is. And on these forums, you'll find every third post asking what others' experiences with a particular software has been like. Everyone wants to know, but no-one knows for sure.

The reason is that experiences themselves vary wildly, and that's due to two main reasons-the first being different expectations of the software, and the second being the different kinds and volumes of spam people receive. Like we've said earlier, Bayesian filters tend to work best if the ratio of ham to spam is about 1: everyone's ratio is different. Also, the type of spam people receive is different, depending on where on the Net you've given out your e-mail address: for example, porn and "free offers" in mail are relatively easy to filter out.

We're still stuck with our original question: should vou use a spam filter? That, as you can see by now, is difficult to answer. In the end, it's all about throwing technology at the problem: it's fun! The reason many of us here at Digit use spam filters is just for the fun of it-their real value in terms of productivity is very questionable. But it's fun to train your filter. It's fun to see spam automatically going into the Junk folder. It's fun to see mail being automatically classified into "Work" and "Personal". It's fun to boast to your friends that your filter catches all your spamthough you'd be lying if you said so! Ultimately, it's fun to see tech doing its trick.

We encourage you to experiment with various spam filters and tell us about your experiences with them. But remember, you'll be spending much more time playing around with your spam filter than just getting rid of the spam using [Delete]!

ram mohan@thinkdigit.com

Bayesian filters are recommend ed over Outlook's "hardcoded" filter, because they evolve with the spammeist ers' tricks





## **Buying Personal Insurance**

I keep seeing these US-based ad banners on the Internet, which claim to provide instant insurance quotes. Since I'd already decided that I needed a pension policy, I decided to check if there were any Indian sites that offered insurance online.

Could I actually get my policy over the Net never leaving my room? Could I cut down on processes and paperwork?

Jyotsna Rege (jyotsna\_rege@thinkdigit.com)



You dream a future. We plan for it precise which policy is right for you by nelect roung enclassional - Ga Contact or I Gladelmers I Terms and Conditions ...and here I'm selecting a policy online.

Since I didn't want two policies, I decided to check out the old way by calling an agent over, seeing how long it would take, and then saying, "I'll think about it". I looked in newspapers and yellow pages for the snazziest-looking insurance ads.

Time taken: 30 minutes

The agent gone, I got online to look for an Indian firm that offered insurance, and that would also allow me to pay my premiums online. I had the comfort of my home and the luxury of using my own PC.

**Time taken: Nothing** 

I figured which company I wanted to go with, and an agent was at my place pronto. He asked for a cup of tea! The nerve: just because I'm a woman doesn't mean I'll make tea for every man I meet!

I ignored him and asked to see the documents first. After a few questions I was soon looking at various options.

Time taken: 15 minutes

The hunt produced several sites that offered information about insurance products, but not many offered true online applications-you had to print out the form and send it over physically. It took me about 20 minutes to find one that appeared to allow everything online.

Even after I had narrowed down my specifications, there were still several policies I could choose from. I discussed all the features with the agent again. The data was all muddled in my head, but he explained the benefits. (The guy's patience had me flummoxed—I could take a cue from him on this!)

Time taken: 20 minutes

Time taken: 20 minutes

There were links on the site from where I could choose a product, download application forms, pay premiums, and also a link where I could ask them to send over an "advisor." Although they had plans for all age groups, there was no way to apply for most of them as they involved background checks.

Time taken: 30 minutes

My confusion gave way to comprehension after the second round of discussion. Once I had chosen a cashback policy, we quickly calculated my premium. I was informed that if it would take between three and 15 days for the company to get back to me.

Since I now knew what taking out a policy involved, it was time to say good-bye to the agent!

Time taken for deciding on a policy: 30 minutes Time taken to shoo the agent away: 1 hour

I stumbled upon an "InstaInsure" link. The ad claimed I could apply for insurance in just 10 minutes. This was for a "pension policy with no life cover"-precisely what I wanted. I found most of the information I needed in the downloadable brochure. I called them to clarify a few things, filled out the form in a jiffy, and in just ten minutes I was done. The papers were delivered in a week.

Time taken: 30 minutes

Fase: 1 hour, 35 minutes Total Time Taken:



4/5 Total Time Taken: 1 hour, 20 minutes



INNER

t's a tie! If you go the old way, an agent informs you about products from several firms besides showing you policy brochures. Also, companies need background checks for most policies, all of which happens offline anyway. The online method is mostly restricted to big cities and a couple of policies. There are pluses with the online method though, you can use a firm's Web site to look up information and transaction details, information is available anytime you feel like it, and you can use online tools to calculate how much you'll be paying for different policies. Besides, they don't ask you to make them a cup of tea!

#### MSI Mega Player 540

#### Mega Bite Of Entertainment, Anyone?

The Mega Player 540, introduced by MSI, is sure to catch people's fancy. Housed in an elegant white case, this player has the feel of an iPod, but has distinct looks. The 1.8-inch colour OLED with its vibrant colours is a treat for your eyes. A five-way navigation button allows for easy control with just one hand. Ergonomics has also been paid attention to. The 540 is capable of playing MP3 and WMA files in addition to M-JPEG video files and JPEG photos. The 4 GB hard drive can store enough songs to keep you going for hours. The device also has an FM receiver and recorder. We found the bass and volume levels too low, though. The Mega Player 540 provides around 7 hours of playback.

It connects to the PC via the USB 2.0 interface, and USB 2.0 OTG lets vou connect it directly to compliant devices.

Company Micro Star International Price **Rs 8.500** Phone **011-51758808** E-mail info@msi-india.com Web site www.msi-india.com surprise for such high performance devices, but that is still too much for just 150 GB.

Price Rs 17,500 Phone 9321029204

Web site www.wdc.com Rating

E-mail amarjit.singh@wdc.com

#### **Western Digital Raptor X WD1500ADFD**

 $F_{
m combining}^{
m inally,\,a}$  hard drive for gaming enthusiasts—combining pure performance and innovative looks that will drive PC modders crazy. Western Digital's Raptor X WD1500ADFD has a clear top—allowing you to peek inside the drive while it toils. At 10000 rpm, this is the world's fastest SATA 150 drive. NCQ enables high data transfer speeds in multi-processor, multi-threaded environments. RAFF technology prevents the drive's performance suffering due to vibrations. This drive performs very silently. 75 MBps in the sequential data transfer test makes this drive the fastest we have tested so far-this means games loading faster.

The cost of Rs 17.500 is not a Company Western Digital

#### JVC GR-DF570AC mini DV Camcorder

#### Let's Get Set To Shoot!

 $T^{
m he}$  JVC GR-DF570AC mini DV Camcorder is JVC's newest offering for the Indian market. It uses Mini DV tape and conforms to the PAL video standard, which is what is used in

India. The aspherical lens creates an image that is evenly focused from the centre to the edge. The stabilisation mechanism is so amazing, it produces remarkable results even when using the 15x zoom. The 2.5 inch. 180degree swivel, active matrix system LCD produces a vivid display, but is not of much use outdoors. But the colour viewfinder with a dioptre corrector does

excellent work under outdooor

conditions. The S-video connector lets you dub to a VCR or DVD recorder, and the Mini DV port allows loss-free video transfer to a PC. Still photos can be transferred to the PC from the memory card via USB 2.0. This camcorder is compatible with the DPOF standard, ensuring support for future systems, including features such as automatic

The one-touch recording is easy enough for novices to master. The rotary switch provides an intuitive interface,

and the five-second record feature is great for capturing snippets of special moments. Inbuilt Wiper/Fader effects let you make professional-looking scene transitions. The Backlight Compensation function brightens a subject that

would otherwise appear dark due to a backlight. The stereo microphone records and plays back sound in real 3D acoustic fields using the camera's

> Biphonic recording and playback feature.

The GR-DF570AC is not iust a good camcorder. but also a 1.3-megapixel digital camera that allows you shoot photos at 1024 x

> 768. This camcorder also works as a Webcam. The camera 's

battery lasts 55 minutes

with the LCD on, and about 65 minutes when the viewfinder is used, which may not be enough. The

bundled Cyberlink PowerProducer video editing suite, however, makes this a complete home studio package.

Company JVC Price Rs 35,900 Phone **011-26102975** F-mail NA Web site www.ivc.com Rating

#### **Creative Sound Blaster X-Fi**

#### Your Ticket To The Audiophile World

The X-Fi is Creative's latest offering. X-Fi stands for eXtreme Fidelity sound, and this is made possible by the use of a Cirrus Logic 24-bit DAC and an audiophile-grade SNR ratio of 116 db. Its USP is a really fast audio processor with 51 million transistors capable of delivering over 30,000 MIPS of processing speed, making it 24 times more

powerful than its predecessor from the Audigy series.

This power is harnessed in Creative's proprietary 24-bit Crystallizer, which essentially up-samples audio to 24-bit/ 96 kHz to improve sound quality. This is a godsend for MP3, and while we were testing, we found that the card fished out more details from our test MP3 collection than did the Audigy 2 card.

The X-Fi Elite Pro we received for preview was fully-loaded with a well-designed ergonomic remote and an external I/O module, housing every possible interconnect any audiophile would wish for. This is interfaced with the sound card using a special 26-pin cable called the AD link. The components used on the cards are of premium quality, which is evident from the clicking sound that the high grade relays make when changing modes.

The 400 MHz processor along with other processing elements like the DAC, SRC (Sample Rate Converter), filter, mixer, etc., allows a staggering 4,096 audio channels, and up to eight simultaneous real-time effects. This, paired with ASIO (Audio Stream Input/Output), translates into zero processor

overhead for frequency conversion. This is a welcome inclusion, as Creative was facing a lot of flak from audiophiles because the older Audigy line of cards resampled all frequencies by default into 48 kHz. The X-Fi, however, sports true hardware 24-bit 96 kHz audio playback for up to 7.1 discrete channels and 192 kHz for digital stereo playback.

This card is especially a boon for gamers due to the onboard 64 MB X-Ram, which allows an audio buffer for

storing uncompressed audio samples reducing quality loss and consequent CPU overhead. Desktop audio professionals, too, have a lot to be thankful for, with 96/24 audio mastering and editing quality, along with 24-bit sound fonts and the 3D Midi feature, with the ability to interface midi

devices with the card.

Our verdict: in terms of audio quality, the Creative X-Fi's onboard DAC and

Dolby and DTS decoders are capable of providing a highquality movie experience. The sheer quality, power, and realtime audio editing will appeal to gamers, home theatre enthusiasts and audio professionals alike. Quite simply, this is the best piece of computer audio hardware you can buy right now.

Company Creative

Price Rs 27.990

Phone 9321029204

E-mail india getcreative@ctl.creative.com

Web site www.soundblaster.com

Rating

#### Asus PW191 19-inch LCD

#### A Geek Magnet

The ASUS PW191 is an anti-glare TFT-LCD screen with a L black piano-finish casing that will bowl you over. It incorporates a 90-degree pivot aluminium head-stand, and it supports both landscape and portrait views.

The PW191's WXGA screen supports a resolution of 1400 x 900 (16:10) at contrast ratio of 600:1. A response time of 8 ms supported by a good viewing angle of approximately 150 degrees makes this LCD monitor a good choice for gamers and movie buffs.

The elegant front panel encloses touch sensor buttons and twin speakers of 2 watts rms each. Headphone, audio and video input jacks are located at the back, just below the pivot.

But there are two things we didn't like about the sensor buttons: first, they are unpredictable, and second, it's hard to locate the buttons in the dark if the monitor is off.

Kudos to the designers for putting a lot ot thought into the design of the PW191-a good lifestyle product.

Company ASUSTek Computer Inc. Price Rs 29,000 Phone 022-40058894/95/96/97 E-mail info india@asus.com.tw

Web site http://in.asus.com Rating

#### **ASUS EAX1800XT TOP**

#### **Gaming Nirvana For You**

The ASUS EAX1800XT TOP is based on ATI's new-gun-intown—the X1800XT chip. This Shader Model 3.0-compliant card brings a new degree of realism to games due to its support for HDR. It comes equipped with a core clocked at 700 MHz and 512 MB of DDR3 memory at 1.6 GHz-both of which are higher than the stock speeds.

The card is quite large, and occupies two slots on your motherboard. Its higher power requirements are taken care of by the bundled external power supply. The card is a remarkably silent performer.

The EAX1800XT proved its worth by scoring 10,330 and 4926 in 3DMark05 and 3DMark06 respectively-the best we have seen so far. Extreme performance was also noticeable in graphics-heavy games such as Doom 3 and Half-life 2 even when played at the highest graphics settings.

ASUS has bundled a force-feedback game controller as well as some good software, along with games such as King Kong. The ASUS EAX1800XT is a great performer, and not too expensive for hardcore gamers with a price tag of Rs 42,120.

Company ASUSTEK Computer Inc. Price Rs 42,120

Phone 022-40058894

E-mail info india@asus.com.tw



## **Bseindia.com**

#### It's not just your broker's word now. Manage, supervise or just up your stock quotient here

**Jyotsna Rege** 

ost of those who aren't familiar with stock markets feel at a loss when figures related to stocks and shares are mentioned-it's all Greek. Then there are those few who do attempt to comprehend the workings of the markets, but don't know where to Fortunately, there's BSEIndia.com, a site where one can not only trade online, but also discover what the share market is all about. The site isn't overly userfriendly, but you can't expect too much hand-holding from the official site of the Bombay Stock Exchange now, can you?

BSEIndia.com works in sync with the transactions of the BSE, and all dealings halt when the market closes for the day.

#### Trade@BSE

Before we talk about www.bseindia .com itself, we should mention the Trade@BSE WebX link on the page, which is particularly important for a first-timer. This link leads to another Web site altogether (www.bsewebx.com), which is the venue for Internet trading allowed by the BSE.

The FAQ on the main page of Trade@BSE WebX explains phrases such as "market watch" and "touch line." There are also guidelines to investing and dealing, as well as a 75-page Help PDF—an investor user manual.

Then, there are links titled 'Investors', 'Brokers', 'Sub-Brokers' and 'Custodians', which provide directions to each of these groups of people.

If you're an investor, for example, and want to know what the site can do for you, this would be the place to search. On the site are tools such as SpeedX Plus—a streaming real-time stock quote system.

At Trade@BSE WebX, you can search for registered brokers, subbrokers and companies, and register with them for trading. One usually feels dependant on the broker during trading - the site minimises this need. Besides an ID and a password, you are provided with a personal risk profile by a broker.

**The Home Page** 

There is a lot on the home page of www.bseindia.com for one to pause and take stock of (pun intended!). The first thing you'll notice is probably the top bar that streams equity prices. There are nine titled links arranged beneath this bar, leading to the main pages of the site. Below these are three links—'Equity', 'Derivatives' and 'Debt'. All these display their contents as drop-downs.

For example, when your cursor settles on 'Public Issues', the dropdown menu displays such things as 'About Bookbuilding', 'Forthcoming Issues', and 'Fixed Price Issues'. There's also a glossary of investor jargon. For some reason, however, the drop-downs work only *after* you've clicked one of the links!

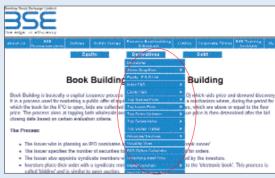
Then there's the Sensex chart, an indices table, and a corporate announcement table. There are also search windows you can use to obtain corporate information and price/charting of companies.

#### There's Something For Everyone

The main page has been designed for the regular investor and broker, but the site hasn't forgotten about those who aren't into everyday trading. For example, if you want to understand what the Indices link is all about, a preface in the dropdown explains several details before you proceed. All the headings under Indices, such as 'BSE100' and 'BSE-BANKEX', have stuff you'd probably



The BSE WebX-look here if you are new to shares and trading



A pop down on each link takes you further into the site

label as "market talk," but there is an introduction to all of it.

The site lists vacancies in 'Careers' under 'About us'. Then there's the 'My BSE' link, where you create a profile to keep a tab on your dealings. You can store records of your dealings here besides the piles of documents that your transactions will produce. This makes reference to your dealings fairly easy when you're looking up market information.

The BSE runs an institute in its building: the Bombay Stock Exchange Training Institute (BTI). Its e-learning centre has an online library that can be accessed all visitors to BSEIndia.com.

#### On The Other Hand...

BSEIndia.com has its share of negatives when it comes to design. The fonts are bland, some are too small, and there's some overlap of dropdowns which can lead to accidental clicks. Firefox users will experience problems with the site.

An interesting feature called SPICE (SENSEX Prudential ICICI Exchange traded fund) is at the absolute end of 'Listings'. The Exchange trade fund (ETF) is a mutual fund that also acts as a security; it is practically impossible to find this unless you're fairly familiar with the site. Besides, Trade@BSE WebX is important if the BSE hopes to encourage new investors, but this has been relegated to an obscure corner on the home page.

Despite these shortcomings, BSEIndia.com is a fairly well-managed site. The minimal use of colour aids in reducing confusion, and once one knows where to look, it's easy to navigate.

So go ahead—explore, learn and start trading! ■

jyotsna rege@thinkdigit.com

#### **Microsoft PowerPoint**

**Scrolling Credits** Movie-style credits look cool at the end of a presentation, and here's how to create your own:

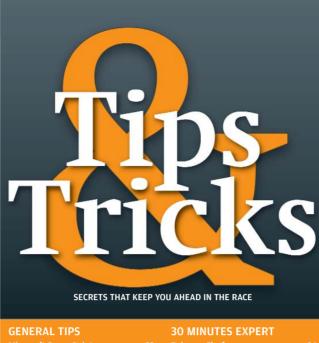
Right-click on the box that contains your credit text, and select Custom Animation. In the pane that appears on the right, go to Add Effect > Entrance > Fly In. In the options that appear, select "Very Slow" in the Speed field. The effect also appears in the pane now. Right-click on it and select "Effect Options". Under the Text Animation tab, select "Group Text: As one object." You can now preview the entrance of the text.

Once again, select Add Effect > Exit > Fly Out. In the options, select "Very Slow" as the speed, and "To Top" as the Direction. Use the Play button at the bottom to preview your animation.

**Save Your Charts** If you've spent hours customising the formatting for a chart, make sure to save the formatting so you can use it in another presentation. Double-click on the chart. then right-click and choose Chart Type. Click the Custom Types tab of the Chart Type dialog box and choose User Defined. Click Add, enter a name for the chart type and click OK twice to get back to your presentation.

The Slide You Want Sometimes, keyboard shortcuts aren't as great as they're made out to be. If you're editing slide number, say, 80 in your presentation and want to see how it looks in slideshow mode, the shortcut key-[F5], is no useit takes you to the first slide! Instead, stick to the good old mouse and click on the slideshow button at the bottom left.

**Keyboard Warrior** If you want to get all your content into the presentation as fast as possible and bother about



formatting later, you can

enter all your text swift as a turbocharged bunny this way: Start a new presentation Press [Ctrl] + [Enter]—this

automatically selects the Title placeholder for editing. Enter your title text.

Press [Ctrl] + [Enter] again-this selects the Body Text placeholder for editing. Enter your body text or bullet points.

Press [Ctrl] + [Enter] again-since there are no more text placeholders on the current slide, this creates a new slide and entering the new title text immediately.

Play It Again, Sam To restart your slideshow, hold down the

selects the Title placeholder for editing, so you can begin left and right mouse buttons at the same time. If you can't get the timing right, first press down the left mouse button, hold and then press down the right. In a few seconds, your slideshow should restart.

Hop, Skip, And Jump During a slideshow, you directly jump to slides if you know their names—just type in the slide number and hit [Enter]. Voila!

**Link Wisely** True, most people will recommend that you don't use the "Link to File" option for images, for if you decide to take your presentation to a new PC and forget the file. you'll end up causing a big faux pas. But what if you have an image that's in all your presentations—like a custom background or a logo? If the image changes you'll need to go to all those presentations and update them with a new image! This is where you should use the "Link To File" option, so that changes in the image are automatically reflected in all your presentations.

**Copy Formatting** If you want to copy the formatting of text, but not the text itself, use these shortcut keys:

[Ctrl] + [Shift] + [C] to copy the formatting of the current selection, and [Ctrl] + [Shift] + [V] to paste the formatting

**Teenv Slide Show** Isn't it irritating when you've started a slide-show in full-screen and realise that it needs some tweaking? You have to stop the show, change the slide, start the show again, and then discover another slide that needs changing... Aargh!

Instead, when you start a slide show, hold down [Ctrl] and click the Slide Show button at the bottom left of the screen.

This opens the slide show in a separate, smaller window, so you can easily switch between the presentation and the show.



### Q.

#### Take Your PowerPoint With You

Working on a colleague or friend's PC? You don't need to waste time tweaking PowerPoint preferences to get everything the way you want it—all your PowerPoint settings are in this file:

C:\Documents and
Settings\[username]\Applica
tion Data\Microsoft\
PowerPoint\PPT##.pcb

(where ## is the PowerPoint version number you have installed.)

Simply carry this file around and place it in the same folder on the new machine, and now PowerPoint is just the way you like it! Do remember to back up your friend's settings file, though!



ſF1

[F2]

[F4]

[F5]

[F6]

[F7]

[F10]

[F12]

[Shift] + [F1]

[Alt] + [F2]

[Shift] + [F3]

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[Shift] + [F6]

[Ctrl] + [F6]

[Alt] + [F7]

[Ctrl] + [F10]

[Alt] + [F10]

[Alt] + [F11]

[Shift] + [F12]

[Ctrl] + [F12]

[Ctrl] + [Shift] +

[Ctrl] + [Shift] + [F6]

#### **Advanced Filtering**

If you want your presentation to have a "background score" from an audio CD, go to Insert > Movies and Sounds > Play CD Audio Track. Select 'Hide Sound Icon', and click OK. When PowerPoint asks you whether you want the music to start automatically or when clicked, choose Automatically.

The Function Keys in PowerPoint

Save As

#### ()

#### PPS? PPT? PPBoth?

You can save your presentation as a PowerPoint Show (.pps) if you want the slideshow to start as soon as you open the file. But if you want to edit some parts of the show in PowerPoint, all vou need to do is rename the file with the .ppt extension. Windows will warn you that the file might become unusable-ignore this. It even works vice-versa-if vou rename a .ppt to .pps, the presentation now starts in a full-screen slide show instead of opening PowerPoint for editing.



Bring up Office Help or the Office Assistant

Change the case of selected characters. (From caps

Select the text, or text within a text box

Repeat the last Find action to Find next

Start the presentation in a slide show

Restore the Presentation window

Restore the PowerPoint window

Move clockwise to the next pane

Move anticlockwise to the next pane

Maximise the presentation window

Maximise the PowerPoint window

Move clockwise to the next presentation

Move anti-clockwise to the next presentation

Next misspelling with automatic spell checking

Activate the main menu bar (Same as the [Alt] key)

Display Visual Basic code (if any) in the presentation

Bring up context-sensitive help

to small and vice versa)

Close current presentation

Repeat the last action

Run the spell checker

Activate the menu bar

enabled

Save As...

Save

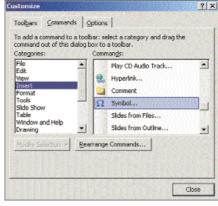
Open...

Quit PowerPoint

#### Symbols In Your Toolbar

If you often create presentations with characters such as "± © ® TM ½ ÷", or the other assortment of symbols your fonts offer, you should have them quickly accessible on the PowerPoint Toolbar.

Go to Tools > Customize > Commands. In the list on the left, click on Insert and scroll down the list on the right till you find 'Symbol...' (there's a blue Omega symbol next to it). Click and drag this to any toolbar you like and click Close.



Add symbols to your toolbar

So the next time you want a symbol, just use this button to quickly insert all those weird characters into your text.



## Cycle Through Objects

If you have loads of overlapping objects on a PowerPoint slide, it can be difficult to select the object you want to work with. Instead of clicking to select objects, use the [Tab] key instead.

When you press [Tab], PowerPoint selects the first object on the slide. Every time you press [Tab] after that, it selects the next object, so you can easily cycle through the objects on your slide by repeatedly pressing [Tab]. If you overshoot the mark and miss the object you were after, hold down [Shift] while you press [Tab] to reverse direction and select the previous object.



#### **Summary Slides**

Creating slides that summarise your presentations is easy: in PowerPoint, Go to View > Slide Sorter to see miniatures of all your slides. Hold down [Ctrl] and click on the slides you want to include in the summary, and click on the 'Summary Slide' button. The



Summarise your slides

summary slide now contains the titles of all the pages you selected.



Start with the Slide Master (Go to View > Master > Slide Master) to set up the layout for your slides and create a consistent look.

Format the background, specify colours, select fonts and bullets, add text animation and logos, and insert slide numbers or other elements which you want to repeat for all slides.



#### Presentations On The Web

To publish your presentations for the Web, go to File > Save as Web Page. In the dialog that appears, just clicking Save will save your presentation so that it can be opened again in PowerPoint and edited. You can also click



Save your presentation for the Web

Publish for some more saving options—if you want your transitions and animations to appear on your Web presentation, click on Web Options and check the box that says 'Show slide animations while browsing'.



## Remove The Ugly White Shadow

If you've turned on the Text Shadow option (the 'S' on the Formatting Toolbar), you will notice that the shadow turns a horrifying white when you make the background black. Fool the human eye—when you select a background colour, choose a custom

[Ctrl] + [Shift] + [F12] Print

colour with the values for Red, Green and Blue as 16 each instead of 0. Your text will get back its black shadow, and the background still looks black!



#### Flashy Flashy

You can include a Macromedia Flash movie in your presentation. Right-click on the PowerPoint toolbar and select Control Toolbox. At the bottom-right corner of the toolbox, click on the More Controls button and scroll down to select 'Shockwave Flash Object' to insert your Flash movie.



#### **Soft Shadows**

Instead of the coarse, often un-pretty shadow effects that PowerPoint



Adding Flash animations

(Number x) +

[Enter]

[B]

[W]

[S]

[E]

[H]

[T]

[0]

[M]

[Ctrl] + [H]

[Ctrl] + [U]

[Ctrl] + [P]

[Ctrl] + [A]

[Shift] + [Tab]

hyperlink selected

[Enter] with

[Tab]

[Esc]

offers, you can use a relatively simple technique to get good-looking shadows. Make a copy of the object you want to shadow, rightclick on it and choose 'Format'. Under Fill > Colour, choose 'Fill Effects'

**Keyboard Shortcuts for Slideshows** 

Go to slide number x

Erase screen annotations

Go to the next hidden slide

Set new timings during rehearsal

Use default timings during rehearsal

Hide the mouse pointer and button

Display the mouse pointer as a pen

Display the mouse pointer as an arrow

Go to the first or next hyperlink on the slide

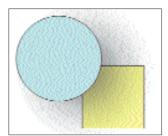
Go to the last or previous hyperlink on the slide

Follow the Hyperlink (like [Ctrl]-clicking a hyperlink)

Use mouse-clicks to advance during rehearsal

Hide the mouse pointer and button after 15 seconds

End a slideshow



The correct usage of shadows

and select the Gradient tab. In Shading styles, choose 'From Center', and tweak the gradient colours as you see fit. After you're done, resize the duplicate object to around 150% of the original size, and place it behind the original object.



