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Inside The Mind Of A Gamer

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October 2004

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- 5 Things To Do **Before You Pack Your Bags**
- All You Must Know **About Digital Camcorders**
- Best Ways To **Stay Connected While Away**
- 50+ Tips To Get The **Best Out Of Your Digicam**

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Digital Camera You Can Buy

Tested: **Entry-Level Servers**
Top 5 Brands In The Battle

Abbas Dean Shows How VPNs
Cut Costs By Up To 80 Per Cent

PLUS
- How Internet2 Will Change The World Wide Web
- Face-off: Inhouse Versus Outsourced Security

4 Bangalore Engineers Build
Adam And Eve, The ROBOTS!

Jasubhai
DIGITAL MEDIA

I Got Your Mobile Number!

WOULD YOU LIKE your mobile number listed in a public directory?

Late August, the Telecom Regulatory Authority of India (TRAI) released a consultation paper asking cellular service providers to publish directories of their users' mobile numbers, just like landline directories that MTNL and BSNL publish.

Publishing a directory is a mandatory clause of an Indian cellular service provider's license agreement, but service providers have consistently avoided doing so, citing customer disinterest and privacy issues. Insiders say the real reason the companies do not want to publish a mobile directory is to avoid stretching their already-tight budgets on publishing a behemoth.

Whatever the reason, a publicly available cellular directory in India is invitation to trouble—and not just because telemarketers would take advantage of the millions of mobile numbers listed. The primary cause of individual complaints would be the lack of a system to address grievances.

It is no secret that credit card companies, insurance companies, and now even pubs and political parties routinely use mobile messaging to garner new consumers, or votes. The trouble is, who will address an individual's complaint if he or she receives spam SMSes, or persistent, unsolicited calls, or, horror of horrors—extortion calls?

The TRAI is, after all, a regulatory body—it does not have the teeth to punish offenders.

The US has a national *Do Not Call Registry*, which is a safeguard against telemarketers misusing publicly available telephone numbers. If a telemarketer calls up a number on the register, he is liable to pay a fine of $11,000 per individual. The fine is imposed swiftly, and the individual feels vindicated.

WYTY.com, also based in the US, has set up an opt-in online mobile directory. You can register on the Web site, and list your number. The biggest safeguard here is that you need to specify a name to retrieve a number. This means that only those who know your name—your friends, relatives and business acquaintances—will be able to access your number.

In India, once again, this idea would elicit little response. Most mobile users are not Net savvy. Besides,

Sachin Kalbag Executive Editor

> ## "A publicly available cellular directory in India is an invitation to trouble"

telemarketers will always a find a way to reach you.

The TRAI, meanwhile, had asked cellular operators to comment on the directory idea by September 10. No one did.

They have now extended the response deadline to September 30. Is the TRAI expecting a miracle?

We, then, come full circle, back to the same question: would you like your mobile number listed in a public directory?

sachin_kalbag@jasubhai.com

digit

YOUR TECHNOLOGY NAVIGATOR

Tell Us What You Feel About Digit

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

Product Testing

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

Software on CD

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

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To Advertise

Digital Passion

attain unthinkable zeniths of speed. Get ready for I2—Internet on steroids

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Digital Tools

Digital Business

99 For Your Eyes Only

How can data be secured and transmitted around with minimal cost involved? A VPN is what Anglo-Eastern found to fit their secure comunications bill

104 How About Data at Your Fingertips?

Did we just hear the sales team say super? Get the process into place via sales force automation
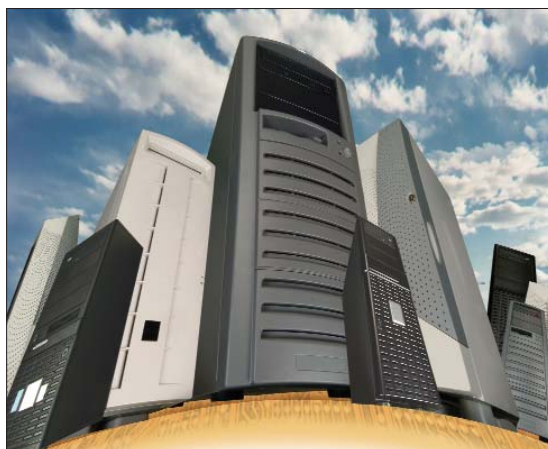
☐ 112 Serves IT Right

Six servers from five companies stake their claim to serve the IT needs of a typical SME. Find out which one wins

120 Twelve Great Tips To Stay in Touch

...with either your boss at work, or home, as you gallivant the sun-kissed isles of Mauritius (or hide away for a holiday)

October 2004

Illustration **Mahesh Benkar**
Design **Ashwin Boricha**

Digital Leisure
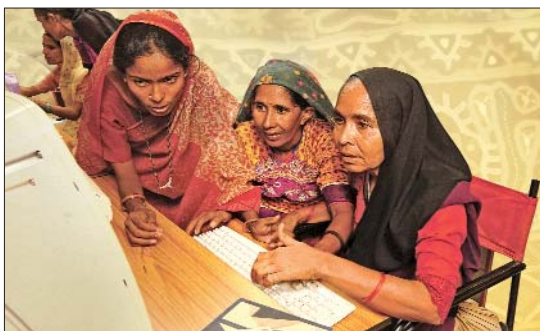
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Near the Rann of Kutch, SEWA leverages technology to make village women independent and net-savvy

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392 MB Community Bonus Pack 2 for Unreal Tournament 2004—41 maps, player models, skins and mutators, to give UT2004 action-packed, replayability like never before

Brothers In Arms
A 114 MB game video of a realistic World War II shooter. Keep your squad alive while you attempt to complete your mission

DEV TOOLS
DirectX 9.0c SDK
Microsoft MSDN Express Library 2005 Beta
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J2SE 5.0 Release Candidate Windows/Linux and Documentation

CONTRIBUTIONS
Hindi-English Talking Dictionary

GAMERS
Colin McRae Rally 2005
A game video of a very realistic rally racing game

Rise Of The Mushroom Kingdom
Three flash movies made by the talented Randy Solem—a delight for Super Mario Bros. fans

Max Payne KungFu Mod
Max Payne meets Jackie Chan?

SOFTWARE
1-Hour Search Engine Optimization Crash Course 1.4
Source Edit 4.0 revision 3

CONTRIBUTIONS
Payroll Professional

DIGITAL TOOLS

MEDKIT ISO
Create your own bootable CD with all the essential DOS and Windows software

MULTIMEDIA
- JetAudio Basic 6.0.5
- Blaze Media Pro 5.11

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- Parental Filter 0.2
- iNetBeagle 1.2

TIPS & TRICKS SINCE JANUARY 2003

PAST 13 ISSUES OF DIGIT IN PDF

Windows Media Player 10 Final
The latest version of Windows Media Player, which synchs with MSN Music to improve your media experience

MULTIMEDIA
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DIGITAL BUSINESS

LINUX
ELX BizDesktop 4.0
India's very own ELX Linux distro! ELX is going global, mainly because of the simplicity it offers in terms of migrating from the Windows platform. Its Start menu, Control Panel, Network Neighborhood, My Computer, etc, are easy to follow

PRODUCTIVITY TOOLS
ACT! 2005 Premium
ACT! 2005 is one of the best sales force automation software available today
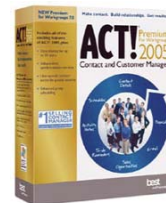
WHITEPAPERS
Disaster Management
- Top 10 Reasons why Online Backup is Replacing Tape at Small and Medium Businesses.
- Six Tips Small and Midsize Businesses Can Use to Protect Their Critical Data
- Security, Continuity and Recovery for Internet Disruptions and Disasters
- Disaster Proof Your Business without Costly Hardware
- Disaster Recovery Planning: Don't Forget the WAN

PRODUCTIVITY TOOLS
- WorkCentrics for Microsoft Office
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- DocuCom PDF Plus 6.5

DIGITAL LEISURE

BIG GAMES
America's Army
728 MB Full Version FPS

Full Version

Zoo Empire [297 MB]
Manage a zoo and keep your animals healthy

Rome: Total War [162 MB]
Command the most powerful army in history, and become Imperator of Rome

MOVIE TRAILERS
Paparazzi

BIG GAMES
Evil Genius [195 MB]
You are evil mastermind; your task is to take over the world

E-BOOKS
Classics from Sir Arthur Conan Doyle

MOVIE TRAILERS
Shark Tale
Sky Captain and the World of Tomorrow

Incredible !ndia

Online

By Demand

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

America's Army [Full Version]
Size: 728 MB

DirectX 9.0c SDK
Size: 227 MB

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Web Special
Goodbye Laptop, Hello Smartphone

Smartphones of the future will play 3D games, let you watch TV, replace your credit card...

Digit Reader Poll

This Month's Question

Apart from making and receiving phone calls, what else do you use your mobile phone for?

☐ SMS
☐ MMS
☐ GPRS
☐ E-mail

Log onto **www.thinkdigit.com** and vote

Last Month's Question:

What technology category do you spend the most on?

339	162	1090	113
Cell phones, accessories	Consumer Electronics	Computers, accessories	Spend? What spend?

---

taste technology at www.thinkdigit.com

There's something for everyone on the Digit Forum

Software Discussion
Some opinionated people here

Hardware Discussion
The hangout haven for geeks

Digit Discussion
All your feedback about the Magazine and DVD and CD

QnA
Thousands of answers to every question you have

Bazaar
Have money, will buy!

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

Experience The Power Of DVD

Robert Sovereign-Smith

Thanks to Digit's 'Upgrade to DVD' offer, we have received e-mail and phone calls complaining about how DVD-ROM and Combo drives have disappeared from the market. People claim the only way to get a DVD drive, these days, is to use Digit's offer, because vendors just aren't getting any stock! Personally, I love complaints like this; who wouldn't? We love being India's Technology Navigators!

Now that we have caused such a stir, we need to help you 'navigate' through your Digit DVD. It's month, we feature the DirectX 9.0c Software Development Kit (SDK), which includes the DX 9.0c runtimes, API documentation for C++ and C#, sample applications, utilities and the source code—use it to create DX 9 compatible applications. Also included are the J2SE 5.0 Release Candidate (Java 1.5 'Tiger') installers, both for Windows as well as Red Hat Linux, and the entire documentation kit.

For those passionate about games, we have a new section called 'Gamers', which will provide you with game videos (sneak peeks), patches and updates for your favourite games. This month we feature Community Bonus Pack

new section called 'From The Mag' will feature software that we have tested or recommended in the magazine. You need not wait anymore; just read the article and then just pop the DVD into your drive to use the software.

This month's features are Adobe's Photoshop Album 2.0 Starter Edition and Google's Picasa Image Organizer. *(Page 92, 'How to Organise Your Digital Photos')*

The 'Digital Business' section features the first Indian Linux distribution to be accepted globally—Everyone's Linux (ELX) BizDesktop 4.0 gives you the security and freedom that every business targeted OS should. It bundles all necessary applications such as an office suite, project management applications, scanning applications, PDF readers, etc—all with the native Microsoft Windows look and feel to minimise the alienation users might feel when switching over to Linux.

not just more GBs, or more software, it's about the quality that we are now able to offer; the large, but useful, tools and mind-blowing games that we can now offer our readers. And all of this is sensibly categorised, just as the magazine is, into Digital Passion, Tools, Business and Leisure.

Inside the October 2004 Digit DVD, you will find four large games, a Linux distribution for business use, J2SE 5.0 (codenamed 'Tiger') and DirectX 9.0c SDK for coders, our very own MedKit ISO to rescue you after a format, and much, much more.

Let's start with Digital Passion: In 'Dev Tools' this

(CBP) 2 for *Unreal Tournament 2004*, which offers you 41 maps and 2 new player models. Also featured are game videos from a World War II-based shooter called *Brothers In Arms*, a preview of the realistic looking *Colin McRae Rally 2005*, and a special surprise for all *Super Mario Bros.* fans out there.

In 'Digital Tools', you need to look out for eTrust EZ Armor 2005 (an anti-virus and firewall solution from Computer Associates), our very own MedKit ISO, the past 13 issues of Digit in searchable PDF format as well as Tips & Tricks and Q & A right from January 2003 to the present set. A

> **Try out America's Army, a 728 MB FPS game...realistic is the keyword here!**

Finally, in 'Digital Leisure', try out *America's Army*, a 728 MB FPS game, sponsored, developed and distributed by the US Military—realistic is the keyword here! The other big games featured are *Evil Genius, Rome: Total War* and *Zoo Empire*. At the end of it all, just sit back and read an e-book or five by Sir Arthur Conan Doyle, or watch the movie trailer of *Sky Captain and the World of Tomorrow* starring Angelina Jolie.

Of course, all this is just the tip of the iceberg. Pop that DVD in the drive and see for yourself... Welcome to the Digit DVD experience!

robert_smith@thinkdigit.com

Sony Takes The OLED Way
Sony has begun high-volume production of next-generation displays using OLED technology. The displays will be 3.8 inches diagonally, will offer 480 x 320 resolution, and will display 2,62,144 colours. The viewing angle will be around 180 degrees.

Hello, What Have We Here
Camera phones may soon become the mainstream way of clicking photos. For $2 a month, a new service from OurPictures will let users send videos and photos to a Web site, from where they can be viewed on any PC or cell phone in the UK and North America.

Illustration Farzana Cooper

Enter

Milind Deora
Member of Parliament

Twenty-seven-year-old Milind Deora is India's youngest MP. A management graduate from Boston University, he intends to generate employment by initiating more computer education classes in schools.

CELEB GEEK ★ CELEB GEEK ★ CELEB GEEK

What is technology to you?
I see technology as a tool that enhances the quality of life. It makes life easier—be it in communication or entertainment.

What gadgets do you own?
I own a two-year-old Compaq Presario laptop, an HP iPaQ Pocket PC and a Nokia phone.

Will you use the Web to serve your constituency?
I have set up www.milinddeora.com which will bring me closer to people.

Do today's politicians need to be tech-savvy?
It's good, but not a must. Technology helps politicians interface with the public, but only where the necessary infrastructure is present.

How often do you use the Internet and e-mail?
I browse the Web regularly and check e-mail daily.

Do you chat often?
I use Instant Messengers to keep in touch with my friends, when I find time.

Any gadgets you are looking to buy?
I'm planning to buy an iPoD soon (the 60 GB model) and the new, sleek Nokia 7610 camera phone.

Meera Vankipuram

UPGRADED MICE AND KEYBOARDS

MS Launches New Range

Microsoft introduced a new range of mice and keyboards after gathering customer feedback and improving upon negatives received. The result is a set of new innovative input devices that focus on convenience, mobility, comfort and design.

New features include the 'Living Hinge Cut' on the mice, which makes clicks comfortable since you apply less pressure, a much more 'Natural' Keyboard that replaces the forceful split with a 'Comfort Curve', and a slider in place of the keyboard scroll wheel, thereby facilitating zooming into and out of the document.

The new wireless notebook mouse features a receiver that stays snapped into the belly of the mouse when not in use. This receiver also disconnects the battery supply when it isn't required, thereby conserving power.

For the image-conscious, there are wireless mice in 20 different colours and patterns—enough to suit every mouse connoisseur's taste. If you want to go out of the way, there is the radical-looking, egg-shaped optical mouse designed by

XBox for India?

Microsoft has expressed keen interest in launching the XBox in India, but only after a careful study of the intended market, and 'broadband' becomes a term you won't feel is wrong to describe Internet access in the country. Broadband is essential for XBOX Live, the online multiplayer service, without which it is like a PC without Internet access.

celebrated French designer Philippe Starck. "It was wonderful to work with Microsoft and be part of designing a mouse people will use every day. As beautiful juicers can revolutionise kitchen design, Microsoft's new mouse can modernise desktop design." said Starck.

There is also a focus on security, with new fingerprint-reading mice and keyboards that aim to replace the traditional passwords—not just while logging into the PC as well onto protected Web sites. A stand-alone fingerprint reading device is also available.

Apart from this, the regular features are all here: optical technology for all the mice, tilt wheel technology to scroll through large documents in all directions with ease, a smart receiver for wireless products that detect interference and guide you to eliminate it.

JPEG Vulnerability

The Problem
Unpatched Windows PCs are vulnerable to attacks by innocuous image files. Pictures in the JPEG format can be embedded with a malware application, which eventually launches an attack on a Windows system. The vulnerability is present in at least a dozen Microsoft software applications, such as Windows XP, Windows Server 2003, Office XP, Office 2003, Internet Explorer 6 Service Pack 1, etc. Only Windows XP Service Pack 2 is not vulnerable to the flaw.

Damages
PCs using the affected software are in immediate threat. In fact, security software company McAfee puts the potential for attack at "very high".

Precautions
Microsoft has created a separate tool to deliver the patches to its software. The company has issued a bulletin on at http://www.microsoft.com/security/bulletins/200409_jpeg.mspx. The tool will scan your computer for affected software and will subsequently download the necessary patches. Even if you have deployed Service Pack 2, other software, such as MS Office, will still be vulnerable to the attacks. Microsoft recommends running the Office update to tackle this threat.

LCD MONITORS

The Big Picture

Bigger is definitely better when it comes to PC monitors and television screens. And when perks include saving nearly 75 per cent desk space, less eye-strain due to zero radiation and oodles of style, LCDs beat CRTs hollow.

TFT LCD (Thin Film Transistor Liquid Crystal Display) monitors are making their presence felt in the Indian market over the past year.

With about 40,000 units sold in India, in the third quarter of 2003, research firm IDC predicted a 5.8 per cent market share for LCDs in 2004. Yet, CRT monitors rule the roost in the home and SoHo segment, primarily because of the cost-factor.

Says R Manikandan, LG India's Deputy GM (Sales and Marketing), IT Products: "LCDs will never replace CRT monitors in a price-sensitive market such as India. Since CRTs are available at half the cost, it will take a long time for the latter to make inroads into the home segment."

Pure View Technologies, which has collaborated with Taiwan-based Funet, plans to woo the Indian market by offering LCDs at rates that are 20 per cent lower than the big brands. With factories in Sri Lanka, Pure View has taken advantage of the Free Trade Agreement between India and Sri Lanka.

Dhananjay Shah, Director, Pure View, predicts that LCDs will replace CRTs in India, in a little over two years. "Timing is key," he says, pointing out that LCD prices are likely to fall towards the middle of next year. "This is primarily because the technology is evolving and with newer products (read: plasma displays) entering the market, LCD prices will be slashed."

Apart from niche companies such as Pure View and UMAX, Sony, Philips, Samsung, and LG have also entered the LCD race in India.

As of now, hospitals, banks, and other corporates have stepped onto the LCD bandwagon. Pure View has

> **"LCD monitors will never replace CRT monitors in India"**
> **-R Manikandan, LG Electronics**

also joined forces with channel partners to offer buy-back schemes on CRTs to customers. "Corporates may upgrade to LCDs where work involves long hours of computer usage," says Manikandan.

LCDs are currently available in sizes ranging from 13 to 20 inches, while plasma display sizes range from 32 to 60 inches.

The LCD revolution has begun. But is India ready for the makeover?

SEARCH ENGINES

War As Usual

With the advances in search technologies, how do we know which search engine is better?

We started with a traditional search query:

⚡ **One Silly Question** | **What is WWW?**
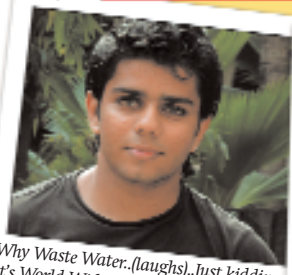
Why Waste Water..(laughs)..Just kidding, it's World Wide Web, a network of sites
Ryan 'Panther' Mendosa , Mumbai

World Wide Web. Great for research. Gives you whatever you're looking for
Sowmya Katathil , Pune

World Wide Web. It connects people all over the world. That's how it got its name
Suraj Wanvari , Mumbai

It's World Wide Web. That's it? This is a network of Web sites
Akai Ayemi , Dimapur

I don't know. It's the opening gate for the layman; makes surfing easy
Tusharr Tarun, Mumbai

The Digital World

A Round-up of Technology News from Across the Globe

GERMANY
In Koblenz, Germany, a thief returned a laptop he stole from a computer shop. A salesman from the shop, while chasing him, stumbled and broke his arm. The thief apologised and handed the laptop back. He then ran off

RUSSIA
As part of a British programme to prevent nuclear proliferation, programmers who were once nuclear scientists, are now designing games for the Internet

UNITED STATES
A man in the US was arrested for using a GPS tracking device to monitor his ex-girlfriend's movements. This updated a Web site when her car was on the move

UNITED KINGDOM
According to market research firm NOP World, during the first half of this year, 1.9 million Britons went online for the first time in their lives—the highest level of newcomers to the Internet since 2001.

CHINA
China's online gaming industry is worried that they could lose access to cyber-cafés, or have games blocked because of problems over licensing, piracy and violence

SINGAPORE
Singapore has started a campaign, urging children to SMS "Be cool, be bully-free" over their mobiles, hoping that bullies will yield to peer pressure

AFRICA
US band **REM**, amongst other musicians, got together on an album released on the Internet, called 'Songs for Sudan', to raise funds for people in the crisis-hit Darfur region of western Sudan

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The Holiday Tech Guide

Three Incredibly Useful Sites

Travel And Tourism Within India

indiatourism

www.indiatourism.com
This no-nonsense site keeps it simple. You will find everything you need—tours, car rentals, ticketing, etc. It has bundled information about the state as well as the city's history, heritage, etc., so that you don't cluelessly overlook, say, a ruin right in the heart of your destination!

indtravel

www.indtravel.com
Notable here is the hotel booking section. Pick a city from the map and the hotels that are located there show up. Choose the hotel that suits your choice and budget. It offers guidance on making your trip memorable. The tips can be insightful as well as amusing.

eindiatourism

www.eindiatourism.com
This site is peppered with travel guides and tours that take you through wildlife sanctuaries and places of pilgrimage. The India Shopping Guide helps you pick the right kind of souvenirs while on holiday. The Travellers' Tools section has the Airlines Timetable, Distance Calculator, Weather Info, maps of India, a currency converter, and a Railways Timetable.

Windows XP Service Pack 2 allows users to tag a USB flash drive as read-only. This process can be explained by using the search string "Storage Device Policies". The test was to find which of the engines displayed the most relevant results.

All engines did well. The first hit on Google takes you to a page where information is immediately available. The first hit on both MSN and Yahoo! are the same, a link to a site that aggregates syndicated posts from the Web. Some scrolling here takes you to the relevant information.

On to image searches, which is something MSN Search lacks. We chose 'Mandira Bedi' as the search string. Both Google and Yahoo! offer relevant results and both filter images, if you choose.

Google offers a wider range of hits in terms of sources covered. Yahoo's results were somewhat repetitive.

Once again, Google takes a slight lead in terms of the variety of sources covered, and the variety of pictures offered.

In terms of news coverage, Google News offers Indian content, and is frequently updated, while Yahoo! doesn't have enough India-specific coverage.

Google has a text-only version of this service which is a plus for mobile devices; additionally it lets you create e-mail alerts based on keywords. Yahoo! offers RSS feeds for its service, a global content similar to Google News, but it had no Indian content.

Google News offers more content in terms of news items covered under a section than Yahoo! News. MSN Search allows a news search, but does not link to a standalone News section like its rivals—strange, considering that MSNBC is just such a service.

To conclude, Google comes across as a better service, but its rivals are catching up.

> **"Google comes across as a better service, but its rivals are catching up"**

Photograph **Jiten Gandhi**

WELCOME, SAHARA
New Kid On The Block

In a joint venture, Sahara Computers (Pty) Ltd South Africa and Sahara India Pariwar, entered the world of PC manufacturing. On September 10, Sahara unveiled its gala plans to roll out desktop systems, notebooks and server systems. The products are expected to hit the market by the end of this year.

The question now is— does Sahara stand a chance? According to NASSCOMM estimates, PC penetration in India is a measly 7.81 per 1,000 people—way behind countries such as China (46) and Japan (450). This is a positive sign for Sahara, since the current PC market seems to have enough space for a new entrant. This is why companies such as AMD and Intel welcome Sahara's entry. Sandeep Keskar, Country Manager of AMD says, "The PC market can only grow when new players come into the market." But will Indian manufacturers feel the pinch?

Devita Saraf, Executive Director, Channels, Zenith Computers, doesn't think so. She says, "We welcome competition and would not comment further on this." Even HCL Technologies, who have been in the PC business for the last 28 years, say it is too early to talk of any competition because of low PC penetration.

For Indians, it would be another PC jostling for attention boasting of AMD and Intel processors with slim desktops and attractive prices. Sahara's Chief Managing Worker and Chairman, Subrata Roy, has promised to make India a leader in the hardware industry. For now, all we can say is: Welcome, Sahara!

ZDNET OPEN SOURCE
ZDNet India Launches Channel

In association with IBM, ZDNetindia.com has launched its own Open Source channel. It is dubbed as an attempt to create a unified platform for information related to Open Source in India. The aim is to create an online resource platform for both enthusiasts and developers.

The channel offers news, articles, tutorials and downloads on Open Source technology. Articles are sourced from IBM and the Internet—including CNet affiliates and other leading Web sites. The four main topics on the site are Apache, Java, Linux and PHP.

The channel aims to create a well-stocked database

Best Buys

Digital Cameras
The **Sify Mall** has some stunning offers on DVD players. Get the **Dolby Digital DVD Player with 5.1 Channel Output** for a mouth-watering price of just Rs **2,995**, instead of **Rs 6,500.** Save a whopping **Rs 3,000** on the sleek **Akai DVD-11000**, originally priced at **Rs 6,990.** Or just grab that **Mitashi MX7777** for **Rs 3,990,** instead of **Rs 5,490.** There are **LG** and **Phillips** sets as well among some really affordable deals. **www.sify.com**

Telephones
Forget that cell phone for now! Its raining telephones these days on the **Rediff ValuStore.** Pay a meagre **Rs 499** for the **Rs 799 Desktop Caller ID phone.** A set with **LCD Caller ID** and **Clock Display** will simply leave you drooling—**Rs 1,425,** instead of **Rs 3,999.** And **4-Channel Wireless Intercoms,** earlier coming for **Rs 3,999,** don't get cheaper than this, as you save **Rs 2,849.** A great array of cheap, yet the latest, telephones en masse. Go, make your call. **www.rediff.com**

A Selection Of Best Offers From Popular E-commerce Sites

consolidate the Open Source knowledge base.

The site stresses on learning from the tutorials, and sharing on the forum. Links to any Open Source project can be uploaded, along with a short description, to the 'links' section.

ZDNet India Open Source is also organising what it calls the 'biggest contest on open Source Java' for Open Source developers. IBM will sponsor the prizes for the contest.

of technical expertise and information on Linux Apache MySQL Perl/Python/PHP (LAMP) technologies under a single umbrella. It will complement the numerous well-entrenched Linux User Groups (LUGs) in India to

MEGAPIXEL PUZZLE
Pixel Puzzle

You are in the market to buy a digital camera that you have been saving for, but are overwhelmed by the pixel figures—3.2, 4.1, and 5.1. The question: does a higher pixel number, mean a better picture? Apparently not! According to *Time* magazine, there is a lot more to digital cameras than just megapixels. According to Shyam Sunder, Manager, Digicam Products, Canon India, "A good digital camera consists of a lens, resolution and a processor; a compromise on either of these affects the picture taken." So, why do companies highlight the pixel factor?