#### **Undercover Buttons**

If you want to set up a presentation that you can control by clicking action buttons, but want several of these buttons on each slide without cluttering up your slide too much, you need *Invisible* action buttons.

Draw the buttons—
rectangles or any other shape
you like—on the slide where
you want them to appear,
then assign them action
settings by going to Slide
Show > Action Settings and
setting the options you want
for each.

Test the buttons—start the slideshow and click each shape to make sure it's doing what it's supposed to.

To make them invisible, select the shapes and assign them a fill of No Fill and an outline of No Line through

Toggle between a black screen and the presentation

Toggle between a white screen and the presentation

Stop or restart an automatic slideshow

#### 0

#### **Command Line Switches**

### Command Line switches for the PowerPoint Viewer (PowerPoint 2003)

Starting PowerPoint from Start > Run can offer you a good number of features:

What to enter: "<path\pptview.exe>" [switches] "<path\filename.ppt>"

Where <path> is the fully qualified path to the PowerPoint executable and the presentation file (which might also be a PPS file) respectively. Quotes are really required only if there are spaces in the folder names, but it makes sense to use them all the time anyway.

Switch	Function
/A or /a	Automatic advance
/R=n-m or /r=n-m	Slide range (where n<=m)
/L or /l	Loop continuously
/P or /p	Print the file
/L	Read a playlist of files contained within a text file.
	Example: \pptview.exe /L "Playlist.txt"
/S	The playlist file itself is simply a list of
/D	presentation filenames (preceded by path as
	needed) and you can't use any additional
	command line switches for them
	Start without the splash screen
	Prompt the Open dialog box to appear when slide
	show ends
	Open presentation at a specified slide number "#".
/N#	For Example: /pptview.exe /n5 "presentation.ppt"
	would open at slide 5

the Format Object dialog.

Now try running your screen show again. You'll notice that even though the shapes are invisible, they still do what you've assigned them.

If you want these buttons on each slide, use the Slide Master—go to View > Master > Slide Master and create your action buttons on the Master slide. Anything you place on the Master slide appears on all slides in the presentation unless you specifically disable master items on a particular slide.

In your subsequent slides, you'll want to make sure that you don't completely cover up any action buttons you've placed on the Master slide.

Or, you could just put two of these invisible action buttons on each slide. Each one fills half the slide, so all you need to do is click the right side of the slide to advance to the next slide (if that is indeed what you want to do) in the presentation and the left side of the slide to go back to the previous slide.



#### Your Slideshow As A Whiteboard

Instead of using a separate

whiteboard to write down stuff on, you can simply turn on a whiteboard in your slideshow itself and use the pointer to write down what you want.

First, right-click on your slide and go to Pointer Options to select what writing instrument your pointer is going to simulate. Then, press [W] to white out the screen, and you can now use it as you please.



Using a slide as a whiteboard



### Photo Albums In PowerPoint

Want to make a slide show out of your photo collection? It's quite simple: go to Insert > Picture > New Photo Album. And in the Photo Album dialog box, to add a picture from a file or disk, do the following: under 'Insert picture from', select File/Disk. Locate the folder or



## **Enhance Firefox**

#### Add some Fire to the Fox! We looked for great Extensions for the Firefox browser, and here are the best we found. We also touch upon plug-ins and Themes

#### **Anup Nair**

 $\mathbf{F}_{ ext{has been eating into IE's market}}^{ ext{irefox, a browser from Mozilla,}}$ share for a long time now. The browser has won over a lot of fans around the globe, and India is not an exception. It has an edge over IE in several aspects.

Firefox is a minimal download, and one of its much-touted advantages is that you can easily enhance its functionality by downloading and installing what are known as extensions. The process of installing extensions is straightforward, but not all extensions are safe-you can't completely trust something written by a developer you don't know about,

Here, we attempt to tell you how to build up a wholesome browser for yourself. But before that, we should tell you that it's a good idea to upgrade to the latest version of Firefox-1.5.0.1 at the time of going to print. Some of the extensions listed below need Firefox 1.5 to run.

## **STEP** Extensions are browser-

#### What Are Extensions?

specific add-ons. They are generally small in size, and can greatly enhance your browsing experience. What extensions you choose to install is a very subjective thing, which is one of the reason that Mozilla doesn't bundle them with Firefox. Another thing to remember is that many extensions come from third-party sites such as Firefox fan clubs.

Downloading and installing an extension is simple-Firefox has an inbuilt installer for extensions. All you need to do is click on the download link, and the extension organiser does the rest.

#### What Are Plug-ins?

STEP Plug-ins are those add-ons to Firefox that are necessary to run functions embedded in Web sites: say a site has a Flash-based interface. To view it, you will have to add the Flash plug-in. Similarly, you will need the Java, Windows Media

Player, and Acrobat Reader plug-ins, amongst others.

Adding a plug-in means installing the application itself. For example, vou will have to install Flash Player from Macromedia, and during the installation, the program will detect the presence of Firefox and bind the player to it.

To download plug-ins for Firefox, go to https://pfs.mozilla.org/plugins/ ?application=firefox and choose the necessary plug-ins for your browser. It is advisable to have Flash player. Acrobat reader and Java.

#### **Must-have Extensions:** STEP a) IE Tab

This one is our favorite! It loads Internet Explorer into Firefox tabs. Install IE Tab from https://addons.mozilla.org/extensions/ moreinfo.php?application=firefox&ca tegory=Popular&numpg=10&id=1419



Drag IE Tab button and place it in the toolbar of firefox

Close and restart the browser once the download-and-install process is complete. There are more than one way to use IE Tab. Go to View > Toolbars > Customise; a dialog box with a few buttons appears. Drag the button that looks similar IE's "e' symbol and place it on the Toolbar as shown in figure.

Open a tab and click on this button to change the browser's engine to IE. If you want a few selected pages to open in IE automatically, then go to Tools > IE Tab Options. In the dialog box that opens, enter the site name as "http://www.website.com", for example, and click Add. Every time you key in this Web site in the

address bar, Firefox will automatically open it in IE Tab. Great for all those pesky IE-only Web sites!

#### b) SessionSaver

Closing the Firefox window closes the tabs, and they do not re-open the next time you start Firefox. So do you find yourself bookmarking pages only so you can browse to them again the next day? If you do, you need SessionSaver. This extension restores the browser to exactly where vou last left it.

Download-n-install the extension from https://addons.mozilla.org/ extensions/moreinfo.php?id=436&ap plication=firefox

The settings can be altered from Tools > SessionSaver > Settings. Choose Expert mode for finer details, and put a checkmark next to 'Every



Resume dialog box appears whenever you start Firefox with sessionsaver enabled

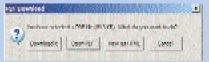
startup from'. 'Exisiting windows', 'And tabs', 'When restoring, join multiple windows into one', 'Save a

session-backup on shutdown', and 'Allow me to "re-open" closed tabs'.

#### c) PDF download

Firefox takes time to respond, and sometimes even hangs, when you click on a link that opens a PDF document, especially if it's a large PDF. PDF download opens a dialog box that asks you if you want the link to open in the default PDF viewer, or download it to your hard disk, or view it as HTML. This is a great tool, especially if such options are not available on the Web page itself. To download-n-install PDF download, head to

https://addons.mozilla.org/extension s/moreinfo.php?id=636&application =firefox

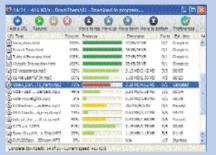


PDFdownload makes it convenient to deal with hyper-links that open pdf documents

#### d) DownThemAll

Firefox has an inbuilt download manager, but you've probably noticed that there's a bug when you try to resume a download!

DownThemAll can be a solution—it can even resume downloads from



DownThemAll showing various active and completed downloads. The speed is indicated on the title of the dialog box

previous Firefox sessions. To get this extension, go to

https://addons.mozilla.org/extension s/moreinfo.php?id=201&application =firefox

Clicking on any download link opens the 'Save as' dialog box; you will now also see DownThemAll listed in the dialog box. Choose it and provide a location on your hard disk to which you want to save the file.

#### e) FoxClocks

Want to know what the time is in Fiji? Just install FoxClocks! This extension shows the time in cities around the world by synchronising with a database of time zones and daylight saving. Head to https://addons.mozilla.org/extensions/moreinfo.php?id=1117&application=firefox

FoxClocks displays a message asking you to choose from 100-odd cities. It then displays the current time at the chosen cities in the



Choose cities for which FoxClocks should display the time

		Web Frankel Hanagement 14
Morage Device	Optional	CongradMosh Memory
Erestinar		PULIS, BM Bonot 3 %, IBM Pro Portlocks, Eyson EX 850.
Resident Foots	PCL RR-Range X 15	95 scalable funts, 12 bilines tota, 11 her cudes "8 signats.
PARTIE OF THE PARTY OF THE PART	Section 1	10 Auto Burrode Funto (BT 1000) *T
London: Mon Oil H	New York: Sun 25:11	Hong Kong: Non J2:14 Done
Start Of A I	W S synther; to	HADE NA. SA Addo Photophio

FoxClocks displays time of chosen cities in status bar

status bar. You can even use FoxClock as a toolbar in your browser instead of displaying the times in the status bar.

#### f) ReminderFox

Using this extension, you can set To-Dos and reminders within the browser. Download and install this extension from

https://addons.mozilla.org/extension s/moreinfo.php?id=1191&applicatio n=firefox

After installation, you'll notice a



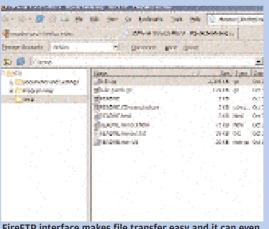
Dont miss any important occasion use ReminderFox

ribbon-like icon in the lower-right corner of the browser.

Right-click on this icon to access your To-Dos and reminders. Rightclicking the icon also gives you all the options you'll need to add items, change settings, and so on.

#### g) FireFTP

If you regularly browse FTP sites, then you definitely need FireFTP, an FTP client that greatly eases file browsing and copying. You can rightclick on an FTP link and then choose to open it with FireFTP. FireFTP opens your machine's file browser



FireFTP interface makes file transfer easy and it can even resume downloads

on the left pane and the FTP site on the right pane of the browser. You can drag and drop files between the two... it's as simple as that! To get the extension, go to https://addons.mozilla.org/extension s/moreinfo.php?id=684&application =firefox

#### h) Flashblock

Flash-based ads can be very irritating, and also take up your bandwidth. Some of you may already have thought up a method to block them, but with Firefox, all you need is the Flashblock extension. Use this link to download and install this small extension: https://addons.mozilla.org/extensions/moreinfo.php?id=433 &application=firefox

The extension will appear whenever it detects and blocks Flash content. The blocked content is replaced with a play button, so you can choose to play Flash-based content such as an e-greeting (or even ads, if you actually like them!).

## STEP The default Firefox skin is

mediocre, and it's boring to look at the same interface all the time. Add some excitement to your browser... pep it up with good-looking themes! Firefox has made this very



Firefox with a make over using Theme Pimprilla

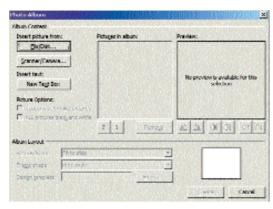
simple by incorporating a theme downloader-cuminstaller. Open the theme section at Mozilla's Web site:

#### https://addons.mozilla. org/themes/? application=firefox.

Browse through the numerous themes and click on the download button for the theme you want to download. This will open the Themes dialog box. On applying a downloaded theme, you'll need to close and reopen the browser for the changes to take effect.

At the end of this exercise, you'll have configured a classy and complete browser. You'll honestly be able to say, "Firefox rocks!" 

anup\_nair@thinkdigit.com



Add a photo album in PowerPoint

disk that contains the pictures, select the ones you want, and click Insert.
If you want to format your photo album later, go to Format > Photo Album.

#### Replacing Fonts

If you want to quickly change the theme of your presentation, the first thing you should do is replace older fonts with new ones. Go to Format > Replace Fonts, and choose which font should replace which. There's no need to worry about formatting either—all your old formatting stays intact.

## Various Backgrounds, Same Presentation

If you are using a master slide to display backgrounds, and you want one particular slide to be different from the rest, go to Format > Background and click on 'Omit background items from master'. This way, you can either have a plain slide or one where you can use a different background.

#### Compress!

In older versions of PowerPoint, it was essential to compress and save images as JPEG, lest your presentation become unnecessarily bulky. No more! Go to View > Toolbars > Picture to bring up the Picture toolbar. The fifth button from the right is the 'Compress Pictures' button, which does the job for you. Just choose which medium you want to optimise for, and you're on your way.

Drawing And Formatting Shortcuts In PowerPoint		
[Ctrl] + G	Show and hide guides	
[Ctrl] + [Shift] + G	Group objects	
[Ctrl] + [Shift] + H	Ungroup objects	
[Ctrl] + [Shift] + J	Regroup objects	
[Shift] + Click Slide View Button	Switch from Normal View to Master View	
[Shift] + Resize	Resize and maintain proportions	
[Ctrl] + Resize	Resize from centre	
[Ctrl] + [Shift] + Resize	Resize from centre and maintain proportions	
[Shift] + Rotate tool	Rotate in increments of 15 degrees	
[Ctrl] + Rotate tool	Rotate from corner	
[Shift] + [Ctrl] + Rotate tool	Rotate in increments of 15 degrees from corner	
[Shift] + Resize (for lines)	Extend line along same angle and path	
[Ctrl] + [Alt] + Click using curve tool	Make a straight segment while using curve tool	
Arrow Key	Move object one grid unit in arrow direction	
[Ctrl] + Arrow Key	Move object one pixel in arrow direction	
[Alt] + Move object	Release guide snap temporarily	
[Ctrl] + Drag Guide	Create multiple guides	

#### Stop Automatically Selecting Words

It's often frustrating when an entire word gets selected when you only want to edit part of a word. You need to turn off the automatic selection of whole words—go to Tools > Options, and click the Edit tab. Uncheck the 'When Selecting, Automatically Select Entire Word' option and click OK.

#### Keep Only What You Need

If you found a clipart you like in PowerPoint's clipart gallery, but only want to keep a part of it, you can convert it into a PowerPoint drawing object and remove what you don't want.

Right-click on the object, go to Grouping, and select Ungroup. PowerPoint will then ask you for a confirmation, and you'll then be presented with an object you can modify as you please. This works only for the Windows Metafile clipart, though.

#### Linux

#### Changing Monitor Resolution And Troubleshooting It

Changing monitor resolution in Fedora or RedHat is possible from the command line: all you need is the command that will open the interface to change the settings. We say this is easier. because you won't have to search through the program menu(s) looking for it. But, you need to take some precautions before you play around with hardware settings. Listed below are a list of essential files, which are rewritten by Linux whenever you make any changes to the settings of a hardware device. Be smart and back them up! These files are: "/[\$home]/.X clients" which is created by Red Hat Desktop Switcher that reads .Xclients-default if window managers are not installed. "/[\$home]/.Xclientsdefault". It will take over

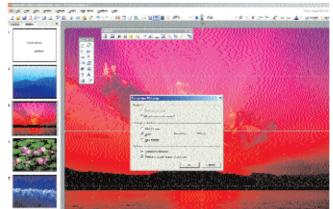
loading of default Desktop Environments such as KDE and Gnome.

"/etc/X11/xorg.conf" is a very important file that contains the setting details for X (monitor, GPM, screen, mouse, etc.). "/etc/X11/xorg.conf.backup"—never tamper with this file as it is a system created backup of xorg.conf.

Use the "cp" command to create a backup from text mode, or just use konqueror to browse to the folder and then copy/paste. A message window will appear in which you can key in a new name. This box appears only when the file you are trying to paste already exists in the directory. Rename it in such a way that you know it is the original copy and not just any other copy. We prefer to name backup files as "xorg.conf.orig" or "xorg.conf-backup.mine"something that reminds us of the reason of such a copy being there.

To change the resolution: "system-config-display"

This will open the GUI through which you can change the settings for the monitor, and can also other settings that matter to Xserver and X-client



Compress pictures in your presentation to reduce file sizes

#### Troubleshooting

If you have chosen a resolution that is not supported by your monitor, you're in for some graphics-related trouble. The GUI tries to spawn, but the display doesn't support it, so it re-

spawns again and the cycle continues. To rectify this, you need to first switch to Single user mode.

In Single User Mode, reboot your machine, and on the Grub screen, choose the Linux OS and hit [E]. This will take you to the next screen that shows boot parameters, specifically three lines that control the booting of your machine. Move the cursor to the line containing "kernel", and again hit [E] to edit that line. At the end of the line, give a space, type in "single", and hit [Enter]. You will be taken back to the previous screen. Now press [B] to boot with the new parameter. The OS will boot to text mode. Now, follow the steps listed below:

#touch 0 > /[\$home]/.Xclients

To clear the contents of the file.

#cd /[\$home]/[\$user] #cp .Xclients-default.orig .Xclients-default. This will restore .Xclients-default to its original settings.

#cp xorg.conf. backup xorg.conf. This will restore Xorg to its earlier state.



"system-config-" is a set of commands that can be used to modify certain device settings

After restoring all the files, switch to run level 3



The "system-config-display" command opens Display Settings

(the text mode of the operating system):

#init 3 + [Enter]

Log in as root and then try "system-config-display". Check the settings. If all is OK, boot, then switch back to the graphics mode either using the "startx" command or "init 5". (Init 5 is the graphics mode of the Linux operating system.)

Single user mode is an important tool for trouble shooting certain problems. If problems cannot be resolved from this mode, the Rescue CD is another option. Keep single user mode in mind... it is very useful!

#### Browser Problems

Browser related problems are common to those using older versions of Linux distros. You are often reminded by Web sites such as Gmail to upgrade to a newer browser—so let's do it! Most Linux systems either come with the Mozilla browser or an old version of Mozilla Firefox. Here, we'll upgrade the older Mozilla to the new Firefox 1.5. We shall also take a look at Opera 8.5

and demonstrate that it works just like its Windows counterpart.

At www.mozilla .com/firefox, you'll see the download link for the Linux version for Firefox. Download the 8 MB compressed archive. Once the download is complete, extract the files to a folder in /usr. In our example, we shall extract the files to /usr/more-apps. To do

this, use the following commands listed in Commands Box 1.

there is no installer: all you need to do is to create symbolic links to your current plug-ins. It is better to switch to root user than using sudo all the time. Sudo will be necessary for Ubuntu users, but they can choose to open a root terminal instead of the normal Gnome terminal.

Whenever you click on the Firefox button or type "firefox" at

the command line, the old version of the browser pops up. So to ensure that only the new Firefox opens, you need to change the symbolic link that relates to the action of opening the browser. Use the "which" command to figure out the path to Firefox. Change your directory to the directory where Firefox is located. Rename the old Firefox from "firefox" to "firefox.old". (Command Box 2)

Opera 8.51 for Linux i386

Copera 8.51 for Linux i386

Cop

Firefox button or Choose the appropriate Opera package

from the list available. Opera is compiled as an installer package for all versions of Linux. We downloaded it for Fedora Core 3. To install it, just run the command for installation, which is "dpkg -i" for Debian users and "rpm -ivh" for distros following the RedHat Package Manager. Issue the following command to install Opera on RPM systems: #rmp -ivh opera-8.51-

### 9

#### **Commands Box 2**

Setting Firefox to run the new Firefox 1.5

#which firefox(output: /usr/bin/firefox)#cd /usr/bin#mv firefox firefox.old#In -s /usr/more-apps/firefox/firefox

Now click on the button that opens Firefox or just use the command line. In the browser that opens, click on Help > About Mozilla Firefox. This should show you "Firefox version 1.5.0.1".

Opera 8.5 is very easy to install, but new users generally manage to just

#### 20051114.5-shared-qt.i386en.rpm + [Enter]

The installation process completes in just a few seconds. Most beginners get stuck at this point not knowing how to proceed, because the installer doesn't create any shortcuts on the desktop or in the program menu. That's because one step remains. Type in "opera &" at the shell prompt and hit [Enter]. A window will pop up stating "detected KDE running..."; this finalises the installation process. After this is complete, you will find shortcuts for Opera in the program menu.

Adding extensions, addons, themes or skin is a piece of cake after you have the

#### 0

#### **Commands Box 1**

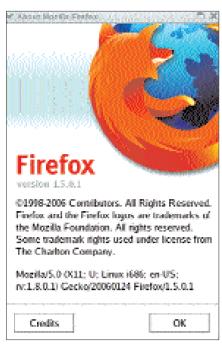
Making a directory called "moreapps" under /usr Extracting the files to the new directory

You will not find any installer packages like RPM or DEB in the extracted folder; instead, you will find a few source object files (\*.so) and some folders. Actually,

\$cd /usr \$sudo mkdir more-apps \$su root#tar -C /usr/more-apps zxvf firefox-1.5.0.1.tar.gz

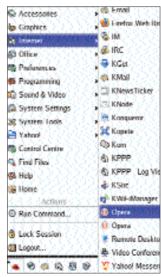
ind any install it and can't proceed thereafter.
racted Download the latest Opera browser from http://opera.
ct files (\*.so) com/download/

Choose the right package



Check under help to confirm that new Firefox opens and not the old one

browser up and running. To change the skin, for example, open Opera. Go to Tools > Appearance; in the window that appears, choose the Skin tab and then click "Find more skins". This will list all the skins available from the Opera community. Choose and download the one you like. After the download is complete, Opera changes to the new skin and asks you if you'd like to keep it. Click on Yes to have it offline,



Opera is only listed under the program menu after vou finalise the installation process

otherwise you will have to search and download it again.

The same applies to Firefox as from this point, the method of developing your browser is simple and identical to that followed by Windows users.

#### Ripping **Audio CDs** In Ubuntu 5.10

Ubuntu 5.10 comes loaded with Sound Juicer 2.12.2 which is a audio CD ripping tool. This tool can be accessed under Applications > Sound & Video > Sound Juicer CD Ripper. The supported ripping formats are FLAC

lossless, OGG lossy CD quality and WAV audio. MP3 format is not supported due to license issues-Ubuntu is a free OS and can only provide free utilities.

To rip an Audio CD: insert the ACD into your CD or DVD drive and then start the Sound Juicer software. It will automatically look for the Audio CD in the drive and extract all the track information from it. The list of tracks will be displayed; use the label on the CD cover to rename all the tracks from "Track 01", "Unknown Artist" to say, "Sweet Child of Mine",

"Guns n Roses" and so on. To set a file format and file naming system click on 'Edit' and choose Preferences.

In the dialog box that appears you can select the path to which you want the ripped audio files to be saved. The



Disc Edit Help

Title:

only problem with Ubuntu is that it allows only local user to login and therefore you do not have the admin istration rights to save on a folder other than the ones permitted to a user. So be sure to choose a folder vou have permission to write on. OGG Vorbis and FLAC both are equally good alternatives to



being ripped to OGG. Progress is indicated at the bottom on the window

Here in Sound Juicer you

	Preferences	
Device		
CD grive: LITE-O	N COMBO LTC-48161H	•
☑ Eject when fini	shed	
Music Folder		
Folder: 🛅 Rippe	ed-songs	•
Track Names		
Folder hierarchy:	[none]	•
File name:	Track Title	+
Example Path:	/Track_Title	
Strip special c	haracters	
Format		
Output: CD Qua	lity, Lossy (Ogg Vorbis audio) 💠	<b>≥</b> Edit <u>P</u> rofiles
(	(1000)	
∰Help		X Close

MP3 format.

Choose ripped music format from FLAC OGG and WAV

will get a lossy CD quality profile for OGG audio format and Lossless CD quality profile for FLAC audio format. Once you have renamed the Tracks and have chosen the ones you want to rip by checking the box across the track name; click on 'Disc' and the on 'Extract' to start ripping. Alternatively you can use [Ctrl] + [Enter] key as the shortcut. The progress of audio ripping is indicated by a progress bar and remaining time at the bottom of the window. The process will take some time according to the length of the audio file and your system configuration.



#### **Hostile Takeover**

I have Windows XP with SP2. After I installed the Service Pack, I've been seeing the following files on my computer's C: drive: funny\_pic screensaver (153 KB) hellmsn hellbot team (8 KB) (the icon is the same as that of any Visual Basic application) my\_photo2005 screensaver (153 KB) see\_this screensaver (153 KB)

I tried to delete these files both manually and with the help of anti-virus software (AVG 7.0, Norton 2005 and McAfee), but they weren't able to clean the virus. They report a memory virus named "NewWin32 - Memory Virus." I know it's a virus, but what do I do?

Smita Verma

Your computer is infected by W32.Mytob.EF@mm, which is a mass-mailing worm that uses its own SMTP engine to send an e-mail to addresses it gathers from the compromised computer. To completely disable and remove this virus, you need to do the following:

- 1. Disable System Restore (Windows Me/XP). To do this, open the Control Panel and double-click the System icon. Then click the System Restore tab and check the box next to "Turn off System Restore on all drives". Click OK.
- 2. Remove all the entries that the worm added to the 'hosts' file. To do this, open Notepad. Go to File > Open, type in "%Windir%\System32\ drivers\etc\hosts", and hit [Enter]. In the file that comes up, remove all the entries blocking access to security-related Web sites such as 127.0.0.1 www.symantec.com, 127.0.0.1 www.mcafee.com, etc. For the complete list, refer to www.sarc.com/avcenter/venc/data/w32.mytob.ef@mm.html.
- **3.** Update your virus definitions either by downloading the latest virus definitions file from the anti-virus Web site or by using the update feature in your anti-virus program.
- **4.** Run a full system scan and delete all the files detected.
- **5.** Delete any values added to the registry: launch the Registry Editor. Navigate to the following keys and in each case, delete the value "WINTASK" = "taskfile.exe" in the right pane:

HKEY\_LOCAL\_MACHINE\SOFTWARE\ Microsoft\Windows\CurrentVersion\Run

HKEY\_LOCAL\_MACHINE\SOFTWARE\
Microsoft\Windows\CurrentVersion\
RunServices

HKEY\_CURRENT\_USER\SOFTWARE\
Microsoft\Windows\CurrentVersion\Run

HKEY\_CURRENT\_USER\Software\
Microsoft\OLE

HKEY\_CURRENT\_USER\SYSTEM\CurrentControlSet\Control\Lsa

HKEY\_LOCAL\_MACHINE\Software\
Microsoft\OLE

HKEY\_LOCAL\_MACHINE\SYSTEM\
CurrentControlSet\Control

Exit the registry editor.

If you are unable to launch the Registry Editor, go to http://securityresponse.symantec.com/avcenter/venc/data/tool.to.reset.shellopencommand.registry.keys.html, download the file UnHookExec.inf, right-click on it and click "Install", after which you will be able to launch the Registry Editor and continue with the removal process.

#### **Visually Impaired**

I have an AMD Athlon XP 2200+, 256 MB of RAM, and a GeForce FX 5700LE AGP card with Windows XP installed. My system used to run smoothly until one fine day the monitor went off though the system was still on. I unplugged the AGP card and started the system on the onboard display (Integrated UniChrome graphics). The system booted properly. On re-plugging the AGP card in, the system display had big coloured blocks here and there. Windows loaded and the system went blank.

When I tried to run games such as Colin McRae 2.0, COD, and CZ Counter Strike (on the onboard AGP), after running for some time, the system would lock up. The display would stay and the system would remain on, but there would be no response. What could be the problem?

Arjun Raj

The only possible problem here is that your display card has gone *kaput*. That's the reason for the garbled display in DOS and no display in Windows. You'll need to replace your display card.

The UniChrome graphics is not good enough to support the games you've mentioned, so the system locks up after some time. You could try updating the display drivers, but don't expect too much—this graphics chip is not powerful enough for good 3D gaming.

#### **Getting It All Back**

My 120 GB hard drive recently crashed. My PC has another, 20 GB hard drive. Is there any software that can help me recover the data on the old drive?

Saurabh Sindhav

There are many software that can help you recover data from crashed hard drives. Some of these are EasyRecovery Professional from www.ontrack.com, Stellar Phoenix FAT & NTFS from www.stellarinfo.com, Recover My Files from www.recovermy-files.com, and R-Studio Products from www.rtt.com to name a few.



Before starting the data recovery process, make sure the drive on which you intend to dump the recovered data is larger than the one from which you are recovering data!

#### **Stop Waking Me Up**

My system configuration is an AMD Athlon XP 2200+, 384 MB of RAM, a Gigabyte mother-board, a D-Link 56 Kbps Modem and a Compact UPS. I use dial-up. Sometimes I forget to switch off the UPS after shutting down the system. Whenever I receive a call, the system starts up! Why?

K Hemanth Kumar



Change Power Management settings of your LAN card

You have a setting enabled in the BIOS which you don't want. Switch off "Wake on Modem" and "Wake on LAN", both of which you'll find under the Power Management section of the BIOS.

If your PC shows such behaviour in Sleep/Standby mode, click on Start > Run, type "devmgmt.msc" and hit [Enter]. Right-click on the installed modem and click Properties. Click the Power Management tab and uncheck the box next to "Allow this device to bring the computer out of standby", and click OK.

#### **Memory Muddles**

I want to buy the best RAM for my server/graphics workstation. I have to choose between DDR2 667 and DDR PC 3200. Which is superior and how? Is any other kind of RAM superior?

Satyajit Patnaik

DDR2 667 MHz is definitely better than DDR PC 3200 from an upgradeability point of view. The frequency of the RAM can be calculated by dividing the value after the "PC" by 8. Thus PC 3200 is 400 MHz, and has a slower clock speed than the 667 MHz DDR2.

But there are other factors that need to be considered. DDR2 memory, which operates at a higher frequency, also has higher latency than DDR, so the performance gain over DDR is not as great as you might expect taking the price into consideration.

In any case, before you buy any RAM at all, you must check whether your motherboard supports it. At present, DDR2 667 MHz

memory is a better choice for you, but these are not readily available in the Indian market, whereas 533 MHz DDR2 is easily available.

#### **Questions Galore**

I have a Pentium 4 3.2 GHz, an Intel 915GV motherboard, 512 MB of DDR2 400 MHz RAM, and NEC ND-3530A and LG GSA-4163B DVD-Writers. I have 12x CD-RW media, to which I am able to write at only 10x using either drive. Why? Both the drives support writing to CD-RWs at much higher speeds.

Also, is it possible to add 533 MHz DDR2 RAM to my PC? What is the maximum hard drive capacity and the "highest" processor my motherboard supports?

S Sudhakar

That's a lot of questions! Well, the speed at which a CD/DVD-Writer writes to a CD-RW depends not only on the media and the drive, but also on the table of media types that is built into the firmware of the writer. The drive tries to recognise the blank media inserted, and matches it with the list in its table to decide the speed. It also reads the speed certified by the media manufacturer, and if these don't match, the writer decides to use a safer, lower speed.

Another reason could be that the writer does not support the intermediate speed of 12x—for example, it may support 10x, with the next supported speed being 16x.

Your motherboard supports IDE as well as SATA hard drives of the highest capacities available. You cannot add more RAM running at a different frequency, but you can certainly replace your present RAM with 533 MHz DDR2. It supports any Intel processor with the LGA775 socket interface barring dual-core processors.

#### Clean That Jukebox

I have a 20 GB MP3 player called a "Jukebox." It has a problem: when I switch on the Jukebox, I get this error: "Hard disk error. No valid FAT 16/32 found. Please format the hard disk." I tried to format it, but when the format was about to complete, a message popped up: "Windows was unable to complete the format."

**Mandeep Singh Vaseer** 

Download the format utility for your MP3 player from the manufacturer's Web site. This will let you format the hard drive.

#### **Leave My Office Alone**

I have Microsoft Office 2003 installed on my Windows XP PC. I also have Norton Antivirus 2004 installed. The problem is that whenever I try to open any Office file, it pauses to scan the file using the anti-virus program, and then proceeds to open the file. I am only using Office files that I created, so there's no need for a virus scan. The virus scan takes place even when I disable the anti-virus in the system tray. Is there a way to disable the scan?

Anuj Malhotra





## **Use Mplayer On Windows**

Mplayer is a unique media player, as you'll find out. It originated as a typical Linux app, but it can also work on Windows

**Anup Nair** 

ere we introduce you to a media player that's very different from common Windows players. Mplayer—a media play-back software originally designed for Linux systemsnow has precompiled packages available for Windows. The packages are available from various sources, but the home site is http://mplayerhq.hu.

What makes Mplayer different? First, you need not install a third-party codec pack to play file formats such as DivX. Well, even VLC player can play back DivX without additional codec packs, but what's different about Mplayer is its command line interface. Yes, Mplayer works from the command line, which means there's no scroll bar, play/pause buttons or visualisation. You control everything via the keyboard. At this point. Mplayer may sound like a media player tailor-made for a geek, but believe us-once you start using Mplayer, you'll find it very easy to control it.

A GUI can be complied for Linux distros, and there are numerous skins to choose from. An effort at creating a GUI version for Windows is still in its early stages, but some developers have created a front-end to the command line. We will look at that as well.

#### **Downloading Mplayer**

**STEP** Downloading the player can be confusing, as there are many download sources. A few developers have compiled a helpful installer and front-end for Windows.

If you stick to the main source of the software (http://mplayerhq.hu/homepage/design7/dload.html), you'll get a compressed file, MPlayer-mingw32-dev-\*.zip (7.92 MB), containing a pre-compiled set of files that also includes Mencoder, a command-line tool to convert files from one format to another.

If you'd prefer, you can get the installer package with a GUI front-end (3.55 MB), which is a small interface placed over the command-line player. You can add files to it and play back files by double-clicking on them. The playback will open in a command window. The GUI front-end only simplifies the use of the command-line Mplayer. We recommend you download the package available at www.christianroessler.net/ mplayer/index.php. Note that this package does not contain Mencoder.

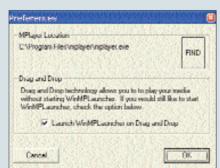
#### Installing Mplaver

**STEP** The method of installation varies for the two cases mentioned above

If you downloaded the package from MplayerHQ, uncompress the package to a folder with preferably the same name. Locate the file named 'mplayer.exe', right-click it and choose 'Send to desktop'. This will create a desktop shortcut. That's it—Mplayer is ready to play files! Just drag and drop the files onto the desktop shortcut to play them.

If you downloaded the package with the GUI front-end, the installation is just like any Windows application installer, but a few changes are needed to set the GUI front-end. The desktop icon created by the installer is incomplete: you need to set the path to its executable by double-clicking on the icon and choosing 'winmplauncher.exe'. Double-click this shortcut to open the GUI front-end. This will help you to add files to a playlist and then play them by clicking the Play button.

If you're running it for the first time, you're likely to see "Please locate mplayer.exe": click OK and then the "Find" but-



If you are playing files for the first time using Winmplauncher then you will have to locate mplayer.exe using the windows as shown above

ton in the pop-up window. Mplayer.exe is located in C:\Program Files\Mplayer, unless you changed the installation path. The setup is ready to play files.

#### Playback using the **STEP** keyboard

In both cases, you can drag-anddrop a media file to the desktop shortcut, or use the front-end to list and play

files; both will open the command-line interface. Control the player using the keyboard. Listed below are the keys that can be used.

Playback Contr	ol Keys
[F]	Toggle full-screen
[0]/[9]	Volume up/ Volume down
[M]	Toggle mute sound
[P]/[Spacebar]	Pause movie. Pressing again
	un-pauses
[Esc]/[Q]	Stop playing and quit window
Right/Left	Seek backward/forward by 10
arrow keys	seconds
Up/Down	Seek backward/forward by 1
arrow keys	minute
[Page Down]/	Seek backward/forward by 10
[Page Up]	minutes
"[" and "]"	Decrease/increase current
	playback speed by 10 per cent
"{" and "}"	Halves or doubles the playback
	speed
[Backspace]	Resets the playback speed
"<" and ">"	Go to previous and next item in
	the playlist

Keys for adjusting the display	
1 and 2	Adjust contrast
3 and 4	Adjust brightness
5 and 6	Adjust hue
7 and 8	Adjust saturation

To play a video file, open Winmplauncher (the GUI front-end) and click on the '+' button to add a file to the playlist. Now, double-click the file listed to play it. The video playback opens within a window of the actual video resolution and it won't resize by default. Use [F] to toggle to full-screen mode, or iust resize the window by stretching at the corner. To stop video playback and quit, press [Esc].

Other features include correction of audio-to-video lag by using the [+] and [-] keys on the numeric keypad, calibrated to as low as 0.1 seconds per keystroke. Now, let's say you've changed the file extension of a video file from .AVI to .MP3. Add this file to, say, Windows Media Player; it will not be able to play back the file, stating "Corrupt file or format". But Mplayer recognises the file format intrinsically and plays the file without any error.

You can take our word for it—once you get the hang of Mplayer, you'll forget about all other media players! ■

anup\_nair@thinkdigit.com



#### **Windows Is CONning Me**

Why can't I create a folder named "CON" or "PRN" in Windows XP?

**Preetham Shenoy** 



A Interesting question! You aren't allowed to create folders with names that are the same as the ones that have been used for various devices on a PC since the DOS era.

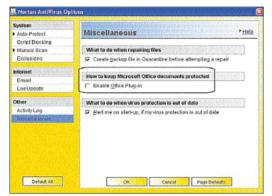
"CON" refers to "console" in DOS. Similarly, "PRN" refers to "printer," as also "LPT1," "LPT2," etc., and "COM1," "COM2," etc. refer to the communication ports.

There happens to be a workaround for this. To create a folder called "con" in the C: drive, open a command prompt. Type in the following commands:

mkdir \\.\c:\con (This will create a folder named "con")
dir C:\con (This will list the contents of the directory,
so you know the directory was indeed created!)

You may also be able to view the folder using Windows Explorer, but you will not be able to enter or delete it. In order to delete the folder, type in "rmdir \\.\c:\con" at the command prompt.

To disable the virus scan on opening any Office document, launch Norton AntiVirus. Click on Options. On the left-hand side at the bottom, you will see a section called "Miscellaneous" under "Other." Click it. Now on the right-hand side, uncheck the box against



Disable the MSOffice Plugin in Norton Antivirus

"Enable Office Plug-in," and click OK. Office documents will no longer be scanned for viruses when they're opened.

#### Don't Do That You'll Go Blind!

My PC has an AMD Athlon XP 2400+, 256 MB of RAM, and a VIA/S3G KM400/KN400 onboard graphics chipset. I installed the Cue Club Demo from your magazine's CD. Normally, the game runs fine, but after I resume from hibernation and run it, the screen goes blank and the PC hangs.

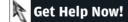
**Puneet Abrol** 

The problem you're experiencing seems to be due to the display driver not properly supporting the power management features of Windows XP. A possible solution is to download an updated driver for your display adapter from the manufacturer's Web site.

#### **Cards That Crawl**

My system configuration is a Pentium 4 2.4 GHz, 384 MB of RAM, and a GeForce FX 5200 128 MB card. The problem is that most of my games run slowly, and even my 3DMark05 score is very low. I've installed the latest drivers for my graphics card but in vain.

Naju R



E-mail us your computing problems along with your contact details and complete system configuration to sos@jasubhai.com, and we might 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!

The nVidia GeForce FX 5200 is a low-end graphics card, and you should not expect it to perform as a high-end card. You might be able to play most games on this card at the lowest settings. Don't be fooled by the 128 MB that comes with the card—it simply does not have the bandwidth and power to make full use of that much memory.

#### **Upgrade Or Else**

I have an Intel Pentium 4 1.6 GHz, 256 MB of RAM, and an nVidia GeForce4 MX 440 32 MB graphics card. Dungeon Siege Demo II, King Kong Demo, and X-Men Legend 2 Demo don't run on my PC.

I get a message: "Sync out of range." I've tried almost all possible methods to improve the performance of PC: I've altered the graphics card settings, the size of the page file, etc.

The problem seems to be with the graphics card: when I try King Kong Demo, the system gives a message: "Out of video memory, try to run at a lower resolution."

Jitendra Barate

The "Sync out of range" message means that the game, when loaded, forces the screen refresh rate to a value not supported by your monitor.

You will either need to set the refresh rate in the game, or you will have to use the DirectX Diagnostic Tool to force the game to use a refresh rate supported by your monitor.

To do this, click on **Start > Run**, type "**DXDiag**" and hit [Enter]. Click the "More Help" tab, click the "Override" button, click "Override value", and enter a refresh rate such as 60 Hz, which should be comfortable for any monitor. Click OK. You could experiment by gradually increasing this value.

The games you've mentioned are the latest games, and require a system with a higher configuration than yours in order to run without any issues.

That's not to say they won't run on your system, but that you will have to reduce the graphics details in-game. Download and install the latest display drivers from www.nvidia.com.

If you really want to enjoy the game and turn up the details, you'll need to upgrade your graphics card!■

## **Agent 001 Tunes In To MP3 Players**

#### Deciding upon an MP3 player can boggle the mind-brands, types, capacities, displays, ...

If there's one thing we geeks love besides tech, it's chocolate cake. For this reason, a colleague's birthday gets us all excited. However, there's a downside to it... the gift! Geeks are really hard to shop for: they'd even love a teddy bear, provided it could speak in binary and connect to the Internet and read out your mail to you!

This month round, it was Ram's turn to grow a year older, and since he's an audiophile, we chipped in and gathered a respectable Rs 10,000 to buy him an MP3 player.

Somehow I always get saddled with the task of buying tech products, and this time was no exception. A hard drive-based player on the limited 10K budget would be a problem, so a Flash-based player it was to be. My first thought was to pick up an older Apple iPod Mini—despite it being discontinued, there's still old stock available in the market.

I was sure to get a lesser-known brand with a higher capacity, but then what kind of gift would that be? Besides, there's no guarantee for such products, and buying one is like playing tech-roulette. Then there's the whole deal with the audio quality—since Ram is an audiophile, we couldn't buy just anything!

This is one buying trip that didn't see me visit Mumbai's famous Lamington Road, since it's not the right place to buy an MP3 player in Mumbai. Instead I headed off to Heera-Panna, near the famous Haji Ali mosque—this place is consumer electronics paradise!

As it happened, the very first shop I entered had a large stock of audio players. The iPod is the fastest-selling of these devices, and seeing a whole bunch of them lined up was no surprise. Since they are out of my budget, asking for one didn't make any sense. I saw the iPod Shuffle and asked about it; the shop-owner had both the 512 MB and the 1 GB models. The former retails at around Rs 3,750, whereas the latter would set us back by Rs 6,000.

The shop also stocked the beautiful iRiver MP3 players. The T20 and N10 were on display; both were 256 MB, and had LCD displays—something the iPod shuffle lacks. It was nice to hear that both used internal rechargeable Li-ion batteries. I somehow liked the N10 for its cool OLED display. Both these players retail at Rs 8,000.

Unfortunately, no dealer here lets you listen to any of the players, so you can't make your decision based on what you hear

Illustration Pradip Ingale

The next shop had a lot of Creative players, and the owner was glad to answer all my questions. Here's what I found out: the MuVo slim 128 MB, with an LCD and an Li-ion rechargeable battery retails at about Rs 4,750. The rugged Creative C100 256 MB, with a big LCD, retails at Rs 5,500. The MuVo V200 also made a solid impression, and retails at around Rs 5,000.

This shop also had Samsung models, and I was completely bowled over by the way Samsung has designed their MP3 players. The Samsung YP-C1 has 1 GB of space with an LCD display, and was the cheapest in the whole range—it cost around Rs 5,750, but it wasn't desirable enough. At the other end, the Samsung YP-T8 with 1 GB of space, a 262K TFT screen, video playback and an internal Li-ion battery was the best available. But with a price tag of Rs 13,500, it was out of our budget.

Models from YES, another Korean maker, were also available, and the YMP-910 is charming. I found its price of Rs 6,200 for 256 MB a little expensive, but perhaps justified because of its exhaustive list of features.

The next shop had players from IT vendors such as MSI, Transcend and Umax, as well as some unbranded players. Since Transcend is a known player in memory, I decided to find out more. The Transcend T.Sonic 610 1 GB is

available for around Rs 6,250, and the 512 MB version retails for Rs 4,950. The MSI Mega-Stick 512 MB was available for around Rs 5,500, but the AAA battery was a deterrent.

The sound quality of the players and the quality of the bundled headphones were a concern: unfortunately, no dealer here lets you listen to any of the players, so you can't make your decision based on what you hear—which is quite silly when you're talking about buying an

MP3 player! Thankfully, since we've tested most of these players, I was able to keep calling work and checking with the Test Centre guys for the audio quality of the various models I'd been looking at.

After a lot of pondering, I decided to get Ram the Transcend T.Sonic 610 because it made for the best value for money. I managed to bargain and get the 1 GB model for just Rs 6,000. ■

Want more of Agent 001? Turn over to read his answers to your buying questions

#### **Ask Agent 001**

#### Don't Go El Cheapo On Digicams

I want to buy a new digital camera within a budget of Rs 10.000. I want a device from a good brand, one that's simple to use. It should have good enough quality for 4 x 6-inch printouts.

**Tanul Saxena** 

There are lot of digital cameras available in the market boasting of high megapixel count sensors. Most such cheap digcams are not worth buying, because they use extrapolation to achieve high-resolution images, and lose out on picture clarity in the process.

Your budget is good enough for a decent entrylevel digital camera. I would suggest Canon's PowerShot A410, which has a 3.2 megapixel sensor, 3.2x optical zoom, and runs on standard AA batteries. It also has 14 shooting modes as well as PictBridge, so you can connect it directly to a compatible printer. It retails at about Rs 9,500.

#### **Legal Security**

I recently used Norton's Internet Security 2006 and was pleased with its performance and features. I would like to purchase it legally. Can you tell me where I can get it from?

**Sunil Sharma** 

Symantec's Norton Internet Security 2006 is a compilation of Norton AntiVirus 2006, Norton Personal Firewall, Norton Privacy Control. Norton AntiSpam and Norton Parental Control. This suite retails for \$69, which translates to about Rs 3,220. Tech-pacific is the retailer for Symantec products in India, and you can call them at 022-55960303.

We're glad to see an increasing number of people like you who are willing to pay for good software!

#### **A Laptop For General Use**

Q I want to buy a good branded laptop for less than Rs 50K. I will be using the laptop for general dayto-day work such as browsing the Internet, e-mail, music and office applications.

**Achiranshu Garg** 

Laptop prices have dipped recently, and it's possible to get a decent laptop for under Rs 50,000. As for the configuration, I'd recommend a Pentium M 1.6 - 1.7 GHz processor, a minimum of 256 MB of RAM, a 40 GB hard drive, a 14 - 15 inch display (if you are comfortable with a wide screen, buy one), Intel GMA 900 graphics and a combo drive. When it comes to brands, HP and IBM are the favourites, followed by Acer, the reason being a good after-sales service infrastructure across the country.

#### I want To Go Original!

I want to buy original copies of Ashampoo WinOptimizer Platinum 3 and Adobe Photoshop Elements 4. Who are the official dealers for these in India?

Ashampoo have no Indian dealer who can sell you the product-you will have to buy Technically speaking, PCIe cards do offer higher bandwidth: however. how much of that extra bandwidth gets utilised in a real-world scenario is debatable

WinOptimizer online at www.ashampoo.com. It retails at \$49 (Rs 2,200). For Adobe Photoshop Elements 4, you can contact Adobe Systems India at 0120-2444711, or send an e-mail to sandeepm@ adobe.com to find a dealer near you.

#### **HD Reliability, Size, And Warranty**

I have a branded LG PC with a 40 GB hard drive. hard disk. Are hard disks from Seagate good enough? I am planning to buy a Seagate since they offer a fiveyear warranty. Are there any better products? If so, please mention their names and model numbers.

I have used a Seagate hard drive for over three years now and haven't had a problems. As far as performance is concerned, our tests conclude that Western Digital (WD) and Hitachi drives are better performers. As for the warranty, almost all vendors offer a five-year warranty. If you want to buy a large capacity hard drive, I'd suggest the Western Digital Caviar series.

#### High-End Everything

I am interested in building a high-end rig using an AMD Athlon 64 FX-57 processor. However, every time I ask for it, the dealers push the Athlon 64 3500+, which according to them is the same as the FX-57; I guess I am better informed than them. Could you please direct me to the right dealer for this processor? Also, please suggest a good motherboard, high-end graphics card, DDR RAM and other high-end hardware for my system. My budget is Rs 85,000.

**Shiv Kumar** 

Ingram Micro is the distributor for AMD processors in India. You can call their product manager at 022-55960512 regarding the AMD Athlon FX-57 processor. As far as the motherboard is concerned, opt for the Asus A8N SLI Deluxe or Premium board. Buy original Transcend or Kingston memory. However, if you are interested in overclocking, opt for Corsair memory modules. For the graphics card, I would suggest any 7800 GTX chipset card—it is the best that is available for gaming.

#### Some Confusion Here

I recently upgraded my PC to a Pentium IV 2.66 GHz, 512 MB of RAM, a 915 chipset-based motherboard and a GeForce 5200 AGP card. I have read in your magazine that PCI cards are better than AGP, but my vendor says that AGP cards are better. He says that the GeForce 5200 has the new AGP 8x slot rather than the older 4x, and that it works better than a PCI card. My budget is Rs 5,000-what card should I get?

I think you mean to say "PCI-Express" cards. Technically speaking, PCIe cards do offer higher bandwidth; however, how much of that extra bandwidth gets utilised in a real-world scenario is debatable. But from a future upgradeability point of view, PCI-Express is the way to go.

Your only option is to opt for an AGP card, and as far as these are concerned, I think you should invest in a card based on the 6200 chipset rather than the older 5200 chipset.



#### **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 he might answer them here! Please note that Agent001 only answers purchase-related guestions in this space.







## Digital Business

**How Technology Can Help Your Organisation** 

**Case Study** 

## From Blackboard To Blackbaud

**Woodstock school** in Mussoorie. which aims at providing "a world-class international education," is arguably the nation's most wired school

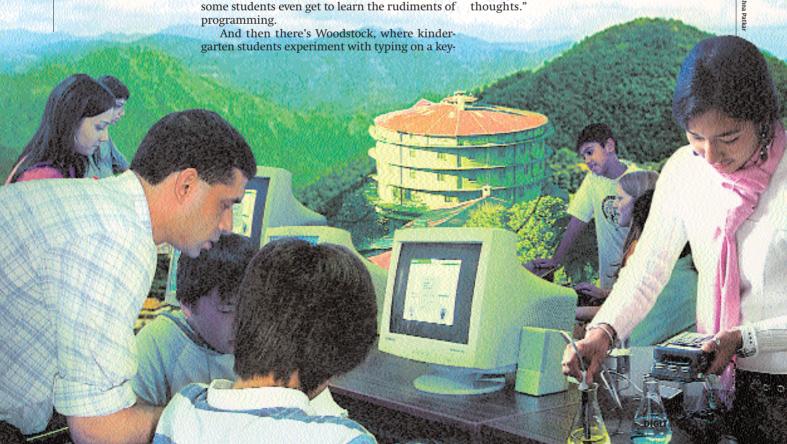
**Philip Malayil** 

t the century-old Woodstock School, sitting on a spur between the Ganges and Yamuna rivers at around 2,000 metres above sea level, what you're likely to first notice is the snow-covered ranges, whose peaks rise to more than 6,500 metres. But it's not just a pretty school. It's very wired. And those wires enable a very different way of life for the students as well as the teachers. School Principal David Jeffery has gone on record stating that the only Indian institutes to outdo Woodstock in terms of IT infrastructure would be the IITs.

It's true that many of our schools have come some way from the days of question papers with "fill in the blanks" and "expand acronyms" being the only measure of a student's competence. There are labs where kids can actually work on a PC, and some students even get to learn the rudiments of programming.

board, learn to read using WiggleWorks, weave their own stories using Storybook Weaver Deluxe, and learn the rudiments of counting with Treasure MathStorm. As they move into middle school, Rosetta Stone equips them with Hindi vocabulary; a custom-designed Focus on Grammar program helps to bring on par those learning English as a second language; and a MathLab Toolkit replaces MathStorm.

Founded in 1854, Woodstock is an international, kindergarten to grade 12 school that prestudents for entry into colleges throughout the world. Its core subjects—English. Mathematics, and the Physical and Social Sciences—are supplemented by particular strengths in music, art, drama, journalism, environmental studies and outdoor education. Here, IT is "a medium in which students can work out and express their



#### Software, Hardware, Everywhere

Programming begins in high school with Visual Studio.NET and MS Access. Algebra, that scary phenomenon, is tamed with Derive, while Geometer's Sketchpad opens up the monitor as a visualisation tool to help grasp the concepts of lines, planes and much more. Electronic book-keeping is taught using MYOB, and Environmental Science projects use Front Page Editor. Measuring data for experiments in physics, chemistry and biology are done with handheld devices—the results are uploaded onto a network folder, and analysis can be done from the comfort of one's dormitory using Vernier LabPro!

The use of software is not limited to the class-room. Publisher 2000 enables the newspapers brought out by the students in the journalism class, while the VHS editing room is used to compile an audio-visual news magazine, with the international section being sourced from CNN, BBC and local happenings shot around the campus. The yearbook, again produced in-house, is created using the Adobe DTP Suite.

Sibelius Orchestration and Finale Orchestration are tools used to teach music skills across all three sections—the kindergarten, middle school and high school. Not only do the software make provision for the students to write music, they offer exercises in creating "missing parts." For those looking to master improvisational techniques, Band-in-a Box allows one to "solo" behind a band. And after hours of practice, when a young aspirant wants to apply to music college, Sonar Recording Software helps cut that master.

305 workstations, 15 servers, a 1 terabyte Storage Area Network (SAN) set to scale up to 2 TB in the next two years, a robotic tape library, 2 Mbps Internet connectivity, and 14 km of fibre-optic cable criss-crossing a location challenged by lightning, rain, fog and monkeys—along with the associated hubs and switches—comprise the infrastructure that enables all this and more.