Kartik Mehta of J J Mehta and Sons, one of India's largest dealers of digital cameras, says, "It is a combination of pixel, lens and processor and hence the price variation." Often digital cameras, advertised as being very cost effective, come with a digital zoom that does not translate to good pictures. Plus, beware of the difference between actual and effective pixels.

"During mass production, in one mass square area, a number of pixels are dead, which means they will never reflect any light. So, look out for effective pixels in cameras," warns Rajeev Jaswal, National Sales Manager, Olympus India.

How will you know then which is the right camera for you? As Sunder of Canon India says, "Do not get megapixel-hungry. A 3.2 megapixel for a home user would do just fine." While Mehta advises to opt for branded products, Jaswal points out that features such as a lithium battery and optical zoom are equally important. So, do look beyond the megapixel.

MENTAL MUSCLES
Codeprix '05

Want to test your brawn in writing sheer code? Codeprix '05 can give you the arena to pit your skills

GENDER BENDERS

Abhishek Kumar vs Vaishali Sanwane
Find and Start the Windows Disk Defragmenter

25 sec.

Abhishek, a medical student smirked. "Mission Impossible? NO WAY!" A swift click on the Start button, and the next moment, the arrow key was looking up the Programs list. In a few more moments, he found his way out—Accessories > System Tools, and there you go, Disk Defragmenter. The hunt ended almost as soon as it had begun. A second's hesitation, a right-click on C:, and that's it. A cakewalk indeed!

50 sec.
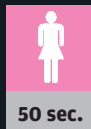
As Vaishali, also a medical student, hesitated for a while before launching the hunt, the task suddenly looked stiffer. But that was not to be. She kept her cool, and steadily ran the mouse over the Programs list. Oops, where's the System Tools? Accessibility... Communication... Entertainment... Ah! Finally. Soon, the elusive Disk Defragmenter showed up. Not quite at lightning speed, but still a good job!

Trust Busters

Connect in haste and Repent at leisure seems to be the motto of Tata Indicom service. If newspaper reports are anything to go by, quite a few subscribers have been chanting complaints about its incorrect bills and inept service. Ankush Tambey from

Mumbai is one such example. The Indian Express recently reported that Tambe (Customer No: 500105566) was billed twice for the month of May. He received two bills from Tata Indicom, one on June 4, and the other on June 23. These twin bills matched right down to the challan number as well. Kirit Gore, another Indicom subscriber, went through all the gruelling procedures needed to cut the line, But all the hassles, it didn't get disconnected. A month later, his was still alive and ringing! As for Tata's response, Debashish Sur, Head of Customer Care, couldn't have been more corporate: "All complaints have been taken care of," he said.

against other code gladiators, not just from one city, but from across the nation. To be held on January 17, 2005 at K K Wagh College of Engineering, Nashik, it promises to be an all round test of programming skills.

Codeprix '05 will have six different challenges: 'KnowledgeTest' will test quick thinking and accuracy. 'Codathlon' will test how quickly the participants can code, and how compact, efficient and accurate their code is. 'Trashcode', the antithesis of 'Codathlon', will test the ability of the participants to write the worst code possible. The challenge of 'X-code' is to write a programme to

solve a given problem, while ensuring that no other can crack that code. 'bug–;' is a test of knowledge of compilers. The dare would be to explain a particular error message generated by the compiler compiling bad code. The final hurdle, 'Codessence,' will be a test in reverse-engineering skills, where a given executable has to be reverse-engineered, based on a given set of inputs and outputs. The coder who achieves it by running the executable the least number of times wins. The last date for registration is October 15. You can register at **codeprix2005@hotmail.com**.

N-GAGE INDIA
Nokia eN-Gages India

On September 14, Nokia launched the N-Gage QD Mobile Gaming Championship, which gives gamers from all over the country to take home upto Rs 10 lakh in cash prizes. The game, *Hero Commando*, specially developed for this championship, will have to be played in bronze and silver rounds, eventually concluding in a gold round on October 31.

Specially designed N-Gage Challenge Buses, each with four N-Gage consoles, will parade through 47 cities inviting players to gun it out at each other and prove their worth.

According to *The Register*, though Nokia has shipped out a million N-Gage QDs to date, about 600,000 units were announced shipped in February of 2004 since October of 2003—the first six months of the QD release—leaving only 400,000 units to be sent out in the next six. This 33 per cent decline in shipments may indicate a waning market for the QD. Even after

reasonably widespread availability of the N-Gage QD in India, since its October 2003 launch, and also its comparatively low price, sales figures for Nokia's

mobile gaming contender are alarmingly low. The championship is perhaps an effort to increase the sales by luring potential mobile gamers to switch over to the QD, and with a Rs 10 lakh bumper prize, it might just do the trick!

For those who want to practice the game before the challenge, download Commando Bronze by sending 260668 as an SMS to 5555, although this requires GPRS connectivity.

HOT NEW SMARTPHONE
Say Hello to Blackberry

Thanks to telecom major Bharti, you will soon be able to drool over the Blackberry—one of the hottest smartphones around,

according to pink newspaper *Business Standard*. The tie-up with Bharti will provide Blackberry customers an Airtel connection and other specialised services. With a price range of Rs 20,000 to Rs

30,000, the target market is likely to be corporate clients in the five big metros. Cheaper models may be introduced soon.

Blackberry smartphones offer several value-added services, including the 'push' technology by which office e-mails can be transferred automatically to the phone. Blackberry's 'SureType' technology allows users to dial or type either by single-handed operation or two-handed thumb typing, without the limitations of traditional phone keypads.

PHONEY MP3 PLAYERS
It Had to Happen

In the August issue of Digit we said that by end-2004, phones would double up as MP3 players. We were right! On September 6, Samsung unveiled the clamshell SPH-V5400, touted as the world's first phone with a hard drive. The hard drive stores 1.5 GB, and the phone will retail for $800 (Rs 37,000) in South Korea—Samsung has not disclosed any plans to sell it outside of that country yet.

The phone can double up as a full-fledged MP3 player, although there are no details on the interface yet.

The idea of phones with hard drives has been with us a long time, so why haven't manufacturers come out with them before? Answer: disk sizes and reliability. Even the arrival of 1-inch drives—which make arming phones with hard disks a possibility— hasn't made production easy or cheap.

Another interesting feature is that the phone can broadcast audio to FM receivers in its vicinity.

What will spur the demand for such handsetsis the availability of cheap, small form-factor hard disks. Seagate has developed a 1-inch, 5 GB drive, while Toshiba's drive is even smaller—0.85 in in diameter, and stores 2 to 3 GB. ■

What is a DualDisc?
A DualDisc is a new optical disc format announced by a group of record labels. It is designed to make music CDs more attractive to consumers by using additional content.

How does a DualDisc work?
A DualDisc will have a full CD album on one side and its enhanced version on the other. It will be compatible with any device that plays either CDs or DVDs.

Who is responsible for the DualDisc format?
It is the work of a consortium that includes major labels, such as EMI Music, Sony BMG Music Entertainment, Warner Music Group, and Universal Music Group.

Why do we need DualDiscs?
With DualDisc, musicians will have more than one medium to reach their audience. The DVD side is meant to carry video clips, interviews, concert shows and links to Web sites, in addition to music in the much richer DVD-audio format. It is hoped that this will make the product experience much more immersive and interactive.

When was the format revealed?
The DVD Forum approved the format this June. However, a German company, DVD Plus,claimed a pending patent, which describes a similar product. The patent was filed by DVD Plus chief Dieter Dierks in March 1999.

Where can I find DualDiscs?
DualDiscs have just been announced and are expected to make it to the market by the end of this year.

Lead Feature

What Lies Beneath

To many, gaming is an addiction, an obsession. Is a gamer a social outcast, or just plain misunderstood? Just what is inside the mind of a gamer?

Suprotip Ghosh

As we enter the dimly-lit gallery at Hiranandani, in the distant Mumbai suburb of Powai, a huge poster of a female model greets us. Seductively, she calls the faithful Underground to satiate a *Need for Speed*.

Elsewhere, speakers pour out heavy metal. Arclights on pedestals focus on wall hangings, and there are PCs strewn around. To the uninitiated, this seems chaotic. But once the lights and sounds become familiar, a pattern emerges.

"These PCs are for *Unreal Tournament*, those for *Counter-Strike*, and the ones here, *NFS*," someone in a World Cyber Games T-shirt points out. The computers face each other, making eye-contact between opponents impossible. Once you sit and strap in, your opponent is a cyborg, or a football team, or a few cars. Unreal. Positively Unreal!

The team playing *Counter-Strike* looks tense, typing in familiar codes and keystrokes. Terse commands make the rounds, as does the occasional whoop or cry on making a kill, or getting killed. It is real, very real: the emotions, the adrenaline, the arclights above, the huge banner of *Counter-Strike* with the first character—female—looking intently just over your shoulder.

The Passion

Psychiatrist Dr Mukul Choksi tells a story: his friend had brought in his teenage daughter.

Vishal Seth is the World Cyber Games 2004 (India) champion in FIFA 2004

Apparently, she had developed a habit of playing computer games at her friend's place. Naturally, her parents complained that her studies were being hampered. They desperately sought measures to stop this "menace," which was keeping their daughter awake night after night.

Dr Nirmala Rao of Aavishkar, a self-development centre in Mumbai, shares two cases. Zeeshan (name changed) was brought to her by his father—a doctor. Zeeshan had been frequenting cyber-cafés since standard XI. Initially it wasn't a problem, but by standard XII, he was spending too much time on the computer, playing games.

Sensing an addiction, his father arranged for Rs 45,000 and asked his son to buy himself a PC. However, one day he found that there was only Rs 10,000 left.

The boy had gone to the extent of spending the money, in unspecified ways, in order to be able to participate in a gaming competition. A representative of the official sponsors of the competition, when contacted, said that there were no registration fees involved; so the money was probably spent in practising over LANs in cyber-cafés.

"Competitiveness turns children into addicts. It's an easy addiction, like gambling," says Dr Rao.

"In a game, you are the master... Routine life is boring

Dr Nirmala Rao
Psychiatrist

The Lotus-eater
In another twist, an eight-year-old girl complained that her mother stationed herself in front of the computer the moment she returned home from work. In a family of working parents, the kid was on her own most of the time, and craved for some attention in the evenings—which her mother failed to satisfy.

This slowly drove her to depression. The mother complained that her bank job tired her, and that the PC—including the games on it—helped her unwind.

Vishal Seth, a member of Team Acid from Pune, which won the Counter Strike tournament at the WCG (World Cyber Games), admits that games *are* addictive. But he insists it's a hobby, and he will be able to give it up. Reginald Miranda from Delhi says he gives himself seven out of 10 in terms of level of patience.

"I used to play eight to 10 hours a day before joining work." He says that that is now down to about four hours. He still plays on weekends, though. Rahul Rohira, also a member of Team

Acid, and Varun Srinivasan of The International School, Bangalore (TISB)—both avid gamers—are silent about how patient they are!

With the exception of Varun, the night is the time for all gamers. Known as Cybervarun in the Massively Multiplayer Online Role Playing Game (MMORPG) Ragnarok, he spends 12 to 24 hours a week playing over a network. Cyber-cafés being closed or inaccessible, he does not play at night.

Most gamers insist their parents have no problems with their gaming habits. They all do miss dinner at home though.

The Power
"People always look for stimulation," says Dr Rao. "Excitement, sensation! Computer games give them that. In a game, you are the master, have control and can get a lot of adrenaline rush. Routine life is boring."

She says that gamers are addicted to the "power" that games offer over a PC, the kind of which they can not wield over people in their age group in real life. They therefore prefer a computer over people, thereby shunning social life.

It is regularly found that young kids who take up a game, speedily graduate to a higher level of skill. Young and tech-savvy people pick up things faster since the brain is fresh and reacts faster. Another possible reason, Dr Rao says, is that they have to be quick, else they lose points.

Dr Choksi agrees. He suggests a virtual feeling of satisfaction as the reason for such craving. Citing the example of chess, he says it challenges the intellect, but it does not allow for interaction with another individual, the kind that is there to be had in virtual games.

He says, "It is screen fascination. It gives you a false sense of mastery, a personality in a virtual world." He does say, though, "Computer games are not bad, as long as there is no addiction."

This myth of success at the virtual level being an impetus to addiction is hard to believe. Most gamers came across as fairly successful, normal people. True, the adrenaline rushes while they are playing, but none admit to delusions or an

? Reality check

Can you answer the following questions?
1 When was Bill Gates born?
2 Do you read books? Who is the author of
    a. Asterix comics
    b. Calvin and Hobbes
    c. War and Peace
    d. Hitchhiker's guide to the Galaxy
3 Who is John Romero?
4 Who is the current deputy PM of India?

Only Miranda got most of them right. The others got a maximum of 2 or 3 correct. However, they all have their favourite cartoons and favourite music. They surf the Net, and are not averse to watching TV.

Answers:
1 Oct. 28, 1955
2 a. Goscinny and Uderzo
  b. Bill Watterson
  c. Leo Tolstoy
  d. Douglas Adams
3 One of the designers of *Doom* and *Quake*, and also of classic games such as *Wolf 3D*
4 No one! We don't have a deputy PM

urge to harm people: Miranda works with Fidelity, a leading investment firm in Delhi. He says that he has never felt an urge to replicate his activities in *Doom* or *Quake* in real life.

However, the way these people interpret delusion is significant. Says Varun, "Actually, my gaming life and my real life are separate. I have never actually felt the need to shoot down hordes of demons escaping from the gates of hell, really." Rohira strongly objects to suggestions of

delusion: "Definitely not. Or everyone playing *Counter-Strike* would have a desert eagle." All these interpretations of reality, tellingly, are still in terms of the game!

None of them had an opinion about why extreme, gruesome incidents could happen—such as the one in which teenagers in the US last year shot cars *à la Grand Theft Auto III*, or the Los Angeles multiplayer tournament incident wherein a player held a gun to an opponent's head.

The doctors though, have an explanation. They attribute such recklessness and irritability to a marked lack of exercise. Gamers have hyper-active, hyper-alert brains and relatively less physical exercise, which is why they become fidgety and restless.

Game developers, though, disagree. Samrat Sharma, on behalf of VBeing Software, programmers of Kawabonka.com, an online game site, argues that it is just as possible to become a deranged killer by playing *GTA III* as it is to become a pro golfer by playing *Tiger Woods PGA Tour*. If only talented people can become pro golfers outside of the game, only true psychopaths can kill people outside of the game.

The Pain

It is not fair to comment on the general knowledge of people based on a few questions (*see box "Reality Check"*), but except for the last question, most of the other stuff is somehow available on the Internet or is related to gaming. The people quizzed should have been able to answer most of the questions. This was an indication that most gamers we studied show a marked lack of interest in the outside world.

Dr Rao attributes this to preoccupation: when a person has left something half-done, he or she is occupied with it for the time when he or she is not doing it.

In psychiatric parlance, this is the Zeigarnic effect. It is similar to when you are reading an interesting novel at night, and cannot sleep until you finish it. This preoccupation makes it difficult for gamers to focus on other tasks.

Thus, social as well as physical activities suffer. Problems with bone and muscle growth crop up. Sitting constantly in front of a computer results in a slouch. Eye strain and neck strain is on the rise. Growth is stunted.

Dr Choksi feels addiction is more often than not a problem associated with some psychiatric condition that needs to be treated. It appears that people who are shy, introverted, prone to depression, or possessing a schizoid personality are vulnerable to any form of addiction, games included.

A well-balanced individual entertains himself with a game for a while, and then gives it up. People with problems cling to the game.

The Idea

Developers in India recognise the potential of games and are gearing up for the next wave of gaming. Sharma of VBeing sheds light on what goes on behind a successful game. For an immersive experience, the most important aspect is suspension of disbelief.

The moment the player surrenders his senses

Reggie, ace gamer, management trainee, doting friend

> " **It is as possible to become a deranged killer by playing GTA III as it is to become a pro golfer playing Tiger Woods PGA**
> **Samrat Sharma**
> Game Developer

Wasting The Pie

Ever wondered why the guy/gal next door has a bevy of friends and you don't? (S)he doesn't play games! Time to find out. Get a pen and paper and write down the following:

Who are you? Son/daughter, brother/sister, friend/colleague? Let that be your role in life. Write it down.

Identify your goals: What do you want to be? Sportsman? Doctor? Writer? Manager? Want to have a great physique? A popular face in college with lots of friends? Want to learn the guitar and impress? Write this down too.

Draw a clock like the one on the right. It is ticking. It is the average day. You spend eight hours at work/or college. Point that out on your clock.

About five hours in the evening

AM **PM**

8 hours of sleep, for a normal person

8 hours spent working or at college

Three hours in the morning
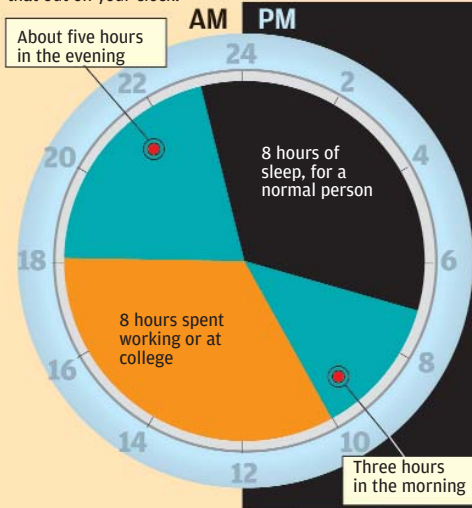
Point out how much time you can spare for your roles and goals. Are all the people you need to share your life with to achieve your goals as well as roles able to give you time in those two little windows?

Mark the time when you play games. Note the overlapping times. That is when you are losing out on your goals

Note the overlapping time

Remember, cutting down on sleep means your body clock cycle suffers. The next day starts late, and there is a further skew in the time others are able to give you. Your work/studies might suffer too.

Courtesy: Aavishkaar

Infographic **Solomon Lewis**

to the game-world, and becomes one with it, the game designer can lead the player on a fantastic roller-coaster ride. To establish suspension of disbelief, the game-world has to be believable. For example, flying aliens in a World War 2 game make no sense. If everything fits, suspension of disbelief is not hard to achieve.

Another aspect to be considered is player involvement. The world and the environment created should be responsive, and the player should have a lot of freedom to do things inside it. The more involved the player is in flying, shooting, running, giving orders, etc, the more fun he has. Finally, if it's not fun, it's not worth it.

Because players need to mentally surrender to the game, there is, naturally, a tendency to call them juvenile. However, as psychologists point out, most have a rather high IQ. Dr Rao says, "Some high-IQ people are not successful in life. Only the average person has the tenacity to go on and succeed. High-IQ people get bored very easily. They want something new, something different, and this desire is exploited by computer games." This is why high-IQ people tend to fall for addiction faster than those with an average IQ.

Endgame

All the gamers spoken to agreed that it is unethical to play pirated games. They are aware of the rights of intellectual property, but they say they have no choice. Vishal and Varun reckon that games are too expensive to buy consistently. Both, however, admit to having spent more than a lakh on their PCs.

"I like to think of games as an art form for this generation" says Samrat. As for addiction, "It's your involvement that makes a game addictive," he says. Maybe it's an art form, maybe it's an addiction, but in the United States, there are people who regularly spend entire nights and weekends 'living' and 'working' in virtual lands such as *EverQuest*. *EverQuest* is a virtual world in which people work for a living just as in the real world—and they even trade virtual goods for real money on real-life auction sites such as eBay.

Meanwhile, the numbers of gamers increase, and in a world becoming increasingly devoid of empty, open spaces and free movement, we have begun to turn towards virtual worlds, where the colours are rich, the movement is free, and you can run, race or kill at your own pace. The bottomline is that there is no limit to what you can do in a game, as long as you play by its rules. Maybe that is what it is: dreams come true inside the mind of a gamer! ⊠

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Rahul Rohira feels that reality is distinct from a game

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

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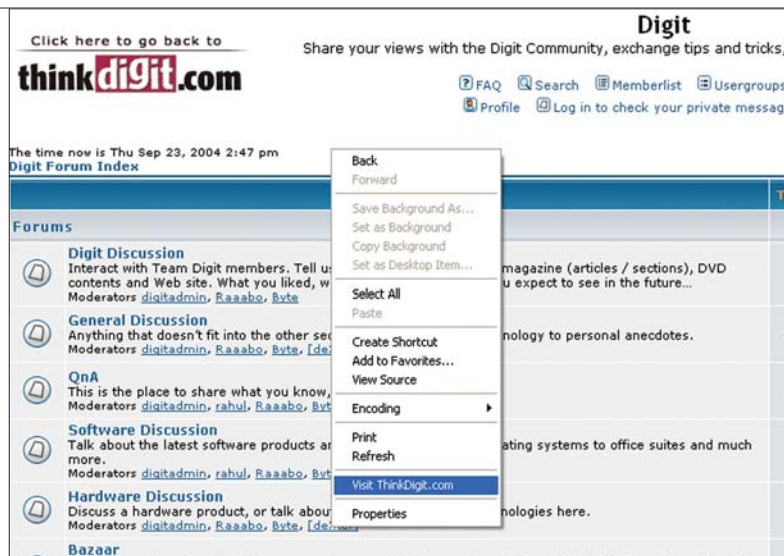
Last Month's Challenge Was:

Insert an item in the menu that opens as you right-click on a Web page in Internet Explorer. The winner of the Microsoft keyboard and mouse is **Bhavesh Anandpara.** Congratulations, Bhavesh! His solution is published below...

👉 Solution

-Here's how you add an item to IE's context menu:

▶ Start the registry editor. To do so, go to **Start > Run** and type **'regedit'**.

▶ Navigate to key **HKEY_CURRENT_USER\ Software\Microsoft\Internet Explorer\MenuExt**

▶ Create a new key and name it the way it should appear in the context menu,say. **'Google Search'**. If you want a shortcut key, put **'&'** before the name, eg, **'&Google Search'**.

▶ In the right pane, for the (Default) string, enter the Web site URL, file name or program name that should run when the user clicks this new item.

▶ Create a new DWORD value called 'Contexts' and put in one of the following values depending on where you intend the new item to appear:

  All menus: F3
  Only in image menus: 2
  Selected text: 10
  Table content: 1

For example:
To send tabular content of a Web page to an Excel worksheet, set the (Default) value to:
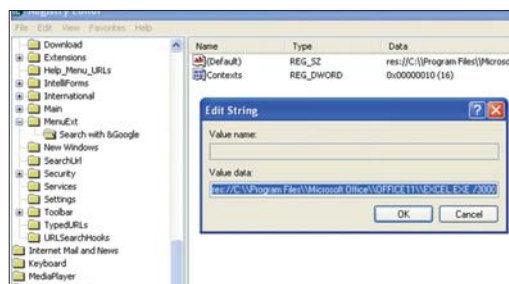
The (Default) value reflects the action to be taken when you chose the new menu item

'res://C:\\Program Files\\Microsoft Office\\OFFICE11\\ EXCEL.EXE /3000' and set the Contexts value to 8. The path to your Excel executable (if installed) may be different.

  To search selected text using Google, set the Contexts value to 7e and the (Default) value to 'file:///C:\\googlesearch.html' or the path to where the .html file is located.

  You can find a working GoogleSearch.html on the ThinkDigit.com forums at http://www. thinkdigit.com/forum/viewforum.php?f=7. Modify this file to search your favourite search engine or a reference site such as IMDB.

THIS MONTH'S CHALLENGE

Replace the Windows XP logo in the General tab under System Properties with an image of your choice

Sponsored by

LG Life's Good

Price **Rs 6,500**

30 Days With Apple G5

Sanket Naik

It's difficult to describe the feeling. Elated? Umm, no. Happy? No, that's an understatement. However, one thing is for sure, the G5 makes the rest of the computing machines look like ironies.

Its OS really grows on you. Windows XP held no fascination anymore. Mac's smooth transitions, pristine graphics—beat that XP! My world of Windows and dialog boxes spun for the better. Here's how:

sanket_naik@thinkdigit.com

Day 1
The sleek 20-inch cinema display arrived today—the apple of our eyes. The chassis was big and bulky.

Day 3
In no time, I discovered that the system can be switched on from the monitor too!

Day 5
I know Windows XP like the back of my hand. But something with Unix lurking beneath? Hmm.. I wish my thoughts away and face the system. Am glad, very glad. The OS was as simple as simple can be. No hassles. An intuitive interface led me around swiftly. Changed desktops, wallpapers, themes and tinkered a little as

well—all in half a day!

Day 8
A feature called Expose (!) gets all open windows to show themselves at the push of a button. Then there is the genie effect that gets applications to appear and 'shrink' away into the taskbar.

Day 10
The colour accuracy impresses. Crystal clear images with the right shade of blue or the right tinge in green make other LCDs look like hand-me-downs! The Mac is the brightest, and I'm convinced it's the best.

Day 15
Time to flaunt. I called in the design and the layout guys. Well, they were dumbstruck to see something that's pristine in its visual representation. I deftly got the G5 to show those minute differences in colour.

Day 18
Suddenly, the monitor screen blanked out. My heart skipped a beat.. Oh well, it turned out to be a power failure. But the damage had been done. Something was wrong with the operating system—it just wouldn't boot.

Day 20
I made several attempts to revive the system, to no avail. I called up Apple's engineers. A solution was offered politely. Another hour in getting that solution implemented, and the machine was up and running again.

Day 25
We got hold of Microsoft's Office 2004. It's better than the 2003 version I use with Windows. Applications such as iCal, iDVD, iTunes are all bundled with the system—marvellous!

Day 28
Time's up. I was in no mood to hand over the system to Apple. It needed our product co-ordinator a lot of nagging to persuade me to put the G5 into the box.

Graphic Atul Deshmukh PhotographMexy Xavier

What is fusion without grace? Cell phone, PDA, keyboard—It's all in one. Here's rolling out the Motorola MPx. Stop drooling!

The MPx from Motorola is a lot of things done right. The message is loud and clear—move over multiple devices. This marvel blends the essentials of a cell phone and a PDA. The dual-hinge design allows the phone to open in both the traditional clamshell mode and a rarely-employed landscape mode. The clamshell is ideal for normal banter over air-waves, while the landscape allows the MPx to shine as a data-centric device. The landscape view comes with a complete QWERTY keyboard at your disposal, for SMS and e-mail abuse.

Having captivated the curious, Motorola makes the deal even sweeter by adding just the right layers.

external card of up to 1 GB capacity. The beauty boasts of a 1.3 megapixel digicam with flash, wireless connectivity via Bluetooth and WiFi, infrared support, tri-band GSM/GPRS support, with a 2.8-inch, 16-bit colour display providing a resolution of 320x240 pixels. Awesome!