#### The Man Behind The Machines

Overseeing mission critical e-mail—often the only link for the community, gathered from 25 Indian states and 35 countries, with the outside world—is a job in itself. So is the smooth functioning of the BlackBaud ERP suite (See box *Blackbaud*) on which the entire school administration runs. There's also the backup of the enormous amount



There's no dearth of computer lovers here

The use of software is not limited to the classroom. Publisher 2000 enables the newspapers brought out by the students in the journalism class of data generated on the SAN to be managed. And there's one man behind all this—fifty-one-year old Steve Ediger, Director- ICT (Information and Communication Technology) at Woodstock.

Ediger, married to a Woodstock alumnus, came to Mussoorie nine years ago after selling his business in Los Angeles. A veteran in the field of IT right from 1978—when there were 50,000 microcomputers in the US— he started out as a distributor for systems and peripherals with a company that later became Ingram. Ediger remembers Bill Gates walking in and out of offices trying to peddle the compilers he had written prior to DOS!

When Ediger came to Woodstock in 1997, the school had 100 computers running multiple versions of DOS, Windows, and WordPerfect on a LAN. There were two Intel servers and a 64 Kbps Internet link shared between 300 users.

#### The Upgrade

The existing discrete storage method, where the two application servers also doubled up as storage, had its disadvantages. For example, teachers had to store both lesson plans and personal data on a single network drive. When a teacher left, someone would have to sift through all that teacher's data, pulling out what was needed by the teacher who came in. Also, from the system administrator's point of view, e-mail maintenance meant shutting down a common server, which would naturally hamper other applications running on it.

The use of IT in the classrooms was increasing: e-yearbooks began to take up entire drives. When the biology class completed study of a stream ecology, the data and pictures would take up another drive. And the Internet was being used much more as a research tool. All this meant information at Woodstock was exploding. And so, in January of 2004, plans to upgrade the infrastructure were made. The approach had to factor in email, ERP, MIS and classroom requirements. At the end of the upgrade, Woodstock was truly wired. While the final cost came to more than Rs 3 crore, the initial costs included Rs 50 lakh on the servers, SAN and tape: Rs 10 lakh for the additional hardware; Rs 12 lakh for new software; and Rs 10 lakh for the 14 km of fibre-optic cable.

Ediger's comments on this venture are worth noting: "We believe we have investment protection because we can get even faster performance, continuous availability and data integrity, and increased scalability—from five to 240 drives in a modular, pay-as-we-grow increments. This allows me to plan not just for next year, but for at least the next five years, which is a true luxury when it comes to information technology."

#### "A Twenty-Fold Improvement"

For the residents of the school, the upgrade meant that each classroom got a computer, used primarily for presentation. The science rooms together got 100. There were 25 for each of the three labs, while the Internet library and the study room together got 18. The dormitories were not neglected: while the high school dorms managed a 1:10 ratio, middle-school dorms got a lower 1:15. Elementary school dorms, where the little residents have many other concerns, make do with a 1:50 ratio.

In terms of space, each student gets 2 MB of e-mail and 100 MB for personal use. This is further supplemented by space allotted for different activities and clubs.

For the system administrator, too, it was very different after the upgrade. There was now the ability to create storage facilities according to requirements. A staff member could have separate drives for personal and department use. Access rights could then be managed; for example, a department head could access and manage the entire "department data" drive. Similarly, each class could have a drive with read-write privileges for the teacher and read-only for the students; this would be where the students handed in assignments. Configuration possibilities became as varied as the requirements of different teams.

Multiple servers meant that now, when the email server needed maintenance, for example, there was no reason for applications such as the ERP or accounting suites to stop functioning.

Data backup was another area where having a SAN really helped. "Trying to take backups of our information from 18 servers and 300 desktops was such a nightmare that we chose to only back up our mission-critical infrastructure on a monthly basis. Our exposure was high, and our information was at risk," says Ediger. "Today our information is not just safe; it is more effectively shared, protected, backed up and leveraged. It takes a huge load off of my servers, and I am able to use them and utilise them far more effectively than before. Backing our data up is just so easy now—I can see at least a twenty-fold improvement!"

The process is fully automated to boot. Once scheduled, using a Veritas storage solution software, the administrator can literally take a walk or a nap. The 20 robotic slot tape changers automatically replace tapes. The EMC/Dell CLARiiON CX 300 system is a RAID 5 setup, which in this case means there are nine drives on a storage server.

#### The Use Of The Internet

Asked about students accessing the Internet and whether any monitoring or censorship is exercised, Ediger reasons, "Apart from the prohibitive cost of filtering software, we realise they often don't keep people out from where they shouldn't be. So the students' access is restricted to the Internet centre in the presence of supervisors."

In any case, at Woodstock, the Internet is not the primary source of information for the stu-



The young take to IT at Woodstock

#### $\nabla$

#### Blackbaud

Blackbaud is an ERP suite. It comprises several modules designed for not-for-profit organisations. Those implemented at Woodstock are Education Edge, Financial Edge and Raiser's Edge.

Raiser's Edge helps organisations of all types and sizes to raise money. This solution supports traditional and diversified fundraising methods, automates administrative processes, and provides insightful reports.

Financial Edge provides the power to develop budgets, control spending and achieve accountability.

Blackbaud's total school solution, including Education Edge, provides all who need to know-including parents, teachers and supervisors—with instant, secure access to up-to-date

student and financial information. The solution also allows schools to extend their communication efforts to the Web, keeping parents, students and alumni in the loop at all times.

A typical application of Education Edge is in scheduling exams. In a school such as Woodstock, which offers 50 electives to a high school student, ensuring that every student need not take more than two papers a day within the stipulated exam date becomes an involved permutation and combination problem, which is effectively solved by the software. Providing parents with real-time access to student records is another complex archiving activity handled by the suite.

dents. They have the 37,000 volumes in the library and the 80-odd reference CDs and DVDs to exhaust first! This, according to Ediger, is primarily to develop a "right learning strategy," while keeping in mind the costs of bandwidth.

#### Why So Much Tech?

Coming to learning strategies, one might ask, what is the need for so much tech in a school? Why is there such prolific use of computers, right from the kindergarten level? What exactly is the philosophy behind the IT investment?

"Computers are nothing more than the slate and chalk of today," is how Principal Jeffery understates what he calls "the contemporary learning tool." He adds, "Education is not about filling an empty receptacle—the learner—with information, but equipping him to think for himself. To this end, the use of computers offers many opportunities."

Besides that, Jeffery goes on to say, "We are an international community drawn from 35 countries around the world. And communication is essential for students and staff alike. A robust infrastructure serves this critical purpose."

IT is being harnessed to its optimum at Woodstock, acting as an enabler to "opening up the mind."

To this end, an assessment to optimise the use of technology in education is being carried out. Some of the issues of immediate concern being discussed include revisiting the proposal of providing students and teachers with laptops, which is currently on hold, coupled with that of setting up a Wi-Fi network that would cover all of the 300 acres.

#### At The End Of The Day...

It's remarkable how an institution more than a hundred years old has kept pace and transformed itself into something of a precedent-setting school for the 21st century. Of course, not everyone can afford the kind of infrastructure here, but any modern school would do well to take a cue from Woodstock's wired philosophy. ■

philip\_malayil@thinkdigit.com



# The Do-It-Alls

If you've made the decision, we've done the tests! We present here a comparison of seven monochrome laser multi-functional devices

**Jayesh Limaye** 

ost offices—big or small—still rely heavily on paper documents rather than soft copies: the "paperless office" is a phrase that is almost out of vogue. And as a result, printers, scanners, copiers and fax machines are still an essential part of offices.

Now, why are MFDs as popular as they are? There are many answers, the main one being their considerably lower prices as compared to the combined prices of standalone components. A second reason is the small desktop footprint. Third, the adoption of MFDs in an office makes for fewer machines, and therefore lower maintenance costs.

MFDs also increase the efficiency of the workforce by reducing the need to go back and forth between machines.

Within the MFD segment, we must ask, why laser MFDs? Well, laser MFDs are considerably more expensive than their inkjet counterparts, but offer much superior print quality. They require lower maintenance, and running costs, too, are much lower. The cost per print is much lower than that of inkjets; this is especially true with small and medium businesses where the workload consists of a moderately large volume of prints each month.

To help you decide on a laser MFD, we present here a mini-shootout of monochrome laser MFDs available in the Indian market. Mono laser MFDs are expensive and are not targeted at home users, but rather at the SoHo and SMB segments.

The mono MFDs we received for this shootout came from Canon, Lexmark, Samsung, Sharp and Xerox. These were the Canon MF 3110, Lexmark X215, Samsung SCX-4100, SCX-4521F and SF-565P, Xerox WorkCentre PE220, and the Sharp AM-400. Of these, the Sharp AM-400 belonged in a different class—it is copier-based, whereas the rest are printer-based. We therefore didn't directly compare it with the others.

As always, ours isn't the final word, but this comparison should definitely help you decide on an MFD—assuming, of course, that you've already decided that it's a mono laser MFD you want to go with.

#### **FEATURES**

#### **Printing**

#### DPI

A higher dpi (dots per inch) means better image quality and hence sharper output, which is good for graphics-heavy documents or those with small fonts. The Canon MF 3110 supports the highest printer optical resolution of 1200 x 600 dpi, while the others were mostly at 600 x 600 dpi. The Samsung SF-565P had the lowest print resolution of 300 x 300 dpi; Samsung is targeting the Office Automation market, and this MFD is specifically targeted at replacing a fax machine—hence the lower dpi.

#### **Paper Capacity**

All the MFDs we tested have input paper tray capacities of 250 sheets except for the Samsung SCX-4521F and Xerox WorkCentre PE220, whose input tray capacity is only 150 sheets. The Lexmark and Samsung SF-565P boasted of the highest output tray capacities of 150 sheets each, while the Canon MF3110 had a capacity of 60; the rest had output trays that held only 50 sheets.

#### **Duplex Printing**

Dual-sided printing wasn't featured in any of the MFDs we tested this time round, which is surprising, since it is important for both the SoHo and SMB segments - it facilitates easy printing of booklets and such. Duplex printing also saves on paper, and is therefore more environment-friendly.

#### **Duty Cycles**

The Canon MF 3110 has the highest printer duty cycle—15,000 prints per month—whereas most of the others have a duty cycle of 10,000. The Samsung SF-565P has the lowest duty cycle—4,200—which is still all right for an MFD that aims at replacing a fax machine.

#### Scanning

#### **Optical Resolution**

A higher scan resolution means you can better extract the finer details from an image or document. The Canon MF3110 supports the highest optical scan resolution—1200 x 600

#### **Digital Business I Business Test**

dpi—higher than all the rest, which only support 600 x 600. Its interpolated scan resolution is also higher than the rest.

The optical resolution of a printer or scanner refers to the real hardware capabilities of the device, defining the fineness at which it can print or scan. Interpolated Resolution is the software-enhanced resolution of the device, and the figure is always misleading—don't go by it.

#### **Scanner Type**

The Canon MF3110 and Samsung SCX-4100 have flatbed scanners, and the Samsung SF-565P have only a sheet-fed scanner. The rest have both types of scanners.

A flatbed scanner has a moving scanning head that scans a document placed on the glass plate, whereas in a sheet-fed scanner, the document moves past a stationary scanning head. The paper cannot move past the scanner head as fast as the scanning head can move parallel to the paper. As a result, flatbed scanners are faster than sheet-fed scanners.

Documents are likely to get stuck or crumpled in a sheet-fed scanner if not placed in proper alignment with the paper guide. An advantage, though, with sheet-fed scanners is that they are more compact.

#### **ADF**

The Canon MF3110 and Samsung SCX-4100 are the only MFDs without an automatic document feeder (ADF). An ADF is important because it allows you to place a stack of papers to be



scanned—the MFD proceeds to scan and/or copy until it reaches the end of the stack. This means time savings, and that human intervention is minimised.

#### **WIA Compliancy**

The Samsung SCX-4521F and Xerox WorkCentre PE220 are Windows Imaging Architecture (WIA)-compliant. WIA compliancy means that the device enjoys native support in Windows XP—which recognises such devices as soon as you plug them in, and don't need to install any drivers. You can then use the Scanner and Camera Wizard to easily transfer scanned

### W

#### **How We Tested**

Our test bed comprised a Pentium 4 3.2 GHz processor plugged onto an MSI 875P Neo FISR2 motherboard with 1 GB of Corsair 400 MHz DDR RAM, a Gigabyte nVidia GeForce FX 5950 graphics card, and a 250 GB 7200 rpm SATA Maxtor hard disk.

The system was powered by an Antec NeoPower 480 W power supply. 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.

#### **Features**

Various features such as the duty cycle, input and output tray capacity, input buffer, maximum print resolution supported and so on were rated. For the scanner, the maximum scan resolution, bit depth, scanner type, ADF presence and capacity, etc., were noted.

In the copier and fax aspect, the ability to work as a standalone device, the maximum number of copies in multicopy mode, memory for storing fax pages, etc. were noted.

#### **Performance**

We tested performance on two

parameters-speed and quality. Since MFDs consist of at least three basic partsthe printer, scanner, and the copier-we tested their performance as below. Printer 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 combidocument with black text interspersed with graphs and images. We clocked the time it took the printers to print this document in Normal and Best quality modes, and analysed the print quality. Scanner speed and quality 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, so as to incorporate the warm-up time. Scanners with a higher warm-up time didn't fare as well. 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 CS, 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-we used a Kodak IT8 card with different shades of colour, each a little different 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 8.0 PE, 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 black and white and rated the MFDs on the speed and quality of the printouts.

#### How the awards are given

The scores from features, performance and price are given weightages suitable to the category. An overall score out of 100 is then calculated. The product that scores the highest here is adjudged the *Digit* Best Buy Gold winner for the product category. The second-highest scorer gets the *Digit* Best Buy Silver award.

#### V

#### Sharp AM-400

The Sharp AM-400 is a 4-in-1 solution for SoHos and SMBs. It provides copying, faxing, printing and scanning functionalities in a single package. What makes this multifunctional device different from the rest in this comparison test is the fact that it is based on the copier engine.

Being copier-based, it comes with not just a single toner cartridge, but also a drum. The advantage of having a separate toner and drum is that if one of them is exhausted, you need to replace only that one, so overall running cost is reduced as compared to printer-based solutions, where the toner has to be discarded and replaced. In addition to this, the duty cycle and print speeds are also very high, making for a lower cost per page. On the downside, copier-based MFDs are somewhat more expensive than their printer-based counterparts.

Coming back to the Sharp AM-400, it has an optical print and scan resolution of 600 x 600 dpi, which is just fine for the small business segment, where one does not need a very high degree of image accuracy in scanning. The input



tray accommodates 250 sheets; it is augmented by a 50-sheet capacity bypass feed. The output tray is also very large—it holds 250 sheets.

The drum duty cycle is 20,000, whereas the toner duty cycle is 3,000.

The flatbed and sheet-fed 24-bit colour scanner can scan papers of up to Legal size. The ADF tray, with a 20-sheet capacity, is useful to automatically scan a stack of documents.

The scanner features the TWAIN as well as the WIA interfaces. The AM-400 supports Super G3 high-speed fax at 33.6

kbps. The copier can reduce and enlarge up to 99 copies in continuous mode.

TWAIN is an interface that was designed to provide a universal public standard to link applications and image acquisition devices such as cameras, scanners and the like.

The print speed of this MFD was found to be a bit slower than that of the others in our test, but print quality was on par with the best. The scanner was faster than the others we tested. Copying was slow, with the first copy of the warmed-up device taking 20 seconds.

The build quality of the AM-400 is rugged, but the removable output paper tray cannot be firmly anchored into the MFD.

The device can connect to the PC via USB 2.0 as well as the parallel port interfaces. It weighs just 12.7 kg, and is 47.5 cm wide and 42 cm deep, which is pretty small for a copier-based MFD. Power consumption is rated at 870 W.

We reckon the Sharp AM-400 is a good buy for small and medium businesses. The price of Rs. 33,500 also seems to be justified.

images to your PC—you can also manipulate the images before transferring them.

#### Copying

Since we only tested mono MFDs, copying, naturally, was limited to greyscale. All the MFDs had similar features—standalone copying, reduce and enlarge, and up to 99 copies in multiple copying mode. 99 copies is normally more than enough for a SoHo.

#### **Facsimile**

#### **General Considerations**

The Samsung SF-565P is the only model to sport a handset. This makes it a telefax—a telephone-cum-fax, so you can make telephone calls using the same machine. The Canon MF 3110 and the Samsung SCX-4100 do not have a fax unit inbuilt.

#### Memory

The 4 MB of fax memory on the Lexmark X215 makes it possible to receive and store a larger number of fax messages when the machine runs out of paper. Broadcasting and Scheduled Faxing are standard on all the MFDs in this test. Broadcasting allows you to send a fax to a group of numbers in the phonebook memory. Scheduled Faxing allows you to send a fax at a specified time.

#### **Miscellaneous Features**

#### **Physical Considerations**

Weighing in at 13.6 kg and measuring 47 x 41.9 x 43.2 cm, the Lexmark X215 has the largest dimensions while also being the heav-



iest. The Samsung SF-565P is the lightest and also the most compact amongst the MFDs with the fax feature. The SF-565P has a compact and sleek appearance, and is well suited for small offices due to its considerably smaller footprint. We found the overall build quality of the Lexmark X215 to be very rugged; the build quality of the Samsung SCX-4521F and Xerox PE220, too, is commendable.

#### **Interface And Memory**

Barring the Canon MF 3110, which features only the USB 2.0 interface—all the other MFDs in this test have the USB 2.0 as well as the parallel interfaces.



MODEL  Features (Out of 35)  Printing  Optical Resolution (dpi x dpi) Input/Output Paper Tray Capacity Dual Side Printing  Printer/Toner Duty Cycle Scanning  Optical Resolution (dpi x dpi) Interpolated Resolution (dpi x dpi) Interpolated Resolution (dpi x dpi) Scanner Type Bit Depth 22 ADF/ADF Capacity Standards Compliance Copying Enlarge/Reduce 4 Collating 4 Multiple Copying (Number of Pages) Fax Handset Provided Memory for Storing (MB) Broadcast/Scheduled Faxing Misc Interface Weight (Kg) Interpolated Resolution (MB) Interface Uther Standards Input Buffer (MB) LCD Panel For Settings  12 Input Buffer (MB) Input Buff	<b>Canon MF3110 9.59</b> 200x600 250/60 5 5000/3000	Lexmark X215 24.26 600x600 250/150	Samsung SCX-4100 17.28	Samsung SCX-4521F 24.64	Samsung SF-565P 21.94
Features (Out of 35) Printing Optical Resolution (dpi x dpi) Input/Output Paper Tray Capacity Dual Side Printing Printer/Toner Duty Cycle Scanning Optical Resolution (dpi x dpi) Interpolated Resolution (dpi x dpi) Scanner Type Bit Depth ADF/ADF Capacity Standards Compliance Copying Enlarge/Reduce Collating Multiple Copying (Number of Pages) Fax Handset Provided Memory for Storing (MB) Broadcast/Scheduled Faxing Misc Interface Weight (Kg) Dimensions (W x D x H) C.M./Foot Print Input Buffer (MB) LCD Panel For Settings	200x600 250/60	<b>24.26</b> 600x600	17.28		
Printing Optical Resolution (dpi x dpi) Input/Output Paper Tray Capacity Dual Side Printing Frinter/Toner Duty Cycle Scanning Optical Resolution (dpi x dpi) Interpolated Resolution (dpi x dpi) Interpolated Resolution (dpi x dpi) Scanner Type Bit Depth ADF/ADF Capacity Standards Compliance Topying Enlarge/Reduce Collating Multiple Copying (Number of Pages) Fax Handset Provided Memory for Storing (MB) Misc Interface Weight (Kg) Dimensions (W x D x H) C.M./Foot Print Input Buffer (MB) LCD Panel For Settings  42  12  13  14  15  16  17  17  18  19  10  11  11  12  11  12  11  12  13  14  15  16  17  17  17  18  18  19  19  10  11  11  11  12  12  13  14  15  16  17  17  17  18  18  19  19  10  10  11  11  11  12  12  13  14  15  16  17  17  17  18  18  19  19  19  10  10  10  10  11  11  11	200x600 250/60	600x600	17.28	24.64	21.94
Optical Resolution (dpi x dpi) Input/Output Paper Tray Capacity Dual Side Printing Frinter/Toner Duty Cycle Scanning Optical Resolution (dpi x dpi) Interpolated Resolution (d	250/60				
Imput/Output Paper Tray Capacity   25	250/60				
Dual Side Printing 6 Printer/Toner Duty Cycle 15 Scanning Dutical Resolution (dpi x dpi) 12 Interpolated Resolution (dpi x dpi) 9 Scanner Type Fl Bit Depth 24 ADF/ADF Capacity 6/ Standards Compliance Tr Copying Enlarge/Reduce 4 Collating 4 Multiple Copying (Number of Pages) 99 Fax Handset Provided N. Memory for Storing (MB) N. Broadcast/Scheduled Faxing N. Misc Interface Ut Weight (Kg) 11 Dimensions (W x D x H) C.M./Foot Print 36 Input Buffer (MB) 6 LCD Panel For Settings 4	5	250/150	600x600	600x600	300x300
Printer/Toner Duty Cycle  Scanning  Optical Resolution (dpi x dpi)  Iterpolated Resolution (dpi x dpi)  Scanner Type  Sit Depth  ADF/ADF Capacity  Scandards Compliance  Topying  Enlarge/Reduce  Collating  Multiple Copying (Number of Pages)  Fax  Handset Provided  Memory for Storing (MB)  Misc  Interface  Weight (Kg)  Dimensions (W x D x H) C.M./Foot Print  Input Buffer (MB)  GCD Panel For Settings  12  Apple 12  Apple 13  Apple 14  Apple 15			250/50	150/50	250/150
Scanning Optical Resolution (dpi x dpi) Iterpolated Resolution (dpi x dpi) Scanner Type Sit Depth ADF/ADF Capacity Standards Compliance Copying Inlarge/Reduce Collating Multiple Copying (Number of Pages) Sax Handset Provided Memory for Storing (MB) Siroadcast/Scheduled Faxing Misc Interface Weight (Kg) Dimensions (W x D x H) C.M./Foot Print Input Buffer (MB) CD Panel For Settings  12 12 12 12 12 13 14 15 16 17 17 18 17 18 18 18 18 18 18 18 18 18 18 18 18 18	5000/3000	6	6	6	6
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Interpolated Resolution (dpi x dpi)  Scanner Type  Bit Depth  24  ADF/ADF Capacity  Standards Compliance  Copying  Enlarge/Reduce  Collating  Multiple Copying (Number of Pages)  Fax  Handset Provided  Memory for Storing (MB)  Broadcast/Scheduled Faxing  Misc  Interface  Weight (Kg)  Dimensions (W x D x H) C.M./Foot Print  36  Input Buffer (MB)  66  LCD Panel For Settings  FI  FI  ADF  ADF  ADF  ADF  ADF  ADF			,		
Scanner Type	200x2400	600x600	600x600	600x600	200x200
Bit Depth       24         ADF/ADF Capacity       69         Standards Compliance       TV         Copying       1         Inlarge/Reduce       4         Multiple Copying (Number of Pages)       99         Stax       1         Handset Provided       N.         Memory for Storing (MB)       N.         Broadcast/Scheduled Faxing       N.         Misc       11         Interface       U'         Veight (Kg)       11         Dimensions (W x D x H) C.M./Foot Print       36         Input Buffer (MB)       66         CD Panel For Settings       4	9600x9600	4800x4800	4800x4800	4800x4800	1200x1200
ADF/ADF Capacity Standards Compliance TV Copying Enlarge/Reduce 4 Collating 4 Multiple Copying (Number of Pages) Fax Handset Provided Memory for Storing (MB) Broadcast/Scheduled Faxing Misc Interface Weight (Kg) Dimensions (W x D x H) C.M./Foot Print Input Buffer (MB) CCD Panel For Settings  1 TV	latbed	Flatbed and Sheetfed	Flatbed	Flatbed and Sheetfed	Sheetfed
Standards Compliance	24	24	24	24	8
Standards Compliance	/NA	4/30	6/NA	4/30	4/20
Copying   Copying   Copying   Copying   Copying   Copying   Collating   4	TWAIN	TWAIN	TWAIN	TWAIN, WIA	TWAIN
Enlarge/Reduce 4 Collating 4 Multiple Copying (Number of Pages) 99 Fax 4 Handset Provided N. Memory for Storing (MB) N. Misc N. Misc Interface Uther Meight (Kg) 11 Dimensions (W x D x H) C.M./Foot Print 36 Input Buffer (MB) 66 LCD Panel For Settings 4				·	T T T T T T T T T T T T T T T T T T T
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Multiple Copying (Number of Pages)  Fax  Handset Provided  Memory for Storing (MB)  Broadcast/Scheduled Faxing Misc  Interface  Weight (Kg)  Dimensions (W x D x H) C.M./Foot Print  Apput Buffer (MB)  CD Panel For Settings		4	4	4	4
Fax  Handset Provided N.  Memory for Storing (MB) N.  Broadcast/Scheduled Faxing N.  Misc  Interface U.  Weight (Kg) 11  Dimensions (W x D x H) C.M./Foot Print 32  Input Buffer (MB) 66  LCD Panel For Settings 4		99	99	99	99
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## Broadcast/Scheduled Faxing   N. ## Misc   U. ## Misc		4	NA NA	2	2
### Add Company of the Company of th	NA/NA	4/4		4/4	4/4
New York   C.M.   Foot Print   Section	NA/ INA	4/4	NA/NA	4/4	4/4
Weight (Kg) 11 Dimensions (W x D x H) C.M./Foot Print 3c nput Buffer (MB) 6- LCD Panel For Settings 4	ICD	USB, Parallel	UCD Devellel	USB, Parallel	LICD Parallal
Dimensions (W x D x H) C.M./Foot Print         30           nput Buffer (MB)         66           .CD Panel For Settings         4		13.6	USB, Parallel	10.4	USB, Parallel 9.7
nput Buffer (MB) 6- CD Panel For Settings 4	36.9x44.9x46.1	47x41.9x43.2	8.85	43.8x37.4x36.8	
CD Panel For Settings 4		16	42.2x40x23.9	10	36.3x39.9x30.8
			8		4
	<u> </u>	4	4	4	4
Build Quality	<u> </u>	2.5	2.5	4	
Breakable Flaps/Moveable (So5) 3		3.5	3.5	4	4
•	3/3	3.5/4	3/3	3.5/3.5	3/3
Orivers	ADDC	Name		CDI	601
	CARPS	None	SPL	SPL	SPL
Oriver Interface And Usability (So5) 3		3	4	4	4
OS Supported W	Vindows	Windows	Windows, Linux	Windows, Linux	Windows, Linux
Accessories	,	,		,	
	5/4	4/4	6/4	4/4	6/4
Bundled Software O	OmniPage OCR	Paperport 2.0, PageManager 6	SmarThru 4	SmarThru 4, ReadIris Pro 9 OCR, PCThru Fax	SmarThru 4
	28.03	26.42	27.64	31.79	24.06
Printing					
Varm Up Time (Seconds) 6		20	18	22	16
	1/13	14/14	12.5/14	12/13.5	11.5/12
	2.5/14	15/18	15/17	12.5/15	13/18
	3.5	2.5	3.5	3	3.75
canning					
	3.1	19	29	10.4	10
ext Scan Time (Monochrome Mode-200 dpi) 16 Seconds)	6	20	13.5	8	22
	7/61.5	34.5/407	37.5/408	18/210	17/25 (see note 1)
lumber of Boxes Visible in IT8 Card Out of 22 21		17	19	22	19
OCR Test (Number of Mistakes)		1	2	3	1
	3.25/14	3.5/10.5	3/11	4/9	3.5/27
	3.72	9.17	16.69	8.69	11.69
	3,995	3,869	4,200	4,200	4,200
	, <del>-</del>	-,			-
		20.999	10 990	21.99()	15 990
30	1,995	20,999 <b>59.85</b>	10,990	21,990 <b>65.11</b>	15,990 57,69
		20,999 <b>59.85</b>	10,990 <b>61.61</b>	21,990 <b>65.11</b>	15,990 57.69



+ Fast scanning
- No fax, no parallel port



+ Good build quality, higher duty cycle - Bulky and heavy



+ Low price - No fax



+ Good performance and quality - Low input tray capacity



+ Handset provided
- No flatbed scanner, only monochrome Scanning

Note1: The lower scan time of the Samsung SF-565P is because it only has a mono scanner.