Motorola MPx

Microsoft Windows Mobile software to begin with, the operating system lends it the PDA edge via tools for Internet browsing, streaming video, access to corporate applications such as e-mail services, Java and flash support. You name it, you got it.

The hardware lends it a dollop of credence. The MPx supports SD and MMC cards. You can bolster its internal memory by adding an

Imaging Jayan Narayanan
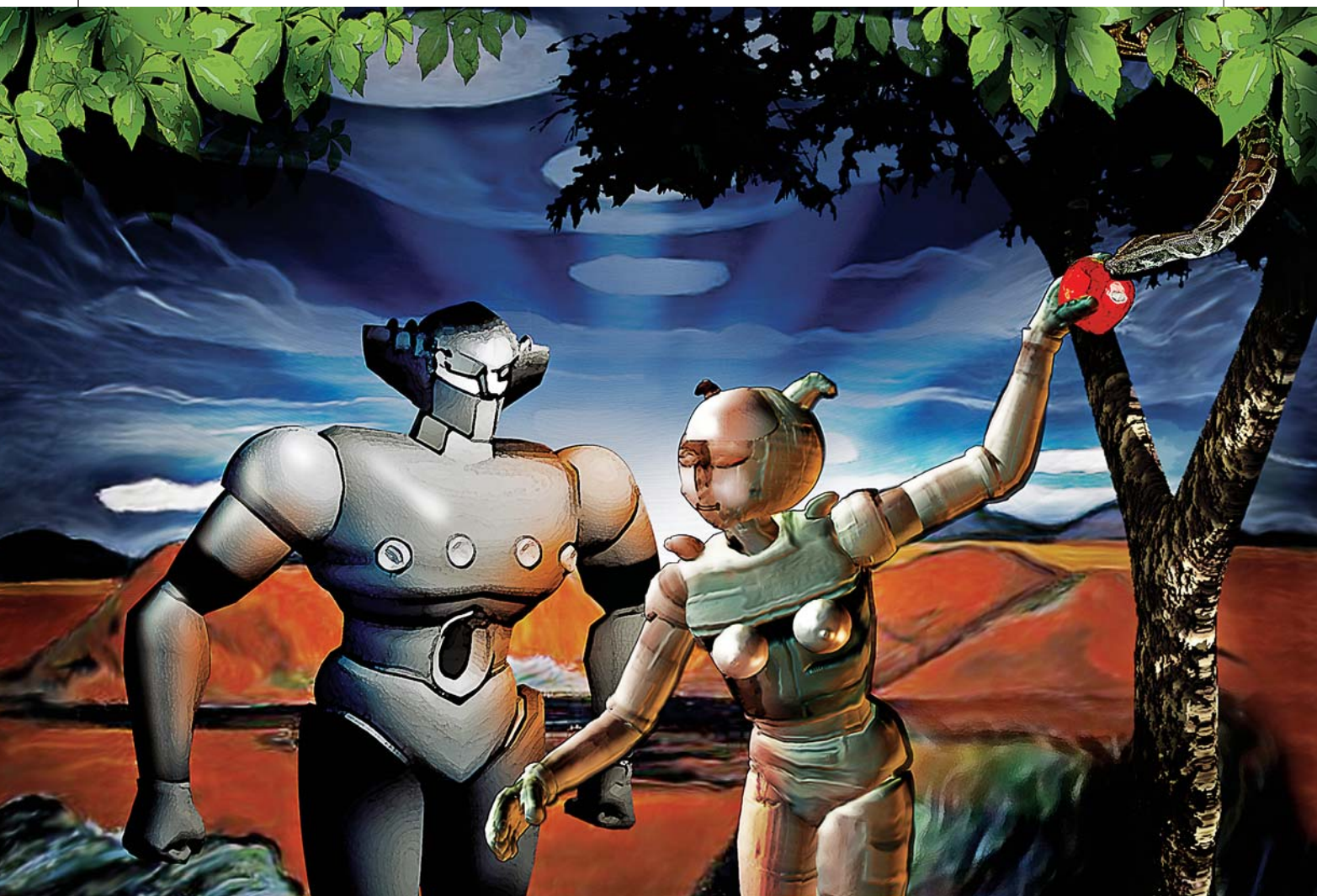
Imaging Sani Mani

THE COMRADES AND THEIR
Fantastic Robots

Four Bangalore engineers try Genesis of a different kind—they have built a robot couple they like to call Adam and Eve. Evolution is not far behind

Suprotip Ghosh

I t was mostly made from junk! I remember we actually used a hair clip as a gripper to start with," recalls Jnaneshwar Das, as he ruminates upon his college days, back to the origins of COMRADE—the Co-Operative Mobile Robots for Autonomous Decisive Exploration project.

Not a multi-billion dollar, deep-space-exploration-probe this, but a university project that four students undertook at the Peoples Education Society Institute of Technology (PESIT), Bangalore. The result was unique in its application

and sheer innovation. Adam and Eve, COMRADEs both, headed the same way as another such endeavour half a world away: the Mars Rover project, started and developed by NASA's Jet Propulsion Laboratory is similar in philosophy and design to COMRADE. Besides, the application of Open Source software for Rover was a first for any NASA project.

COMRADE involves construction of "networked, autonomous mobile robots, equipped with sensors, grippers and onboard computers." Networking is achieved through distributed task resolution via a wireless link: take a bunch of robots and give them a task in the form of a

programming script. Based on their capabilities, the robots themselves split the main goal or task into smaller tasks, hence 'distributed.' Currently, COMRADE employs only two robots, Adam and Eve.

For example, a robot without a gripper assigns itself tasks that do not need one. Each robot possesses a highly layered architecture; each layer being capable of interaction at various levels.

Though it currently involves just two autonomous robots, the system is expansible to control any number of them. Adam and Eve are "differentially steered vehicles." Eve is equipped with an "onboard robotic gripper with three degrees of freedom."

Both have computers onboard for robot-logic control and image processing. Adam runs on a 2.4 GHz Athlon processor. Eve, as of now, is controlled by a laptop with a 115 kbps serial link attached to a Simputer.

An important innovation was using WiFi for communication between the robots. An 802.11b version of the WiFi link connects the robots. But why WiFi? Mrinal explains, "With a PC onboard, WiFi was easier to install, and significantly cheaper. You just needed to add a LAN card!"

"Nice weather, 50 million dollars, and no fishing boats—these are all the requirements for launching a craft to Mars"

Das, Mrinal, and Sharad Nagappa were classmates during the Telecommunication Engineering course they took at PESIT. Abhishek Sen Gupta was the odd man out, studying Electronics and Communications Engineering. Das or JD is from Orissa, Sen Gupta from Kolkata, and Mrinal and Sharad are from Bangalore.

Eve gripping a box while Adam looks on—a revolution at work

Little did the four know that their robots assembled at a makeshift workshop—an erstwhile kitchen—would prove that the "50 million dollars" element is not true.

The cumulative cost, as their accounts show, is about Rs 50,000. Of that, around Rs 16,000-20,000 came from sponsors—Yahoo! Inc and Encore Software. Samyeer Metrani of Encore also promised them a Simputer with a WiFi slot. The innovation that went into COMRADE is revolutionary, in that it used the most unlikely components to achieve uncharacteristically sophisticated results.

Mrinal, well-known in Bangalore for his involvement with the Bangalore Linux community, and his way with computer networks, dove into robotics by the end of the second year when he started working on ROAMER, a precursor to COMRADE. He was the driving force behind all

> We used antenna rods, broken CD-ROM drives, tape recorders and torch-lights!
>
> **Jnaneshwar Das**

Tech Specs

The Vehicle
The vehicle chassis is an aluminium framework that can negotiate through rough terrain, house the robotic arm and carry payloads when required. The onboard power source is a 12V, 32Ah car-battery which can power the vehicle for at least an hour. The 'robotics fabrication lab' was a converted kitchen in Jnaneshwar Das's house. Both vehicles have a maximum speed of 50 cm/s.

Software And Control
A microcontroller from the AVR series provides the low-level control. The microcontroller handles actuator control, monitoring of feedback data from encoders and the triggering and control of the SONAR range finders.

A Simputer supplies control information for the microcontroller board via a serial link. It uses the StrongARM SA-1110 processor whose speed is equivalent to that of a 400 MHz Intel Celeron. The Simputer handles image processing and obstacle avoidance, and the onboard PC controls WiFi communication with other robots. Encore Software has promised to give a Simputer with a WiFi slot in the near future.

Sensors
The sensors used on ADAM are SONAR range-finders, Web cams and electronic compasses. The range-finders map the environment and data is processed by the computer. Image data from the cameras are processed by IRIS.

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

Buzzword of the MONTH

Biometrics
Biometrics is determining identity based on physiology: using fingerprints, iris-recognition, hand geometry, and facial recognition. Microsoft has unveiled its range of products with biometric security features. These include mice and keyboards with built-in fingerprint recognition capabilities which will replace your password screen and protect your computer!

How Adam And Even Work

Eve:
Receives intruder
coordinates via WiFi
and moves towards it

'Intruder'

DODO:
Supplies
additional information
about intruder
coordinates

Adam:
Locates 'intruder'
with on-board
sensors

Obstacles:
Adam provides information
about their location too.
Required to determine path
for Robots
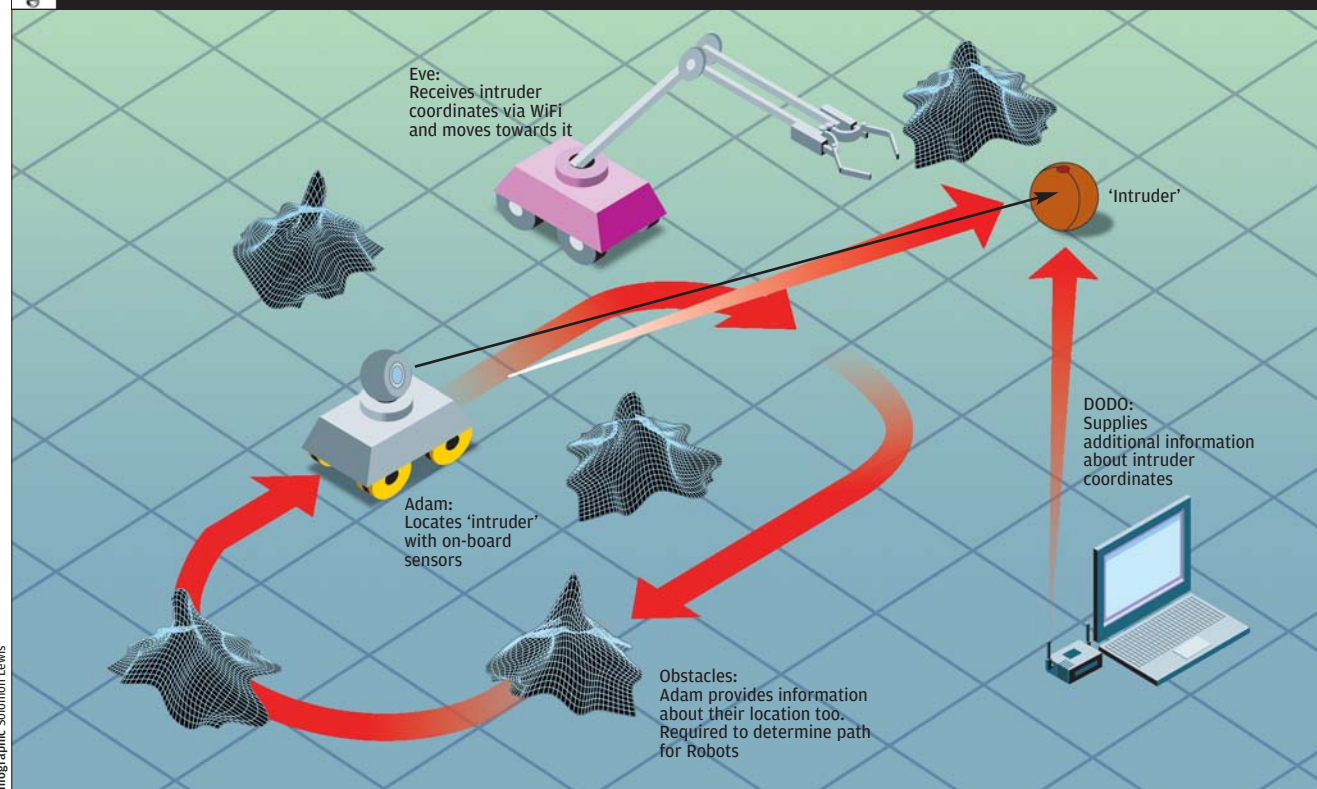
Infographic Solomon Lewis

things Linux in this project. As he points out, "We chose Linux for its technical capabilities. Open Source always means greater functionality." But did they write their code from scratch? Mostly, says Mrinal; only a few scraps were borrowed, such as the module to control the video camera.

Before COMRADE, Sharad was involved in audio processing and DSP experiments. He was the brain behind the OpenGL GUI for the monitoring node. The resident expert in troubleshooting routing problems, he also overcame

THE SIX COMRADES: Clockwise from left: JD, Sharad, Sen Gupta, Mrinal, Adam and Eve

petty issues with a rather troublesome WiFi driver, which refused to support multicasting.

Das was involved in robot construction and architecture—the most critical part of the project. In between solving problems in mechanics, he also found time to team up with Mrinal to design the motor-controller circuit-boards and write the code needed to run them. "The main circuit panel for the smaller motor control boards was built from scratch," says Mrinal. Dasalso designed the interface between the lower-level microcontroller-based actuator array and the CPU.

COMRADE's predecessors—3LER-3, Omnibot, ROAMER and Dexter, were essentially SONAR-based robots that found their way about with the help of sound. Abhishek wrote IRIS, which helps COMRADEs see via video cameras.

He also played a critical role in designing the robot co-operation architecture, and authored BorgCode, a script that has since become the language of the COMRADEs. Moreover, he designed the final execution environment, which integrated IRIS, the communication system and the control module into a seamless whole.

"We made the two robots with material gathered from scrounge markets and garage junk"

"The hardware wasn't very sophisticated. The image-processing software had to take that into account," says Abhishek, creator of IRIS, which is the monitoring node software for Project

COMRADE. Born as a set of simple 2D-image processing operations, IRIS evolved into an optimised, object-based, machine-vision system capable of complex vision tasks. "IRIS is a system that allows robots to see and base their planning and decision upon visual feedback. It is different from other image-processing software because it uses advanced algorithms to achieve functionality and implementation on a case-to-case basis."

The IRIS Engine is not limited to COMRADE. Any other robotic system can use it as well. Though mainly working from a command-line interface, it provides a real-time OpenGL plot of the robots' location. This node transmits the collective tasks for Adam and Eve as BorgCode, which is transmitted through WiFi to the robots.

A robot cannot execute all the instructions present in the BorgCode. For example, Eve cannot execute an instruction to visually search for an object since it does not have a Webcam.

Thus, a "decompositor" breaks down BorgCode into executable chunks of code, each of which calls for a single feature of the robot; it is these chunks that are downloaded onto the individual robots for execution.

"We were forced to simplify it. The original idea was two to three robots interacting," says Sharad.

The four underwent a nightmare debugging the code. Sharad says that it was a great experience, but it didn't quite go where they wanted it to go. Pressured by PESIT to finish the project on time, they compromised on a lot of things.

The autonomous robots are in place and working, but the four agree that the co-operation part needs to be worked upon. The robots work well by themselves, but they need to be "married," to fulfil the project goal.

Abhishek wants to pursue artificial intelligence, and take IRIS forward. And Sharad is leaving for the University of Edinburgh. "Yeah, it feels bad that he is leaving," muses Mrinal, "but you see… it was a college project. And now that all of us are working, it has become a hobby." Sharad echoes his thoughts.

"Once Sharad leaves, we might start working again," says Das, uncertainly. "But it requires a team, you know." Sharad agrees: "Most of the work happened because we were a team. Once that breaks…" he trails away.

Das and Sen Gupta are colleagues now, and Mrinal shares Bangalore with them. He stays in Banshankari, the other two in Koramangala.

Das reminisces how Adam once broke down, and Sharad adds, "It was a nightmare, I mean, a motor short circuits, and you don't know what to do."

Meanwhile, Adam and Eve wait for their final union. "We thought some of our juniors would be interested in our project. But no one seems to be ready," says Sharad.

His first love was Digital Signal Processing, and he intends to go back to it in the future. The comrades have decided to disband.

The revolution remains unfinished. ⊠

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1/2 V AD

Capture The Moment

In an age where digital memories rule the roost, the camcorder has become an indispensable tool. We demystify the tech behind the magic

Mustali Kachwala
and **Ahmed Shaikh**

T he time is prehistoric. An unkempt, unshaven caveman reaches for the nearest flintstone and with the skill of a present-day four-year-old draws the previous day's successful hunt on the walls.

Echoing a distant future wherein memories, cherished or otherwise, are stored and exchanged over bits of paper and plastic. As was then and is today, the message and the sentiment remains the same—capturing a memory for future retrieval. The change is in the medium. Presenting a closer look at one such medium—the camcorder.

A camcorder consists of three main elements. To begin with, you have the lens mechanism, used to gather light and focus it internally. The mechanism consists of a series of lenses, and motors to provide focus and zoom. Finally, an iris regulates the amount of light gathered. Next in line is the Charge Coupled Device or CCD, an electronic element about one cm in size consisting of anywhere between three lakh to five lakh light-sensitive cells. These are basically photo-sensitive diodes.

Finally, there is the recording section of a camcorder, which records everything seen through the lens, on a variety of media. Apart from these three areas, there is also the viewfinder, which is usually an LCD panel in modern camcorders. The viewfinder shows you everything the lens sees, helping you frame a shot to record what is needed.

How do these disparate elements record your child's first birthday party or your company's show-stopping presentation?

At the heart of the system beats the CCD. The lens mechanism gathers light and focuses an inverted image onto the CCD element. Light is made up of particles of energy termed photons—the energy of the photon is directly in proportion to the intensity of light. A brightly-lit surface will send forth photons full of energy, while photons from a dark area are low on energy. When both these types of photon reach the photo-sensitive cells of the CCD, their light energy is transferred to the cells in the form of electrical charges: a stronger charge from an energetic photon, a weaker charge from a tired one.

An arrangement such as this will form a black and white image with contrasting dark and light areas, much like an artist's charcoal-drawn impressions of a scene. The colour information of the scene shot by the lens needs to be translated as well.

Since any shade of colour can be reproduced by mixing the three primary colours—red, blue and green—a camcorder only needs to record the varying levels of these primary colours in a scene to faithfully recreate the colours.

This is done in either of two ways; the path taken by a camcorder determines its cost. The costlier method is to use three separate CCDs, one for each of the primary colours. Thus, a red CCD records the variation of the colour red in a scene—similarly for blue and green. The three separate colour variation maps are then internally combined (as an overlay) to form a colour image. By using three CCDs, the cost increases. Such camcorders are called three-chip camcorders.

The cheaper alternative is to divide a solitary CCD into permanent colour filters of red, green and blue. These can be arranged in a variety of manner on a CCD: the information captured in

MiniDV camcorders are the most widely available

Focus And Zoom

The focal length of a lens is the distance between the lens and the CCD. Using an infra-red detector, the distance to the subject being shot is determined and a series of motors automatically change the lens' focus to accommodate a sharp picture. A manual over-ride is of course available.

By increasing the focal length of the lens, a scene can be magnified. This is known as the optical zoom of a lens; apart from this some camcorders also have a digital zoom. This zoom takes place on the CCD of a camera: the number of pixels used for the area to be magnified is increased, thus creating a larger image. This causes a loss in information, and a digital zoom is thus not as sharp.

Analogue recording fades with time, while a digital recording doesn't degrade at all with the passage of time.

this manner is then fed to an on-board computer which interpolates—guesses the final value based on already gathered information—the available colour information to form the final image. The interpolation invariably loses out on information, and thus you get what you paid for in terms of image quality.

Now that we have translated the real world into a series of electrical signals, a layer sitting below the CCD takes up the charges and writes them onto the recording medium. A digital

This camera offers image stabilisation to shaky shots

camcorder employs an analogue-to-digital (ADC) converter at this stage, which converts the analogue electrical charges into bits of data (0s and 1s) and then stores them digitally.

In terms of operation this is the only thing that separates a digital camcorder from an analogue one. Practically, the differences are several. Most importantly, an analogue recording fades with time while a digital one stays the same with age. A digital record of memories also affords greater flexibility: take it to a digital tool such as Adobe Premiere or VirtualDub to add effects, transitions, time-shifts, etc; e-mail it, record it to a Video CD, upload it to a Web site for a client presentation—the uses are only limited by the imagination.

Know Your Formats

Digital camcorders are all the rage now; the analogue version, while cheaper, doesn't offer the flexibility or the features that a digital one does. You will thus find the market saturated with digital models from all leading vendors.

Before investing in either of the available technologies it is important to learn which recording medium you go for. Ensure that the total cost of ownership of your purchase does not go through the roof because while you bought an affordable camcorder, the recording media costs a limb, and then some.

With that in mind, here are some of the common media available, their shortcomings and their features.

8mm

This format, about the size of an audio cassette, is used in analogue camcorders. The biggest advantage with this format is that the camcorders can be very compact. You can even carry a compact 8mm camcorder in your pocket—they can be that small and convenient. The format carries the same resolution as that of the stan-

Inside Stuff: How A Camcorder Works
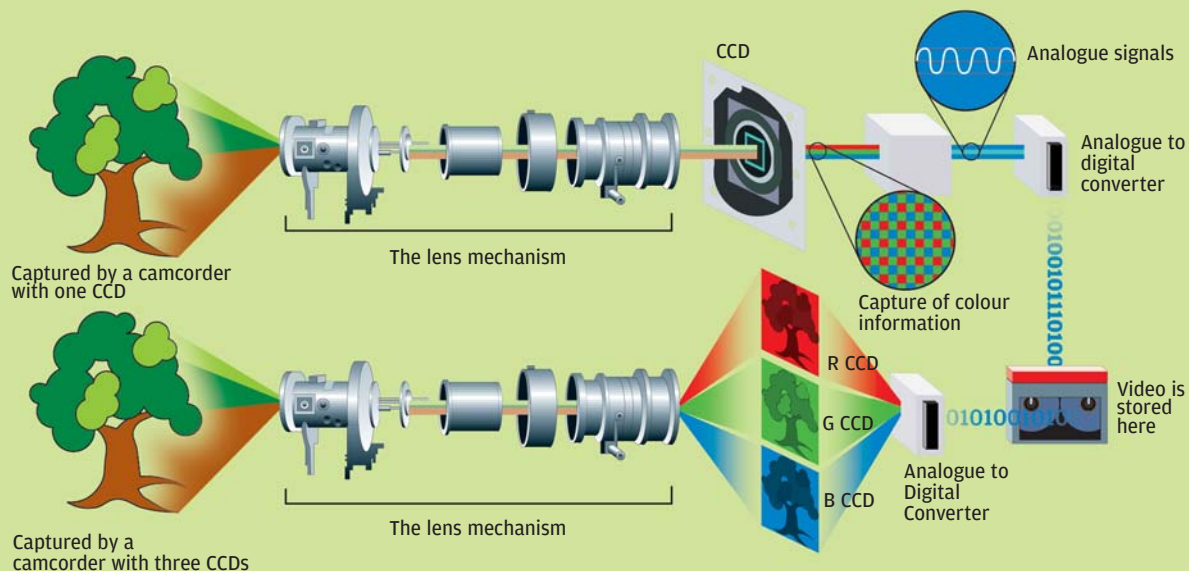
A single CCD camcorder starts from Rs 16,000 while a three CCD camcorder will cost at least Rs 70,000

dard VHS, but the audio quality is slightly better. 8mm tapes come with a capacity of two hours of footage. If you want play 8mm tapes on your TV, attach your camcorder to the TV set, and simply use it as a VCR.

Hi-8
Hi-8 camcorders are also analogue, and are quite similar to 8mm camcorders. There are some important differences, though. Hi-8 camcorders have a much higher resolution—about 400 lines. Hi-8 tapes cost much more than 8mm tapes.

MiniDV
MiniDV cassettes store videos digitally in the DV format, which is superior to any other format. MiniDV is widely supported by most camcorders and enjoys a wide acceptance by video editing software. A very good compression ratio ensures that high-quality recording takes only a small amount of space. Audio is recorded as 12- or 16-bit pulse-code modulated (PCM) signal with a

A MicroMV camera is very small indeed

facility to add audio dubbing information. The DV format uses the DCT method for compression which, in terms of hard disk space, requires 3.5 MB for each second of video recorded. A MiniDV camcorder can store 60 to 90 minutes of footage, it can also take still pictures, much like a camera.

Digital8
Just like MiniDV, the Digital8 digital format stores video in DV format, thus providing similar quality and resolution. But the storage medium used here is the less expensive Hi8 cassette which can store about 60 minutes of footage. Another advantage associated is that it is compatible with many video editing software as well as hardware like decks.

Other Essentials To Purchase
Headphone and MIC Depending upon your needs you may need to attach a high-quality MIC to record distortion-free. Some cameras have a built-in zoom for audio which follows the lens. Camcorders with XLR ports can be attached to professional audio equipment. Microphones to consider include the omni-directional and the shotgun.
Memory Card A memory card can help you download still images to the PC. Some camcorders can directly store stills to a memory card, saving space.
Extra Battery If you travel a lot, you might need an extra battery set
Tripod Mini tripods are available and are particularly helpful for landscape, portraits and wildlife photography.
Flash For capturing movies at night or under low-light conditions, the in-built flash might not be enough. Consider purchasing a more powerful, external one in that case.

A camcorder using a Mini-DVD format for recording

MicroMV
MicroMV allows for very compact camcorders. It stores video in the MPEG2 format which is a popular digital format, recognised by almost any software. A MicroMV cassette is very expensive. Since MicroMV does not store video in the common DV format, one is dependent on bundled software to convert the video to DV or other formats. The MicroMV format also provides less storage space as compared to MiniDV.

Mini-DVD-R/RW/RAM
The recording format is MPEG-2, but the digital media involved here provides more reliable, convenient and portable storage. Since the medium is about three-quarters of a standard DVD-ROM, one can play the recorded movie directly on DVD players.

Note that if the camcorder supports DVD-RAM, you might need a compatible DVD player (See page 40 of the September 2004 issue of *Digit* to understand various DVD media.) This medium provides 30 to 120 minutes of footage.

DVCAM
DVCAM is a proprietary digital format from Sony which provides better quality by running the cassette at a higher speed. One subset of the DVCAM is the MiniDVCAM which provides shorter recording time compared to DVCAM, but offers the flexibility of recording on regular MiniDV cassettes. If you use standard MiniDV instead of MiniDVCAM, you would lose one-third of the recording time of the MiniDV cassette. So, if the MiniDV can record for 60 minutes, then while substituting for MiniDVCAM, it would only record 40 minutes.

In The Market
In the local market you will find camcorders ranging from approximately Rs 16,000 to Rs 2,00,000. Camcorders with Hi8-based cassettes are available for Rs 16,490, while ones with MiniDV support start at approximately Rs 30,000. Those with DVD support are priced around the Rs 60,000 mark.

All these models come with single CCD; the 3-CCD, three-chip camcorders start at Rs 70,000.

The major brands in the Indian market are Samsung, Sony, Panasonic, Canon and JVC. Digital camcorders start at around Rs 30,000 and go up as features and performance increase.▣

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Tech My Breath Away

He is the in-house Disc Jockey at one of Mumbai's hottest nightclubs. Meet 23-year-old Praveen, who loves the gadgets he uses to keep the dance floor rocking, as much as he loves music

Meera Vankipuram

With a business card that reads *First Runner-Up: Times Music War of the DJs*, you'd expect this 23-year-old to have only music running through his veins. But DJ Praveen, the current in-house Disc Jockey (DJ) at the Provogue Lounge, one of the most popular nightclubs in Mumbai, not only loves the music he makes, but also the gadgets that make people groove to his tunes.

A professional DJ for well over three years now, Praveen and his partner-in-crime, best friend DJ Vivek (*Winner of the Times Music War of the DJs*), work under the banner 'Gamemaster DJs', and own some of the most high-end equipment in India.

> " **I was always fascinated by gadgets, and being in this profession, one has to be gadget-savvy** "

Having survived an Under-Grad degree in Industrial Engineering at BVIT Belapur, Praveen also finished a formal course in DJ-ing at Joe Azaredo's school in Cuffe Parade. "I was always fascinated by gadgets, and being in this profession, one has to be gadget-savvy!" says Praveen.

A fervent passion for DJ-ing led Praveen and Vivek to invest in state-of-the-art equipment that cost nearly Rs 2.5 lakh—"all purchased in the last one year," according to Praveen.

The *piece de resistance* of their collection is the Yamaha RS7000, "which we bought in the US, and is quite a unique piece even in the DJ world." A complete editing studio, the RS7000 is portable, and can be used by DJs to compose in real-time, even during a live performance. "This is a big advantage for performing duos—Vivek and I take turns spinning, scratching, and creating tracks"

Two Denon DN S5000 CD players (digital turntables) help Praveen decide what music to play. The equipment helps him control the speed at which the tracks are played, and also sample the music before it goes live.

The DN S5000 which Denon claims "is the world's first motor driven active platter for true vinyl emulation" can playback, mix, loop, sample and apply scratch effects to tracks. Its Alpha Track (2-in-1) feature allows independent and simultaneous playback of another track from the same disc, and mixes tracks together with just one unit.

Photograph Mexy Xavier

The time of his life: DJ Praveen shows off his goods before heading for the Provogue Lounge, one of Mumbai's hottest nightclubs

The DJ Devices

- ▶ **Denon DN S5000 CD player**—Rs 50,000
- ▶ **Yamaha RS7000**—Between Rs 1,00,000 and Rs 1,50,000
- ▶ **Technics SL 1210 MK2 turntable and stylus**—Rs 45,000
- ▶ **Vinyls**—Rs 1,05,000 (150 vinyls, Rs 700 each)
- ▶ **Pioneer HDJ 1000 headphones**—Rs 10,000
- ▶ **Motorola E365** (WAP-enabled, camera phone)—Rs 15,000

'Hot Disc' allows ejection of a disc during play, and have it continue for another 35 seconds. Tracks can also be looped within the Hot Disc memory for an unlimited time.

A Technics SL 1210 MK2 turntable plays Praveen's 150-strong collection of vinyls—mostly House music that is yet to hit the Indian markets. "The stylus (needle) alone costs between Rs 6,000 to Rs 8,000 is and may have to be changed once a year, depending on the usage."

His WAP-enabled Motorola E365 camera phone helps Praveen stay in touch with his colleagues and studio-representatives. Praveen also owns a Yamaha MIDI keyboard "which doubles up as a synthesiser."

An assembled PC (PIII, with 512 MB RAM and a Creative sound card) runs professional music-creation software such as Sony's ACID Pro, Apple's Logic Pro, and Nuendo. Even his headphones are worth Rs 10,000. The Pioneer HDJ 1000 headphones (customised for DJs) "are the hottest headphones around"! They come with foldable arms, gold-plated wires and produce clean sound, gushes Praveen.

As the evening turns into night, young Praveen, who could just as well pass off as a college kid, morphs into the funky DJ, juggling his gadgets simultaneously, and rocking the crowds all night. ⊠

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Ram Mohan Rao

The Land Speed Record honours the vehicle that, simply put, moves the fastest on plain ground. Thrust SSC, a British jet-powered car, set the first supersonic land speed record in 1997. It screamed its way across the Nevada desert at 759.333 mph on its first run, and at 766.109 mph on the second attempt. And that's on land—we are not talking about a plane here. Compare this with the speed of a typical Boeing 747 in cruise mode—about 500 mph.

However, those of us who live in the digital world are likely to be more impressed by the following: "Caltech and CERN top new performance threshold by sending 859 GB at more than 6.6 Gbps—in less than 17 minutes—across nearly 16,000 km." That's the new Internet2 (I2) Land Speed Record, and that speed is about 10,000 times faster than a typical north American home broadband connection.

Faster, Further

859 GB across 16,000 kilometres in 17 minutes. Internet2 is the beginning of an Internet on hyper-steroids

Networks are capable of much more than what the Internet is today—a congested place—there is no infrastructure for critical applications to take precedence over spam, for example. Neither is there the infrastructure for cutting-edge applications such as high-performance, low-latency videoconferencing.

Today's Internet will grow and evolve, and could eventually become something like I2.

What is I2?

I2 is a collaborative effort at developing advanced networking technology and applications important to research and education. Over 140 US universities, working in collaboration with partners in industry and the US government, are leading the I2 project.

The project does not aim at replacing the Internet: it is working to enable advanced applications such as digital libraries, telemedicine, virtual laboratories, etc, that are not possible with today's technologies.

I2 is not a separate network; it joins member network applications and engineering development efforts, together with many advanced campus, regional, and national networks. I2 is currently US-based, and US-centric. In fact, it is touted as something to help America retain world Internet dominance. However, the project is open to collaboration from international organisations, and there is no reason why we won't see I2-like networks everywhere, in a few years. The bandwidth is there; the technologies exist; it's only a matter of putting them to use.

What's the big difference?

The first (and most obvious) difference with I2 is raw speed. The Abilene backbone, one of the two that supports I2, "is a proving ground for high-bandwidth technologies. The cross-country backbone is 10 gigabits per second, with the goal of offering 100 megabits per second of connectivity between every Abilene connected desktop," according to internet2.edu. See box "Abilene, Mean, Stronger" for more information.

Another change is that I2 is a collaborative, research-and-education effort; it is not currently used for commercial purposes. Also, I2 is an experimental testbed for several technologies and techniques. There are no bandwidth restrictions—in fact, members and affiliates pay a flat fee, and are encouraged to use the bandwidth available.

So why, in the first place, do we need something more than today's Internet? There are several answers.

God Speed

Networks are capable of much faster speeds than we generally imagine. Broadcasts over I2 can go at 250 megabytes per second. IPv6 (See box "IPv6, And What It Means For The Future") will support such speed and applications. For example, IPv6 supports between 64 KB and 4 GB. (The current version of the

Imaging **Parag Joshi**

Is Internet2 A Harbinger Of These Possibilities?

This might just be what the Internet looks like some years from now, with exciting new possibilities

A doctor performs surgery on a patient in the US...

A radio telescope in Europe gathers data from the skies...

A music instructor plays out his lessons in India....

The Current Internet2

Seattle
Chicago
Newyork
Sunnyvale
Denver
Indianapolis
Los Angeles
Kansas City
Washington
Atlanta
Houston

OC-192c
OC-48c

...while it is being monitored in South America

...while an African student watches them on his HDTV screen

...while scientists at an Australian observatory inspect it

Infograph Solomon Lewis

Internet Protocol—IPv4—supports datagrams of up to 64 KB.)

Important considerations in IPv6 are the "flow label" and the "priority setting." Both these features improve the Quality of Service. Using the flow label and priority, you could indicate to a router that a video stream needs to go at no more than a particular jitter level. The router could also be instructed to optimise transmission and improve efficiency. These two new fields in the IPv6 header will become more and more important as we move toward ultrahigh-bandwidth applications, such as those available on I2.

Possibilities

I2 is used for applications not possible with the limited speeds and weak infrastructure of today's Internet. Such uses include education, research, and the like. A music teacher in New York could make a live lesson available via I2 to students in Los Angeles, thousands of miles away. The audio and video would be DVD-quality, in real-time. Astronomers at the University of Florida could observe data in real-time from a telescope at Palo Alto, California.

In fact, it's already happening. In the near future, we can envisage telemedicine happening via the I2-like Internet. Indian doctors could monitor a surgery in Brazil, and perhaps even perform actions that have a real-time effect in the operating theatre.

This is just an indication of what is possible with I2 and its probable successor, which will

With Internet2, a music teacher in New York could give live lessons to students in Los Angeles. It can be that fast and useful

be nothing short of a total revolution in connectivity—with no speed barriers. I2 is just showing us the way.

IPv6 comes in here as well. When such high bandwidths are involved, one would like to reduce the wastage that happens with "unicast" —data being sent from one node to another. Multicast is where a specific list of addresses receives the data, without it having to be sent to each node once. IPv4 does have multicast capabilities, but IPv6 improves on this, in terms of flexibility of addressing.

Abilene, Mean, Stronger

The Abilene network is a high-performance backbone network that enables the development of advanced Internet applications, and the deployment of leading-edge network services by I2 universities and research laboratories across the US. Abilene was created by the I2 community, and connects regional network aggregation points—known as gigaPoPs—to provide advanced network capabilities to over 220 I2 university, corporate, and affiliate member institutions. The current network is primarily a 10 Gbps backbone, employing optical transport technology and advanced high-performance routers. Abilene is a partnership effort between Internet2, Qwest Communications, Nortel Networks, Juniper Networks, and Indiana University.

IPv6, And What It Means For The Future

IPv6 is the next generation Internet protocol, designed by the Internet Engineering Task Force, to replace the current version (IPv4) of the Internet Protocol. IPv4, which most of the Internet uses, has been around for 20 years. Despite being remarkably resilient, cracks are beginning to show up—most noticeably the growing shortage of addresses; there are four billion possible. This may seem like a lot, but at the rate the Internet is expanding, four billion will become too little.

IP addresses will soon trickle down to everything—the easiest example being handhelds, and esoteric ones like dog collars. The larger address space provided by IPv6 will soon become necessary. IPv6 supports autoconfiguration, so your phone or dog collar can be configured without your having to do much. Besides, IPv6 makes for a hierarchical addressing system: so, for example, your home could have a top-level address, the rooms in it could have sub-addresses, each device in each room sub-sub-addresses, and so on.

IPv6 fixes a number of problems with IPv4; apart from increasing the number of available addresses, it adds improvements in areas such as routing. IPv6 is expected to gradually replace IPv4; the two will co-exist for some years during the transition period.

An IPv6 address is 128 bits long, unlike today's 32-bit addresses. It uses hexadecimal digits. A typical IPv6 address looks something like this: 4FDE:0000:0000:0002:0022:F376:FF3B:AB3F.

Is I2 Any Better?

In a world connected by an I2-like network, security concerns would be higher than what they are today.

Is security inbuilt in I2? Is there an emphasis on security? Speaking in an interview with CREN (Center for Research and Educational Networking) TechTalk, Ted Hanss, director of applications development at I2 said, "I would say that we are not really trying to do anything different, as much as we are trying to ensure that security is part of the environment. We have demonstrated that you can, in real-time, encrypt a video screen—full-motion, full-screen video—without interfering and putting in so much delay that it becomes unusable. What we are really doing is finding a way to make sure that security features are available to application developers."

Encryption is of the essence—IPv6 mandates the IPsec protocol, short for IP Security. It is a set of protocols to support secure exchange of packets at the IP layer.

Security will obviously be one of the biggest issues to face I2 in the years to come. In fact, the first well-documented DDoS (Distributed Denial of Service) attack occurred in August of 1999, when a DDoS tool was deployed on at least 227 systems, of which at least 114 were on Internet2. All this just to flood a single computer at the University of Minnesota!

The Internet2 environment, with its solid, clean interface, is an ideal testbed for a lot of things, and is a crucible of innovation.

As Hanss puts it: "Application developers with security features available to them will surely innovate—and these innovations should trickle down to the rest of the Internet."

With Internet2, we can hope for a cleaner, more secure Internet of the future—not to forget the blazingly fast speeds! ⊠

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Meera Vankipuram

Jumpstart

P ost the dotcom bust, when all other start-ups were losing their head (and money) and blaming it on bad luck, a few companies decided to stick around and ride the trough.

A few others decided to wait and watch and harness the

In its endeavour to contribute to the Indian IT community, Whizlabs has partnered with companies such as TheServer-side.com, JavaRanch, Certcities, and Addison Wesley.

The Big Idea

Founded in October 2000 by three IIT-Delhi graduates, Purvesh Sharma, Pradeep Chopra and

Kapil Nakra, Whizlabs was born with "initial investments of $3000 (Rs 1,40,000) contributed by friends, along with a savings of Rs 50,000 coming from our own pockets," says Chopra.

Purvesh, the Operations Director, handles the people management and logistics section of the business. Pradeep serves as the Business Development

Lessons That Click Right

The incredible story of a Delhi-based company that struck gold with their e-learning tools and services

potential of the Internet to provide Web-based services to individuals and corporates.

One such venture was Delhi-based Whizlabs Software Pvt. Ltd (**www.whizlabs.com**), whose founders struck upon the idea of offering e-learning tools and services to companies that didn't have the time or resources to help employees upgrade their technical skills.

Whizlabs' services are just the panacea for the 'so-much-to-do, so-little-time' corporate world—especially the IT sector. Whizlabs evolved training modules for exams conducted by leading IT vendors such as Sun, IBM, Oracle, Microsoft, BEA, PMI, Red Hat and Cisco. They also offer "IT Skill Assessment, Employee Evaluation, Recruitment and Certification Exam Preparation Solutions' for corporates".

Having obtained an ISO 9001:2000 certification for their testing methods, Whizlabs claims to have aided the careers of over 4,00,000 people by help-ing them obtain IT certifications.

Director, while Kapil Nakra, is Director, Sales at Whizlabs.

All three have prior work experience in the Indian soft-ware industry, having worked with leading firms such as SAP Labs India and TCS. Says Chopra, "We didn't find much motiva-tion and challenge in a regular software professional's career."

Whizlabs' Services

Whizlabs, which claims to have customers in nearly 90 countries, provides IT skill assessment and certification examination prepa-

Illustration Atul Deshmukh

ration tools, for corporates and individuals. Most often, business transactions occur online.

Whizlabs' IT certification exam preparation solution offers mock exams, quizzes, revision notes, an online testing environment, and free technical support from authors. Exam Simulator services are available for Sun, IBM, PMI, Oracle, Microsoft, Cisco and Novell certifications with online training modules for Sun and Red Hat.

This solution comes with an 'Unconditional Money Back Guarantee', if the customer is not happy with the product. (*Find the sample test papers on this month's Digit DVD.*)

Their LAN/Web-based Skill Assesment solution includes test delivery and reporting which lets users access their preparation material from anywhere. With just a browser required to access the server, this system also helps users obtain percentile scores within a particular community. This feature helps corporates manage assessment procedures.

Whizlabs online training sessions, which cost anywhere between US $300 (Rs 14,000) and US $500 (Rs 23,500), per user license, apart from the cost of the product—are likely to save a company nearly four times the amount, in providing boarding and lodging facilities and travel expenditures; more importantly, it saves the company plenty of time. Online training sessions also remove location-based constraints.

Built with smart algorithms, Whizlabs' modules make it easy for participants to obtain test results and relevant feedback, almost immediately.

For the certification exams,

> "I scored more than 85 percent in these tests. The certifications will help update my knowledge levels in these areas.
>
> **Vamsi Polimetla**
> Senior Systems analyst, NCS Singapore

Certify yourself — The Whizlabs way

1 Prepare for certification exams through instructor-led online training sessions

2 Take IT certification exams online

3 Boost your professional career and enhance knowledge

Infographic Atul Deshmukh

Whizlabs' online training sessions come with an 'Unconditional Test Pass Guarantee!', which means that customers will be reimbursed the entire course fee if they do not clear the exam for some reason!

Whizlabs has helped companies such as Cisco, Accenture, Infosys, Nucleus Software, Coface and Bunge in recruitment, skill assesment, employee evaluation and certification exam preparation. Apart from their corporate clients, Whizlabs has also helped thousands of individual customers—mostly software professionals, get certified.

With certifications becoming increasingly relevant to enhance career prospects, several IT companies are now using certifications as a standard to measure an individual's technical skills vis-à-vis industry standards.

Says Parag Phise, Vice-President (Testing) at Delhi-based Nucleus Software, "We purchased assessment tests for Java and other technologies. A lot of people in our company work on Java-based platforms. Whizlabs' reports and percentile scores make it easy for us to evaluate and enhance our skills."

Deepak Adlakha, a software engineer working with an offshore development centre in New Delhi, purchased training materials for Sun certifications. Says Adlakha, "The mock tests were extremely useful."

Vamsi Polimetla, a senior systems analyst at National Computer Systems, Singapore, availed of Whizlabs' services for SCEA, SCBCD, Java Web and Business Component (all Sun certifications). "I scored more than 85

per cent in these tests. While I'm not sure whether the certifications will directly benefit my career, they will help update my knowledge levels in these areas," he says.

Distance, therefore, is not a constraint when it comes to learning. Atlanta-based Rashmi Banthia, and Geoffrey Chu, based in West Virginia, are both looking to get certified in XML and UML (IBM), thanks to Whizlabs. "These guys are pretty popular in the software market," says Chu.

Next-Gen Learning Tools

With customers in over 90 countries, and a monthly turnover of $40,000 (Rs 19 lakh) per month, the company is on an upswing. Customer referrals account for a large proportion of their sales.

India being an IT haven these days, Chopra firmly believes that there is a market for such services in India and abroad. "The availability of a large pool of IT talent and presence of global players in the Indian IT industry makes a big market for our kind of services," he says.

Future plans will expand their existing services across IT skills.

With biggies such as NIIT, Tata Interactive Services (TIS), Lionbridge and ICICI Convergys dominating the e-learning arena, Whizlabs, like the others, has recognised the changing trend in learning patterns—from conventional tools to e-methods, which not only saves time and resources, but facilities easy testing as well.

Companies such as Whizlabs have given a new twist to the learning curve—will educational institutions take the cue? ⊠

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From left: **The founders of Whizlabs—Purvesh Sharma, Pradeep Chopra and Kapil Nakra**

Flickr.com

Here's an online photo-sharing stopover that offers beyond the usual album creation tools

Collection of memories: Comments can be added both by you and your friends to individual elements in a photo

Suprotip Ghosh

Flickr.com is a photo management application, an online site for sharing photos. It stands out for its user-friendliness, intuitive interface, design, and the emphasis on the fact that sharing photos means sharing memories. True to this spirit, anyone can log on to Flickr and actually post a remark, add a tag, or simply comment on any photo. Flickr supports camera phones as well—photos clicked on camera phones can be directly e-mailed to your Flickr page.

Registration

A basic account on Flickr is free. However, there is a 10 MB upload limit per month on free accounts. The terms and conditions page reflects the spirit of the site admirably— "We claim no intellectual property rights over the material you provide to the Flickr service. Your profile and materials uploaded remain yours."

Getting Started

After the brief registration process, a profile page shows up, where you can optionally, at any time, fill in a few personal details. You are then taken straight to the home page. Fairly straightforward and self-explanatory links on the right ensure great usability. You can also specify here whether the photos you upload are to be private, or can be viewed by everyone on the Net.

Blog, E-mail Photos

ON Flickr.com you can blog your photos on all the major blogging sites. You can even upload photos directly from your camera phone into Flickr. There is an e-mail address set up for you. All you need to do is enter that e-mail address into your Web-enabled cell phone and send it Flickr's way!

Uploading Photos

You can either click on a link and upload a photo directly on the Web site. You can also download one of the plugins available for most popular OSes, and upload through it.

Tagging And Description

The next page allows for more detailed tagging. Descriptions can be added to the photos here.

Your Photos!

This page is where you see all the photos you have uploaded. The page also contains the links you need to organise and upload. It links to your user profile, a calendar, a few other necessary links, and a tag-search engine. The page contains the archive, as well as an upload history.


All you have to do is click!

Jigsaws in your mind: It supports drag and drop!

The Organizr

The neatest link on the photos page is the Organizr. This interface supports drag-and-drop, complete with a time-line at the bottom that contains reminders about which photo has been uploaded, and when. You can create a 'photoset', or manage your group(s).

"Edit these as a batch"

This link points back to the tagging and description page. There is enough flexibility to either update photo description and tags one by one, or as a bunch.
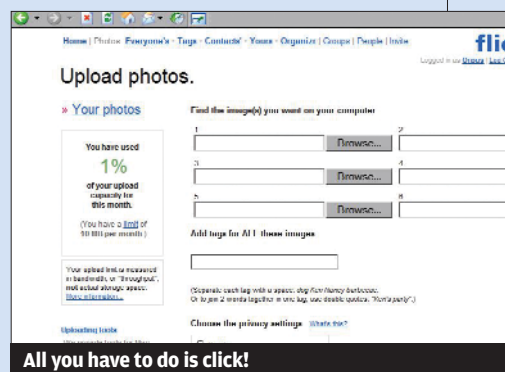
Every page has a navigation bar on top that includes, among others, the following links:

Everyone's

This is a preview of photos picked up either randomly, or from among the most recently posted stuff on the site. You can search according to tags, or according to a list of pre-specified favourites.

Contacts

This page keeps track of your contacts and their activities on the site.

Groups, People and Invite are community tools to locate or track people, and join groups.

There are a few features apart from all the above, including:

▶ A mobile version of the Web site so you can see the latest photos on your web-enabled cell phone or PDA

▶ Group photo pools, so everyone at a wedding, for example, can put their photos in one place ⊠

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"Now I have a home on the Net"
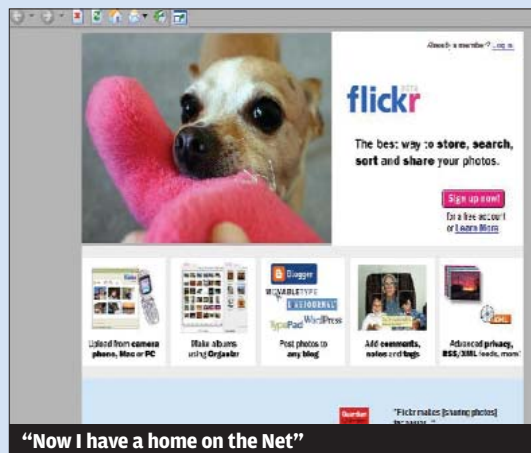
Digital Photography

Taking Pictures? Experiment!

Don't always stand upright when taking pictures. Experimenting with your posture, and the position in which you hold the camera. Get it lower, position yourself higher, dive to the side, etc, and see how your pictures turn out. With a digital camera, it costs nothing to experiment!

The Flash

Most inbuilt flashes do their job for about 12 to 18 feet. Beyond that, they are just not powerful enough.

▶ Set the ISO (or ASO) setting to around 400, so that the flash doesn't need to work as hard. The trade-off will be a few artefacts—akin to the use of higher-speed film in a non-digital camera. Generally speaking, a higher ISO (or ASO) setting makes for better pictures in dim light. However, do not use the highest ISO setting all the time since higher the ISO, the more the artefacts, and hence, the grainier the picture.

▶ Do not stand in front of a reflective surface such as glass or polished doors, when using a flash. The flash reflected creates a very bright reflection and thus, spoils the image.

▶ If there is a reflective surface around, stand at an angle from the surface, so that the flash reflects away from the camera.

▶ Decide when to use a flash and when not to—especially indoors. A low-contrast picture without flash is often preferable to the jarred, high-contrast pictures obtained if you use the flash in certain situations.

When On Vacation...

Remember to carry everything you need: a charged battery, a spare battery, a charger, a spare memory card, and anything else you can think of. For example, make sure your memory card is empty before you leave.

▶ Keep a soft cloth as well as a lens-pen handy, and remember to clean your lens regularly—preferably daily.

▶ Do not carry a brand new camera on a trip unless you are familiar with the controls.

▶ You need not reach your destination before you start clicking—it's a great idea to take pictures along the way, beginning as soon as you leave home, so you can later compile a 'digital photo diary' of your trip.

▶ You never know what may look interesting in a new place. You might have heard of a tourist attraction, and your first impulse might be to go ahead, face it and click. Resist the temptation to do so—try and find a unique angle to snap it. For instance, a marketplace that looks chaotic and uninteresting while you are in it may make a charming picture when shot from above. Keep trying unusual angles.

Tips & Tricks

Secrets That Keep You Ahead In The Race

GENERAL TIPS
Digital Photography **55** • Palm **61** • Pocket PC **62**

30 MINUTES EXPERT
Keeping the PC out of the picture **57** • Retouching pictures with Photoshop **60**

The Rule Of Thirds

This rule has been proven to result in better-looking, pleasing pictures. It goes something like this: mentally divide your viewfinder (or LCD screen) into three parts, both horizontally and vertically. Also, imagine lines—two vertical and two horizontal—demarcating these parts. Now, place objects of interest at the points of intersection of these lines in the photograph. Take two pictures of a similar scene: one following the rule of thirds, one not following it—and observe the difference. Of course, the rule of thirds is only a guideline. It is not a hard-and-fast rule.

Portraits

Digital cameras are ideal for portraits. Shoot several poses and see which one is the best instantaneously.

▶ Know your subject. This is important to capture his or her interesting moods and angles.

▶ Natural light is best for portraits. This includes both, outdoor sunlight as well as that coming through the curtains. Direct sunlight is not advisable—the perfect lighting would occur in the shade of a tree or building, for example. This is also good from the point of view of the digital camera—it will not have to deal with extremes of light and dark.