Xerox WorkCentre PE220 23.60

600x600 150/50

5000/3000

600x600 4800x4800 Flatbed and Sheetfed 24

4/30

TWAIN, WIA

4

99

6 2 4/4

USB, Parallel 10.4 43.8x37.4x36.8

10

4 3.5/3.5

SPL 3.75

Windows, Linux, Mac above 10.3

6/4 ABBYY FineReader 6, PaperPort **31.08** 

11 11/14 11/15.5 3.5

13.6 10.5

19/209 22 1

4/9 **7.12** 6,000

26,500 **61.80** 



+ Good print quality

- Expensive

While USB is the norm today, a parallel port interface is important when connecting to the old PCs that many offices still use.

One really good thing about the Canon MF3110 is its huge 64 MB of memory, which makes sure heavy documents are printed without using the PC's hard drive as the spooler, which slows down the process. The other printers are not in the league of the Canon MF3110 when it comes to memory; the closest any came was the Lexmark X215, with 16 MB.

#### **Drivers, Manuals, OS Support**

All the MFDs come with the drivers you'll need, as well as Quick Start Guides. Manuals in PDF format were also provided on the CDs that came bundled.

While Lexmark and Canon support only Windows, Xerox supports Windows as well as Linux and Macintosh.

#### **Printing Languages**

Almost all the MFDs, with the exception of the Lexmark, support the SPL (Samsung Printer Language) or CARPS (Canon Advanced Raster Printing System) printing languages. When the printer part of the MFD supports a printing language, it harnesses the power of the computer during printing; hence, the more powerful the computer, the better the printing performance will be.

#### **OCR Applications**

MFDs often come with an OCR application bundled. Optical Character Recognition (OCR) software is used to scan a printed text document and convert it to text formats understandable to the PC, such as MS Word or PDF. The Xerox WorkCentre PE220 comes with ABBYY FineReader 6.0, which is one of the best OCR software available. The Canon MF3110 comes with OmniPage, and the Samsung SCX-4521F comes with ReadIris Pro 9.

#### **PERFORMANCE**

#### **Printing**

#### **Warm-up Time**

The warm-up time of an MFD indicates how soon it gets ready to print after it is switched on. Every time the printer goes into power saving mode, it will take some time to warm up, and that's why the warm up time is generally considered an important parameter.

The Canon MF 3110 is the quickest at warming up—it takes just six seconds, way better than the rest. The Samsung SF-565P and the Lexmark X215 are the slowest—they take 22 and 20 seconds respectively.

#### **Print Quality And Speeds**

In the first text print test, most of the MFDs fared almost equally well. The slowest was the Lexmark X215. The results of the combi-document test, too, were almost the same across all the MFDs.

Where print quality is concerned, the Samsung SCX-4521F and Xerox WorkCentre

PE220 were found to produce crisp prints. This was also evident in the combi-document printouts, where these scored the highest in the concentric circles patterns test. In the minimum readable text test, the Lexmark X215 and Samsung SCX-4521F were the low scorers: they were only able to print 5-point text legibly at normal quality.

At best quality, almost all the MFDs printed 3-point text legibly, except for the Canon MF3110, which could manage only 4-point text. In general, most of the MFDs in this test are capable of excellent quality prints when set to best quality.

#### **Scanning**

#### Speeds

Taking just eight seconds to scan our text document, the Samsung SCX-4521F emerged as the fastest scanner. The Samsung SF-565P logged the lowest average preview scan times of just 10 seconds. This was, of course, because of its lower dpi and also because it scans only in monochrome.



The Canon MF 3110 was the fastest of the lot in our photo test—it clocked an amazing 61.5 seconds to scan our photograph at 600 dpi. The next-best timing was a distant 209 seconds by the Xerox WorkCentre PE220. The Lexmark X215 and Samsung SCX-4100 were the slowest, at 407 and 408 seconds respectively. We couldn't include the Samsung SF-565P in our photo test, since it only supports monochrome mode.

#### Quality

When it came to quality, the Canon MF 3110 and the Xerox PE220 were neck-to-neck at the top, with almost equal scores in tests such as the IT8 card test. The Lexmark X215 scored the lowest in the IT8 card test, and it was able to distinguish only 17 of the 22 boxes in the tonal deviation test.

#### **OCR**

Most of the MFDs fared well in our OCR test, which measures the degree to which the scanner part of the MFD can distinguish dark areas from light, which is what is required if the OCR software is to do its job well. The

**Digital Business I Business Test** 



exceptions here were the Samsung SCX-4100 and SCX-4521F, which recognised two and three letters wrongly, respectively. This may not seem much, but the figure will rise if the volume of OCR scanning is high.

#### Copying

The copier test was once again jointly won by the Samsung SCX-4521F and Xerox PE220, which posted the lowest copy times and the best quality. The Samsung SF-565P was the slowest of the lot, because it only had a sheet-fed scanner which is inherently slower.

#### The *Digit* Awards Go To...

The Samsung SCX-4521 came with a decent software bundle, performed extremely well, and also scored well in the features department. In terms of print and scan quality, it was better than the Xerox. The lower price tag of Rs 21,990 was also a deciding factor, and we awarded the Samsung SCX-4521 the Digit Best Buy Gold for monochrome laser MFDs.

Looking at the rather high Rs 26,500 price tag, we didn't think the Xerox PE220 would win an award. But considerably higher scores in the features department, a good software bundle, and very good performance fetched the Xerox WorkCentre PE220 the Digit Best Buy Silver award in this category.

#### So Where Do We Go From Here?

MFDs have been traditionally known to perform not as well as standalone products. Also, if one part of an MFD goes defunct, the entire unit ceases to work, this is especially true in cases such as when a scanner ceases working, the fax and copier do not work or if the printer has a

**Contact Sheet Laser MFDs** E-mail Company 0124-516 0000 info@canon.co.in www.canon.co.in Canon Lexmark International (India) Pvt Ltd 022-26057744 pparkar@lexmark.com www.lexmark.co.in Samsung India Electronics Pvt Ltd 011-41511234 vikram.negi@samsung.com www.samsungindia.com Sharp Business Systems (I) Ltd 011-26431313 anilsodhani@sharp-oa.com www.sharp-oa.com Xerox Xerox India Ltd 0124-2561940 kuldeep.malhotra@xerox.com www.xerox.com

problem, the copier also cannot work. But with advances in technology and improvements in design, the chances of components going out of order have been reduced.

We are set to see a lot of exciting innovations in the laser MFD segment in the next few years. LEP (liquid electro-photographic) technology, which is used in high-end digital printing presses, has the potential to revolutionise office and home printing alike.

Other innovations such as printing over wireless are already on their way to market.

With the use of Wi-Fi gaining popularity in offices, Wi-Fi-capable MFDs will be the devices to look for in the near future. Direct printing from cell phones is another possibility that is being explored.

Quite a few innovations are underway in the field of multifunction copiers. Some already have CPUs, RAM and hard drives! Certain technologies, such as Canon's Multifunc-



tional Embedded Application Platform (MEAP) J2ME Java-based technology, enables customised business applications to be created and installed on the device. These can be easily controlled via the MFD user interface. As an example, using a MEAP application installed on a device, a bank could "train" the device to differentiate between a home loan, personal loan and credit card application, and where to electronically route the scanned paperwork for processing and approval. Such technologies will help future-proof the multifunction copier.

While it does not seem likely—even by a long shot—that the prices of laser MFDs will drop to levels comparable to those of inkjet MFDs, they are sure to plummet.

Manufacturers are certainly doing their bit in reducing sizes, and some are already almost as small as inkjet MFDs.

With dropping prices, colour laser MFDs, which as of now are too expensive for the SoHo and SMB segments, may make an entry the next time round. ■

jayesh\_limaye@thinkdigit.com



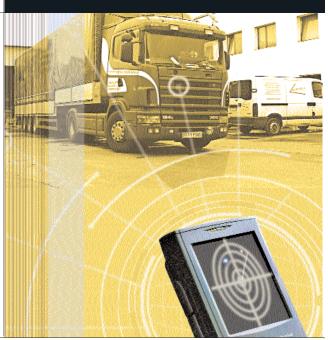
**Sreenivas Parasa** VP, Bartronics India Ltd.

few of the many advantages of RFID over bar coding include read-write capabilities, parallel reading, reusability and robustness. A classic example is the use of tags for production management in the Mahindra & Mahindra paint shop on the Scorpio product line. Apart from the heat in the oven, a bar code would never survive the paint that would fall on it!

At ITC Bangalore, which has a range of brands, RFID technology effectively routes the right grade and blend of tobacco to the right packaging line.

While the benefits of industrial use of RFID tags are undisputed, cost becomes a consideration at the retail level. Also, different countries use different frequency bands, and so tracking across borders becomes an issue. Gen 2 standards have attempted that at least the EPC (European Product Code)—a unique identifier for a product in the supply chain—would be read across the different frequencies.

While implementing a system could cost anywhere between Rs 50 lakh to a crore, the strategy should be to identify the business process for the "perfect fit."



# When And Where Does

RFID technology has seen limited use in India thus far, but implementations are being experimented with by a range of businesses. In some cases, bar codes are not even an option. Here's what some who've implemented it have to say about the feasibility of RFID deployment





**Arvind Tawde**VP and CIO
Mahindra & Mahindra Ltd.

wo years ago, we implemented an RFID system for tracking body shells in the Pre-Treatment and Electro-Deposition (PTED) process of the paint-shop at our Nasik plant.

As part of the PTED process, the shells undergo high temperatures and chemical reactions. Typical solutions such as bar codes would not be able to withstand these extreme conditions. We therefore went in for passive, rewritable RFID tags.

At the end of the body shop process, a body shell is loaded on a hanger, and details such as the body serial number, model and colour code are mapped to the unique hanger code in the system. The hanger then transports the body shell to the PTED shop, where it gets dropped on to a skid to which a rewrite-type RFID tag is attached. The details of the body shell are written onto the tag when the skid passes the RFID antenna, and simultaneously, the status is updated in the system. The skid with the body shell then passes through the PTED process. At the exit, the body shell is picked up by a hanger, at which point the details on the tag are read and mapped with the hanger code, and the status is again updated in the system.

In the near future, we plan to extend RFID tracking to our entire line, from body shop to vehicle assembly and roll-out.



N Mohanakrishnan Special Director, Information Management Services, Ashok Leyland Ltd.

bout nine months ago, we deployed RFID technology in asset tracking and calibration of test equipment. Our testing and R&D facilities are set up on a 150-acre site. High-value test equipments constantly move from one location to another within the premises. These are tracked using RFID, so we are aware of exactly what equipment is being used where.

Next is the automatic calibration of engine test equipment. There are sixty varieties of engines that are manufactured—each engine needs a different calibration of the test equipment. As the particular engine moves along the testing line, it is identified by its RFID tag, and the technology integrates with the embedded software in the test equipment to automatically calibrate it for the particular engine.

By April/May of this year, we propose to extend this to the manufacturing line as well. RFID will help in process-based tuning of the Programmable Logic Controllers in the machine tools. Because of this, while the increase in productivity is expected at 10 to 15 per cent, a significant improvement will be in error-proofing, as re-work will come down considerably.

As for the return on investment, a key advantage as opposed to bar code technology is the ability to integrate with the ERP systems.

# RFID MAKE SENSE?





Chinar Deshpande CIO, Pantaloon Retail India

bout 10 months ago, at our facilities in Tarapur, we experimented with RFID technology on our John Miller brand of apparel. Since it was a proof-of-concept testing, we tagged only 1,000 units from manufacturing to warehousing. The tags were quite expensive, at Rs 85 per tag. What we learn from the pilot will prove helpful in the future—whenever we deploy on a larger scale.

We discovered that as against the claims of the absence of line-of-sight requirements, the tag readers had to be placed in a "right position." Errors were caused if this was not adhered to. Also, we had to debug the middleware issues in integrating the data captured with legacy systems. Issues of multiple-reads had to be sorted out. The experiment was also studied from the HR viewpoint, as in the loss of employment.

We discontinued the application after the learning process, and are now in a position to deploy it as and when required. For example, in the future, we may consider extending it to the POS (Point of Sale), but only in premium lifestyle stores: at a Big Bazaar or Food Bazaar, the value of the items stocked does not justify RFID tagging.

Another possible deployment of tags and readers is to track the movement of shopping carts within a store. This will help design store layout keeping customer convenience in mind.



**Neeraj Pal Singh** CIO, Madura Garments

The decided on our pilot RFID implementation about a month ago. Going a step ahead of earlier pilots by others in the garments sector, we propose to link up all the way to the POS—the manufacturing unit, the warehouse, and also our Planet Fashion stores in Bangalore.

The advantages over bar code scanning are the labour efficiency that auto-reading offers at the warehouse level, and the elimination of the possibility of imitations at the retail level. Ruggedness is another factor. As far as the investment is concerned, at Rs 30 to 40 per tag, the ability to recycle becomes important.

We plan to go live by mid-April. Our experience with the pilot will form the basis for further decision-making.

As told to Philip Malayil (philip\_malayil@thinkdigit.com)

# Call-A-Career

BPOs pay well, and the job is boring. Is there more to the picture than just that? Philip Malayil

usiness Process Outsourcing (BPO) has been around for about half a decade, and has been steadily gaining ground in India. According to the NASSCOM Strategic Review 2006, employment in BPOs, which comes under the ITES (IT-Enabled Services) sector, was a good 3,16,000 in fiscal 2005, beating the 2,97,000 figure for the IT services sector. These numbers, according to NASSCOM, are expected to go up to 4,09,000 in FY 2006. Revenues from this category are expected to be \$7.2 billion (Rs 32,400 crore).

Does this imply air-conditioned workplaces, transport to work, meals and snacks on the house, and lifestyle perks for the 2.5 million fresh graduates that are churned out every year across the country?

#### **The Quality Boom**

The BPO boom in the past five years has provided a window of career opportunity for many fresh graduates. And jobs at BPOs are no longer just about informing a Mr Jones in faraway New Jersey that his power bill is overdue

or updating a Mrs Smith's

name in the records

because she just

had a divorce.

Take the case of Chennai-based Congruent Solutions, which administers retirement benefits for US citizens. Their process comprises 20 different activities, and it's usually a Chartered Accountant who heads a team. In reference to the terms used for businesses such as this, its president and cofounder Bala J Raman says, "There is a thin line between labels such as KPO (Knowledge Process Outsourcing) and BPO. I would call our firm a Business Process, albeit a high-end one.

On the eligibility front, "An M.Com. or a graduation in actuarial science is our only requirement. Of course, the candidate should clear our aptitude tests and interviews." Raman continues, "One's qualification is, of course, a consideration at the start. But after that, growth is a matter of how well an employee uses his skills: analysis of a situation, the ability to anticipate roadblocks, and put corrective measures in place." As an example, he cites the case of an employee who rose to a Team Leader position in just two years, although he was not a qualified Chartered Accountant.

#### Do You Speak English?

A large majority of BPOs are still at the lower end of the process hierarchy. Epicenter Technologies, Mumbai, is one of the largest BPOs that provides collection services. Sunita Bhuyan, training head and spokesperson, says, "We look for only two qualifications while recruiting freshers; they have to speak English, and they should be 'smart'".

Training strategies in this sector have evolved.
According to Bhuyan, what used to be all about voice and accent

Illustration Rohit Chandwaskar

#### Digital Business | Tech Careers

has now become more of communications and relationships. The accent, apparently, is no longer so much of an issue; neither is the name. Almost 50 per cent of Epicenter's clients now allow the agents to operate with their own names. Even so, modifications, as it were, are sometimes necessary. Bhuyan says, "It's just a matter of saving valuable time... 'Kris' is far easier for a Westerner to understand and relate to than 'Krishnamachari'." Imagine someone taking five minutes to explain his name!

#### **Climbing The Ladder**

At Epicenter, a fresher joins as an Associate CRA (Customer Relations Advisor/Agent) with a pay of Rs 8,000 to 12,000. His rise to a senior CRA is tenure-based; beyond that, performance becomes the parameter. The Team Leader, according to Bhuyan, is seen as the God of the Floor, and that is the post every associate aspires towards. But there are twelve members for every Team Leader, which gives the aspiration a 1:12 ratio of fulfillment. And everybody is smart, which doesn't help either!

Bhuyan advises a wider perspective. "Once an associate gets an idea of the process, there are other areas which he can consider, QA (Quality Assurance) or MIS (Management Information System) for instance. The HIPPO (High Identification Program for Potential Performance in Operations) program identifies high performers in operations. Such "HIPPOs" are given opportunities to "shadow" various operations across functions—that is, see first-hand what they involve. At the end of this process, the HIPPO identifies the particular next-level function he would like to take up.

But movement is not immediate. A vacancy has to arise, or the business has to scale up. And within this span there is always the lure of a more lucrative offer. As a result, even in the face of dynamic HR practices, the average span of an associate remains 12 months. A pragmatic approach for a young associate is to not have dreams about being in the upper management rightaway. There are a host of B-school grads headed in that direction. They typically handle analytics and research, entering the organisation at average salaries of Rs 4.5 lakh per annum.

Bhuyan's advice to youngsters looking at the job market: "Work at a call centre rather than opting for a C-grade business school. At the end of the two years you spend here, your earning capacity will be higher. Also consider continuing your education on a part-time basis." Firms such as Epicenter encourage their employees to pursue academics by way of study leaves and accommodating shift timings.

#### Is It All Good?

Experiences vary. Tina Sharma, 26, had a position as a sales executive with a leading pharmaceutical in Pune. Unable to pursue the job after marriage, she sought alternative employment, and good communication skills landed her a job at a leading BPO. Tina was delighted. Although the pay was no higher than at her earlier employment, she did not have to commute.



One's qualification is a consideration at the start. But after that, growth is a matter of how well an employee uses his skills"

Bala J Raman President and founder Congruent Solutions Soon the flip-side began to surface. Being a good communicator had its disadvantages: customers would end up chatting—especially those who had called to have their names changed on the records after a divorce. In the midst of playing agony aunt, she had to cross-sell, because incentives are based on the sales targets achieved. Adding to the pressure was the fact that calls are monitored, and that one has to complete a targeted call quota. Irregular working hours topped it all off, and the toll began to tell. Outside of work, life came to a standstill.

Then there is 23-year-old Blessy Varghese, who works in a Pune-based data process. She says, "With an M.Com., it feels foolish sifting through and sorting piles of paper. But the money is good. I hope to end this drudgery once I get married." But not all see it in a negative light. 22-year-old Vinanti Sanyal of Mumbai says, "It's not always fun and games, but yes, they ensure that the mood is as upbeat as possible." She avers a BPO is a good place to get introduced to a professional work environment, while adding a warning: "To get fired is also easy. The reason could be trivial."

#### **Rights Is Might**

Datta Iswalkar, leader of the Mumbai Girni Kamgar Sangharsh Samiti, is concerned about rights for BPO workers: he has floated the Young Professionals Collective (YPC)—an organisation to represent call centre employees. "Youngsters are attracted by the glamour. Though the salaries are good, there are issues such as the continous use of headsets, which causes hearing problems, and safety while travelling late at night." YPC, still only a few months old, has 50 registered members from various BPOs in Mumbai.

#### **Beyond The Moolah**

Sanjay Verma, Managing Director of ITC Infotech, which, among other IT services, manages a 2,500-seater BPO in Bangalore, pitches vigorously for those wanting to make careers at a BPO. "10 years down the line, I see a middle manager making Rs 20 lakh per annum. Where else can a fresh graduate find a more renumerative growth track?" He defends call centre work as legitimate and respectable, and not merely as a pit stop before further education or marriage. To defend his point, he asks, "How is selling credit cards considered not respectable, while selling SIM cards for a telco widely accepted? Is it just because the former involves night shifts?"He does admit, though, to the mind-numbing and repetitive nature of the task: "Beyond a point, we cannot trade in cash for this aspect. Adding creative value to the job is perhaps the biggest challenge for us. But this is bound to happen in any operation of scale, not just in a BPO."

To sum it all up, if you're planning to venture into a call centre job, tread cautiously, and always have a backup plan or a larger goal for your career. A job at a BPO could best serve as a means towards that.

philip\_malayil@thinkdigit.com



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Leisure

**Technology Beyond Work** 

**Lead Feature** 

# **Are Viruses Alive?**

That's what
I asked
myself one
day. Finding
an answer,
however,
was a lot
harder than
I thought!

Illustration Pradip Ingale

Agent 001

**¬** or billions of years, viruses have infected their way across the Earth. New studies suggest that the first life forms on our planet might not have been bacteria or amoeba-like cells, but viruses! Debates still rage over whether a virus can be considered alive, since it's just strands of DNA with some protein attached to it. Viruses are a lot smaller than the average cell, and come in all different shapes and sizes. My personal belief has always been that they're alive: they reproduce, respond to the environment, are capable of evolving, and use energy. They "sound" alive, don't they?

However, the question I asked myself had nothing to do with these little biological pests; I was asking myself if the average computer worm, Trojan or virus could be considered a living entity. Yes it sounds strange, especially since we've not even reached the stage where we can consider a computer, robot or software to be intelligent. We haven't developed a self-learning Artifi-

cial Intelligence (AI), despite decades of research. We're getting closer though-evolving robots and adaptive software seem to be the answer for now. If we finally develop true AI, say, a decade down the line, what happens if people start developing intelligent viruses?

#### **Un-killable Viruses!**

A scary thought, but one we should think about. Do we really want to create AI? I know for sure

I don't want to have to deal with a virus that can ~think~! I would need intelligent anti-virus and anti-spyware applications that run all the time to try and stop these thinking viruses! What does that do for my system performance? So 10 years down the line I might have a Terahertz CPU with a TB of RAM, but my anti-virus will still use a lot of my resources -perhaps more so when scanning and battling smart viruses! But remember that these viruses are



smart, so it's not as simple as an anti-virus saying, "Aha, a virus; [Delete], problem solved!" Think of it more like an argument between two sentient beings-it could rage forever! Now, consider the one lone sentry (anti-virus software) on your computer, battling all the viruses that the world throws at you. Trust me, your anti-virus will lose, or at least use up all your resources while fighting them offl

#### The Borg!

Like viruses do today, what if a smart-virus attack starts taking over computers? How do we stop them? Since we're assuming AI is possible, formatting a PC and "killing" the AI software on our computers might not be as easy as it is today! Will infected computers band together to form a real-life version of the "Borg" from "Star Trek"?

What intrigues me more is how the "dumb" viruses of today behave:

#### **Dumb, Not Dumber**

Billions of US dollars are lost on attacks by viruses on important data, not to mention the millions of man hours lost rectifying the problems. Consider how these viruses are designed: they're built to attack, hide, replicate and spread like wildfire! They faithfully mimic their biological counterparts, and are just as destructive.

So, viruses are the first software programs to exhibit signs of life. They reproduce, attack, defend and hide - much like we would when at war (well, maybe not reproduce, but you get the general idea!). The other side of the argument states that on their own, viruses are useless, and need a host PC/operating system/software/EXE, whatever..., in order to function. This debate is strikingly analogous to the ones being fought for decades now about the "alive or not" status of biological viruses

What about AI assisted antivirus software then? Would they be alive? Perhaps, but anti-virus software have the distinction of being defenders. Think about how your computer behaves when it's infected: first the virus attacks the anti-virus software, disabling it; then it takes over the system, stopping all software and services that could be a threat to it. Now, once it's in control of the system,

it prevents your attempts to restart your anti-virus or virus cleaning software. What that one virus has done, is attacked you covertly, vanquished your guards, killed all the men in the castle (PC) and then reproduced, using your resources to make more of itself. Then it's taken guard in your own watchtowers, using your own weapons against any attempt by you to reclaim your castle. The virus has reversed roles from attack to defence! No other software is programmed this way, simply because they do not need to be. It doesn't change the fact that they're behaving very similar to the way we do!

#### **Bicentennial Man**

Like in the movie or book - take your pick - where an artificially intelligent robot with positronic brain fights for the right to be called human. So what happens if AI software wants to be considered a living entity? What if they start demanding a regular eight-hour workday? What if they form unions and decide to go on strike demanding better work conditions-like higher-end hardware? This may sound far-fetched, but remember, we're talking intelligent software here, with a sense of self!

If the computing world is equated to ours, viruses are the extremists and terrorists - very unpleasant characters, but a part of "society" nonetheless! So although AI could bring about a lot of good, even with all software and hardware programmed with Asimov's famed "three laws of robotics" in mind, viruses will not be governed by such limitations! Will a new generation of terror be brought to our lives through our fattening broadband pipes?

#### **Getting Back**

But let's not digress from the topic at hand. I'm still left wondering if viruses (or even software, for that matter) can or will be considered living entities. I must accentuate the fact that I'm not necessarily talking about right now, but rather about the day when a group of researchers in an inconspicuous lab (some time in the not-so-distant future) cheer, pat each other on the backs, pop open a bottle of some exotic wine and celebrate the birth of a digitally sustainable intelligence that lives on electricXXX XXX ity and can learn on its own!

I'm not worried about whether humans will accept such "programs" as living entities or not; I'm more concerned about whether we will have a choice but to do so!

The world's economy, our personal savings account, most of our records, and a lot more, are all dependant on digital data. If stock market servers crash (or refuse to co-operate), if your bank loses all your data, and if all computers just stopped working, we'd be facing an apocalypse of sorts! I'd rather not lose my life savings to a computer bug, thank you!

#### **Paranoia**

Yes, there seems to be a lot of that recently, and my article in last month's "Digit" was against PC-related paranoia. Although I still think it's pointless to be paranoid about technology in today's world, I'm unsure of what the future holds. As long as we don't depended on technology and software to think for us, we have absolutely nothing to worry about - let's hope countries with nuclear weapons don't leave computers in charge of the "big red buttons."