▶ Backgrounds distract when we are talking portraits. Hence, set your lens to wide aperture and the zoom to high, to get the background out of focus.
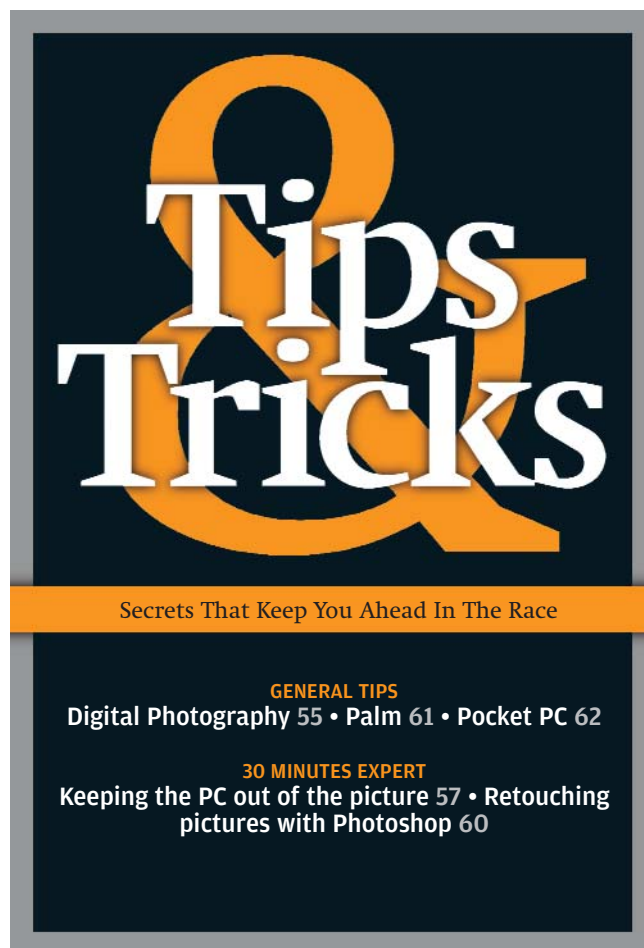
Sports Photography

'Shutter lag' can be a problem with sports photography. This is the time between when you depress the button and when the photo being clicked. Those one or two seconds can be vital as you shoot a game. Therefore, shoot a test photograph and note the shutter lag: depress the button fully, and observe when the photo actually gets clicked. Now that you know the lag time, be prepared when you take the actual photo. It takes time getting used to it.

▶ You can also depress the shutter-release button halfway while you are still composing. Thus, you can snap quickly when the moment arrives—you will not have to depress the button entirely.

▶ Use the compressed JPEG format instead of uncompressed formats such as TIFF, although the latter give better quality. As it is, the digital camera's CCD (Charge Coupled Device, which is a type of imaging sensor used in digital cameras) takes some time to 'wipe off' a picture and move on to the next one; it takes longer if the image is larger. Thus, you may miss out on some of the action, if you snap using the TIFF format continuously.

▶ Similarly, when you use the flash, it takes some time before it charges up for the next picture. Hence, do all

The Holiday Tech Guide

your sports photography without flash as far as possible.

▶ Speed is of the essence here. Try buying several smaller memory cards instead of one large one. This is because larger memory cards take up more resources—and time—while 'searching' for a location to store.

White Balance

💡 Different light sources illuminate objects differently. Halogen bulbs, for example, produce a yellow or orange colour cast. Fluorescent lamps may result in a greenish cast. Set the White-Balance on the camera, if your source of illumination is not the flash or daylight. Alternatively, you can let it White-Balance automatically. In a nutshell, White-Balance is the method used to colour-correct light sources other than flash or daylight, so that the light appears correct. White-Balance forces the brightest parts of the image to appear pure white. These brightest parts are often indeed white, but appear as some other shade if White-Balance is not used. Basically, White-Balance dictates what is white and what is not. Note, also, that photographs come out different when you use automatic White Balance as against using the features of the camera to do it manually. The photos alongside illustrate this
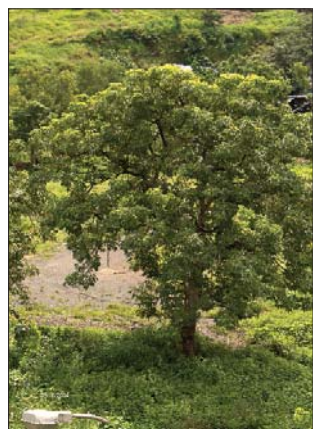
This picture was shot manually adjusting the White Balance using the features on the digicam...

difference—the first photograph was White-Balanced for cloudiness. Here again, you will need to experiment.

Indoors/Outdoors

💡 The ideal lighting for indoor and outdoor photography is different. For example, indoors, a flash serves to light up objects, whereas outdoors, it serves to fill in shadows.

▶ Daylight and artificial light have different 'colour temperatures', and give different lighting effects and hues. Avoid mixing the two. Also, different sources have different effects—halogen lamps cast a yellow hue, while incandescent bulbs produce a bluish tint. So, experiment with indoor lighting.

▶ Most cameras come with an inbuilt red-eye reduction feature. However, this involves what is called a 'pre-flash', which might cause the subject to blink. To avoid this,

...while here, the White Balancing was done by the camera. Note the difference in naturalness of shade

turn on a light somewhere at a distance to reduce the effect of the pre-flash on the subject. You can also redirect the flash so it doesn't fall directly onto the subject's face. Yet another solution is to diffuse the flash by pasting some translucent tracing paper over it.

▶ Use a bounce flash to get natural, diffused light that highlights features evenly. You can do this by placing a mirror at a 45-degree angle in front of the flash, to reflect the flash off the ceiling.

▶ If your subjects are in a room, opt for light-coloured ceilings and walls, as this tends to diffuse light.

▶ Outdoors is a different story: The subject is already well-lit. You have to take care of other things. For example, it is often best to click with your back to the Sun. However, an LCD screen is difficult to see in bright sunlight. Hence, try and get a digital camera that has a viewfinder in addition to the LCD screen.

▶ In bright daylight, use the flash to fill in shadows. Imagine a scene where the subject is backlit by, say, a setting sun; if you don't use the flash here, the subject will appear as a dark silhouette.

▶ Extreme temperatures can damage your digicam. Do not leave it too long in direct sunlight. Cover it with light-coloured or reflective material.

▶ Outdoors isn't really a good testbed for digicams. Consider a tree: if your camera has a million pixels, and the tree has a few lakh leaves, then that translates to about two or

Keep The PC Out Of The Picture

Using a PictBridge printer to bypass your PC for printing photos

Aalaap Ghag

Here is something that actually leaves the computer out of the cluttered loop of printing photographs with a digicam. PictBridge standardizes the manner in which printers interact with digital cameras. Earlier, when you wished to take a printout directly from a digital camera, you had to ensure that the printer was of the same brand as that of your digital camera. With hardware equipped with PictBridge, you no longer need the PC for a printout of the photos. You can directly print them from a printer using your digital camera, keeping the computer out of the picture.

To take full advantage of PictBridge, both your printer and the digicam must sport the PictBridge logo. In the example here, we used an HP PhotoSmart R707 digital camera to print using a Kodak EasyShare Printer Dock.
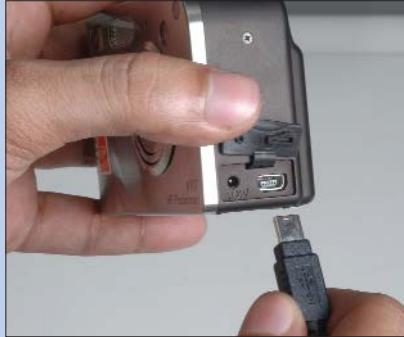
STEP 1 Shoot
First things first: grab that camera and go trigger-happy.

...The other end goes to your camera

STEP 2 Connect
Find your PictBridge cable. It is essentially a USB cable. Take the smaller end of the cable and plug it into your digital camera. The other end goes into your printer's PictBridge port. Ensure that the devices are powered on and that the printer has sufficient paper. See to it that the battery of the digicam is sufficiently charged.

STEP 3 Choices
Once the HP camera is connected to a printer, it shows up directly on the printing menu. You can choose to print just one picture, a

⚠ No PictBridge?

Here is another way of printing photos without using a PC. Some printers come with reader slots for SD, MMC, or CF memory cards. Your digital camera supports at least one of these. If your printer has such a slot, simply take the card out of the camera, and put it into the printer. Now, select the pictures on the printer's LCD panel and get your photos printed.

few selected ones, or the entire lot. The camera also lets you specify the exact size of the print. The default size is set at 4 x 6 inches. If your printer supports other sizes, you can choose them here.

STEP 4 Print
Click on the Print button on your camera and your printer gets to work. If you can't find the Print button on the device model, simply refer to the manual. If you use a Kodak camera with this printer dock, all you have to do is to click on the Print button on the dock itself. For HP cameras, the Print button is on the digicam.

One end of the PictBridge cable to the cradle...

Access the Print menu of your camera

Photos without the PC!

three pixels per leaf. This means the picture will lose out on details. For best results, shoot subjects that are clearly defined with smooth and distinct outlines, i.e., subjects that stand out well from the background. Unfortunately, most natural objects do not have this characteristic. When outdoors, the subjects to shoot are cars, buildings, cityscapes, and the like.

Black And White

💡 Colour contrast draws emphasis to subjects: Take a red apple against a green background, for instance. Use black and white when this emphasis is not important. However, in the apple example, if you shoot in colour and then convert to black and white in Photoshop, you find that green and red turn out almost identical. So, such photographs need to be shot in greyscale mode itself.

▶ Remember that when you take a black and white picture, aspects such as shape, lighting, texture, etc, become dominant. Do you want it to be so? Also, do you want to give an old-world, somewhat sentimental feel to the picture?

▶ Also, note that lighting plays more of a role in black and white pictures than in colour pictures. For example, when capturing a sunset, the shadows that the sun throws on objects are of more interest than the Sun itself.

▶ Photographers use the term 'high-key' and 'low-key' for predominantly light and dark tones respectively. These determine the contrast level of the photograph. Now, note that high contrast steers

Here is an example of how colour can bring out the vibrance in a subject ...

... while black and white loses out on it altogether, and introduces a different mood

the observer to look at particular subjects in the picture, and low contrast makes the observer look at the complete picture—its mood, subtle nature, etc.

▶ Use filters to enhance your black and white pictures. A filter absorbs its complementary, or opposite, colour: for example, blue is the opposite of orange. Purchase an adapter ring for a filter. Perhaps your camera may already be equipped with a lens thread, in which case you will not need an adapter. Different colour filters have different effects.

▶ Red filters tend to have a dramatic effect, and make a photo jump to life. Remember that red filters are not recommended for low-light conditions, or when you have an active subject—that is, one central object that is the whole idea of the photograph.

▶ Yellow filters are the most popular for black-and-white photography. For example, they darken the blue sky, so white clouds come through with greater brilliance.

▶ Orange filters darken blue even more, so you can create dramatic, magical effects. Try an orange filter for landscapes.

▶ Green filters make greens lighter and reds darker. In landscapes or close-ups, leaves look brighter and red flowers darker.

▶ Sky light or ultraviolet filters make for excellent lens protectors, and also act as a transparent-layer filter that absorbs ultraviolet light.

💡 Close-ups And Macros (Extreme Close-ups)

▶ One of the problems with macro-photography is lighting. If you are too close to the subject, you may block out light yourself. Most inbuilt flashes are not good enough to light up macros. One solution is to use an external flash with a remote control. Another, easier one is to use an ordinary table lamp. A good idea with the table lamp is to cover it with something like tissue paper, which diffuses light.

▶ Use supplementary lenses

to magnify objects. These fit onto your camera's lens just like colour filters—you might need an adapter. They come in different strengths, measured in dioptres, such as +1, +2, etc. You can use more than one macro lens at the same time—with the higher-power lens placed closer to the main lens. However, this can result in loss of quality.
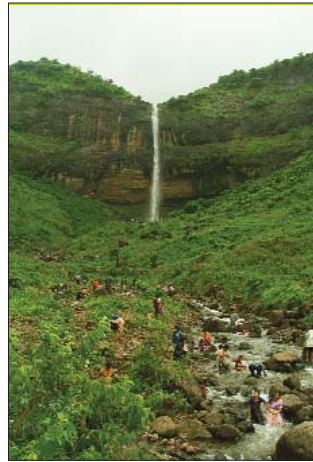
An example of an underexposed picture. If you shot a picture like this one, don't worry...

...you can bring it back to life using Photoshop's Opacity setting, as described in this article

▶ Learn about Depth of Field (DOF). DOF is essentially the range of distance that is acceptably sharp within a photo. It varies inversely with the aperture size. For example, a wide-open lens with an aperture of f1.8 has very little DOF. If it is squeezed to f16, the DOF increases, and more things come into focus.

▶ In macros, the DOF is especially shallow. Here is an example on getting a good macro shot: if the subject is a fly on a flower, use a larger aperture—this will blur out everything but the fly. If you want the fly as well as the flower, you will need a larger DOF; so a small aperture—f11, or even f16—is required. This, however, makes longer exposure periods necessary, which in turn calls for steady hands. In other words, macros of small objects with the background blurred out are easy enough. However, if you want a macro of say, a flower, you need steady hands.

▶ In the example about the flower, you can compensate for exposure time by using a higher ISO (or ASO) setting, but this brings in the possibility of extra image noise.

Correcting pictures

Remember to back up your images before you start to correct or play around with them to create different effects!

▶ A colour cast means an imbalance of colour, such as too much red or too much green. There are two methods to correct this in Photoshop: in the first, simply go to **Image > Adjust > Levels**. Here, click 'Auto'. In the second, go to **Layer > New Adjustment Layer > Color Balance**. Then, click OK to create the adjustment layer and bring up the 'Color Balance Layer' dialog box. Here, you can experiment.

▶ Underexposed pictures are a frequent problem: you need the correct level of light exposure to bring out detail. If an image turns out underexposed, here's what you can do in Photoshop:

If the whole image needs adjusting, go to **Windows > Show Layers**. In the Layer dialog box, locate the Layer thumbnail. Drag it to the 'Create A New Layer' icon to duplicate the image. To only fix certain underexposed areas, go to step 2, else skip to step 3.

Select the affected areas using the Marquee tool. Go to **Select > Feather**, and type in, say, '5' in the numerical field to soften this section by a few pixels. You can experiment with that value. Now, copy and paste to create a duplicate layer.

In the drop-down menu of the Layer dialog box, select Screen.

Adjust the density of this layer in the Opacity field until you get the required density.

▶ Here's how you selectively sharpen certain areas of a photograph in Photoshop: Select **Filter > Sharpen > Unsharp Mask**. In the dialog box that comes up, experiment with the three sliders—Amount, Radius and Threshold. View the results in the preview window. The Radius setting is the key here. It controls the width of the sharpening halo. The Amount controls the sharpening strength. A small Radius setting needs a higher Amount.

Finally, set the Threshold—this helps avoid over-sharpening light-textured areas such as skin tones. Start with an Amount of 200 to 300 per cent and a Threshold of 0, and experiment with the Radius setting until it matches the image contents. Then, adjust the Amount.

Finally, increase the Threshold to smoothen out over-sharpened areas.

This is a somewhat blurred picture. You may want to keep it this way, or you can ...

... use Photoshop's sharpening feature to bring out more detail

The Getaway Tech Guide

30 Minutes Expert

Retouching Pictures with Photoshop

Remove red eyes, adjust colours, or crop as you like—with Photoshop, fine-tune your photos and make them look natural and lively

Digital cameras cannot give you perfect photos unless you use professional accessories-tripods, soft-lights, and lenses specific to the nature of the photograph. Adobe Photoshop is a must-have tool for any and every budding photography enthusiast. It gives you the freedom to make the pictures look more natural and lively than they are, remove red eyes, or do away with unwanted elements.

STEP 1 Adjust Brightness And Contrast
If you take a photograph from the wrong angle or direction, the subject will be too dark. Depending on what angle the photo was taken at, adjust its brightness to make the darker areas more visible. Adjust the contrast to lend more depth. Open the file in Photoshop, select **Image > Adjustment > Brightness and Contrast**. Adjusting the contrast sharpens the image and reveals finer details.

STEP 2 Colour Level Correction
Often, pictures that you have taken end up with either too much or too little colour. This happens due to a low-quality CCD, or an overcast of a nearby reflection. You easily fix this using colour-level correction tools. In the image below, there is too much of green. Choose **Image > Adjustment > Levels**. Go to the Channel dropdown, choose Green. Next, slowly drag the little white knob under the graph towards the left to reduce the amount of green. This feature controls the lighter colours. Now, take the middle grey knob and move it to the right to adjust the mid-tones. The black knob controls the shadows and the darker areas.

STEP 3 Red-Eye Reduction
Often people forget to turn on the Red Eye Reduction feature while shooting humans. This is exactly what happened in this picture. Select the Red Eye using the Elliptical Selection Marquee tool. To smoothen its edge, set the Feather Radius somewhere between five to 10 pixels by selecting **Selection > Feather**. Next, open **Image > Adjustment > Hue and Saturation**. Reduce the saturation by dragging the slider to the left. This makes the red portion a little darker. After this, decrease the lightness by pulling its slider to the right.

STEP 4 Cropping and Rotating
If you want to remove unnecessary details, select the Crop tool, and select the area that you want to keep. Sometimes, photos come tilted if you don't use a tripod. You can orient the tilted picture. Drag the edges of the selection to rotate it.

Perfect! Of course, there is no substitute to taking educated, well-arranged photographs. Nevertheless, Photoshop is always there to enhance the quality of your digital photos!

Before
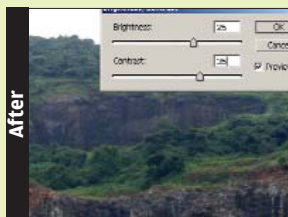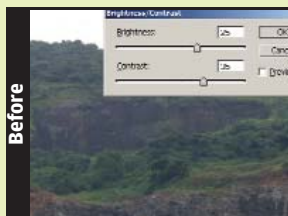
After

After the brightness and contrast are adjusted, the photo has more depth and better colour
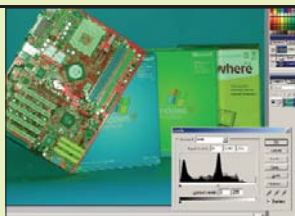
Notice how the all the colours here look balanced. The green overcast is now gone

Red-eye removal is as easy as the problem
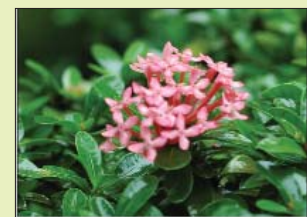
Crop and rotate pictures to compensate for badly framed photos

Palm OS

Personal Information Managers

Personal Information Managers are programs that let you manage time and contact information. Palm handhelds come with minimal functionality in this regard. There are several replacement programs that add features to the basic Palm applications while sharing the same database, so information is not lost when you remove the third-party application. Agendus (**www.iambic.com/ agendus/palmos/**), for example, is one such replacement that lets you manage information on your contacts. It offers a very comprehensive calendaring option for your tasks, lets you read office e-mail, allows for linking to-dos with contact history, and much, much more. DateBk5 (**www.pimlicosoftware.com/d atebk5.htm**) is similar to Agendus.

If you are looking for something more lightweight, consider HappyDays (**www. palmgear.com/index.cfm?fuse action=software.showsoftwar e&prodid=6289**), a freeware application to help you remember birthdays, etc. Diddlebug (**www.palmgear. com/index.cfm?fuseaction=so ftware.showsoftware&prodid =16870**) is another free reminder program. Worthy of mention is BugMe! Notepad (**www. palmgear.com/ index.cfm?fuseaction=softwar e.showsoftware&prodid=839**),

a reminder program with alarms.

Databases

Memoware (**www. memoware.com**) has information on databases for your handheld. You will also find a healthy collection of free databases at the HandDBase Web site (**www.ddhsoftware. com/handbase_palm.html**).

Several programs help you create a database for the Palm. Of these, HanDBase is a powerful solution that is fairly easy to learn, with database templates. It offers Microsoft Excel compatibility, support for forms, multi-user synching,

HanDBase is a powerful database solution

conduits for ODBC, Microsoft Access and FilemakerPro. Features include linking between databases, database views and field data-types, and timed alarms that can be attached to records. MobileDB4 (**www.handmark.com/produc ts/mobiledb**) is another application, compatible with Excel, Access and Filemaker, and it brings along a Windows desktop companion. It also supports PrintBoy, using which you can print databases off an IR printer using your handheld.

Office suites

Two major suites let you type, edit and present documents on the Palm handheld: Documents to Go
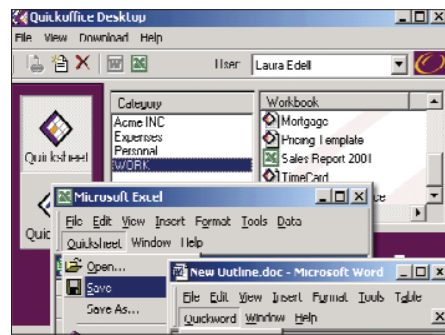
Quickoffice allows importing and exporting of MS Office documents

(**www.dataviz. com/products/ documentstogo /index.html**) and Quickoffice (**www.cesinc. com/quickoffice/**). These offer applications for word processing, spreadsheets, and office presentations. Both talk fairly well with Microsoft's Office suite for Windows: for example, a Word file can be viewed on a Palm handheld with bullets, headings, hyperlinks, tables and embedded pictures intact. Hardware accessories let you use your handheld as a mobile presentation platform. The latest versions now offer native support for Microsoft Word, and Excel files. Quickoffice also lets you create and view a PowerPoint file in the native format.

Wordsmith (**www. bluenomad.com/ws/prod_ wordsmith_details.html**) is a powerful software that can read and write Microsoft Word and RTF documents; high-resolution font support makes editing a document less of a chore. There are several other features as well.

Password Managers

These are programs that help you securely store passwords, logins and other sensitive information

on your Palm handheld. SplashID (**www. splashdata.com/ splashid**) and SecureIt (**www.schau. com/sit/index. html**) are two such programs, both of which use the Blowfish algorithm that employs a 64-bit block cipher and variable key lengths of up to 448 bits. The security offered by these programs is good enough for ordinary use. SplashID supports high-resolution displays (320 x 320), and offers unlimited categories; there is colour and icon support, and it comes with a companion Windows software. SecureIt is a freeware application that also uses the MD5 algorithm for securing data.
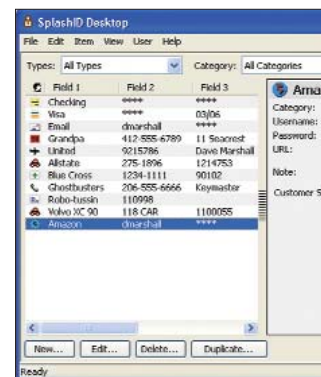
A password manager can transform your Palm into a handy e-wallet

Recommended sites

▶ www.freewarepalm.com: a repository of freeware titles.
▶ **www.handango.com** and **www.palmgear.com**: for the latest and Palm-powered software.

POCKET PC

Personal Information Managers

In the PIM category two software are widely used: Pocket Informant 5 (**www.pocketinformant.com/p _pocketinformant.php**) and Agenda Fusion 6 (**www.developerone.com/agendafusion/**). Both allow for multiple views of your scheduled appointments; alarms can be set for individual notes while templates help ease setting up of common tasks.

A personal information manager

Also available is ListPro 4.0 (**www.iliumsoft.com/ site/lp/listpro.htm**), which helps in organising to-do lists, projects, etc. If you are looking for simple appointment management software, Spb Pocket Plus (**www.spbsoftwarehouse.com/products/pocketplus/?en**), with its repeating alarms, can help.

Databases

SprintDB Pro 2 (**www.kaione.com**) is arguably the best program for creating databases on a Pocket PC handheld. It is fast, compact and easy to use, while supporting both Pocket Access files and letting you create custom databases. It also allows for direct printing from a handheld via infrared and serial ports—forms, tables and graphics, in addition to bar-codes, can be printed on supported hardware.

Office suites

While a single good product to take care of all office application needs is absent on the Pocket PC platform, several stand-alone products do a wonderful job of filling in the need left by Microsoft's offerings.

SpreadCE (**www.byedesign.freeserve.co.uk**) is a spreadsheet application generally considered to be much more powerful than Pocket Excel.

PhatPad (**www.paragraph .com/phatpad.html**), an advanced notes organiser, is widely used for basic editing needs. It allows you to draw pictures, jot down text notes, or put a mix of pictures and typed text on a virtual scratchpad. You can also export your notes and drawings as JPEG or BMP files, e-mail them as attachments or transfer them between handhelds.
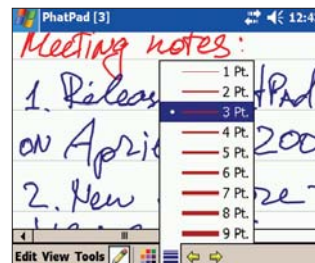
PhatPad is ideal for taking ad-hoc notes

For reference needs, ProWord (**http://shop.store. yahoo.com/pilotgearsw/prowo rd.html**) is the best dictionary program on the Pocket PC platform.

Utilities

Resco Explorer 2003 (**www.resconet.com/explorer.asp**) is a decent tool to browse your file system with. It is quite like Windows Explorer - it

Resco Explorer for browsing files on Pocket PC
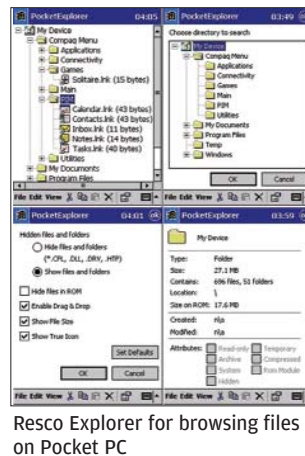
shows all the files and folders on your handheld and storage card. It is also handy if you want to encrypt files or compress them. PocketExplorer (**www.citadeldevelopment.com/products/pexplorer.aspx**) is a similar, freeware program. If battery life is a concern, you can underclock your handheld using a program like Pocket Hack Master 2.45 (**www.pocketgear.com/software_detail.asp?id=7258**). BatteryPack Pro (**www.omegaone.com/batterypack/default.htm**) performs a host of neat tricks like monitoring battery life and storage space on your handheld.

Password Managers

The Pocket PC platform has a comprehensive solution to help you manage all your passwords. eWallet (**www.iliumsoft.com**) stores information in password-protected categories which are encrypted with the RC4 encryption algorithm with a 128-bit key. eWallet does not store the password in your wallet file, or anywhere on your PDA or your PC. Also available is Nice Start (**www.trancreative.com**). The program protects the entire handheld from foreign hands by allowing password protected access. It can also lock your handheld after a certain number of incorrect password entries, and also logs all password activities, allowing you to find out if someone tried to use your device without your knowledge.

Must-haves

Icbar (**http://icbar.ictinus.com**) is a freeware task bar and application manager that gives you greater control over running applications.

Microsoft Reader (**www. microsoft.com/reader/downloads/ppc.asp**) : With the recent spate of free e-book releases from Microsoft in the ClearType font, Reader is a definite keeper.

Network Monitors: Use GPRS Monitor (**www.spbsoftwarehouse.com/products/gprsmonitor/index.html?en**) to track data transfers via GPRS, CDMA or GSM networks, and IP Dashboard (**www.hudsonmobile.com/products/ipdash/index.html**) to quickly monitor the state of all your wireless and wired network connections.

Recommended sites

▶ **www.freewareppc.com** and **www.ppc4all.com**: lots of freeware applications for the Pocket PC platform ⊠

Aparna Krishnakumar

Long stretches of pure white sand, beautifully carved glaciers nestled between snow-capped mountains, plush green valleys replete with colours and fauna, rugged terrain punctuated by dangerous gorges—it's high time you stop picturing these beautiful images as mere wallpapers. It's time for a vacation—you deserve a break.

With the festive season just round the corner, a rollicking holiday season due, and travel sounds a really exciting way to relish that elusive break. But there's a catch, though. You have a crammed schedule that leaves you with little time to chase tour operators and holiday packages. Is there a way out? The good news is that there is not one, but many.

Look to the Internet—travel Web sites are willing to do all the planning. From honeymooners to adventurers, from short vacations to designer holidays, sites have vacation packages. Says Sachin Bhatia, Chief Marketing Officer, Makemytrip India Pvt Ltd, "Online travel transactions account for over 33 per cent of all e-commerce across the world." Travelling has assumed a whole new dimension with the growing popularity of online purchase and auction of tickets. While Indian Railways offers online booking, Sahara and Indiatimes came up with round-the-clock bidding on tickets.

A Few Good Sites

Take the case of Priya B, a Pune-based software professional who planned her honeymoon trip to the Andaman and Nicobar Islands. With her fiancé away in London, she thought it would be a daunting task going about all the arrangements. Until she stumbled upon www.traveljini.com. It turned out to be the one-stop guide with all the details that she was hunting for. Interestingly, travel Web sites go beyond the routine, mundane details that tour operators would otherwise provide. In fact, the sites take you on a virtual tour, making the destinations come alive with vivid descriptions.

Bhatia says that a Web site is the preferred medium of information for Indians when it comes to travelling abroad. Be it www.outlooktraveller.com or www.traveljini.com, sites offer information on everything, from a restaurant in Athens serving vegetarian food, to what an Indian would fancy while shopping in Malaysia. If you are

Calling All Mouse Potatoes!
Bon Voyage

The holiday season is round the corner. From now on, you don't need to go through the hassles of arranging your entire tour—let Web sites do it for you
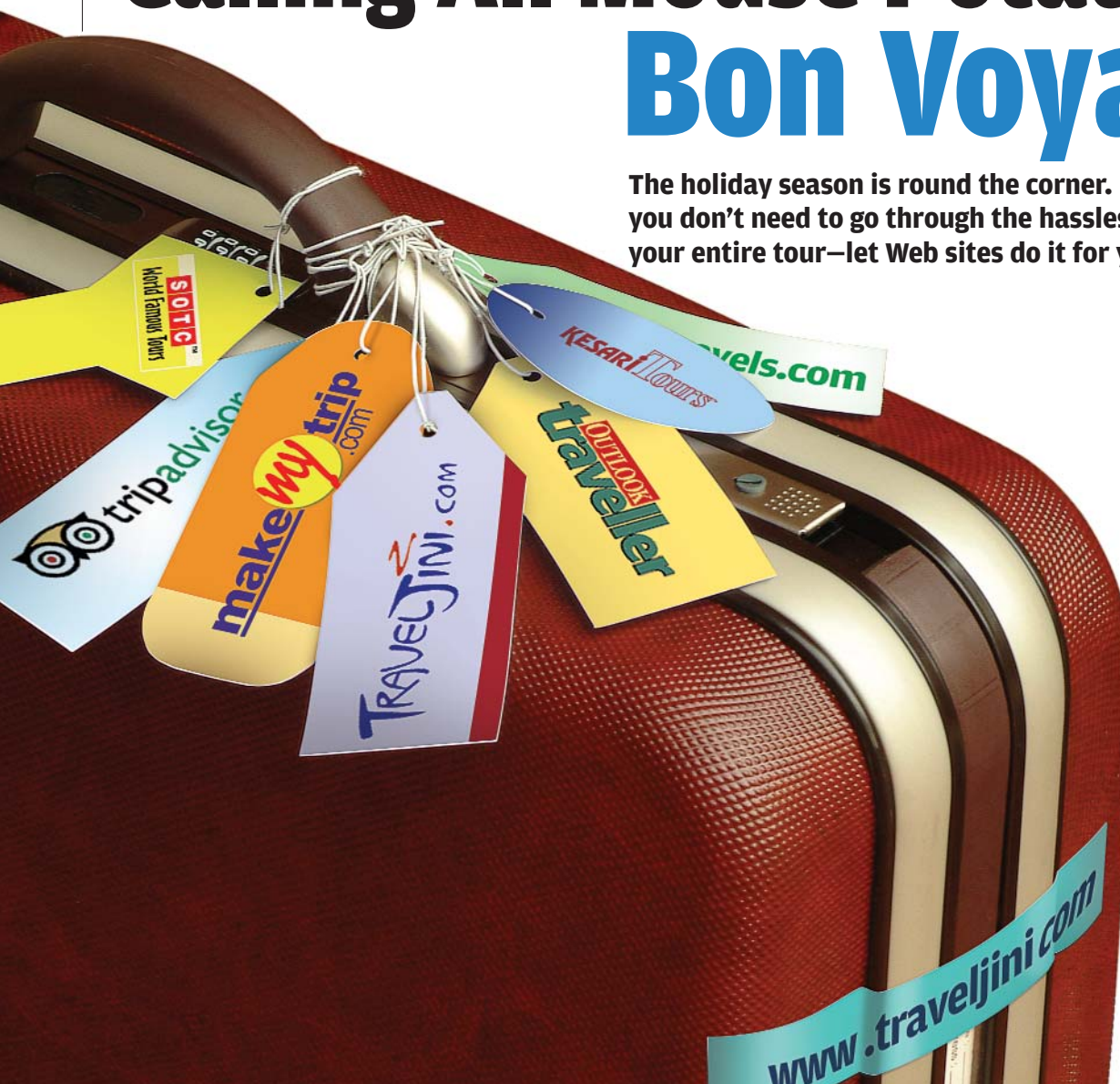
looking for information that is diverse, exhaustive and interesting, a travel Web site is the ideal stopover.

Services, Ahoy!

In 2001, a Jain monk wanted to travel from Mumbai to New Delhi on foot. The plan was to visit all the Jain temples he would come across on the journey.

Traveljini charted out this challenging itinerary. A smart travel planner, Abhishek Madhukar made a list of the temples along the route. He calculated the distance travelled by the monk in a day and designed a well chalked out itinerary. The result—the Jain monk and the devotee became regular customers. This is the tale that Jerry Pinto, the former editor of Traveljini, loves to narrate when asked about what makes travel Web sites stand apart.

Today, travel sites have come a long way from being dubbed as mere ornamental getaways on the World Wide Web. The makers of these sites have realised the need to supplement routine information with all the services needed for such tours to get going.

Makemytrip.com offers discounted airfares from the US to India with offers such as roundtrip and multi-city tours. Ask them the secret behind the discounts and Bhatia of **Makemytrip.com** explains that they book tickets at wholesale prices from Amadeus, which is one of the world's largest ticketing companies. These savings are passed as discounts. Others such as **Indiatravelmall.com** offer packages that exclude airfare or meals.

Most travel sites have numerous options for the traveller. Whether you are on the

5 Steps To Paradise

Visit traveljini.com and click on Holidays

From the list of Domestic Holidays select Long breaks. For example, you select Diwali. Click on Long Breaks again to select the Diwali package

There are three options. You can choose one or compare all

Tick the boxes marked Compare and click on the green Compare button

You will get a chart in terms of package, duration, head count, what the package includes and what it excludes. Pick a package and start packing!

lookout for a hectic adventure or a quiet spiritual voyage, rest assured, these Web sites have wonderful packages for every kind of traveller. A typical sea cruise is a popular choice amongst holiday seekers. Travel sites offer good deals 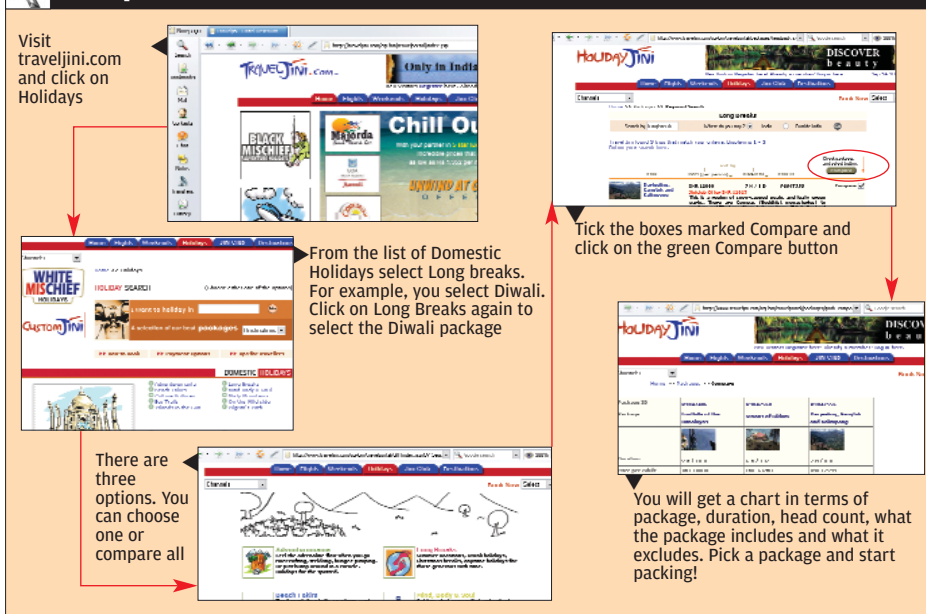on cruises such as the MV Vrinda, which takes one around the idyllic backwaters of Kerala. The tour entails provisions for car rentals and hotel stay.

Comparison packages within a category are often presented, throwing open a wide variety of choices for the average traveller. **Traveljini.com**, for example, lets you choose the best adventure package, while Outlooktraveller.com lets you search for the best deals that suit your pocket.

Enhance The Experience

The essential idea for any travel site is to make the trip a memorable experience. And the sites offer loads of features. Traveljini, for example, offers a Jini membership that offers discounts on all of its trips. They assign a travel specialist to you, to help you chart your holiday plans better. **Outlooktraveller.com** and **Indiatravelmall.com** have message boards and forums that let you interact with fellow travellers. **Makemytrip.com** has a dedicated toll-free telephone number for the US, Canada and India. It even runs live Web-chat sessions to handle queries from would-be travellers.

Everyone has a dream destination; yet, one is also perpetually on

the lookout for fair price deals for different holiday trips. **Tripadvisor.com** ensures that once you sign up for their Dealadvisor or Tripwatch newsletter, you are regularly updated on the best packages available.

A big advantage with these sites is that they allow payment through secure channels, such as PayPal. They also accept credit cards. In fact, ICICI even gives travel loans that can be repaid in easy monthly instalments.

Stress-free Vacations

The idea of going on a vacation is to spend the time relaxing. However, we invariably exert ourselves checking up with tour operators, arranging for the food, and ending up at the wrong places in the hunt for information. This is where travel sites come into the picture. As Bhatia says, "The advantage to a customer is in getting real-time booking for all elements of travel, and for a service provider in reaching the customer directly." He feels that travel sites will not only market India internationally, but will also bring tech-savvy Indians closer to other countries.

Robert Frost put it best: "Two roads diverged in a wood, and I took the one less travelled by, and that has made all the difference." If you are planning that vacation, go the Internet way, and make your holidays more fun and less stress.

Bon Voyage! ⊠
aparna_krishnakumar@thinkdigit.com

Travel Web Sites To Check Out

▶ **www.traveljini.com:** An Indian portal set up in 2000. It has tie-ups with ICICI, HSBC and Baazee. It offers a host of domestic and international packages

▶ **www.outlooktraveller.com:** A portal from the Outlook Group, it offers a comprehensive list of destinations and theme holidays. Worth checking are the holiday deals and travelling experiences posted by members

▶ **www.makemytrip.com:** The portal is preferred by NRIs for its great planning of itineraries. Ideal for those looking for good deals to visit relatives and friends abroad

▶ **www.tripadvisor.com:** A US-based site with details on different destinations along with best package deals and a forum to post and share experiences

Anatomy Of A Call

A behind-the-scenes look at how a cellular phone network works—from receiving calls to roaming

1

The Initiation Ceremony

After you switch on your cell phone, it asks its base station for a System Identification Code (SID), which is then matched with a similar number stored on the phone. If an SID is not received, the phone displays a 'No Network' message. If it receives a matching SID, the phone knows it is operating locally. If the numbers do not match, then the phone knows it is roaming

Changing Stations

Each city is divided into cells—each with a local base station. All base stations communicate via a central MTSO (Mobile Telephone Switching Office). The MTSO is different for each operator. Main stations for different operators may talk with each other to enable roaming

2

Getting Registered

Upon receiving an SID, your cell phone registers its presence at the base-station's database. Thus, the station is aware of your phone's presence. This tracking is how you receive location information on your cell phone. It also enables operators to advertise services by location. After this registration, the base station hands your cell phone two frequencies, so that you can speak and listen simultaneously. This is known as a full-duplex connection

3 Keep Talking

When you recieve a call, the base station connects the two phones via the assigned frequencies

How Roaming Works

If the SIDs from Step 1 do not match, the cell phone is roaming. The MTSO of the cell you are in contacts your operator's MTSO to verify your roaming priviledges. It then tracks your movement as you travel through its cells

4 Cells And The City

Each city is divided into frequency cells, depicted here as hexagons. Cells sufficiently separated re-use frequencies. As a cell phone transitions from one cell to another, the MTSO detects this transition and hands over your data to the second operator's MTSO. This does not interrupt an ongoing call

MTSO

MTSO

The Holiday Tech Guide

Imaging Jayan Narayanan

Lens High

Digital cameras are not just about great technology and megapixel ratings; they are about convenience and storing memories. Presenting a range of sub-Rs 30,000 digicams for you to choose from

Aliasgar Pardawala and **Mustali Kachwala**

A digital camera can be a versatile device—it can capture movie clips at up to 30 frames per second; comes with advanced imaging technology, not to mention cutting-edge inbuilt software; you can burn captured video on a DVD; or watch images you have shot on a TV. And you don't even need a PC for all this. Some digital cameras even provide an inbuilt slide-show feature.

The PictBridge standard is another good thing that has happened to digicams (*See "Keep the PC Out of the Picture", on printing photos directly from PictBridge-enabled cameras. Page 57 of this issue of Digit*). It allows a direct connection between a digital camera and a printer for printing images. With the PC out of the picture, it speeds up the printing process, and takes away image resizing and paper quality hassles. You only need to plug in the camera to the printer and press a few buttons.

The price of a point-and-shoot digital camera that offers decent image quality is still on the higher side. But it is worth it when you consider how much creative fun you can have. Of course, one must not forget the *click at will* freedom that a digital camera offers—point, shoot, delete what you don't like, and store the rest as precious memories, or works of art.

Loading Up

We rounded up 29 cameras from 12 brands. We chose a price range of Rs 10,000 to Rs 30,000—it had something for everyone. We decided upon Rs 10,000 as the entry level since most cameras below this price don't offer satisfactory results.

The Rs 30,000 barrier was decided upon because anything beyond this price is also beyond the budget of the average Indian. Of course, if you want something that is high-end, you are better off importing it at a lower price.

Orite, Premiere and D'zign were the new entrants amongst the lesser known brands. HP was the new heavyweight that joined Canon, Kodak and Sony in the Big Boys' camp. Fuji did not participate in the shootout.

LESS THAN Rs 20,000 Price crash!

Cameras in the price range of Rs 12,000 to Rs 15,000 a year ago are now available for Rs 7,000 to Rs 8,000. It is now possible to buy a 3-megapixel camera with a 3X optical zoom, and a degree of manual override, such as white balance and flash-mode setting for Rs 20,000 or less. Our sub-Rs 20,000 category started from Rs 8,500. Eleven models made it to this category—three from Kodak and Orite, two each from Canon, Nikon, Olympus and Samsung, and one each from Casio, Creative, D'zign, Premier and Sony.

What They Offered

A new entrant, the Orite VC-5000Z, made a mark. A 5.3 megapixel camera, this Orite model is capable of a 2,560 x 1,920 image resolution. The only other camera to hit the 5 megapixel mark in this category was the VC-R500—again from Orite.

Most other cameras were 3.2 megapixel ones, even if there were a few exceptions such as the Kodak CX7220 and the Premiere DC2302 with an obsolete 2 megapixel CCD. The Sony was 4.1 megapixels; so were the Kodak CX7430 and the Nikon Coolpix 4100.

In terms of compactness, nothing came close to the eminently portable Casio Exilim Ex-Z30. The Ex-Z30 is just 2.3 cm thick, and weighs about 125 gm. This, coupled with its LCD screen, makes it a great outdoor companion.

Optical zoom gives you freedom to capture distant images without compromising on quality. Most cameras in this range had 3X optical zoom, with only the Kodak CX7220 having 2.1X. However, four models, the Canon A310, the D'zign, the Olympus C-160 and the Samsung 301, don't have this feature at all. They had digital zoom, which was as high as 5.1X in the Canon A310. A digital zoom is not the same as an optical one, in terms of quality of image obtainable while using it.

White balance is a vital feature for a digital camera. One

The Holiday Tech Guide

needs to be extremely careful to set it correctly to get good photos. The Daylight and Cloudy settings play a crucial role for shooting outdoors. Most cameras that we tested featured more or less the same white balance settings, excepting the Kodak CX7220. It didn't have manual overrides.

In most cameras, a Macro mode, meant for taking extreme close-ups is present. What differentiates one implementation from another is the level of close-up one can obtain. If the subject is as tiny as an insect, most cameras in this category won't capture all the details.

The Canon PowerShot A75 and the Casio Exilim Ex-Z30 allow you to get as close as 5 cm to the subject. However, one needs really steady hands while shooting a subject this close. Weight and stability of the camera are also important.

A light camera, such as the Casio, tends to jerk when the shutter button is pressed, and taking macros gets problematic. The other extreme is equally difficult—if it's the heavy Canon A75, you have hold it with both hands. This does get awkward at times.

Memory plays a major role in any digital camera. What is the

The Canon PowerShot A75

point of having good optics and electronics if there is not enough storage space in your camera.

How We Tested And Decided The Award Winners

We evaluated the cameras on four main parameters—Features, Ergonomics, Performance and Price Index. The importance given to each parameter varied, depending on the category.

Evaluating Their Features
We awarded points based on the capabilities of a camera, such as its imaging chip resolution, known as the Charge Coupled Device (CCD), its optical and digital zoom capabilities, presence of manual focusing, types of metering modes available, its white balance implementation, the number of flash modes on offer, its shutter speed range, the storage type supported, the nature of its battery, and video-out capabilities. We also awarded points to package contents such as a battery charger, a camera pouch and so on. Software bundled with the camera and support for various operating systems was also considered.

Ergonomics Is Important
We noted various aspects of the camera's build, and looked for features that enhanced its user-friendliness, such as how comfortable it was to hold, the ease with which its user interface could be navigated, the size of its buttons, the placement of the flash (and whether it avoids the finger-over-flash syndrome), and the inclusion of dedicated menu-navigation buttons. The size and weight of the camera were also taken into consideration.

Finally, Their Performance
To evaluate the performance of a camera, we introduced it to a series of tests and evaluated it on preset criteria. The tests are noted as follows.

Mother Knows Best: We created an inanimate test scene to test the camera's ability to reproduce colour and capture details correctly. The mock-up scene consisted of a red motherboard and various slots and connectors in blue, yellow and red. This setup offered a wide tonal range.

Gradation in shading was brought out by a blue sheet in the background, while specular effects (shine) were graded via a shiny metallic audio connector and the motherboard's USB housing. For minute details we looked to the pins adorning the CPU socket, and the walls of the memory and PCI slots.

The cameras were graded on the level of accuracy with which these details were captured. The lighting was kept constant.

The camera was mounted on a tripod, the highest possible resolution was chosen. The camera's flash was used, its other settings such as white balance, metering and flash modes were on Auto.

Dummy Shoot: Here, we took a random bystander and shot a photograph of that person under uniform lighting conditions. If the camera allowed for a Portrait mode, it was used. With cameras that did not have a Portrait mode, the picture was taken in Auto mode. This showcased the performance of a camera under indoor lighting. In the final image, we looked for accurate skin tone reproduction, white balance, uniform tonal reproduction under fluorescent lighting, etc.

Moving Mountains The tendency to be overwhelmed by natural landscapes is high. Especially, since the landscapes are a rare sight in our busy lives. To test camera for this, we shot an image of a mountain covering half the frame, while the rest was taken up by the sky. The purpose of this test was to gauge a camera's performance under natural lighting conditions. Shot in Landscape mode, other settings such as white balance and shutter speed were left to the camera. (Unfortunately the mountain in question is steadily disappearing under quarrying...)

Just Doing It A sport is another visual treat, begging to be captured in various acts of motion. In this test, we tried to capture a fast-moving object such as a car. A Sports mode, if available, was selected. The cameras were rated according to the clarity of the shot. Cameras that returned blurred images lost points.

Extreme Close-up A Macro, in photography parlance is an extreme close-up of an object or a subject. The kind of photographs you would see in an issue of National Geographic demonstrating the pollination of a flower, by an insect, for example. In the Macro test, we tried to capture the tiny grains on a leaf. We got as close to the subject as possible. Here we looked for focused and crisp results. (We await the acceptance of our sample images by NatGeo.)

Taking Price Into Consideration
The price index was calculated taking into account the lowest price for which the cameras are available. More weightage was given to price for low-end cameras as compared to that given to our second, the greater than Rs 20,000 category.

The Awards Process
The score noted from Features, Ergonomics and Performance tests and from the Price Index was given importance as per the specific category. An overall score out of 100 was then calculated. The product that scored the highest in the overall score was adjudged the winner of the Digit Best Buy Gold Award for its category. The runner-up received the Digit Best Buy Silver Award.

Make the most of your Holidays with Sony Cyber-shot

Sony's Real Imaging Processor enhances shooting experience
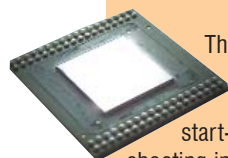
The newly developed Real Imaging Processor is the driving force behind the fast start-up time, shutter lag and shooting interval so you never miss the moments. This processor brings digital photography into focus. This is built to give you better colour reproduction, white balance, exposure, and focus when you use the automatic mode setting.

But above all it enhances your shooting experience in 3 important ways:

Great Picture Quality

Real imaging Processor cuts down on image noise, thus providing us sharper, smoother & more detailed pictures which leads you to experience those moments every year.

High Speed Performance

The highly efficient Real imaging Processor offers shorter shooting time, faster burst shooting, near simultaneous image processing and high-speed image display when compared to conventional DSP (Digital Signal Processor) technology.

Power Efficiency

Using this Real imaging Processor gives you lower power consumption enabling longer use of the same.

The first thing that comes to your mind when you are going on a holiday is your digital camera. You are faced with questions like which camera & features, how will it enhance your vacation memories, can it capture moving pictures, does it have enough battery life to support the journey and so on. Let's find the various elements & features involved in choosing the right Digital camera.

Enhance your enjoyment

The first thing that matters is size and sporting a camera with a slim and contemporary square design equipped with a wide LCD screen allowing you to view and share photos with maximum enjoyment. A minimum of 5.1 Megapixels captures every detail of your subjects with outstanding clarity & can enlarge images up to A4 size with no loss of quality. Working together with the super HAD (Hole accumulated Diode's) CCD, helps harnessing incidental light more efficiently, and virtually halving the picture's noise levels resulting in cleaner, sharp and vividly beautiful.

Quick and easy operations

Your Camera should be designed to make your photographic experience as pleasant and easy as possible. The Cyber-shot W1 is crafted with your satisfaction in mind. Sony's Real Imaging Processor circuit is designed specifically to enhance tasks & response time of Digital cameras. Its extended battery life delivers up to 340 shots or 170 minutes between power charges. Your camera should let you manually adjust exposure to create

the effect you want and Sony Cyber-shot lets you do just that.

Multipoint Auto focus

This function automatically identifies 5 main focus points for your image, ensuring that the picture is always sharp and clear. You're always assured of perfect clarity from foreground to background, even if your subject isn't in the center of the frame.

Optical and Digital Zoom

With Optical zoom, you can get closer to your subject without distortion, blur or other loss of image quality. Digital zoom greatly extends the optical zoom range by 2x or more, while still ensuring smooth and clear close-ups.

Mpeg Movie

At times when you need to capture stills as moving memories, your camera can record Mpeg movies with sound. There is a range of quality

settings, from Video mails - small files for emailing; all the way upto Mpeg Movies. Your Sony Cyber-shot records non-stop, high-resolution movies in VGA format that can be played back full screen on TV using the AV cable.

Lenses

A good pair of lenses such as the Carl Zeiss Vario-Tessar Lens only on your Sony Cyber-shot is designed specially for compact cameras, and produce top quality images that are brilliant and sharp, have excellent contrast and almost no distortion enabling an extremely compact & handy cameras.

Super Resolution Converter

Using Digital Signal Processing, a high signal-to-noise ratio is achieved by digitizing all signal processing & recording functions. This leads to restoration of lost data and getting a stable image and reliable quality.

Clear Colour Noise Reduction

This function analyses the light & colour frequency of an image thus smoothening out the distortion & creating a natural tone

reproduction, essential for photographing landscapes.

Clear luminance Noise Reduction

The picture taken should detail the true image and not the tricks of the light. This feature uses a filter to smoothen the transition between areas of sudden or significant altercation of light.

14-bit Digital Extended Processor

This feature enables capturing the dynamic range between light & dark areas without losing details thus producing more accurate, smoother images, realistic contrast.

Slow Shutter Noise Reduction

When shooting conditions are demanding, Slow Shutter NR cuts down noise disturbances and helps produce clearer & sharper images.

Accessory - Cyber-shot station

You can enhance your total digital experience with a Sony Cyber-shot station. It provides one stop-connectivity - print with PictBridge™, or browse images on your TV.

Shoot, Store, Edit, Share & Enjoy

Treat yourself to a digital experience with Sony Cyber-shot. Explore the many possibilities - from easy storage to safekeeping of your images from videos on Memory Sticks, to sharing them via email and viewing them on your TV. One is equipped to express the creativity with utmost convenience and connectivity at the same time.

Shoot

With Sony Cyber-shot digital still cameras, you enjoy great features and user-friendly menu, making both still images & long Mpeg movies with ease.

Sony Cameras to choose from

Sony's Digital imaging technology equips the photographer or an amateur with point & shoot simplicity that makes the shooting experience enjoyable. Sony's advanced features like 5.1 mega pixels or even 3x optical zoom makes the features of best quality, high speed & power consumption possible making the user enjoy the moment's seasons after seasons.