A "Terminator"-Induced Phobia? Absolutely!

#### So Are Viruses Alive?

The fact is, religious beliefs about souls and spirits aside, computers and the software within them have the basic pre-requisites for life. Will this era be considered the primordial soup from which digital life was born?

I think the evolution of software into thinking entities is just a natural progression! What I'm afraid of is that viruses, which are already mimicking sentient, selfpreserving beings, will get there first!

Will we soon see "e-ntelligence"?

More importantly, do we want to? ■

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# The E, The O, And The Fox

Recently, Microsoft released a Public Preview of Internet Explorer 7, Opera released the Opera 9 Technology Preview, and Firefox is being updated all the time. We decided to pit them against each other to try and figure which one will rule the roost

#### **Sanket Naik**

our browser is your Window to the Web, and that's why you should care about which one you use. Yet, most people default to Microsoft's Internet Explorer (IE) for the sole reason that it comes with Windows; we, however, think that since you have the choice, you should discover your favourite. You could do this by experimenting with them all, but in this little shootout of sorts, we tell vou about the features in the latest versions of three most popular browserswith IE on one

internet Explorer

side, and

rivals Opera and Firefox on the other, so you can make an informed decision!

For over a decade, IE has hardly been upgraded in terms of features, the complacency probably explained by the lack of serious competition. But the rapid increase in popularity of both Opera and Firefox has prompted Microsoft to give IE a makeover. Internet Explorer 7 was supposed to debut along with Vista, but has also been made available for those with Windows XP and SP2 (Service Pack 2).

With the launch of the Public Preview of IE7, we thought we should give it a try and find out what's under the bonnet and how Microsoft plans to regain its lost market share.

The Battle Thus Far Challenging IE isn't

exactly easy,



especially since it is used by over 80 per cent of Internet users worldwide. Also, most Web sites are designed with IE in mind. Opera and Firefox have capitalised on Microsoft's complacency, and have lured away a significant number of users by offering some great features in their browsers.

The phenomenal rise of Firefox is perhaps what rang alarm bells in the IE labs. Though Firefox has nowhere near the amount of users that IE has, it has risen fast enough to start a new browser war. Opera has thus far remained unique and always ahead of the curve, constantly innovating and bringing in new features.

Features such as tabbed browsing, RSS feed readers, quick access to a multitude of search engines, mouse gestures, etc., have redefined what a browser should be able to do, and Opera has set the bar very high.

While Firefox enthusiasts have been adamant about their browser being the best, Opera loyalists scream superiority, and almost everyone agrees that IE has just been a vanilla browser—until now, that is.

So which one is the best? Whichever we put on top of the podium, we're going to get hatemail, so we beg your indulgence as we take an objective look!

#### INTERNET EXPLORER

Internet Explorer 6 is something every advanced computer user has to use once in a while, but simply hates to do so. The reasons can range from slow performance to security concerns. Microsoft had a great deal of work cut out for them to make their browser more secure, and subsequently, acceptable. From our small stint with their Public Preview of IE 7, we think they've achieved most of what they had in mind. As mentioned earlier, what we tested is a beta product, and still has lot of scope for improvement before the final release is out.

#### Security

To begin with, Microsoft has done a complete ground-up revamp with IE 7—the code has been entirely rewritten! This is significant, because it is the first time in a decade that IE has a new base. Since the biggest



IE7's "Delete Browsing History" dialog

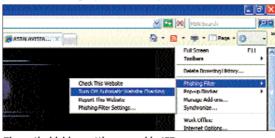
complaint people had with all previous versions of IE was security, Microsoft decided to tackle the problem head-on.

We should note here that the latest version of IE6 that runs on SP2 is pretty secure. It's not the Swiss cheese browser it used to be, though people still have a hard time believing that. The fact is that IE6 on SP2 blocks a lot of malicious sites and pop-ups.

Let's look at IE7, starting with a list of features that boost security in the new browser.

- 1. Pretty much like what they did with Windows Server 2003, where most services were disabled by default, many ActiveX controls in IE7 are disabled by default. This way, the most common problem of your PC being hacked via your browser is taken care of.
- 2. A new URL parser is designed to take care of exploits often employed by hackers to create a buffer overflow.
- 3. An anti-phishing module has being integrated into the browser to offer protection against sites stealing personal information. The browser can be set to automatically check every site, or individually check a page.

If a site has been flagged as a known phishing site, the address bar turns pink; if the site is suspect, it turns the address bar yellow and displays a warning.



The anti-phishing settings panel in IE7

These are just the security features available with IE7 running on Windows XP SP2. There are more goodies expected with the IE7 release for Windows Vista. Unlike with XP, where IE7 is an add-on feature, IE7 will be integrated with Vista—you won't be able to uninstall it.

Also, in Vista, IE7 will work in protected mode by default—it will be isolated from the rest of the operating system, which means that if malicious content makes its way to your hard drive, it won't be able to mess around with the registry, change browser settings, and so on, unless they are authorised by your administrator account. This also means better parental control possibilities.

#### **Tabbed Browsing**

Microsoft's has finally taken a cue from the other browsers on this front! Tabbed browsing is one feature that had been missing from IE for too long. And now, instead of just releasing a regular tabbed browser, Microsoft has added a few features to make tabs more useable.



Quick Tab gives easy access to all open tabs

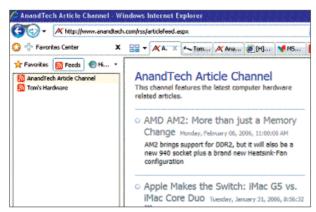
If you have many tabs open, identifying them is a problem. Microsoft's solution is Quick Tabs—a small icon at the left of the first tab, clicking on which displays each tab as a thumbnail with a small Close icon so you can easily close unwanted tabs.

Sadly though, arranging tabs is not yet possible, and we will have to wait for the final version to see if this feature is incorporated. The new interface doesn't have all the old menus, so you get a neater browser with more real estate to display pages.

The single-click "clear personal information" function (cache, cookies, history, and saved passwords) is also a boon.

#### **RSS Feeds**

Yes, IE7 integrates an RSS feed reader! Situated under Favorites, the "Feeds" button converts IE7 into a full-fledged feed reader. Any site with an auto-discoverable feed-in the RSS or ATOM format-lights up the orange "Feeds" icon. Clicking the button opens the feed in a browser window. Clicking the [+] icon will subscribe you to the feed. The "Favorites" centre has also been redesigned to improve usability. A small white star in a yellow circle represents the Favorites menu: it can also be docked as a panel for anytime access. We found the feed-reading tool to be one of the best we have seen thus



The integrated Feed Reader in IE7

far. Moreover, IE7 also supports the OPML (Outline Processor Markup Language) format, which makes importing and exporting feeds quite easy between standard feed-reading applications.

#### **Speed**

To be honest, we didn't find the Public Preview of IE7 to be any faster than IE6. However, considering that it's a beta, we'll give it some leeway.

#### In Sum

In terms of features, IE7 is just catching up with its competitors—most of the new features were implemented on other browsers a long time ago—but it has done a decent job of the features themselves, and of enhanced security.

It is not fair to pass judgement on this Public Preview of IE 7, since many more features are expected in the final version. However, one thing is for sure: Internet Explorer 7 is a huge step on Microsoft's part to ring out the old.



Thumbnails of Web sites appear when you roll your mouse over the tab

#### **OPERA**

Opera is an independent browser company that's been in the business for a long time now. Since their core competency is browsers, innovation has been the only way to grow, and they've therefore always been ahead of

the rest. In fact, a lot of the features seen today in most browsers, such as mouse gestures and tabbed browsing, were first introduced by Opera.

Opera 8.5 is the current version of the browser available for free download. As you might expect, it has most of the features one would want in a browser: a feed reader, mail client, notes, panels, and more. Apart from features, the browser offers a lot of customisation options for the geeky.

The second beta preview for Opera 9 was out when we decided to do this round-up. So instead of taking you through the features of version 8.5, we opted to take a look at some fascinating features that the new version has brought in.

#### **Look And Feel**

Opera has chosen to keep the look and feel similar to the

older version, and the familiar tabs, panels and toolbars make you feel at home. It's no surprise that of all the browsers, Opera implements tabbed browsing best. Each tab has a small close button of its own, something Firefox doesn't have, and IE7 has "borrowed." You can rearrange tabs just by dragging them, and dragging a tab to the personal bar turns it into a bookmark. One good addition to Opera 9 is the thumbnail view of a site

when you hover your mouse over its tab. Another common complaint that people had was that the browser would open without an open tab—this has been fixed, and now Opera will always have a blank page open even after you close all tabs.

Similarly, Opera 9 also retains Panels, which are nothing but windows that allow for easy navigation to data such as Notes, browser history, all links on a particular page, and more. A customisation option is also available for Panels—you can download additional Panels from the Opera community Web site.

#### **Customisation**

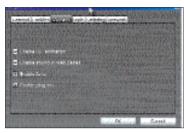
Tech enthusiasts prefer Opera because of the high level of customisation that's possible.



Cool widgets in Opera 9!

While most browsers only allow customisation of certain critical features, Opera lets you customise almost everything, including its look—it's completely skinnable.

Opera 9 has taken a leaf out of Apple's book, and now offers "Widgets"—small applications that run outside the browser window and perform small tasks such as showing you the time and date, or getting stock quotes from a particular Web site.



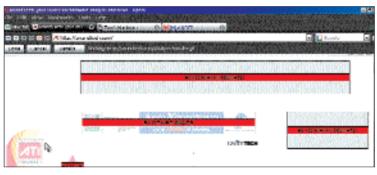
Site preferences in Opera 9

Setting critical parameters such as enabling or disabling of cookies, proxy servers, Java scripts, Java plugins, pop-ups and such, can be controlled just by pressing [F12]. As of version 9, Opera also allows you to set site preferences individually for every Web site.

#### Security

Opera has always been quite secure, and also boasts of support for a multitude of security standards, not to mention support for the strongest encryption click, select "Block content...", click on all the content you don't want to see, and click Done. From then on, all that content will not be considered when rendering that page. Opera 9, apart from the integrated mail client and feed reader, also comes with an inbuilt BitTorrent client. Just type 'b' followed by a file name to search for the file at BitTorrent.com.

Using a shortcut key to type in a search directly from the address bar saves time and bandwidthfor example, "g digit magazine india" brings up the Google results directly, instead of your having to go to www.google.com and then searching. Now, just by right-clicking on a search box on any site, you can assign a shortcut to that particular search box. So if you want to search, say, Softpedia.com, just go there, right-click in the search box and select "Create search...". Set the shortcut to, say, "so", and click OK. Now



There's a cool new content blocking tool in Opera 9

available. The pop-up blocker has been excellent since version 8.5, and has only improved with version 9.

#### **Useful New Features**

The most important addition in version 9 is content blocking: if a Web site has lot of advertisements, you can now just right-

you can search Softpedia.com from the address bar by typing "so <software>"!

#### Speed

Speed has always been Opera's forte, and Opera 9 continues the tradition. Pages are rendered at lighting speed, and the difference over IE is very apparent.

However, the difference between Opera and Firefox is hardly noticeable.

#### In Sum

With loads of features, excellent security and great speeds, Opera 9 is really the browser to look out for. However, it does suffer from a few niggling issues such as Web site compatibility.

#### **MOZILLA FIREFOX**

"A browser for geeks" is the best way to describe this little free browser. Firefox has gone through an evolution of sorts, and its phenomenal rise can be attributed to its open source roots, which fuelled its wide acceptance. Moreover, the highly-committed Mozilla community makes sure new



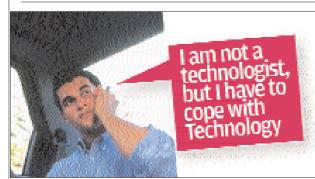
Clear personal data with a single click!

features are added over time and security issues as well as bugs are duly taken care of.

Firefox 1.5 is the latest version of the browser available for public download. While Firefox 2 is in the pipeline, the exact launch date and the specifics of new features are not clear. For this head-on comparison, we used the 1.5 version updated to the latest patch.

#### **Look And Feel**

Right from the beginning, Mozilla developers were keen on



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cutting down unnecessary features and keeping the browser simple. Consequently, as compared to the Mozilla browser, Firefox is leaner, cleaner and faster. The user interface is simple and doesn't overwhelm the user in any way. The main interface consists of menus and toolbars—no Operastyle Panels here.

Though tabbed browsing was introduced by Opera, the Mozilla foundation used it as a pivotal feature in Firefox. One small niggling issue with the tabs is the exclusion of a close button on each tab—instead, you have a single close button on the extreme right, which is used to close any tab. The tabs can be rearranged by simply dragging and dropping them in the required order.

We hope to see thumbnails for tabs in version 2 of Firefox.

#### Customisation

Being open source has its own advantages, and this is evident with Firefox's customisation options. The real meat of this browser lies in the degree of customisation it offers. Unlike Opera, which offers limitless customisation, Firefox is a little restrictive in terms of customisation of critical parameters. Being skinnable, Firefox not only supports third-party skins, but is also relatively easy to skin yourself.

What sets Firefox apart from all other browsers is "Extensions." These are small plug-ins that add additional features to an otherwise bland browser. The Mozilla community is highly active, and you have over a thousand extensions to

choose from—not all are useful, though. (Refer to this month's 30 Minutes Expert for more on this.) With Firefox 1.5.0.1, Mozilla has included an Extension Manager, which checks for upgrades of all installed extensions simultaneously, thus automating the process.

With Firefox, you also get an integrated search bar for various search engines such as Google and Yahoo!, and you can add your own engines. RSS support is not as good as in Opera, but it's good enough to get your work done.

#### **Security**

Firefox includes a pop-up blocker. Its lack of support for ActiveX and VBScript gives it an additional layer of security.

#### **Speed**

Speed is something Firefox is known for, and it pretty much deserves the accolades. The best part about Firefox is that it first renders the text and then gets all the required images, which essentially cuts down the waiting time. This is a boon in the Indian context, since the majority of people across the country are still on dial-up connections.

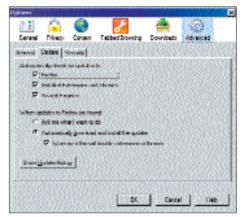
We would have loved to test version 2 of Firefox, but unfortunately, there are no details available about when it will release.

#### **Summing It Up**

In this head-to-head comparison of the three best browsers today, the most probable contender for the crown is Opera 9. There is still some time before it releases, but much is promised—and we don't think we'll be let down. Try the preview for yourself—you can find it on the Digit CD with this issue.



Extensions-the meat of the Firefox browser!

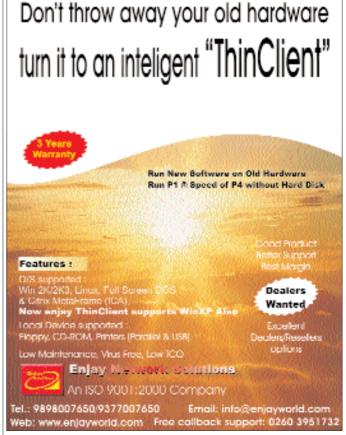


The Firefox browser and extensions can be automatically updated all at once

As for IE7, it's still too early to pass judgement, but looking at the improvements Microsoft has already implemented, we expect the most-used browser to scale up to new heights. The fact that it comes bundled with Windows doesn't hurt it at all.

Firefox has the advantage of a huge supporting community. However, with nothing but a crude roadmap for the future, we really cannot judge how successful version 2.0 of Firefox will be.

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# **All Part Of The Game**

- When Napster was founded. why was it named that?
- a) After the sleepy cat logo and the "cat-nap" pun
- b) N.A.P. stood for "No Authentication Protocol" according to creator Shawn
- c) Fanning's cat, which seemed to have a taste for good music, was called "Napster"
- d) Fanning himself was called "The Napster"
- Who or what amongst the following has *not* been named by Time Magazine as Man or Person Of The Year?
- a) Marc Andreessen
- h) The PC
- c) leff Rezos
- d) Dennis Ritchie
- Who amongst the following has **no** claim to being the Father of the Internet?
- a) Jon Postel
- c) Robert Kahn
- b) Mike Gosling
- d) Vinton Cerf

The Minitel was an online service in France launched in 1982. It is considered one of the world's most successful pre-WWW online services. What couldn't you do over the Minitel?

- a) Make online purchases
- b) Text-chat
- c) Check stock prices
- d) Voice-chat
- What was the first Indian network to be connected to the Internet?
- a) RBINet
- b) ERNET
- c) OILCOMNET
- d) EXLIBRIS
- In India in 1994, how much RAM did a typical 80286 computer ship with?
- a) 1 MB
- c) 128 KB
- b) 4 MB
- d) 16 MB
- Which of the following was not amongst the popular gaming computers in the '80s?
- a) The BBC Micro
- b) The ZX Spectrum
- c) The Nintendo 2.0
- d) The Commodore 64
- What was not a feature of the popular gaming computers of the '80s?
- a) They had no hard disk
- b) They had no RAM
- c) They typically had no mouse or monitor
- d) They typically had no floppy drive

- How did eBay get its name? a) It was initially operative in the Bay Area of California
- b) It was founded by Geoffrey DeBay
- c) It was initially an auction site for ship parts
- d) All the above
- What was Amazon.com's first tagline?
- a) The World's Marketplace
- b) Stuff For You
- c) Earth's Largest Bookstore
- d) The World's Largest Collection

The 'Stoned' or 'New Zealand' virus was a classic computer virus, which when it struck, the computer displayed the message "Legalise Marijuana".

Know?

'Tux' is the name of the official Linux mascot.

#### Answers Bookstore 4. d) Voice-chat 5. b) ERNET California 10.c) Earth's Largest 2. d) Dennis Ritchie 3. b) Mike Gosling Bay Area of 8. b) They had no RAM 9. a) It was initially operative in the

Napster" called "The 1. d) Fanning him-7. c) The Mintendo 2.0

#### Crossword

#### **ACROSS**

Got an

interesting

Send it in with

the answer to

subject area.

tq@thinkdigit.com

Mark "TQ" in the

question?

- provides Web site access (6) 7. Search 8. Computer programme that interacts
- with a particular device/software (6) 9. Windows NT Server (abbr.) (4)
- 10. Portable disk with removable cartridges (3,5)
- 11. End a program (5)
- 13. Carry out a function (7)
- 15. Information Services Electronic Archiving (abbr.) (7)
- 16. Unit of length (5)
- 18. File transfer from server to desktop (8)
- 20. Computer-aided software engineering (abbr.) (4)
- 21. One millionth of a meter (6)
- 22. Synchronous DSP specification language (abbr.) (6)

- 1. Set up computers for use (8)
- Wall-security measure (4)
- 3. Get hold of illegal software (5)
- 4. Plug or circuit board (7)
- 5. Power source for electronic devices (5,4,4)
- 6. SM in 'SMB protocol' (6,7)
- 12. Input devices that reads images converting it to digital signals (8)
- 14. An e-mail
- 19. Leave out part of text (4)

10 18

17. Automated Data Reports Submission System (abbr.) (5)

Send in your answers to the crossword with complete contact details to TQ@thinkdigit.com or or before March 15. One lucky participant will win

*Ice Age* Movie VCD

**February 2005 Solution** 

Anurag Nagpal of Faridabad wins the prize for the February 2005 crossword

Crossword by Nitta Jaggi

# "We Built This Alley!"

They're still at school, but change is already on their agenda **Jyotsna Rege** 

ech empowers people. With the government not taking sufficient initiatives in making technology trickle down to the underprivileged, it's up to NGOs and NPOs to attempt to achieve this. Ours is too huge a country for the NGOs to achieve much in terms of raw numbers, but examples and precedents can be set.

Take the example of a slum in the Govindpuri area of New Delhi, which had been facing an acute water shortage. The children in the slum decided to act, and with the aid of an NGO in their area, divided themselves into groups, allotted themselves tasks, and created a PowerPoint presentation titled Project." The presentation was screened during the chief minister's visit to the NGO, and its effect was immediate: water pipes were soon being laid to the area!

The NGO was Katha (www. katha.org), and the children were students of KITES, the Infotech school that Katha runs.

#### **Beyond Tales**

Founded in 1989, Katha's basic ideology is to impart knowledge through the vast storehouse of wisdom that Indian folklore and tales comprise—hence the name. In partnership with British Telecom, KITES (Katha Info Tech School) was opened in 2001 as an extension to the Katha School of Entrepreneurship. The school. located in Govindpuri, was the vision of Geeta Dharmarajan, executive director of Katha. Most of the students are from Govindpuri, and the school has introduced computer education for the children—and not just for the older students. Parvinder Kaur, principal of KITES, says, "Even the youngest students, who are about six, are taught to use MS Paint and other basic software. The images they create are amazing."

"We realised that computers and their applications were no longer something reserved for the elite. Computers had entered mainstream businesses. Simultaneously, we found there was a large job market for data operators and designers in the city. Besides receiving education, we wanted to ensure that the youth from the school are employed so that they feel self-reliant. And so, we initiated a school with curricula related to computers to provide vocational training."

#### "Its Our Home"

The children at the school have been actively participating in GReDI, the Govindpuri ReDesign initiative—an ongoing project started two years ago. These computer-savvy 12 to 17-year-olds, under the supervision of their teachers, have actually undertaken the complete restructuring of the housing system in the area. They're using mapping and designing tools for this purpose, and plan to put forward a



proposal to the Delhi Municipal Corporation when they're done.

KITES serves not just its students: the school also aims at utilising its resources for the good of the community, and their IT labs are used to carry out several projects for the community.

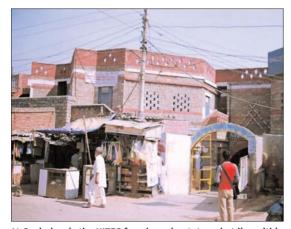
#### **Towards Employment**

KITES began with a one-year certification course, primarily for students who have graduated from school. The course is also open to young adults who have been unable to attend school.

Students who take up this course are mostly aged between 15 and 19. The course is vocational in nature, in which the students are taught basic courses for six months, and then in the next six months, they have to choose between four electives—on the designing front, they choose between Web Designing and DTP, and for accounting, they choose between Financial Accounting and Office Automation according to the certificate they want.

For accounting, they receive training in MS Office and Tallyan accounting software-besides other related office automation. And in Web Design, they learn to software such 1150 DreamWeaver, as well as DTP-a programme that includes Corel-Draw, PageMaker and Photoshop. Besides, there is a six month certification in hardware (networking, hardware assembling and card repairing). These courses prepare the children for gainful employment.

Later, the school decided to teach the children to use computers at the high school level. Today, children are trained, at the outset, in school and they have the option of continuing with the cer-



At Govindpuri-the KITES facade understates what lies within



A room with a view-inside KITES

tificate course if they do not find employment after graduation. The school certificate course. called the KSSC-Katha School Support Certificate—is initiated in the sixth grade, and continues up to the ninth grade. This certification runs parallel to their regular school curriculum, and the children are taught to use the Windows operating system as well as the Internet. These students also use animation software-Flash and Photoshop Illustrator for graphics. In their tenth grade, the students are required to create a documentary using digital cameras.

#### **Effective Teaching**

Most of the teachers at KITES have IT certification themselves. To keep up with developments in software, the school conducts a 60 hour training in the months of May and June, where new faculty members are familiarised with course work. In addition, there is a week-long training prior to the winter break in December. The training focuses on capacity and curriculum building where the administration reviews work done in the academic year, updates syllabus and reviews and solves any setbacks that they have faced.

"Language is sometimes a barrier," says Rana. "Most students speak and know only Hindi, whereas the software is in English. We aid them in understanding some terms by what it does." The children learn from each other, and this diminishes the hurdles that language creates. All in all, the enthusiasm that the children show overcomes many hitches they face.

#### It's Not All About The Money

The aim is to allow the children to experience technology by

themselves. The children are not exactly taught, but rather, are guided through their projects. Each child is required to conceive of, visualise, implement and present the projects assigned to him or her. A child, as a result, gains tremendous confidence in his ability to carry forth on his own.

'Just a basic education does not qualify the children professionally. Technology is easy to handle with constant practice. and it bridges the divide between where they come from and where they aspire to be," says Parvinder. With certification, they are equipped to work in the capacity of Web designers and data operators, a profile that is otherwise inaccessible to them. Once they are certified, employment is easy. KITES also holds a "job mela"-a week-long workshop-once the students have completed the course, where they provide them with career counselling and inform them about vacancies. The school has had success in placing 90 per cent of their students since inception. A job for the students is the end goal of the certification program, and the administration perseveres in its search until a student is successfully placed.

While the cost of such courses run into the thousands of rupees at private institutes. KITES only charges a small fee. Besides, the school has other incentives for the students. "We have no prerequisites during registration. But our criteria are of different sorts altogether. We award the students for tasks completed, which translate into scholarships. For example, we take twenty rupees off a student's fees if he or she is regular. Good work is rewarded with ten rupees off their fees," says Anant Singh Rana, a teacher at KITES.

The work done by these young adults and school students has produced a noticeable difference in the community. The fact that the youth from impoverished houses in the Govindpuri area are earning produces a ripple effect, where the residents want to improve as a community. With constant support from their sponsors, KITES hopes to carry forward their initiative to the rest of the city.

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# Fill yer saddlebags and git on yer horsies—we's gonna have us a good ol' round o' revenge!

venin', y'all (or Mornin', or Afternoon, as the case may be). This here is the story of one Colton White—a simple Montana stereotype, happy to spend his days huntin' game with his old pa.

You've heard this one a gazillion times already—average young 'un thrown into a world of "brutality, greed and lust" (to quote the boxcover), who must avenge wrongdoing with the help of a wellendowed lady of flexible morals.

Well, not exactly. Colton and pa Ned are unfortunate passengers on a riverboat overrun by renegades led by Reverend Reed, an... unconventional... man of the Cloth. Before heroically sacrificing his life, Ned hands Colton a token—a pass to the Alhambra, the elite bordello in Dodge City, whence he must begin his adventure, directly linked to a mysterious artefact whose secret dies with Ned.

Gun's storyline is right up there with some of the more engaging stories of the game world:

mystery, doublecrossing, pretty girls—they're all there. You're taken through the journey with more cutscenes than you'd wish. but there's an upside. We have to give a comradely pat-on-the-back to Neversoft for nailing the voiceacting right on the head. Even better, you aren't bombarded with the awfully clichéd dialogues and random Western "buzzwords." Accents aren't artificially thick either, so rest assured-vou won't be hearing taunts involving the colour of your belly and/or liver. The graphics aren't really as good as we'd expected, but the attention to detail-leathery, scarred skins and so on-is impressive.

You don't always need to follow the story if you don't want to—Gun offers you many side-missions, including taking down wanted criminals, healthy poker games and some gold mining, too. The entertainment value of these missions is limited: they finish faster than you can think of a corny Clint Eastwood quote.

You'll be gun-(obviously)fighting against the scum of Dodge and Empire City, as well as the Apaches, making for a nice variety between the brutish Americans and the swift and deadly Indians.

The guns themselves are quite realistic, but the auto-aim feature on all weapons is insultingly forgiving. Aim a goodish bit away from a guy's ear, and you'll still blow his head apart—did they think we play games with blindfolds on?

If you want to get rid of the bad guys all quick 'n' all, use the QuickDraw mode—Gun's own version of... you guessed it...
Bullet Time! To save time in the QuickDraw, though, there's a nifty feature that lets you quickly target the next enemy for a quick kill—so you get the chance to maximise your bullet-time kill count. To keep adding to your

QuickDraw meter, you need to score as many headshots as possible.

Combat is considerably gory, with generous doses of exploding

Minimum System Requirements:

Windows 2000/XP, Pentium III 1.8 GHz or Athlon XP 1800+ or higher processor, 256 MB RAM, 100% DirectX 9.0c-compliant 32

MB video card Developer: Neversoft Publisher: Activision

Distributor: Worldwide CD ROMs

Contact: **022-56973895** Price: **Rs 999** 

heads and spilling brains, and the bloodthirsty will especially relish the gushing fountains of blood that spew forth during a melee attack with a trusty knife.

And now our favourite part—horse-riding! It's one of the few unique things about the game, and was the first thing we'd expected to go wrong. Instead, you are treated to one of the most fun you're going to have outside of real horse-riding. You can battle from atop your steed with surprising ease, too. What's more, you can even use it to trample your enemies to death—it's plenty of fun to watch them bounce across the landscape like little rag dolls.

Gun will probably keep you occupied no longer than two or three days: the story isn't quite as long as one would hope. There are also plenty of annoyances, like the bizarre boss-fights—where you'd use two bullets to kill a regular bandit, bosses die with 20; that's about it. The good does surpass the bad, though, making it worth a good few hours of your time.

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# RINCE OF ERSIA THE TWO THRONES

POP:TTT has all the good stuff in the previous two instalments, and then some. What's not to like?

rince Of Persia: The Two Thrones (TTT) is the last game in the Ubisoft Prince of Persia trilogy. It almost brings a tear to the eye knowing this is the last game, but I can think of no better way to end such a series than with a game as fun as TTT. The game, in many ways, is a synthesis of all that was good in the previous two. It returns you to the bright and fairytale-like environment we saw in The Sands of Time, and largely retains the combat system of Warrior Within. The Prince himself, who was said to have become arrogant and uncaring in Warrior Within, starts to return to his old noble self, while retaining some of the darkness that's come over him in the course of his past experiences.

#### **Home Sweet Home**

The beginning of TTT might seem confusing for those who did not unlock the alternative ending in WW-it starts with the Prince returning to Babylon with his new love, Kaileena, after having changed both their fates, finally looking forward to some peace and quiet. Unfortunately, as he returns, he finds that Babylon is under siege by a mysterious enemy, who captures and kills Kaileena, releasing once more the sands of time. A chain-like weapon called the Daggertail gets fused onto the Prince's arm, energised by the sands. Furthermore, he discovers that a "Dark Prince" has awoken inside him as a result of all the trials and tribulations he has faced, and his experiences while on the run from the Dahaka and on the Island of Time.

The Dark Prince isn't really all that evil, strictly speaking, as one might find after listening to the many conversations that he has with the Prince throughout the game. In

fact, he's a rather cool character. Though usually cynical and mocking, the Dark Prince also helps the Prince out here and there, providing the Prince with explanations concerning events, and suggestions on how to kill various types of enemies. The Prince also undergoes a physical transformation into the Dark Prince, and can change back only upon contact with water. The character development of TTT is very nice; the Prince experiences several moments of conflict between his two personas as you play.

As we've mentioned, the game retains the combat system of Warrior Within, which is a good thing. If you enjoyed brutally hacking your enemies in half, decapitating them or strangling and then gutting them with their own weapon, you shall not be let down. A new addition, however, is the stealth system. As an alternative to fighting every enemy

in a room at once, you can choose to take them out from behind or above when they're not looking. The screen flashes to indicate that a stealth kill is possible, and then you can initiate an attack sequence where you must press a button at key moments when time will slow down for a moment. If you fail to do so, the enemy will knock you away, and every enemy in the room will be alerted as well!

The system isn't terribly complicated, but attaining success requires a certain amount of concentration and care. The same system is also used in the boss battles, in an attempt to address the complaint that the boss battles in Warrior Within were too monotonous. The attack sequences vary depending on the kind of enemy, and you can even do quick kills on two enemies simultaneously. Stealth kills sometimes tend to become monotonous-if you repeatedly encounter the same type of enemy-but that's about the only complaint that comes to mind. I liked this addition, but luckily for those who don't, it's optional, except for the boss battles.

What would a POP game be like without the Prince's legendary acrobatics? TTT continues the tradition of presenting players with numerous acrobatic puzzles, with improvements and additions. The Prince has a few new tricks up his sleeve; he can now, for example, stick his dagger into wall-plates (among other things), thus making for extended acrobatic sequences. It's now much simpler to figure out where you have to go, thanks to the landscape camera, which will indicate your objective. Of course, the game also sports a fair share of environmental puzzles (since puzzles are an integral part of the POP series), ranging from simple ones where you have to find a lever

to open a door, to more complex ones that require you to run around manipulating multiple levers or switches. They often require a bit of thinking—but they're never overly frustrating; I found them a welcome experience.

# Welcome To The *Real* Dark Side

Every so often, the Prince transforms into the Dark Prince who, instead of having to use a secondary weapon to attack enemies, can use the Daggertail. This results in some beautiful, swirling attack animation. The Dark Prince is a very strong melee fighter, and is nearly invincible in combat since his health is completely replenished every time you collect Sand. (Which enemies drop at death.) However, like the Sandwraith in WW, his health constantly decreases, which often makes for some tense acrobatic sequences.







Rating: 9/10
Platform: PS2
Developer: Ubisoft (Montreal)
Publisher: Ubisoft
Distributor: E-Xpress Interactive
Software Pvt Ltd
Contact: 022-28850245
Price: Rs. 2,999

The Dark Prince comes with his own stealth kills; he likes to strangle enemies with his chain, and can also use the Daggertail to grab and swing from objects such as lamp fixtures. The playing style of the Dark Prince, therefore, brings variety to the gameplay.

#### **Pretty Prince, Poor Polygons**

Graphics-wise, the game is definitely a notch better than WW, but the improvement isn't dramatic. The Prince's model looks more detailed (and more princely too; he no longer looks like the scruffy ragamuffin he was in WW), but when you see the







in-game cutscenes, it's easy to notice that many models suffer from a low polygon count. You don't notice it outside the cutscenes. however, and the fighting animations, as before, are quite smooth and realistic. But where TTT really excels (as did the previous two games) are the environmental graphics. The dusty streets and burning rooftops of Babylon, the dark sewers underneath the city, the palace of the king, the temple, and the moonlit hanging gardens of Babylon—none of these will fail to disappoint. The lighting effects are particularly impressive, and everything seems immersed in a beautiful glow. It's a real pleasure to see the effect of light streaming down into rooms from windows or cracks in the ceiling.

The rock music from the previous game is gone. Perhaps it's just as well, since it might have seemed grossly out of place in TTT. Instead, you have music that's sounds a bit more traditional and in tune with the setting of the game. Naturally, action sequences will involve faster, louder music, while players wandering through empty areas will experience slower, almost sad vocal music. On the whole, the music is up to the mark, as is the voice acting of all the characters.

Throughout the game, players will be kept entertained by the conversations and arguments between the Prince and the Dark Prince, or Kaileena's insightful, softly spoken narratives (yes, even though she's dead), which really help keep the story alive.

Prince of Persia: The Two Thrones successfully reduces frustration and monotony, and introduces a number of interesting gameplay elements, ensuring that the game truly lives up to the high standards of, and provides a highly fitting end to, the entire Prince of Persia series. If you liked the previous games, you'll surely like this one. If, however, for whatever reason, you didn't like Warrior Within, you probably won't like this game either.

Madhav Tankha

pider-Man is one of our favourite superheroes, earning respect for being truly unrecognisable (unlike some, who think that eyeglasses are a perfect cover), and more importantly, for keeping his underwear on the inside where it belongs.

A few years ago, two comic-book illustrators decided to re-invent the Spider-man we all knew and loved to create the *Ultimate Spider-Man* series, giving Peter Parker and his arachnid self a more contemporary teenage look. It might look familiar, too—it airs (or did, at least) on one of our cartoon TV channels.

The story comes right out of the comic, with 15-year-old Peter Parker and friend Eddie Brock discovering a suit their fathers were working on

before they died—a suit that could cure cancer. Peter tries it on, and discovers himself twice the Spider-man he used to be—but there's something sinister about this suit: it begins to consume him. Superhero that he is, Peter escapes its clutches, but Eddie isn't so fortunate when he has a go—the suit turns him into the vicious and brutal Venom.

It's three months later now, and while Peter Parker goes about his superhero responsibilities somewhere in Manhattan, Venom has returned from oblivion to terrorise the city. The story follows the expected comic-book plotline—save the innocent and kick supervillian arse. You're pretty much free to roam the city, taking up challenges like races and gang-fights as you please. While such silly side-mis-

sions feel optional (we'd love to give races the pass), they are in fact the way to unlock further story-related missions and other cool stuff like swing speed upgrades. This didn't go down too well—we'd expected a game that was more strongly focused on story. Instead, what you get is a lot of unnecessary missions that may or may not take you forward in the story.

Thankfully, the few story-related missions that are there are quite intense, and make some of the torture worth it; Spidey fans are sure to enjoy the inclusion of a huge assortment of favourite characters—the Green Goblin, Wolverine, R.H.I.N.O, The Human Torch (of the Fantastic Four), Mary "too-hot-to-pass-for-fifteen" Jane and loads more. While swinging about the city, you can also pick up "tokens"















to unlock things like concept art, landmarks, and even cool costumes.

The game uses the 3D Comic Inking Technology, a cartoon-style 3D Cel Shader. The effect is an awesome mix of the two—standard 3D effects like dynamic lighting and shadows, and the brilliant-looking comic style, especially appealing in Venom. Cutscenes are also presented in comic-style panels, bringing the theme full circle.

What *really* sets this game apart is that you'll be doing missions as Spider-Man *and* as Venom! The two characters have really different fighting styles—Spidey's agile, acrobatic moves and Venom's raw, brute force keeps you entertained no end. After you've finished the story missions, you can free-roam the city and switch between the two. Playing as Venom is no less fun

than as Spidey himself—you can throw cars, slap cops around, and generally descend upon Manhattan with carnage on your mind. He's deadly strong, so you don't need us to tell you how entertaining this can be!

The acid-test for the game developer is the oh-so-critical web-swinging, and Treyarch pass with flying colours. It gets the adrenaline circulating nice and strong without being too disorienting or difficult. Getting used to the keyboard layout takes time, and it's probably a good idea to tweak the controls to something you're more comfortable with; but while this helps to get comfortable with the web-swinging, it still doesn't help the combat much. In short, you'll need a game controller to get the best out of this one.

Rating: 8/10

Minimum System Requirements

W indows 2000/XP

Pentium 4 @ 1.4GHz/Athlon 1500

256 MB RAM

32 MB DirectX 9.0 video card

Developer: Treyarch Publisher: Activision

Distributor: W orldwide CD ROMs

Contat: 022-56973895 Price: Rs. 999













After a long day of crimefighting, Dur Hero ponders his next Challenge

# Somewhere Over The Rainbow Six

om Clancy's *Rainbow Six: Lockdown* (R6L) is the latest instalment of the *Rainbow Six* series. The popular tactical shooter series has long been a favourite amongst gamers. It's basically a port to the PC of a game made for consoles, but it's still a pretty good looking port.

For those of you who aren't sure why this game is called *Rainbow Six*: you play the game as a squad member of Team Rainbow, the world's best counter-terrorist unit. In *Rainbow Six: Lockdown*, you lead your men through various maps that are set in various cities across the globe, and attempt to eliminate hostile forces that are targeting the Rainbow Six elite squad. You go through levels killing the bad guys, rescuing the good ones and retrieving data and securing biochemical stashes along the way. The concept is simple: protect the world from evil!

Let's start with my first impression...

#### **Great Graphics**

I was surprised at the eye-candy! The graphics are pretty good. They're still not as good as my all time favourite (thus far) *Half-life 2*, so forget about comparisons to *Doom 3*, *Quake 4* or *F.E.A.R.*, but they're great for a tactical shooter.

The shadow effects and the lighting are nicely done and water reflections are also really cool. I played this game on an AMD Athlon 64 3200+ with 1 GB of DDR2 memory, an 80 GB SATA hard drive and an ATI Radeon X850 (128 MB) XT graphics card. I set all graphics settings to their highest possible values—the game loaded quickly and never framed once.

You should be able to do the same with any of the current generation cards—an NVIDIA 6600GT, or an ATI X850, or newer.

#### Bad Al

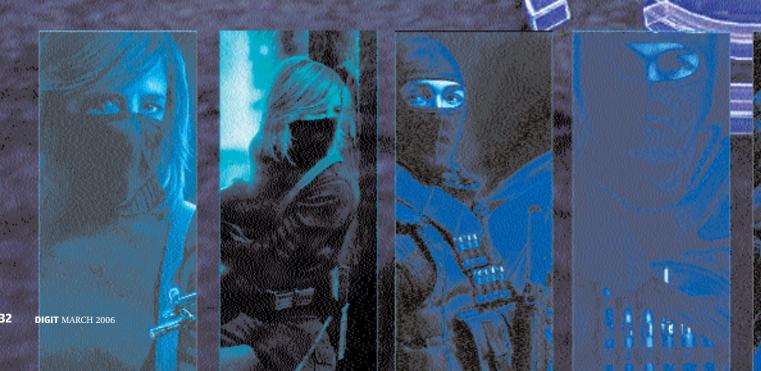
There is no AI to write home about. Enemies are stupid, even at the higher difficulty level, and your squad mates even sillier. When a member of your team faces enemy fire, even if he or she (yes, this game is not sexist) is outnumbered 10:1 he/she will continue to fight until death! Is this the famed bravado of the *Rainbow Six* clan, or is it just stupid AI, I still can't decide.

Even at the highest difficulty level, enemies can't seem to hit the side of a stationary 18-wheeler, leave alone kill me, and yet I can get in headshots (one shot kill) four out of every five tries! For those of you who have played and mastered tough FPS games, or even *Counter Strike*, this game will be a little too easy for your liking.

There are times when you sneak up behind enemies, shoot one of them, and the rest keep looking the other way-apparently deaf to have not heard the burst of sub-machine fire that I let rip from just a few feet away, and oblivious of the fact that I am carefully setting my sights between their ears. It's like those shooting ranges at fairs, where you shoot balloons or cute ducks.

#### **No Tactics Required**

Though a tactical shooter, there's no real tactics needed here. Perhaps it's slotted into this genre because you have to peep around corners. True, you'll get shot up if you're the type to go running blind around corners and into a horde of terrorists—but does anybody actually do that? If you're used to playing Counter Strike, playing R6L is like playing against a team of



"campers"—they don't move enough strategically, and generally move about in circles, ducking for cover! The fact that you can get in headshots from miles away doesn't help you develop any "tactics" either.

#### Weapons

Though there are a lot of weapons to choose from, they don't really handle that differently, or give you any more or less accuracy. So, if you're choosing a machine gun, you can pretty much just pick up the gun at the top of the list and just get on with the game.

There is the option of changing your uniform colour, but, again, this isn't anything to write home about. You can only carry two weapons at a time, so make sure you choose a sub-machine gun as the primary weapon and a shotgun as the secondary weapon. The pistols are just too underpowered against terrorist firepower. You should also know that you seem to have unlimited ammo for your secondary weapon-pistol or shotgun, but ammo for the machine gun is limited.

#### The Experience

There are a few things that would have you tear your hair out, or in my case, make wish you had hair to tear:

#### 1. You cannot jump!

Yes, you read that right, you just *cannot* jump! There's no control for it, and your way is often blocked by a fallen over potted-plant, or something equally ridiculous. It's really irritating when you can *see* another way across a map, but cannot use

it because of an obstacle that even a two-year old midget would hurdle with aplomb.

2. You cannot pick up ammo or weapons!
You're running low on ammo for your machine gun—the reason for this shortage of ammo (the terrorists) are strewn all over the floor, dead! Yet you cannot walk up to a corpse and just pick up his weapon or his ammo. There's no "switch weapon" option, so

even after finally killing that pesky RPG-toting terrorist, you're forced to continue on your way clutching your miniscule pistol, which would probably do more damage if you hurled it at your enemies!

# 3. You can kill team mates, but shoot a civilian and you start the level from scratch.

Whatever happened to "acceptable losses"? So what if I "accidentally" kill a civilian or two on route to "saving the world", do I have to be punished with playing a mindless level all over again?

#### 4. You cannot jump!

Oh wait, I said that already! But it deserves a second mention because it's ridiculous enough!

#### **End Game**

This game is probably a lot of fun on the console platform; unfortunately, it's not that great for the PC. It's like buying *Counter Strike (CS)* with much better graphics. There's nothing new here for most people. The multi-player is possibly a much better option, at least when it comes to combating the boring AI. Unlike in *CS*, however, die while playing and you do not get to follow your comrades about using the camera mode—in *R6L* you just have to sit and twiddle your thumbs until you re-spawn about 30 seconds later.

The three of you gamers in India who have not played *Counter Strike* should definitely buy this game! For the rest, if you have money to burn, and like great graphics with CS-style multiplayer action, buy the game; if you're looking for a story-based single player game for entertainment, flip the page, there's more interesting stuff to read!

robert\_smith@jasubhai.com



Rating: 5/10
Developer: Red Storm Entertainment
Publisher: Ubisoft
Distributor: e-XPRESS Interactive
Contact: 022-2885 0245
Category: Action/Tactical Shooter
Website: www.rainbowsixgame.com

# Media Wise

CNET News.com, February 14, 2006

### It's A Nice Day For An EverQuest Wedding

CLEARLY WE WERE mistaken when we thought we were safe from weird Valentine happenings this year, but unfortunately CNET News' Danny Terdiman had no such luck. People getting married on MMORPGs?

Some people might think it odd to find a soul mate in a place where hunting orcs, battling villains or zipping around in hover cars are the day's primary activities.

Chris Edwards is not one of them. He met his wife Alayne in the virtual world "Second Life," a game in which players design and build almost any reality they can conceive.

"We'd both been in chat rooms before, but (there was so much) extra depth in 'Second Life,'" said Edwards. "It lets you explore other people's creativity, and that was something that really attracted us to each other. She was experimenting with building plants and flowers and trees, and that was really neat, because I hadn't built anything organic."

Edwards is one of a surprising number of people who have found their long-term Valentines in online games and metaverses like "EverQuest," "City of Heroes" or "Second Life."...

To be sure, not every virtual-world romantic interlude ends up at the altar. In some cases, not surprisingly, players have used the environments to stalk would-be paramours, and tales of nasty breakups are common. But because the games give players so much latitude to become acquainted with others' imaginations and sense of play, they can be a natural place for gauging what it

might be like to spend



significant time with someone in the real world.

For Edwards, a 36-year-old game designer in Harrogate, England, and his wife, Alayne Wartell, "Second Life" provided a forum where the two, then living across the Atlantic Ocean from each other, could discover a wide range of mutual interests.

They met in the game, Edwards said, because they owned adjacent land, and they began to trek to each other's properties to see what the other was working on.

One of the things Edwards built in his house, he explained, was a floating brain in a jar--along with tinted windows and a swimming pool that appeared in the floor. "Alayne just came over (sometimes) on the pretense of saying hello to my... brain in the jar," Edward said. "We always say we fell in love over my brains."

Soon, the couple began to court. They borrowed some friends' private resort—a digital property in "Second Life"—and spent a virtual romantic evening together.

Edwards visited Wartell at her home in Philadelphia, and before long, the two decided to marry. Wartell, now 41, agreed to move to England.

But virtual worlds are also a place for couples to explore and expand existing relationships. ...

For the complete column, visit http://snipurl.com/digitmedia2 (http://news.com.com/lts+a+nice+day+for+an+EverQuest+wedding/2100-1043\_3-6038936.html?tag=cd.hed)

Wired.com, February 13, 2006

# The Secret Cause Of Flame Wars

THE THINGS WE write in our e-mails could have repercussions we'd never dream of. Wired.com's Stephen Leahy ponders on why e-mails could actually cause wars.

"Don't work too hard," wrote a colleague in an e-mail today. Was she sincere or sarcastic? I think I know (sarcastic), but I'm probably wrong.

According to recent research published in the Journal of Personality and Social Psychology, I've only a 50-50 chance of ascertaining the tone of any e-mail message. The study also shows that people think they've correctly interpreted the tone of e-mails they receive 90 percent of the time.

"That's how flame wars get started," says psychologist Nicholas

Epley of the University of Chicago, who conducted the research with Justin Kruger of New York University. "People in our study were convinced they've accurately understood the tone of an e-mail message when in fact their odds are no better than chance," says Epley.

The researchers took 30 pairs of undergraduate students and gave



each one a list of 20 statements about topics like campus food or the weather. Assuming either a serious or sarcastic tone, one member of each pair e-mailed the statements to his or her partner. The partners then guessed the intended tone and indicated how confident they were in their answers.

Those who sent the messages predicted that nearly 80 percent of the time their partners would correctly interpret the tone. In fact the recipients got it right just over 50 percent of the time.

"People often think the tone or emotion in their messages is obvious because they 'hear' the tone they intend in their head as they write." Epley explains.

At the same time, those reading messages unconsciously interpret them based on their current mood, stereotypes and expectations. Despite this, the research subjects thought they accurately interpreted the messages nine out of 10 times.

The reason for this is egocentrism, or the difficulty some people have detaching themselves from their own perspective, says Epley. In other words, people aren't that good at imagining how a message might be understood from another person's perspective.

"E-mail is very easy to misinterpret, which not only triggers flame wars but lots of litigation," says Nancy Flynn, executive director of the e-Policy Institute and author of guidebooks *E-Mail Rules* and *Instant Messaging Rules*. Many companies battle workplace lawsuits triggered by employee e-mail, according to Flynn.

People write absolutely, incredibly stupid things in company e-mails," said Flynn.

For the complete column, visit http://snipurl.com/digitmedia3 (www.wired.com/news/technology/0,70179-0.html?tw=wn\_index\_29)

#### ExtremeTech, February 3, 2006

#### Why?

EVER REACH THE point of tearing your hair out when computing? Loyd Case at ExtremeTech vents some of his frustrations with software.



Sometimes things puzzle me about the tech universe. I understand that technology evolves, and that different engineers and product designers may make different decisions. I may not agree with many of those decisions. But there are still some things that just bug me, and I can only ask: "Why?"

These questions are in no particular order of importance or priority. We have a lot of astute readers, so I throw these questions out to the world in general. If you've got an answer, drop by the forums and let me know.

Question: Why don't motherboard manufacturers attach motherboard socket back plates so they don't fall off when you remove the screws?

These days, I often use CPU coolers that are more exotic than the standard coolers that ship inside retail boxed CPU packages. Quite a few of them try to be universal, and work with any socketed CPU. I can certainly understand why they'd want that—why ship multiple SKUs of the same thing with just different socket adapters? I've run across a number of them for Socket 939 motherboards that ask you to screw something into the CPU socket back plate. This is a small plastic backing plate that mounts on the underside of the motherboard, and acts as a mount point for the heat sink retention module.

Often, when you remove the screws, the back plate falls off. This is a real nuisance if you're trying to work with a motherboard that's already screwed into the case. It means having to remove the motherboard, which entails taking out all the expansion cards.

But not all back plates are like this. Some remain attached. But if they you do need to remove them, it's a simple thing to lever them off with a screwdriver. So why don't all motherboard makers attach the back plate in this fashion?

Q: Why do some antivirus programs and spyware applications steal focus when they start a scheduled scan?

Some of you who are gamers instantly know what I'm talking about. Every Friday night, we have a LAN party in my basement office. Often, my system is used as the game server. We'll fire up a game, and right in the middle of the action, everyone's game freezes. Why? Because and anti-virus scan has kicked off on my computer (the server).

Now, I've fixed the main problem by simply rescheduling the virus scan. But why does an anti-virus or spyware sweeper need to grab focus in the first place? If there ever was a task that could run in the background, a pre-scheduled anti-virus scan would be it.

For the complete column, visit http://snipurl.com/digitmedia4 (www.extremetech.com/article2/0,1697,1920034,00.asp)

### **AdWise**



#### Professional quality printing even onto CDs. For professionals.



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the printer all night waiting. In fact the automatic cutter and catcher mean your borderless prints will be stacked ready to go. The EPSON Stylus Photo 950, all in all it'll make you look pretty damm good. For more details cal 0800 220 546 or visit www.pson.co.uk

EPSON

#### ■ Interesting use for nose #8839

We usually have something to say about every ad, but this time, we were just too busy laughing!



#### **△** Bird on a wave?

"Wireless" is taken literally here: there aren't any wires between the poles. And that brought us to an intriguing question—in a wireless world, where would all the birds sit?

#### **Xtreme Modding!**

A Finnish man has built a PC inside a bottle of scotch whisky. Using a JREX-786LCD motherboard, Janos Marton drilled a few holes into the whisky bottle and made it a fully-functional CPU cabinet!



#### **Sued By BitTorrent**

BitTorrent recently announced that it would sue anyone using its name or trademark to distribute adware or spyware along with their P2P clients. Motion Picture Association of America (MPAA) officials were probably either too shocked or too busy laughing to respond!



# Escape

#### **RACK-O-PHONY?**

# The Server Song

team of researchers at Canada's Sheridan Institute of Technology (SIT) has done something really wacky—they've found a way to replace network traffic and statistics with music. What does that mean? We weren't sure when we stumbled across www.

soundtomind.com, but

CAN YOU FEEL

THE LOVE (IN THE NETWORKS) TONIGHT.

careful reading helped us understand how this idea could help change the way networks are administered.

First, a little thought: do you remember the tune that was playing in the lobby of a hotel you visited? What about the elevator you just used? Chances are you don't! That's because music can be very unobtrusive, and

we're used to it playing in the background. Sure, there are only a few genres of music that can play in the background without interrupting our thought processes—a Metallica or Megadeth song can't really be considered elevator music!

Now imagine this: if you could monitor network traffic, and see the patterns that form

when there is normal usage, and then use coding to develop soothing music for such behaviour, you have perfectly soothing background music playing when all's well with your network. Now, when there's an anomaly, an attack or an intrusion, the patterns change, as does the music. Depending on how you code the music creation from the network traffic monitoring. you could have horror movie soundtracks play when there's an intrusion!

Apparently, researchers at SIT have developed just such a system; one that sends information from a network server to an "information muSIC"(iSIC) server, which in turn converts the network traffic into algorithms. These algorithms are then passed through a synthesizer that creates the music, which is then passed on to speakers

that output the music to network administrators. In their setup, the amount of spam controls the violins, traffic between servers sits at the piano, the server load decides the drums' tempo, and chords are decided by the total number of connections to the e-mail servers.