DSC - W1
- 5.1 Effective Mega Pixels
- Carl Zeiss Vario-Tessar Lens
- Extra Large 6.35 cm LCD Screen
- Simple Mannual Mode
- 3x Optical Zoom
- 6x Precision Digital Zoom
- Smart Zoom

DSC - P100

- 5.1 Effective Mega Pixels
- Carl Zeiss Vario-Tessar Lens
- 3x Optical Zoom
- 6x Precision Digital Zoom
- Multi-Point Auto Focus
- Scene Selection

DSC - P73
- 4.1 Effective Mega Pixels
- 3x Optical Zoom
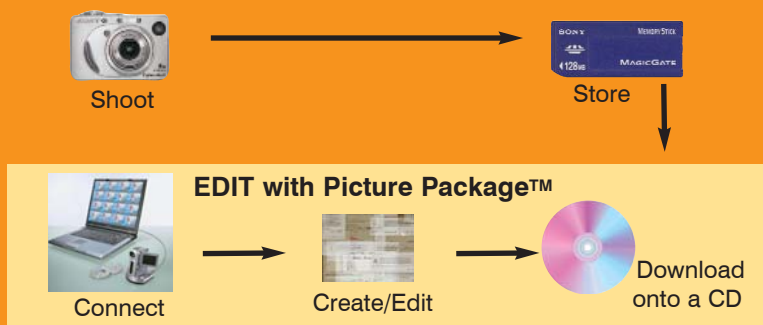- Conversion Lens Compatibility
- Histogram Indicator

Shoot-Store-Edit-Share-Enjoy

Shoot → Store

EDIT with Picture Package™

Connect → Create/Edit → Download onto a CD

Accessories you need to carry

Batteries
The action never ends. Ensure that you are always prepared with additional batteries with Sony's rechargeable batteries and quick chargers.

Carrying Cases
Taking your Cyber-shot outdoors has never been easier or safer. The two-way style you can select from is shoulder carry or waist pouch along with Mini pouch and shoulder strap.

Lens Adaptor
Enhance your vision. Get closer to the action with a tele-conversion lens or capture more with a wide-conversion lens.

Memory Stick™
Memory Stick™ enhances your Cyber-shot and enables easy editing, viewing and sharing of photos. Simply insert your Memory Stick™ in any device with a Memory Stick™ slot and record your still images, high quality videos or high volume data.

Store
Memory Stick- Store your precious images and movies in the convenient and highly durable Memory Stick Storage media. With Memory Stick, you can transfer files to a host of compatible digital devices.

PC without Memory Stick Slot-Your Cyber-shot can double as an external drive for you to download or upload files from your Memory Stick to your PC, by using a standard USB interface.

Edit with Picture Package™
Experience the fun of creating slideshows using you images. With Picture Packages™, you can use your PC to combine your photos with pre-installed sounds or even MP3/WAV music files. Picture Package software is bundled with year 2004 Cyber-shot new models. Add in special effects and words, then burn your slideshow into a convenient VCD format.

Share
With a Cyber-shot Digital still Camera, there are so many ways to share the fun and enjoyment.

Connect Direct and View on TV/PC - Use Picture Package editing software (supplied) to create slideshows, then burn onto a VCD and share interesting clips with your friends on TV. You can even enjoy large-screen viewing of your images by connecting your Cyber-shot to a TV using an AV cable.

Mobile Devices - More ways you can enjoy your photos! Download your images onto your Sony CliE PDA or Sony Ericsson phone to use as personalized wallpaper or send it to your loved ones via Memory Stick or MMS.

Do-it-yourself Home Printing - All new Cyber-shot digital still cameras support the industry standard PictBridge™ technology, which makes it possible to connect directly with a PictBridge printer via the USB cable, and print images without using the PC. Or use Sony's own Digital Photo Printer (DPP-EX50), with PictBridge™ to print superb digital photographs directly from your Cyber-shot. With its high quality dye-sublimation print method and high speed processing, the DPP-EX50 lets you enjoy, brilliant and professional quality photo prints.

Now when you go on a vacation, be sure you have your Sony Cyber-shot to capture your precious moments for life. Use the above-mentioned software and techniques and share the moments with your loved ones who couldn't be with you on your vacation.

Most cameras came with an inbuilt memory of 16 MB. SD and MMC were the formats of choice. Canon's cameras came with 32 MB Compact Flash cards and no inbuilt memory. The same was the case with the Sony P73, which had a 16MB MemoryStick. The Casio was at the bottom of the list. It had less than 10 MB of inbuilt memory. It can hold no more than a paltry five images at high resolutions.

Such cameras are handicapped in a way. You are compelled to buy additional memory modules if you plan to take loads of photos. Moreover, copying a photo to an external memory

The Casio Exilim Ex-Z30

card is a slower process than storing it internally. The user has to keep this in mind while taking fast shots, such as scenes from a sporting event.

It is also advisable to carry a good number of medium-capacity cards than just one or two high-capacity cards. The reason is again speed of access. A large card will take much longer to refresh with a new photo than a smaller one.

Another key issue—battery life. Does your camera support rechargeable batteries? Does it come with a charger? If yes, then note that these are some features worth spending on.

The Canon A75 was the only camera powered by four AA batteries. Both the Nikon models and the Sony P73 came with two AA rechargeable Ni-MH batteries.

The Casio, the Orite VC-R500 and the VC-5000Z had proprietary Li-Ion batteries, the proprietary nature of which turned out to be both good and bad. Good because the running cost is significantly lower as one doesn't have to worry about battery replacement, and bad because the camera can't be used outdoors over long periods of time. Once the batteries gets drained, you don't even have the option of replacing them with regular ones.

PictBridge is a standard that enables a digital camera to connect directly to a PictBridge-compliant printer to print images. Interestingly, this feature completely bypasses the PC. Canon, Casio, Nikon, Sony,

> "Limited memory in cameras belonging to this price range (sub-Rs 30,000) is really sad, because if the camera is used to capture images at the best possible resolution the supplied memory will not last more than 10 frames
>
> **Mukesh Parpiani**
> Photo Editor,
> Mid Day

Olympus and Samsung 307 were all PictBridge ready.

Three models from Kodak and lesser-known brands such as D'zign, Premier and Orite didn't support the standard. However, the Kodak cameras came with connectors at the bottom, which let them connect to a Kodak printer dock. You need a Dye-Sublimation printer for this to get the printouts directly.

Were They Easy To Use?

The Nikon Coolpix 3200 and 4100 sported an identical design with the same layout of buttons, as well. The cameras are very comfortable to hold, and navigating their interface is simple, with self-explanatory settings.

The Casio Ex-Z30 is slim and

The slim Casio EX-Z30 has the biggest LCD screen in its category

light, but the buttons are tiny. The camera, however, has a very impressive navigation, especially when it comes to different modes. This, coupled with a large and impressive LCD, makes it an attractive option.

Three models from Kodak and two from Olympus were quite large. However, the menu navigation on the Kodak was the simplest of them all. The icons are big, and the tags are explanatory.

The Canon A75 was the bulkiest of the lot, and its weight shoots up once the four AA batteries are plugged in. The camera, however, sports a very sturdy design and feels comfortable to hold.

The button placement, especially the zoom button, is very

Nikon's Coolpix 4100 reproduced good colour tones

Our Expert Panel

Digit consulted two of India's top professional news photographers before deciding the winners

Palashranjan Bhaumik
Photo Editor,
Business India

In the world of news photography, Palashranjan Bhaumick is a pint-sized giant. He is 48, but looks 10 years younger thanks to the energy he brings to his work and life. He is photo editor of Business India, one of India's most respected business magazines, a post he has held for several years now. He has been shooting pictures since he was 14, and everything that he has learned is self-taught. His first camera was the Kodak 620 box camera.

He swears by digital photography, but also feels that the old world charm and the quality offered by manual cameras will never die. He says: "Digital photography is the order of the day. It has captured the minds of millions, and is growing tremendously. In a fast moving world like ours, digital photography is the only way to match with its ever growing demand."

Mukesh Parpiani is photo editor of Mid Day, Mumbai's second largest selling newspaper. The multi-award winning news photographer has been on the forefront of news journalism for over two decades, and has worked with some of India's premier publications, including The Indian Express. Some of his photographs depicting human life in India were used in the award-winning ad campaign of Indya.com in the year 2000.

He says: "For today's news professional, digital photography is a must. Even though some people still prefer the old way of functioning, digital cameras give you all the flexibility you need. Even amateurs find it easier to shoot on digital. With technology making rapid progress, there is little difference in quality between a digital photo and a photo clicked on manual SLRs."

Mukesh Parpiani
Photo Editor,
Mid Day

The Orite VC-5000Z

good, making it convenient to operate despite the weight.

The Sony model, with its one-side-rounded design, stands out. But the tiny icons on the screen are a real strain for the eyes. The button placement is good. The flash is intelligently tilted towards the lens to get sufficient light on the subject.

How Did They Perform?

We tested the credentials of the cameras at taking shots of scenery. We shot a mountain for the test. While taking the photographs, we selected the Landscape mode. For cameras that did not come with Landscape, we used the Auto mode. In Landscape photography, the Nikon Coolpix 4100 fared better than the rest. It showed good colour reproduction and saturation.

The Sony P73 returned a slightly darker image, whereas the Kodak CX7330 gave an image that was a little brighter. The Casio Exilim was a letdown. The image was dark, while the colour reproduction suffered heavily.

The Nikon Coolpix 4100 is the ideal digital camera for shooting in hill stations or lush valleys.

In the Sports mode, we didn't come across too much variation in image quality and finer details. The Canon A75 and the Nikon Coolpix 4100 were ahead of the rest. We managed to capture a moving trailer as a still. The text on the trailer's container was clearly visible without any blur.

The Casio, too, managed to capture a moving vehicle, but there was some blurring on the photo. In some of the cameras, such as the Kodak CX7430, the shutter speed was not fast enough. So, we managed to capture the back half of a fast-moving vehicle, even though we had released the shutter button when the vehicle entered the frame. It effectively means that with the CX7430, you have to anticipate and then shoot.

The D'zign returned an image peppered with red, green and blue dots. However, it managed to

> "The Sony P100 has the superior Carl Zeiss lens and powers up instantly. Its compact shape and unique design allows for one hand photography without problem
>
> **Palash Bhaumik**
> Photo Editor,
> Business India

capture the moving car we were trying to shoot.

The Portrait test was done indoors in a sufficiently lit place. The room was lit up with tube-lights, and there were no incandescent bulbs. Despite this, some of the images came across as shot with lots of studio lights on.

The Nikon Coolpix 4100, impressed again, as skin tone was captured perfectly, and so were the colours. The flash of the 4100 created excess brightness in the centre of a frame. To negate bright spots on the photo, we maintained a distance of three to five feet from the subject and made use of the zoom. The Samsung Digimax 301, too, gave us an impressive portrait image. However, there were some minor niggles in reproducing the skin tone. Due to the powerful flash, the 301 returned an image

A red cast is prominent in this image captured with Samsung's Diigimax 370

that was really bright. The Canon A75 impressed with its great details, but the overall image had a mild red cast all over. The photo eventually needed quite a lot of colour correction.

The Orite VC-5000Z returned an image similar to that of the Canon A75. In fact, the red cast was even more pronounced in Orite's image.

We also set up a test image comprising a red motherboard. It had lots of tiny and shining components on it. Its CPU socket, the PCI slot and the memory slots were used to evaluate the details. We also used boxes of software (such as Windows XP Professional) to test the focus of the cameras. The colourful nature of such boxes along with the associated text made them an ideal for the test. Once again, the Nikon topped the list. Its images showed wonderful colour reproduction. When it came to details, it fared much better than the rest of the

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Jargon Buster

Shutter Speed Indicates how long the shutter of the camera stays open to expose the sensor. Higher shutter speeds are required to take clearer still pictures of fast moving objects, such as speeding cars or the wings of a bee, which would otherwise show as a blur.

For artistic photography, a blur is sometimes required, for example a flowing river or the trail left by the light of a firefly. This is obtained by slowing the shutter speed.

Aperture It is the size of the opening in the lens that decides the amount of light captured by the film or sensor.

A larger aperture (represented by a lower f-value, for eg f/2) offers a shallow depth of field. Focus is locked to the main subject, causing anything ahead of or behind it to appear out of focus.

A smaller aperture (i.e. higher f-value, for eg f/16) offers greater depth of field. This lets you focus on objects which form the ambience to your subject.

White Balance To a digital camera, a white object might take on other hues depending upon lighting conditions. This is not acceptable. Depending on the light source, you can adjust the white balance of a camera to ensure correct reproduction of colours in the frame.

Common settings are daylight, cloudy, fluorescent (to be used for tube lighting), and incandescent (to be used in bulb lighting).

Red-Eye Reduction A red-eye is caused when flash-light reflects back to the camera, picking up the red colour from the blood vessels in the retina of the eyes. In Red-Eye Reduction mode, the flash goes off multiple times, causing the pupils of the eye to contract. The photo is taken with the last flash, whose light doesn't reflect back the red of the eyes.

Burst Mode Also known as Continuous Mode, this is the camera's ability to take several images in quick succession. How fast, how many, and at what quality, depends on the inbuilt buffer memory of the camera. Most consumer digital cameras manage one to three shots per second, while professional ones score up to seven. Usually, the quality increases with the decrease in the number of shots, and vice-versa.

Electronic View Finder (EVF) An EVF is a small LCD in place of the optical view finder that you hold close to your eye. The EVF gets its image through the lens. It is accurate and does not suffer from parallax errors. Since it is enclosed in a casing, it is usable even in bright light when an LCD can be unreadable.

The small grains on a leaf captured by Casio's EX-Z30 in this picture were no bigger than 0.5mm

pack. The software box in the corner was well-focused and the text was clearly visible.

The Orite VC-R500 and VC-5000Z returned very crisp images with no unnecessary noise or colour casts. The text in the corner was well-focused, and the colours of the boxes, too, were quite impressive.

The Samsung Digimax 370 was simply disappointing. The image was out of focus and dark. The red colour of the motherboard looked different, and the small components just didn't show up because the image was out of focus. The Creative DC-CAM 3200Z, too, returned an image that was not up to the mark, and the same was the case with the Olympus Camedia C-310Zoom.

Extreme close-ups need lots of patience, stable hands, and a focused mind. This macro test required us to move back and forth to get a leaf in focus. Casio's clarity was simply superb at picking up the tiny grains on the leaf. The Sony P73 was also impressive. The Nikon Coolpix 4100 gave us a hard time in getting the focus right. But our perseverence paid off. The image it captured was perfect.

Final Thoughts

The 19 cameras tested in this category had, more or less, the same specifications. Their prices ranged from Rs 9,000 to Rs 20,000.

Our tests made it obvious that you get what you

1/2 pg V AD

The Sony Cyber-Shot P73

pay for in terms of image quality.

In terms of features, the Orite VC-R500 and VC-5000Z were quite decent, with good image quality. The Kodak CX7220 was the only camera that managed an ideal balance of price and performance.

This camera returned average results in most tests. It has features such as 2.1X optical zoom and 16 MB inbuilt memory. It sells for just Rs 9,500.

The Casio Ex-Z30 is very compact, but the combination of low storage and high price makes it more of a flaunt-value gadget than a daily-use camera.

Olympus, with its two models, failed to make any

mark despite its low price and decent features. It lost out on performance.

The Nikon Coolpix 4100, which won the Silver in our tests, came up with some excellent images, and it is very handy as well. It is perfect when it comes to ergonomics. The price is slightly on the higher side, but given the performance, it is worth it.

The winner, the Sony P73, returned good overall results. It runs on rechargeable Ni-MH batteries, and has a 16 MB Memory-

The Nikon Coolpix 4100

Stick. It is definitely a very sturdy camera. The menu navigation is the easiest to handle. It has pre-defined modes such as Night and Landscape. Given all that, at Rs 18,990, it is a good investment.

LESS THAN Rs 30,000
Features Galore!

When you are eyeing a camera that costs over Rs 20,000, you would obviously expect a lot of features. Indeed, features were brimming in this category. Some cameras however, did manage to surprise by offering quite a lot of features.

The DX6490 was a surprise entrant; it was akin to an SLR. The Canon A80 also featured with good optics, especially its tilting LCD screen which alleviates the twisting and contortions associated with shooting at odd angles. Ten cameras from five different brands made it to this category. There were two models each from Canon, Samsung and Sony, while Kodak had three and HP just one. The Kodak DX6490 was the costliest contender at Rs, 31,900, because of the 10x optical zoom lens.

The Canon A80 is the only camera to offer tilt-screen feature

What They Offered

Despite offering smart features, cameras such as the Sony P100, Canon's IXUS IIs and the HP R707 came in a very compact form and were well supported with good build quality. The Sony P100 and the HP R707 impressed with their extremely solid build quality.

The Samsung U-CA 3 weighed just 125 gms, followed by Kodak's LS743 at 165 gms. The Kodak DX6490 at 380 gms and the Canon A80 at 300 gms—despite being heavier—have exceptional ergonomics.

The Kodak DX7630 has a 6.2 megapixel support. With this, the camera shot at a 2,872 x 2,160 pixel resolution, by far the highest resolution. If you happen to own an A3 photo-printer such as the Canon i9950, then marrying it to the Kodak is a good prospect. Both the Sony models and the HP R707 were 5.1 megapixel cameras. Although the Canon IXUS IIs and Samsung U-CA 3 offered just 3.2 megapixel resolution, they were priced higher than the Sony P100 and the Kodak LS743, which had better features.

As for optical zoom, nothing came close to Kodak's DX6490 and its 10X. For the motherboard

> Casio Exilim Ex-Z30 is compact with a bigger LCD than the rest. However, the camera tends to get warm if used continuously. This could damage the internal electronics in the long run
>
> **Mukesh Parpiani**
> Photo Editor, Mid Day

shoot, the zoom let us capture the tiny metal contacts which form the walls of a PCI slot on the motherboard. The others averaged at 3X optical zoom except for the myopic 2X of the Canon IXUS II.

Manual focus is considered a high-end feature for this category and was, therefore, unexpected. But the Canon A80 did offer it. Manual focus gives greater control to the user when taking extreme close ups. Even though the manual focusing is controlled electronically, it is not as precise as it is in SLR cameras.

The Canon A80 had the shortest macro focus distance of 5 cm, followed by the Samsung V5, which offered a 6 cm distance. The

The Canon A80

5 cm, coupled with manual focusing, makes way for wonderful close ups and macros. The HP had the minimum of 39 cm for macro focus, which is too far from the subject to capture details.

An electronic view-finder is a useful, power-saving feature that is extensively used by professionals. EVF as it is known, also helps in stabilising the camera while taking photographs. Unfortunately, only the Kodak DX6490 came with an EVF. The use of EVF balances the high power-consumption arising from constantly adjusting the zoom.

ISO settings can do wonders for the images, if used properly. Higher the sensitivity, the better the image quality and sharpness. Higher sensitivity, however, asks for lots of stability from the photographer and therefore ISO 400 and above should only be used if the camera is either mounted on a tripod or if it is resting on something. The Kodak DX6490 was the only camera that offered high a ISO setting.

Since these cameras offers high-resolution images, you need enough memory to store them. From amongst the models

Electronic View Finder

The Samsung Digimax U-CA 3

that we tested, 32 MB was the highest available. The Kodak DX6490 and the Sony P100 had just 16MB storage, which holds more than 10 images at their highest image settings.

Battery life is also a concern with these high-end beasts. LCD screens, zoom lenses, video capture, auto-focus, all serve to drain a battery faster. Re-chargeable Li-Ion or Ni-MH batteries go quite a way to solve the problem. The Canon PowerShot A80 comes bundled with non-rechargeable alkaline batteries, even though it needs four AA batteries. It was the same case with the Samsung V5, with two AA Alkaline batteries. Sony sensibly included two AA re-chargeable Ni-MH batteries.

Bundled accessories make life easier for you. For instance, the Samsung U-CA 3 comes with a car charger which is ideal while travelling. HP bundled a separate USB cable for PictBridge compliant printers.

Except for the Kodak all other cameras were PictBridge compliant. The absence of the standard was a huge oversight on Kodak's part. Kodak cameras can be cradled on to the Kodak Printer Dock, a dye-sublimation printer, but it should have supported a standard just like the other cameras.

Were They Easy to Use?

Ergonomics is vital. A camera with tiny or ineptly-placed buttons is worth nothing at the end. The Kodak DX6490 has a jog dial to set different modes. The dial is not very easy on the fingers, as it needs good effort to just rotate it. This was the only camera to have an additional jog dial to change the exposure mode, the shutter speed or the aperture setting, without taking the camera off from the eye-level. The Canon A80 has small buttons but has enough breathing space between

them. Sony, with its rounded contour near the lens, offers an ideal design for two-hand operation.

The Kodak had the cleanest menu navigation to offer—a simple and linear style. Sony and Canon cameras display icons that will leave you rummaging the manuals several times over.

Presets are a God-send for those looking for quick and easy shooting. The Kodak DX7630 with its 16 presets including Party, Beach, Snow or Self-portrait, was one such camera.

The Sony P100 is the fastest camera of all when it comes to starting up. The moment you press the power button, the lens is in place and LCD will show the frame you have focused on, all this in no time.

How Did They Perform?

For landscape photography, the Kodak DX6490 impressed us with its superior lens. The camera managed to capture a very lively picture with depth, as well as, wide reproduction of colour tones. The Sony P100 gave an image quality as good as the Kodak DX6490, but it lacked in depth. The Sony DSC-W1 managed to capture the scene clearly in overcast conditions, which is a commendable showing.

The Kodak LS743 lived up to expectations with both light and shadows clearly defined. The good news in this particular test was that none of the cameras returned an image below acceptable quality level.

Our next focus was on portrait shoots. The Sony P100 returned good skin tone as did the HP R707. The HP, however, had a flash that was unduly bright in the centre of a frame. Therefore, a portrait snap of a person with glasses needed to be taken with the camera pointing slightly upwards, or by maintaining a five to six feet distance from the subject, and then using the zoom. Both the Canons returned good skin tones. But, despite maintaining the correct distance, the subject was slightly out of focus with the Canon A80.

The Samsung U-CA 3 returned an image that was on a darker side, while a red cast was prominent on the image taken with Samsung V5.

In the motherboard shoot, the Kodak DX6490 dominated, with amazing picture quality, near-perfect colour re-production, good small-detail reproduction, and great specular effects. The camera also reproduced smooth gradation while handling merging colour shades. The Sony P100 managed to shoot well but missed out on colour separation, as the red of the AGP slot almost merged with the red of the motherboard. The Sony showed one of the finest gradations in shades.

Despite the studio lights, the images taken by the Canon A80 turned out to be little on the darker side. None of the elements

The Kodak DX6490 captured detail as fine as tiny slots on Memory slots

Contact Sheet

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D'zign	Wespro Corporation	022-30916039	wespro@sify.com	www.dzign.com
HP	Hewlett Packard India ltd	1600 11 4141	seema.dawar@hp.com	www.hp.com
Kodak	Neoteric Informatique	022-39828600	sales@neoteric-info.com	www.kodak.com
Nikon Coolpix 3200	J J Mehta & Sons	022-2430 6356	info@jjmehta.com	www.nikon.com
Nikon Coolpix 4100	Inter Photo India	022- 24925151	info@interphotoindia.com	www.nikon.com
Olympus	Komal International	022-22611274	indiaolympus@vsnl.net	www.olympus.com
Orite	Mediatech India	022-26361111	sales@mediatechindia.com	www.orite.com.tw
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The Holiday Tech Guide

Note This scoreboard features results for the top 20 of the 29 digital cameras we tested. For the complete table, please visit, **http://www.thinkdigit.com/digicam.html**

BEST BUY digit

Score Board

					Sub Rs 20,000				
Brand	Canon	Canon	Casio	D'zign	Kodak	Nikon	Nikon	Olympus	Orite
Model	PowerShot A310	PowerShot A75	Exilim Ex-Z30	DZ-320	EasyShare CX7220	Coolpix 3200	Coolpix 4100	Camedia C-310 ZOOM	VC-R500
Features	13.06	17.93	14.75	8.93	9.87	14.7	14.7	13.32	13.1
Dimensions (LxWxD) cm	11.0x5.8x3.66	10.1X6.4X3.15	8.7x5.7x2.3	11x5x2.7	10.4x6.7x4.2	8.8x6.5x3.8	8.8x6.5x3.8	10.2x5.5x3.6	8.8x6x3.27
Weight (gm)	190	230	125	110	195	155	155	165	185
Maximum Image resolution	2048 X 1536	2048 X 1536	2048x1536	2048x1536	1632x1232	2048x1536	2288x1712	2048x1536	2560 x 1920
CCD Sensor (Megapixels)	3.2	3.2	3.2	3.2 CMOS	2	3.2	4	3.2	5
Focal length (35mm equivalent)	NA	35 - 105	35 - 105	44	37 - 78	38 - 115	35 - 105	38 - 114	NA
Optical/Digital Zoom	NA/5.1x	3x/3.2x	3x/4x	NA/4x	2.1x/2x	3x/4x	3x/4x	3x/3.3x	3x/4x
Manual focus	N	Y	N	N	N	N	N	N	N
Macro focus range (cm)	5 to 20	5 to 46	6 to 50	60 - 130	70	40	40	20 to 50	NA
ISO settings	Auto, 50, 100, 200, 401	Auto, 50, 100, 200, 400	Auto, 50, 100, 200, 400	Auto	100, 200	Auto	Auto	Auto	Auto, 50, 100, 200, 400
White balance settings (Nos)	7	6	6	4	Auto	7	7	4	6
Shutter speed range	1/1200 - 1	1/2000 - 15	1/2000 - 4	1/1118 - 1/2	1/3200 - 1/2	1/3000 to 4	1/3000 to 4	1/2000 - 2	1/2000 - 1/8
Number of Metering modes	3	3	2	Na	1	1	1	1	1
Number of flash modes	5	5	3	5	4	4	5	4	4
Memory types supported	CF	CF	SD	SD	SD/MMC	SD	SD	xD-Picture card	SD/MMC
Memory included (MB)	32	32	9.7	8	16	14.5	14.5	16	9.7
Compressed image format	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG
Video out	N	Y	N	Y	N	Y	Y	N	Y
External interface	USB1.1	USB1.1	USB1.1	USB 1.1	USB	USB1.1	USB1.1	USB 2.0	USB
Burst mode rate (frames per sec)	2.2fps	2.2fps	Na	1fps	2fps	2fps	1.5	0.5	0.5
Movie capability	Y	Y	Y	Y	Y	Y	Y	Y	Y
Battery form factor	AAx2	AAx4	Li-Ion	AAx2	AAx2	Ni-MH AAx2	Ni-MH AAx2	AAx2	Li-Ion
Battery charger included	NA	Y	Y	N	NA	Y	Y	N	Y
PictBridge (Y/N)	Y	Y	Y	N	N	Y	Y	Y	N
Ergonomics	5.6	5.9	6.1	5.3	6.8	6.3	6.3	5.3	6.8
Comfortable to hold (0-5)	2.5	3	2.5	2.5	3	3	3	3	2.5
Rubber grip	N	N	N	N	N	N	N	N	N
Menu navigation ease (0-5)	2.5	2.5	3.5	2.5	4	3	3	1.5	4
Comfortably sized buttons (0-5)	3.5	3.5	3	3	3	3.5	3.5		3.5
Performance	21.8	21.8	22.2	21	21.8	21.8	25.3	21.4	21.4
Details (Score out of 5)									
Colour reproduction	3	3	3	3	3	3	3.5	3	3
Text	2	2	2	2	2	2	3.5	2	2
Details	2	2	2	2	2	2	3.5	2	2
Specular effect	1.5	1.5	1.5	1.5	1.5	1.5	3.5	1.5	1.5
Shading	3	3	3.5	2	3	3	3.5	2.5	3.5
Additional Tests (Score out of 5)									
Landscape test	2.5	2.5	2.5	2.5	2.5	2.5	3	2.5	2.5
Portrait test	2.5	2.5	2.5	2.5	2.5	2.5	3	2.5	2.5
Sport test	2	2	2	2	2	2	1.5	2	2
Macro test	3	3	3	3	3	3	1	3	3
Warranty Period (Years)	2	2	1	1	1	1	1	1	1
Price Index	10	7	6	14	13	7	7	9	8
Price (Rs)	12,995	18,995	19,995	9,000	9,500	17,500	19,100	13,995	16,495
Overall	50.28	52.35	49.43	49.40	51.89	50.09	52.98	49.14	49.94

The Kodak DX6490 ended up winning the Rs 20-30,000 category

within a frame, however, were overly bright. The Samsung V5 gave us images that were sharp and had excellent specular effects. But the colour reproduction suffered because of a reddish-yellow colour-cast.