All a network administrator has to do is train his ears to see patterns in the music, instead of staring at a screen for hours looking for intrusions. Of course, this is easier said than done, because these admins find it hard to give up staring at their screen and allowing a program to belt out a tune every time something happens!

If this idea catches on, you might soon hear murder movie soundtracks when you receive spam, or death metal when your boss sends you an e-mail! We loved the idea here at *Digit*, especially all the networking gurus, who would give anything to be able to change the way things are! Visit www. soundtomind.com for more details.

# Win! New Rules!!!

#### My Desktop

In response to overwhelming reader demand, we're changing the rules for 'My Desktop'. Everyone wants to know how to create their own winning desktop, so now



when you e-mail us, we want to know exactly how the desktop was created. As usual, no theme packs, please! Using a shell enhancement is all right, as long as you've customised it *yourself*.

Remember, if we can't recreate your desktop the way you describe it, the entry will be rejected, so please be clear!

The other rules are the same—send your desktop to **mydesktop@thinkdigit.com** with the subject **'My Desktop'** and tell us your postal address, too.

#### **PODSNORING**

# The Biggest iPod Dock Ever!

Yes, it's time for yet another crazy iPod story. Well, actually this one is an accessory, and is the largest we've come

#### DigiPick of the month

"Beaming Baby!"



This month's winner is Amit Patel At & Po. Saras, Surat

He wins

SHAKTI Movie DVD Directed by Ramesh Sippy



#### WIN!

Send in your entry and you could win an exciting gift 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.



across thus far. It's not every day you see an entire bed that's marketed specifically as being an iPod dock! Complete with Bose speakers, side lamps and an iPod docking tray, this bed, made by Design Mobel in New Zealand, is designed to integrate with your iPod-so that the world's favourite portable music player never leaves your side, even while you sleep! The bed model is called Pause, and is made specifically for iPod junkies who don't want the music to stop.

The company sells the beds with accessories and in all the standard sizes—Queen, King, Super King and even a seven-foot-long option. All nice and wacky: we knew there'd soon be accessories for your iPod accessories available!

Now we're just waiting for the lawsuits to start: if your favourite music is your significant other hates it, and you happen to switch on your iPod at 2 AM, pumped through powerful Bose speakers—we're not sure yet who will be suing who, but broken bones and blood will definitely feature in such a scenario! Perhaps Design Mobel should also

#### **GOOD GAMES?**

### Peace, Brother Titus

bundle a pair of good ear

plugs with the bed...

ames today are too violent, according to White Knight Games, a Christian game development company in Australia. White Knight is developing a game called Timothy and Titus (T&T),

which will have you searching for Biblical letters, rather than blowing zombies back to hell with your rocket launchers. Unlike most games today where you go about collecting health, ammunition, weapons and money, T&T will make you search for more important things such as faith and hope. The game will also see you, a "heavenly hero," vanquish evil using "the finger of God"!

The developers aren't kidding themselves either, and Laurence Escalante, managing director of White Knight, doesn't expect non-Christians to buy the game.

Another game developer, Left Behind Games, is developing a game called *Left Behind: Eternal Forces*, a game that is due for release soon and will see you command the good versus evil forces in an apocalyptic battle in New York.

The trend is clear: games can be fun and immersive, despite being rated for all ages. The recent release of *The Bible Game* for the Xbox and PS2 means the console market will also be targeted.

Whether or not the general public will lap up

#### People Who Changed Computing

#### The GUI Genius

When you click an icon on your desktop to get things going, spare a thought for Dr Guy "Bud" Tribble, who was the manager of the software development team for the



Dr Guy "Bud" Tribble

original Apple Macintosh. It was the Mac—and therefore, this team—that first brought the GUI to the masses.

In the team effort of designing the new Mac, everyone was open to new ideas. In an interview with Byte Magazine, one of the team members, Andy Hertzfeld, recalled that it had been decided that the Mac would only run one application at a time. But one afternoon, Tribble was excited: "You know, even if we can only run one major application at a time, we could also have some little applications running in their own windows at the same time." Hertzfeld was intrigued. "What kind of little programs? How are they different?" Bud smiled. "You'd want tiny apps that were good at a specific, limited function that complements the main application. Like a little calculator, for example." So now you know the origin of the "Dashboard" you see on Macs!

In 2002, after more than two decades, Tribble came back to Apple Computer, his role being to help define the long-term technical direction of the software engineering group. "The future is in bioinformatics," Tribble said in 2003. "The doubling time is less than 12 months for genome data. This is placing stress on how we store and compute all the information we have." And of course, according to Tribble, it's Macs running OS X that are best suited for scientific computing.



#### Chipsets

If you ever hear a conversation involving Buses, Northbridges and Southbridges, and think that the speakers are having another boring chat about travel routes, look again, Do these "travellers" wear thick glasses and appear malnourished? If so, you seem to have stumbled upon a collectionof geeks, and they're really having another boring chat about Motherboards and Chipsets. And to prevent your brain from shorting out, we present... a handy-dandy geekdecoder!

Chipset n.: The real definition is just "a collection of chips designed to act as one," though it's been corrupted to refer to the chipsets on a PC's Motherboard. Note that true Geeks are fully aware of this.

Usage: "Well, I've got an nForce for my Motherboard, a GeForce for my Graphics, and an Audigy for sound. Which one did you want to know about?

Front Side Bus n.: Like a real bus, it's a way for data to travel around the motherboard-a connection between two components.

Northbridge n.: An Intel Chipset that talks to the CPU and Memory at really high speeds via 'lanes' (different paths for different data) on the FSB.

Recommended Geek Joke: "Let's take a Bus down Memory Lane.'

Southbridge n.: You guessed it... another Intel Chipset-this one talks to the other, lesser devices on the motherboard-the USB ports, power management chips and so on. To speak to the, it needs to go through the Northbridge first.

HyperTransport n.: A superfast means of transporting data on motherboards, used by AMD Processors. It can let the processor talk to the memory and other devices without any chipsets in between.

Usage: "So do you think HyperTransport will kill the Northbridge?" (Note: Use with caution near Intel fanatics)

# **Great Big Image**

Here at Digit we're always looking for stupidly geeky things to do—and we never have to look long! This month was no different:

It all started when Raaabo, on his daily darshan of NASA.gov, stumbled across a Torrent file. "NASA and P2P?", he exclaimed. "This will be good."

A little more reading and he soon found that the 2.9 GB Torrent was in fact a zipped 5.41 GB image of the Earth.

The word soon spread across cubicles. and all of the Digit bay was soon abuzz with chatter about how one would go about opening this image!

Even Solomon, our Illustration: Harsho Mohan Chattorai normally introverted, expressionless design head, raised an evebrow when he heard the news! He's

used to working with large images, but 5.41 GB?

Nimish, or Fatbeing as we call him, came up with the idea of using a test bed PC to try and open the mammoth image. "Let's see how long an AMD X2 with 2 GB of RAM takes to open this baby-it'll be like the ultimate test."

"Download it," screamed the masses. A few hours later, there was a

congregation of folks from various departments gathered in the test

centre to witness the auspicious 'opening".

Nimish was given the honours, since it was his idea. Photoshop was opened, the image unzipped, and then Nimish proclaimed, "What's a BIN file?"

Turns out the image is a RAW, headerless BIN file, and Photoshop cannot recognise such

Disappointed, everyone left within 20 minutes. Nimish

remained adamant, and started downloading various RAW image readers. In fact, it's been three days since we saw him-excuse us while we go and

check on him. We'll keep you informed of

his success... if any!



**DIGIT DIARY** 

these games remains to be seen, and developers are not afraid to try.

But perhaps the reason why violent games are so popular is because they allow us to be someone we aren't. None of us (hopefully!) have rocket launchers lying stashed about, or go on earth-saving missions against aliens . So if the lack of enthusiasm by youngsters to go to church on Sunday morning is anything to go by, you may not hear too much about these games in the future!

#### **SERIAL KILLERS?**

### **Pirates Really Are Criminals**

or a long time now, the software industry has been complaining about piracy and online scams, equating "warez" peddlers to murderers. The following case might help them win their fight against software pirates, and even

have courts consider the death penalty!

Brit citizen Neil Entwistle was recently apprehended for the murders of his wife and infant. The accused reportedly shot and killed both in Massachusetts, USA. He then fled home to York in the UK, where he was arrested. However, what's interesting is that before he supposedly committed the double homicide, he was trying to sell warez on eBay! Under his eBay ID,

"srpublications", he is listed as a seller for item number 583770905, which was being sold for about \$6 including

shipping.

He was also selling various Adobe and Macromedia suites for a fraction of their actual price.

To add to it, item number 7569904006 on eBay.com is another getrich-quick scheme that he was selling for about \$37. His ID has since been suspended, but you can still see the sale items if you search for their item numbers-for now at least.

So is there really a link between software piracy and homicide? Are all criminals born equal? To be honest, we don't know, but we're sure someone will come up with the results of a study soon

enough to prove either possibility.

# **INTERNET VS CHINA**

### We Need Help!

ahoo! has been under fire from most of the democratic world for buckling under the weight put on them



### whatweretheythinking.com

# www.bonebed.com/press/stormlands/index.htm

Apreliminary note: as you read this, you're likely to be as confused as this Web site is! The creator of the site, Robert Bose, informs us that the site titled "The Stormlands" is a resource for anyone needing inspiration, campaign material, or an interesting read. Three widely varying objectives... but take a look at the side bar: Cosmology, The World, Campaigning, The Campaign. Now here's someone who will tutor you to campaign, while also having a Campaign of his own. We went ahead in our attempt to decipher.



We're brainstorming to figure out this one!!

"In the earliest times three mighty Powers arose from the very fabric of the cosmos. What greater force created them and to what ultimate purpose were questions never to be answered. All they knew was that they had come to be"... duh!

"The World" purports to introduce us to the geography, organisations and beasts that made up this "arcane" world. 'Races' attempts to classify the beings in Bose's imag-

ined parallel universe. If you can suffer the descriptions, move ahead to a link named 'archetypes'. Again another classification, this time based on 'occupations'.

Under Equipments, Tables give you the range and specifications of weapons used in Bose's imagined "campaign" in painstaking detail. And finally, if you're not sapped already, venture into the Campaign, to find further characterisation, as if all the characters introduced so far weren't enough. We're absolutely clueless—the site says it will provide "inspiration," but for what? Actually, let's sum it all up: what on earth is this site about? Please, please take a look and try and tell us!

by Beijing, and the subsequent jailing of a reporter because of the information the company released to the Chinese government. In an attempt to perhaps save face and also help alleviate some of the load, Yahoo! has issued a statement directed at the US government. If you cut out all the fancy words and jargon, the message quite simply says, "HellIllIllIlp!"

If you don't believe us, read the concerned lines for yourself:

"Private industry alone cannot effectively influence foreign government policies on issues like the free exchange of ideas, maximum access to information, and human rights reform, and we believe continued government-to-government dialogue is vital to achieve progress on these complex political issues.

"We will work with industry, government, academia and NGOs (nongovernmental organisations) to explore policies to guide industry practices in countries where content is treated more restrictively than in the United States, and to promote the principles of freedom of speech and expression."

Other Internet and technology companies being criticised by the masses include Google, Microsoft and Cisco, interestingly, all because of the deals they have struck with the Chinese government. Google provides watered-down search functionality in their Chinese version—actually censoring search results to omit links that the Chinese government deems immoral. Both Microsoft and Yahoo! pretty much do the same.

All we have to say is, give these companies a break; they need to make money, and China is the world's largest untapped Internet market for them. Besides, when the US government, with all its gazillions of dollars hasn't been able to tame China, what hope, in heaven's name, can corporates such as Yahoo!, Microsoft and Google have?

# **Blog** WATCH

Xbox modding is a sin. Vista is vapourware. Google has woken up to the fact that people do delete mails. That's some of the stuff floating around in the blogosphere this month

#### **Keith Stuart**

http://snipurl.com/blogmar1

#### Chips are down for Xbox modder

A 22-year-old Cambridge graduate has just become the first person to be convicted for modifying a games console—a crime that, however hard I try, I cannot imagine cropping up on Law and Order Criminal Intent.

Importantly though, the felon didn't merely chip his console in order to play imported Japanese dating games. He was selling modified Xbox units complete with larger hard drives each filled with 80 pirated games....

Anyway, the man was sentenced at Caerphilly Magistrates' Court to 150 hours of community service—outside the court building, weeping Microsoft employees and their relatives screamed for justice and pelted police with warranty-invalidated consoles. That last bit may not have happened.

Did I tell you about the time I enraged Sega Japan by running a feature in DC: UK magazine instructing readers how to bypass the Dreamcast region lock-out? I'd probably be put away for that nowadays.

#### Kimobeer

http://snipurl.com/blogmar2

#### The Truth about Windows Vista? It's Vapourware

Surely a company will show the best features in a demonstration of this year's most important product launch at the world's most important consumer

electronics show, before partners, competitors and a gathering of media from all over the world?

The pictures from Gates' keynote show perfectly well what those features are: A way to scroll through your applications in 3D—and while alt tabbing your movies will be able to see your movies still playing and preview documents...

As a user, would these features make you stand in line to purchase a copy, some night in November when Microsoft chooses to launch Windows Vista?

Even Windows boss Jim Alchin seems to realise that his offering has become extremely weak. So in trying to justify the five years that his team spent on developing the product, he is now touting safety and security as Vista's big feature.

#### Tony Hill

http://snipurl.com/blogmar3

#### **Gmail adds delete button**

As I suspected, Gmail finally added an actual delete button to their interface. This entire time I have been painlessly been using a drop down menu to delete emails (Yes Gmail, I delete emails because I signup for daily newsletters that I never had time to read. )

Anyways, I'm not used to it yet, so I'm still clicking on the dropdown to delete and I keep 'starring' everything. Looks like Gmail just took out the old delete menu option and just replaced it with this button. I think they should have kept both. So people can slowly adjust, or maybe some people like using a drop down.

#### **Digit Forum**

#### Feedback: Digit February 2006

#### Sreekanth V

Resident Techie

**Location: Zion** 

Software archive is what we are looking for. Thanks for that. The CD/DVD contents are very, very great. Multimedia section is a bit disappointing to me though.

#### agnels

Analogue Novice Location: Goa

Nothing good on CD this time. I dont know why Digit packs the CD with so many softwares and games. Instead only good software and games should be given, even if the total number becomes very small. Some other magazines are already doing that. Also OpenSuSe 10 has been given by that magazine.

#### .:deadman:.

#### **Analogue Novice**

Its better to stop buying DIGIT. They have started to suck again. Around September to December DIGIt was improving and it seemed that they'll be back with full form. But after this months iisue and prev months. I have to say that DIGIT sucks.

\*\*\*\*\*\*\*\*\*\*

#### cyberzook

#### Analogue Novice Location: Calcutta

- 1. I got it on 2nd Feb. Thats damn fast considering Digit's earlier standards. Keep up this good work.
- 2. Digit S/w archive.. atleast they have started it. but needs to be improved a lot.

#### Alanis

#### **Analogue Novice**

It's so sad to see people crib about stupid things. Digit rocks, and here's why:

- 1. Fast Track is very good for the majority of PC users who are not (or do not falsely claim to be) "experts"
- 2. The DVD and CD contents ROCK! A billion times better than the "other" magazines you people keep harping about
- 3. The magazine has some really good articles, and the writing styles are so much better than the other bland and boring technology mags out there.
- PS: I loved the mouse and keyboard reviews, and digit is right, we hardly ever pay attention when buying these things...perhaps that's why my wrist hurts as I type this out. :)

To post your comments on the Digit Forum, visit http://www.thinkdigit.com/forum

#### ERRATA

In February issue we inadvertently mentioned incorrect prices for Mice on page 90-91, The correct prices are listed below. Genius Netscroll + superior-Rs.990, Genius Ergo 525-Rs.2000, Genius Wireless Traveller SE2-Rs.950, Gigabyte GM-AC-Rs.495, Logitech MX-1000-Rs.5500, Logitech G5 Laser Mouse-Rs.4995, Logitech G7 Laser cordless-Rs.6495, Microsoft Wireless Optical mouse 550-Rs.7166, TECH-COM SSS-OM-311-Rs.399, TECH-COM SSS-OM-312-Rs. 399, Zebronics ZEB-OM-101B optical wheel-Rs.250, Zebronics RF 1000 Cordless Mouse-Rs. 650.

# The Fast Track To Windows XP Was Great!

The Fast Track to Windows XP was simply superb. For the past year I have been using XP, and after reading this month's Fast Track, my love for it doubled. The depth in which XP has been described is unbelievable. Only a regular hard bound book worth Rs 200 to Rs 300 would accommodate so much data in such detail.

Based on your suggestions, I immediately made some changes to enhance my system performance. And the difference is notable. Keep on giving such useful topics in Fast Track.

#### Niraj Mehta, Bharuch

Dear Niraj,

I am glad to know that our February issue of Fast Track was such a big help. And with so many mails coming in on this subject, I am assured that the same has been the case for many others.

It has always been our initiative to provide not just information, but also practical tips through our *Fast Track* series.

-Associate Editor

#### What Are ISO Files?

The Linux version Kubuntu you have given in your Febraury DVD is in the '.iso' format, which opens with Easy CD Creator. Could you please tell me how to execute the file?

#### Sahejpreet Chhabra

Dear Sahejpreet,
An ISO file is a CDburning software
file that can be
used to burn
a CD. In
order to use
this file and
create a
Kubuntu boot
disk, you will
have to
copy this
CD image

(ISO file) to your hard drive, open your burning software and select the "Burn Image" option—and then provide the path to the ISO file you copied to your hard disk. This will create a boot CD of Kubuntu. You'll then need to reboot your computer and boot with the Kubuntu CD you just created.

Associate Editor

#### **Suggestions Galore!**

Please accept my heartiest congratulations on bringing up another wonderful and feature-rich issue of *Digit*. My father introduced me to your magazine with the December 2003 issue and it was really awesome. I persuaded him to subscribe. Since then, I eagerly wait for *Digit* each month.

All your issues are full of knowledge, entertainment and current affairs in the IT field. *Digit* is definitely my technology navigator, and is India's best tech magazine. I would therefore like to give you some suggestions to help it maintain this position:

- 1. The performance chart of the products tested in Test Centre can be given on the CD/DVD as well.
- 2. Include more software reviews.
- 3. Include some articles on software programming in VB and advanced image editing in Photoshop CS2.
- 4. Your article on Vista was too short.
- 5. You can also provide video footage of your testing procedures.
- 6. Can you include the latest price of various software?
- 7. Your Index page needs to spell all the software your magazine has reviewed.
  8. The software included in 30 Minutes Expert and the How To sections can be provided on the CD/DVD.
- 9. You can also dedicate a Fast Track to Photoshop and the Windows Registry.

Anurag, Allahabad

Dear Anurag,

That was large laundry list of suggestions, but be rest assured—we'll consider every one of them. One of your wishes—regarding Windows Vista—has been already fulfilled: check out this month's *In Sight* article in the *Digital Passion* section.

As for suggestions 6 and 7, well, we always mention the price for every software we review, and also list it on our index page. But yes, these are all MRP (Maximum Retail Price). In fact, all the prices we mention in our magazine for our tested products are MRPs; the street price or grey market prices may always differ, but we cannot print the unofficial prices of any products.

For street prices, you should read Agent 001's articles. We are indeed mulling over a *Fast Track* on Photoshop and other designing software. Till then, keep reading, and keep writing in to us!

-Associate Editor



#### 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

#### **Mobile Reviews Please!**

Thanks to Team Digit for providing an ocean of knowledge for readers like me. A request on my behalf: I am crazy about mobiles! I have searched different magazines but not found enough information. I am waiting for an issue of *Digit* that will review mobile phones the way you tested digital cameras, graphics cards and personal computers.

#### Pratiush Kumar Singh, Patna

Dear Pratiush.

We have already carried a mobile phone review for the high-end category in October 2005—hope you read it. The category will be revisited in a few months, so do watch out for it in future issues of *Digit*.

-Associate Editor

#### Simple And Effective

Thanks for everything. I am an engineer, and am very interested in PC stuff and software. Initially I had just a drop of knowledge, but after I picked up *Digit*, I'm the best among my mates in terms of sheer knowledge, and win many group discussions about PC and software. All the credit goes to my hard work! Hey, I'm just kidding—it goes to you!

I have been reading *Digit* for the past three years, and it's really worth it. The way your articles are written, I just can't put it down mid-way.

#### Jassie Dhaliwal, Bhatinda

Dear Jassie,

Thanks for your appreciation. If *Digit* has made you a champ in group discussions on technology, then we're proud to have done our job well—damn well, I guess!

Letters such as yours motivate us to continue working hard towards providing not just the latest but also lasting information on technology to our readers.

-Associate Editor

#### More About Online Certificate Programmes

I would like to request you to include an article on online certifications such as RHCE, RHCT, MCSE, CCNA, CCNP, etc.

I'd appreciate it if you could also talk about the validity of these in UPSC examinations (if a degree is not obtained), along with its cost, and where to study it.

Bapi Roy, West Bengal

Dear Bapi,

We have initiated writing articles on careers in the IT and ITES industries; this month, we've covered career aspects in BPO setups. Soon, we will also delve into the qualifications required to enter the IT sector. Keep an eye out for those!

Associate Editor

#### **Prices Of PC Components**

You should include a section on the site that specifies the approximate prices of the various components in a PC. A user can thus know whether he is getting the components at the correct prices.

#### **Abhishek Gharpure**

Dear Abhishek,

We always mention the prices of the products we test. But it is not possible to mention prices of all products every month, because sales tax and octroi differs in each state. It is difficult to nail down the exact price in different states.

Add to this the grey market prices change almost every day for PCs and their components across the nation. As a result, we can only mention the official MRP of the products supplied to us by the companies for testing purposes.

- Associate Editor

#### **Web Site Woes**

I want to thank everyone behind *Digit*. A student of BITS Pilani, I have been a reader for the past three years, and have not missed a single issue.

The February issue was marvellous. I have written to you many times, but have never gotten a response. I want to suggest that you make your Web site more attractive, while providing more information related to upcoming future technologies.

Arun Rana

Dear Arun,

With this letter being answered here, I am sure your gripe of never being answered has been attended to. Thanks for the appreciation regarding our February issue.

Regarding the sprucing up of our Web site (www.thinkdigit.com), we are indeed working on it right now. The thing is, whatever we do, we want to do well. Hence, quite of bit of planning is underway, and efforts are being made to soon give our readers a refreshing new Web site.

Associate Editor

# Call Drops And Infrastructure Concerns

There has been significant development in the field of mobile communications. With incoming calls becoming free and handsets having become cheaper, even rickshaw-walas and dabba-wala bhaiyyas can afford a cell phone. GSM operators and CDMA operators are now battling it out, but consumers are still bearing the brunt of Access Deficit Charge (ADC). Incessant competition has indeed provided loads of economical benefits, but how about expanding the infrastructure? How about maintaining lines and networks? How about freeing up capacities? How about optimum utilisation of bandwidth? How about connectivity at all times and at all places?

I'm talking about call drops and bad networks. I'm talking about dialling a number you're trying to reach when it matters the most, during peak hours. I'm talking about trying to reach someone registered with other networks. In the trains, call drops are so frequent that a conversation that should last a minute is stretched to five or six minutes as we dial again and again. GPRS on my network is a bad joke.

I am not a telecom engineer, but I am technically inclined enough to understand that networks are not how they should be. In some countries, operators have moved on to Quad-Band and 3G networks, and here we're stuck with single-band networks.

The TRAI and the DOT talk of putting into effect number portability and a unified national tariff. What's the point of focusing on all this if basic call quality is not good enough?

I think it's time the authorities work on guidelines for service providers to provide optimum services and enforce these—to ensure that technical requirements are met and networks are maintained to perfection within the defined coverage areas.

If the telecom companies are here to make money, I think we consumers have the right to get our money's worth, and be able to perform the most basic activities on the cellular phone with confidence.

Aliasgar Raja, Mumbai

# Tabloid TECH

People And Events That Grabbed Headlines-For Better Or For Worse

# iWord, Anyone?

n the beginning was the Word. Next comes the iPod. It beats us why so many of God's People have taken such a fancy to Apple's player, but "popularity" probably has something to do with it.

So what's in the news now? Head to www. bibleplayer.com. They've taken Romans 10:17 literally: "So then faith cometh by hearing, and hearing by the word of God"

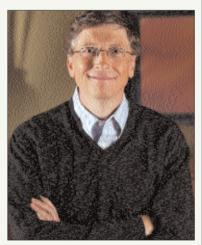
Their pitch? "This unique MP3 audio Bible lets you take God's Word with you anywhere you go. Using iPod's 'Notes' feature, you can read and hear the Bible on your iPod. Each Book is logically organised, so finding the chapter you want is a breeze."

This is the first version of the Bible designed specifically for the iPod. Has the *Book of Job* morphed into the Book of *Jobs*?

# **Bill's Bucks!**

ill Gates has said the US tax office has to store his financial data on a "special" computer. "My tax return in the United States has to be kept on a special computer because their normal computers can't deal with the numbers,' he said at a Microsoft conference in Lisbon. "So I am constantly getting these notices telling me I haven't paid something when really it is just on the wrong computer," he added in comments on TV.

Gates' fortune is currently put at \$47 billion (Rs 2.2 *lakh crore*). But quit



bragging, Mr Gates... we all know even a 1982 computer with 48K of RAM running BASIC can handle 47\*10^9!



# **Of Play And Porn**

f we say the porn and gaming industries are converging, your reaction might range from "What is the world coming to?" to "About time!" Evergreen Events is to host the first Sex in Video Games Conference. An actual conference? Yes, and it's not about controversies: the twoday gathering will go into the details of the design and development-and also the "technology"-of sex in video games! The times, are they achanging, or what? Amongst other things, the conference will feature an exhibit of "erotic machinima"!

Some quotes from those involved with the conference, which we found on Wired.com:

"The game industry needs to get smarter about how it treats sex—and related topics such as love, flirting, innuendo, passion, etc.—in games."

"2006 will see the release of many massively multiplayer online erotic games, or MMOEGs. Erotic gamers will be taken much closer to their ultimate fantasy."

"Recent technological innovation has made sexually explicit games more visually appealing."

"The Conference will give the adult entertainment industry and the games industry a place to talk and interact."

Nuff said!

# "Humbler, Gentler"

he was chucked out of HP a long time ago, but she's still a globe-trotting celebrity speaker—and her speeches still cost \$50,000 each. Even then, according to *Mercury News*, Carly Fiorina is now humbler and gentler.

"Slowly, she's been admitting some mistakes she made while at the helm of HP," the paper said, referring to her speech

Rich Tehrani, who hired Fiorina to speak

material.

at a conference, said, "She wanted to make sure we didn't call her the most powerful woman in the world... She seemed beyond humble. She's put on this pedestal by so many

people, and yet is more humble than the person sitting next to you."

Being ousted from the Fortune list of the 50 most powerful women in 2005 probably makes humility and gentleness come easier...



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- Enter this 16-digit code and score points (you will find your code at this place every issu
- Your points get added every month and can be redeemed for exciting gifts!