The silent Sony DSC W1 made a lot of noise in the macro test. Its Carl Zeiss lens captured a minute bud, not more than a millimetre in diameter. The focus was clear, without loss of colour or detail. The HP R707 also returned very impressive close-ups of tiny thorns on a young plant.

The Kodak DX6490 managed good macros but not without

effort. Focusing took some time, though. A subject in motion might cause pain while this camera watches without help. The other Kodak, of the DX7630 moniker, however will not give you a hard time. It returned a clear image with sharp focus.

Final Thoughts

The Kodak DX6490 ended up as the king in this category. It offers a great optical zoom of 10X, and has a really big LCD screen that helps during recording and playback. Its EVF feature, unique to the DX6490

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The Kodak EasyShare DX6490

Sub Rs 30,000

Sony	Canon	Canon	HP	Kodak	Kodak	Kodak	Samsung	Samsung	Sony	Sony
Cyber-Shot DSC-P73	IXUS IIs	PowerShot A80	Photosmart R707	EasyShare LS743	EasyShare DX6490	EasyShare DX7630	Digimax V5	Digimax U-CA 3	Cyber-Shot W1	Cyber-Shot DSC-P-100
16.36	14.79	17.54	17.83	15.73	25.38	16.82	15.41	16.02	18.5	18.23
11.7x5.4x3.6	8.5X5.6X2.4	10.3x6.5x3.5	9.6x6x3.5	108x30x49	10x8x8.1	10x6.9x4	10x5.46x3.8	10.2x5.38x3.16	9.1x6x3.6	10.8x5.2x2.6
236	180	300	226	165	380	270	185	125	250	183
2272x1704	2048 x 1536	2272x1704	2612 x 1968	2304x1728	2304 x 1728	2872 x 2160	2560x1920	2048x1536	2592 x 1944	2592 x 1944
4.1	3.2	4	5.1	4	4	6.2	5	3.2	5.1	5.1
39 - 117	35 - 70	38 - 114	39 - 117	35 - 105	38 - 380	39 - 117	38 - 114	38 - 114	38 - 114	38 - 114
3x/2x	2x/3.2x	3x/3.6x	3x/8x	3x/3.6x	10x/3x	3x/3x	3x/4x	3x/3x	3x/2x	3x/2x
N	N	Y	N	N	N	N	N	N	N	N
10	27 - 47	5 - 45	39 - 117	5 - 100	12	7	6 to 30	30 - 80	10	10
Auto, 100, 200, 400	Auto, 50, 100, 200, 400	Auto, 50, 100, 200, 400	Auto, 100, 200, 400	Auto, 80, 100, 200, 400, or 800	Auto, 80, 100, 200, 400, 800	Auto, 100, 200, 400, 800	Auto, 50, 100, 200, 400	Auto, 100, 200, 400	Auto, 100, 200, 400	Auto, 100, 200, 400
5	7	6	6	4	4	3	7	6	5	5
1/1000 - 30	1/1500 - 15	1/2000 - 15	1/2000 - 16	1/1400 - 16	1/1700 - 16	1/1400 - 64	1/1200 - 16	1/2000 - 2	1/1000 - 30	1/1000 - 30
3	3	2	3	2	3	3	2	2	3	3
5	5	4	5	4	4	4	5	5	5	5
MemoryStick, MemoryStick PRO	SD	CF	SD/MMC	SD/MMC	SD/MMC	SD/MMC	SD/MMC	MemoryStick Duo	MemoryStick, MemoryStick PRO	MemoryStick, MemoryStick PRO
16MB	16	32	32	16	16	32	16	32	32MB	16MB
JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG	JPEG
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
USB 2.0	USB1.1	USB1.1	USB 2.0	USB	USB	USB	USB1.1	USB1.1	USB 2.0	USB 2.0
1.7fps		2.2fps	3fps	3fps	3fps	2fps	0.5fps	0	1.6fps	1.6fps
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
AAx2 Ni-MH	Li-Ion	AAx4	Li-Ion	Li-Ion	Li-Ion	Li-Ion	AAx2	Li-Ion	AAx2 Ni-MH	AAx2 Ni-MH
Y	Y	N	Y	Y	Y	Y	No	Y	Y	Y
Y	Y	Y	Y	N	N	N	Y	Y	Y	Y
5.3	5.3	6.2	6.3	6.8	7.4	7.1	6	6	5.6	5.3
3	3	3	3	2.5	3.5	3.5	3	2.5	3.5	3
N	N	N	N	N	Y	Y	N	N	N	N
2.5	2.5	2.5	3	4	4	4	3	3	2.5	2.5
2.5	2.5	3.5	3.5	3.5	3.5	3	3	3.5	2.5	2.5
25.5	35.1	34.4	33	32.2	35.5	34.7	27.00	26.00	28.00	31.00
3.5	3.5	3.5	3.5	3.5	3.5	3.5	3	3	3	3.5
3.5	3.5	3.5	3.5	3.5	4	4	3.5	3	3.5	3.5
3	3.5	3.5	3.5	3.5	4	4	3.5	3	3.5	3.5
3	4	4	3.5	3.5	3	3.5	3	2.5	3.5	3.5
3.5	4	4	3.5	3.5	3.5	3.5	3	3	3.5	3.5
2.5	3.5	3.5	3.5	3	4	4	3	3.5	3	3.5
2.5	3.5	3.5	3	3.5	3.5	3.5	2	3	2.5	3
2	3.5	3.5	3.5	3.5	3.5	3.5	3	2.5	2.5	3.5
2.5	4	3.5	3.5	3	4	3.5	3	3	3	3.5
3	2	2	257	1	1	1	1	1	3	3
7	9	8	8	11	8	8	8	9	11	11
18,990	26,495	29,995	29,995	20,900	31,900	30,900	29,995	25,995	20,990	20,990
53.88	58.96	59.94	58.84	59.42	68.41	59.30	51.91	53.15	59.23	62.67

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The Sony Cyber-Shot P100

in this shootout, is also a helpful feature. The Sony P100, which came second after the Kodak, is another attractive proposition and one of a kind with its lightning-fast startup speed. The camera is very well built and sports an unconventional look. It is PictBridge-compliant, and is therefore a handy companion to take along while travelling.

The Canon A80 put up a good show in almost all the tests. The picture quality was good, with great detail reproduction and excellent sharpness. It has an auto-focusing problem, but once

you get used to manual focusing, the camera gets easy to handle.

Both the models from Samsung had good features, but lacked in picture quality. Despite good optics on paper, the cameras did not fare well practically and images reproduced by them were found lacking in their colour reproduction. Moreover these cameras failed to capture the finer details.

The Kodak DX6490 is correctly priced at Rs. 31,900. If you are planning a grand holiday the Kodak DX6490 is our recommendation. ⊠

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Tirupati Temple *Darshan*

Rupesh Sreedharan *(rupesh_sreedharan@jasubhai.com)*

I had two options: The first was to visit the Tirupati temple on the Tirumala Hills for *darshan* and offer *pooja* there. The second was to visit a devotional Web site, and go through the *darshan* and *pooja*—entirely online. Here's a quick look at how I went about the two contrasting, yet interesting, tasks

A view of the Balaji temple on Tirumala Hills

The home page of Eprarthana.com

1

At Borivli, a suburb in Mumbai, I spent **Rs 30**, and **90 minutes** in the queue to book a ticket to Chennai. That's **Rs 684** for the tickets. Next, **Rs 100** and **four hours** of travel to get to Cuffe Parade to set up accommodation in Tirupati. Make that **Rs 750** in room charges for the 3-day stay.

Visited the Web site eprarthana.com, which offers services for online pooja. Took a mere **five minutes** to browse to the site. I had to register first so I could proceed with the e-darshan and the e-pooja. That took **10 minutes**.

2

The train journey took me **22 hours**, not to mention miscellaneous expenditures of **Rs 200**. Hey, wait! I forgot about the return journey, so all the above prices and times have to be **multiplied by two**.

I rummaged through innumerable temples and poojas. Finally, I found the Balaji temple at Tirumala. The next step was as simple as just clicking on an 'Offer Pooja' button. I got a visual tour of the temple and its history. The charges: **Rs 275**. It took me about **15 minutes**.

3

On Sunday evening, I got hold of the arm-tag from the temple authorities. The *darshan* was on Tuesday morning. Another queue, another **three hours**. Finally, I get the much-awaited glimpse of Lord Balaji. Don't forget the **Rs 400** I spent on sustenance throughout the trip.

I settled for a credit card transaction as the mode of payment. The site offered me a transaction identification, and added the pooja I selected to my 'Pooja Cart', and I was done! Add another **five minutes** for that.

4

Whew! The entire episode cost me good money—**Rs 684** for the tickets, **Rs 750** for the stay and **Rs 930** in sundry expenses.

My condition: Exhausted and cash-strapped, but a worthwhile trip nonetheless.

It all cost me just **Rs 275**. As simple as that.

My Condition: There's nothing to complain about when offering pooja online, as long as you are aware that this is in no way the real thing.

Total Time Spent: **Four days**
Total cost: **Rs 2,364**

Total Time Spent: **35 minutes**
Total cost: **Rs 275**

And The Winner Is...

When it comes to convenience and cost, the tech way wins hands down. Travelling all the way to Tirupati, waiting in long queues, and then doing it all over again to come back home, is a tiring affair indeed. I also had to take four days leave from work! However, the ambience and fulfilment after visiting the temple are unsurpassed. The tech way will never be able to replace the old way here.

Zenith Presidio

Smallest, Lightest, Wow!

Of the seven notebook models recently launched by Zenith, the Presidio is the top-end model. It's the smallest and the lightest of the lot. The Presidio comes with a dark-grey casing, and is powered by the Centrino platform. It includes a 1.5 GHz Intel Mobile processor with 2 MB of L2 cache. The notebook sports a 12.1-inch screen, 256 MB DDR RAM and a 40 GB hard drive.

Apart from 802.11b Wi-Fi capability, you also get three USB 2.0 ports and a FireWire port. Other ports available are Audio-out, microphone, modem, 10/100 Ethernet, and a VGA port.

Weighing in at just 1 kg, the Presidio offers decent performance and usability in an ultra-portable form factor—a key requirement of its intended audience. The great features apart, the price tag makes the package even more attractive.

Company Zenith Computers
Price Rs 70,000 plus taxes
Phone 022-28377300
Web site www.zenithpc.com
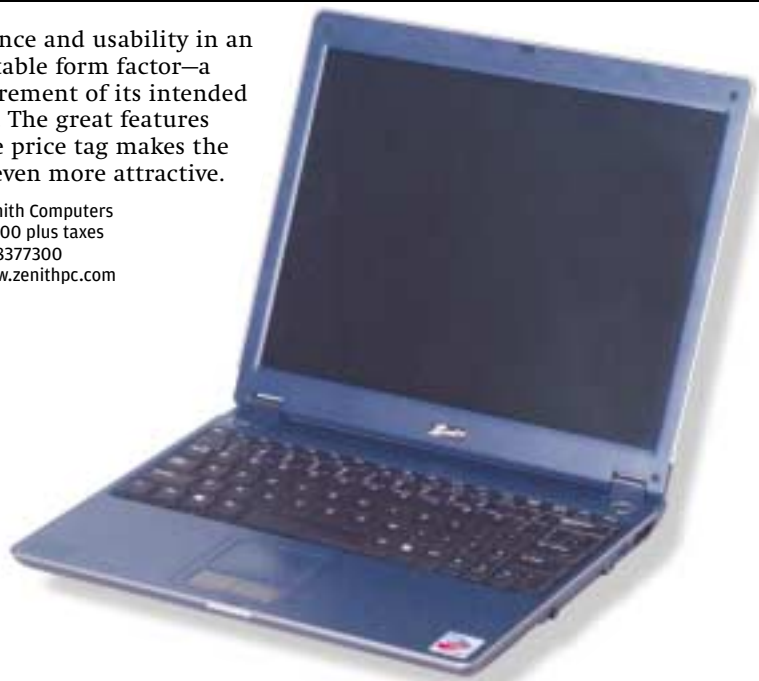
New&Notable

Nokia N-Gage QD Game Deck

Quite N-Gaging

The new "improved" N-Gage QD plugs most of the leaks in the older unloved N-Gage. Namely, the nefarious side-talking concept and the inability to swap game cards while the deck is powered on. The QD shrinks to a more compact, grip-friendly shape-an important aspect for hand-held gaming.

While most games are rather enjoyable on the deck, the hard-plastic joypad did prove a little uncomfortable after extended hours of shooting and racing. SMSing takes a new learning curve due to the cramped keypad design. The deck has no radio or camera, but that's what pulls the MRP down to an affordable Rs 11,599 (although most dealers across India sell it at much lower prices), considering that the N-Gage QD is also a smart phone with Bluetooth support. Despite what they say about MP3-support, you can play them on the QD!

Company Nokia India Ltd.
Price Rs 11,599
Phone 011-26779000
Web site www.nokia.co.in

RPTech Debug Card DR-1.0

It Debugs, And It's No Bunny

The RPTech Debug card monitors port 80 of a system's motherboard and offers two, 8-segment LCD to a system administrator or an assembler. To debug, the sys admin can read off the LCD and consult a supplied manual to hunt down the error. The DR-10 is a tiny PCI-based card that monitors routines until the BIOS's job is done. It supports AWARD, PHOENIX and AMI BIOS. But the manual only includes POST-codes for AWARD and AMI bios. The card comes with a one-year warranty.

Company Rashi Peripherals
Price Rs 2,000
Phone 022-28260258
E-mail ho@rptechindia.com
Web site www.rptechindia.com
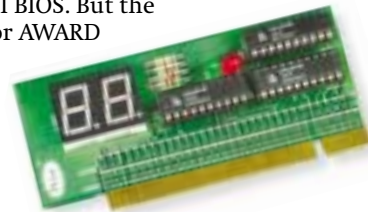
Transcend JetFlash MP3 Player And Voice Recorder

Lasts Long, Sounds Good

With 128 MB of flash storage, the Transcend MP3 Player combines a voice recorder, a USB flash drive, and an MP3 player. It offers good audio output, with few distortions. Both preset equaliser modes and an LCD screen are absent. The single AAA alkaline battery lasts 11 hours—enough for your daily commutes.

Company Mediaman Infotech **Price** Rs 5,000
Phone 022-23828100 **Fax** 022-23877418
Web site www.transcendusa.com

Thumping Sound, No Noise

The Bose Noise Cancellation 2 is surprisingly low-impedance. You don't need a headphone amplifier for great sound. Plug it to a portable player, your computer's sound card, or any other device. You can select the input level on the phones accordingly.

The sound is good and lively. However, without an equaliser, the bass refuses to thump, and the highs aren't vivid. The mid-frequencies are emphasised, which is not a bad thing if you are primarily listening to vocal tracks. But it really hurts if you want to use the phones, for say, classical music.

These are closed-ear phones—you don't get the open 'speakers' kind of sound that you get with high-end Sennheisers.

The set has a noise-cancellation feature, and that's where you are spending your money on. We don't know if it was the noise-cancellation or the excellent earpads, but we couldn't hear a squeak from elsewhere once the phones were on. Good stuff!

There's no limit to the volume these phones can take the highs and lows to without distortion. One glitch though, when the phones get too much bass, the volume goes down. The volume shoots up again when the bass goes down.

The bottomline? These are not audiophile-quality phones, and you will be better off investing on high-end Grados or Sennheisers. Or in-the-ear noise-reducing phones such as those from Etymotic, if you are hell-bent on noise-cancellation.

Company Bose Corporation India Private Limited
Price Rs 21,900
Phone 011-2307 3825
E-mail nandita_sood@boseindia.com
Web site www.boseindia.com

Time for Healthy Music

All gadgets are headed for convergence. It's only natural to marry two more devices of utmost importance while working out. A portable music player and a calorie/heart rate monitor. The Samsung Yepp Sports YP-60 is a featherweight 256 MB MP3/WMA/FM player that records music or radio to MP3s, and can strap onto your arm. The bundled, and not-quite-easy-to-use Yepp Studio application lets you transfer music from your computer on to the player via a USB cable. The calorie/heart rate monitor and stopwatch, together with the Fitness Studio software, helps you burn calories the right way. At Rs 15,995 though, it's more likely to burn a hole in your pocket!

Company Samsung Electronics
Price Rs 15,995
Phone 022-23810713
E-mail sales@samsungindia.com
Web site www.samsungindia.com

Looking For More Information On Any Of The Products Featured In New & Notable?

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

Intel D925 XCV Motherboard

This LGA775 socket motherboard, based on the i925X chipset, supports the latest generation of Pentium 4 processor.

It support for DDR2 533 MHz memory and PCI Express X16 graphics slot. An onboard high-definition audio sub-system pumps out quality music when hooked up to a seven-speaker system.

Gigabit Ethernet, two PCI Express X1 slots, and eight USB 2.0 ports offer great speeds and expandability.
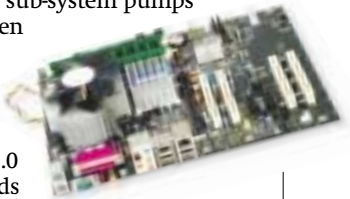
Company Intel
Web site www.intel.com

Intel Prescott 3.6GHz Processor

Clocked at 3.6GHz, Intel's new chip is based on the LGA 775 platform. It is meant for the 915 and 925 chipset-based motherboards that will hit the market by this December.

Installing the processor is as simple as it was with the Socket 478 ones. With the pins now transferred to the motherboard, the motherboard socket surely needs better care and handling.

We plugged the processor onto Intel's D925XCV motherboard with 533 MHz DDR2 memory and a FX5300 PCI-E card. But, the higher the clock speed, the more is the heat.

When it came to performance, it cruised in most of our tests. The performance boost ranged from six to 10 per cent.

Company Intel
Web site www.intel.com

Gigabyte GV NX53128D Graphics Card

It is the first PCI-Express X16 graphics card we tested. Based on nVidia's FX-5300 graphic core, it is not very powerful. DirectX 9 compliance gives gamers a decent resolution.

After tucking the Gigabyte in the X16 slot of the Intel D925XCV motherboard, supported by the 3.6GHz processor, we ran our usual tests. The card performed quite well, and surely falls in the same league of cards based on the FX-5200.

We ran DOOM 3 on it—the acid test. It runs DOOM 3 at an 800 x 600 resolution and medium details—good choice for casual gamers.

Company Digi Giga Systems
Price Rs 6,500
Phone 022-26526696
E-mail sales@digigiga.co.in
Web site www.gigabyte.com.tw

Q&A

Your Questions, Our Answers

Illustrations Farzana Cooper

Problem With Memory Slot

Q I have an Intel 815e motherboard with a PIII 866 processor in my system. It has three SDRAM DIMM slots. I have three 128 MB SDRAM sticks running at 133 MHz. When I insert the third module in the third slot, my system stops working.

The BIOS self-test loops and my computer refuses to boot any further. I have verified that all three memory modules swap and work individually. Why is this happening?

P Kumaravel

A It is likely that the problem lies in a faulty memory slot on the motherboard, considering all three memory modules are working individually. Check for dust inside the memory slot and clean it, then install all three modules. If they fail to work, your third memory slot is faulty and your motherboard needs to be repaired.

If the three modules were working together earlier, then the problem is definitely the motherboard's slot. If they were not, then the three 128 MB modules may not be all actually running at 133 MHz. This problem crops up if you mix a 100 MHz module with a 133 MHz module. One of the modules may be a 100 MHz one—try replacing it with a 133 MHz module. You can identify where exactly the problem is by inserting the modules in pairs, in the two slots that work.

Computer Hangs While Online

Q I have a PIII 933 MHz processor with 128 MB RAM, running Windows ME. Whenever I try to go online, an error appears on a blue screen that says, "Windows protection error. You need to restart your computer. System halted." But it doesn't happen when I am offline. What do I do?

Shivkumar

A Your computer is infected with the Blaster worm. The worm shuts down the machine whenever you connect to the Internet, which is why nothing happens when you are offline. To secure your PC, download the Blaster removal tool from **http://securityresponse.symantec.com/avcenter/FixBlast.exe** and run it on your system to remove the worm. If you have anti-

virus software, update the virus definitions. If you don't have one, install it from the Digit DVD. Also, visit this link and patch your operating system: **http://www.microsoft.com/downloads/details.aspx?FamilyID=e70a0d8b-fe98-493f-ad76-bf673a38b4cf&DisplayLang=en**.

Cannot Read CD-ROM Discs

Q I have a Pentium 4 2.0 GHz processor on a Mercury motherboard with 256 DDR SDRAM and a 52X LG CD-Writer, running Windows XP Professional running. For the past few days, the PC restarts when I insert a CD. But this doesn't happen every time. Is this a Windows problem, or has it got to do with the hardware?

Bhushan Thatte

A If your PC restarts every time you insert CD-ROM disc, then something is wrong with the hardware. Try reading your disks on other CD-ROM drives. If the other drives work fine, then clean your lens using a drive-cleaning disk. If the cleaning disc does not do the trick, it is time you upgrade to a new optical drive. We recommend that you get a CD-Writer and DVD ROM combo-drive.

Monitor Display Goes Red

Q I have a weird problem with my monitor. When I switch on the system, the screen goes red. The red display shows for about 10 minutes, after which the screen returns to normal. My PC is an HCL Beanstalk with a 17-inch monitor (HCM780M). How can I solve this problem? My operating system is Windows 98SE.

Nishant Paul

A This isn't a unique problem. It happens during the monsoon, when the humidity is very high. It also occurs if the monitor's colour chip malfunctions. To avoid this problem, keep the monitor covered with dust covers throughout the rainy season. If the problem persists, contact HCL's service centre.

BloodHound Virus Removal

Q My computer is infected with the BloodHound.W32.EP virus. I have Norton AntiVirus installed, but it is unable to repair the c:\windows\system32\tftp8636 file. Norton says that the access to the file is denied. What is this file and will it harm my computer?

Another problem is, when I type in Outlook Express or in Microsoft Word, it automatically adds some words. The icons for cut and paste keep flickering all the time. I simply can't type anything and the cursor moves all over and adds words. Does the BloodHound virus have anything to do with this?

C V Padmanabhan

A Norton AntiVirus definitions prior to May 1, 2002 may detect the presence of a W95.CIH variant as **Bloodhound.W32.EP**. You

really need to update your antivirus right now! Remove the virus using the Kill CIH tool. Download it from: **http://www.symantec.com/avcenter/kill_cih.html**

The tool actually disables the virus from the memory. After CIH is "killed", update your antivirus definitions and run a full system scan. The infected files will get removed only after this.

The flickering problem with Outlook Express or MS Word may not be directly caused by this virus. In any case, update your antivirus and try again!
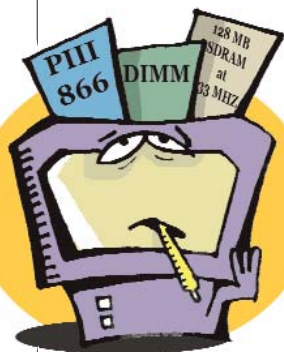
Cannot Format Hard Disk

Q I have a 40 GB Seagate hard disk with Windows XP, which has stopped working. A hard disk utility recognises the hard disk and shows the partitions. I can delete partitions or create new ones, but when the system restarts, the previous partitions reappear. I have done a low-level format, but the problem persists. What should I do?

**Prashanth Siddapur
Bangalore**

A It seems the Master Boot Record (MBR) area of your hard drive has a bad sector. To tackle this problem, download Disk Manager 5. Use the Advance option to format your hard drive. Instead of size, use cylinder numbers to create a partition. Leave alone the first eight to ten cylinders and start from cylinder number 11 or 12 to create partitions. If this doesn't work either, you'll need to replace the hard disk. If you continue using the hard disk, take regular backups of all your data.

Backing Up E-mail

Q My hard disk has developed bad sectors. Before replacing them, I want to take a backup of my Outlook Express files. Please help me out with all the steps required to do it.

R. Siva Kumar

A First, you need to back up both your e-mails (.DBX) and address book (.WAB). Follow these steps:

▶ To back up your e-mail Outlook Express, go to **Tools > Options > Maintenance**. Under the Maintenance tab, locate the Store Folder button and click on it

▶ This will open a dialog box showing the path where your .DBX files are stored

▶ Copy this path and close the Tools window. Click **Start > Run**, paste the path and press Enter

▶ The new window that opens will show

Can't Open PageMaker Files

Q Without any apparent reason, some PageMaker 7.0 files on my D: drive were corrupted. When I try to open these files, I get this message: "Cannot open file format not supported…". How do I solve this problem?

greyblue86@yahoo.co.in

A Create a copy of any of those corrupt files, and open them using **File > Open** in PageMaker itself, instead of double-clicking the files.

Secondly, PageMaker stores information like plug-ins, features, etc. in a preferences file called PM70.cnf. This file is located in the **Program Files\Adobe\PageMaker 7.0\Rsrc\Usenglsh** folder. Exit PageMaker and rename this preference file. Now, restart PageMaker 7.0 and it will re-create the same.

The file will not open if the graphic link is corrupt. The graphic link actually links you to the graphic stored on the hard drive. To work around this problem, move the graphic to some other location on the hard drive. Now, try opening the copy. If it opens correctly, use the Link Manager in PageMaker to restore the graphic link from the new location where graphic was later stored. You can also try Symantec Norton utilities for restoring corrupt files. Find all this at **http://www.symantec.com/sabu/sysworks/basic/**
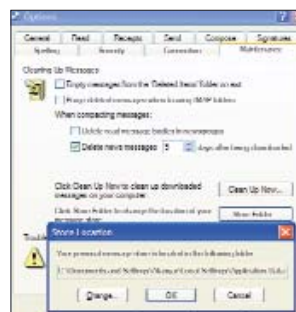
Obtain the path to your e-mail folder from this dialog box

multiple .DBX files. Copy all of them

▶ Create a new folder and name it appropriately, such as "Mail Backup." Here, paste all the .DBX files, then close the folder

To back up your mail:

▶ In Outlook Express, go to **File > Export > Address Book**

▶ In the window that opens, click the **Comma Separated Values** check box, and then select Export

▶ Click **Browse** and locate the **Mail Backup** folder made earlier (while backing up your e-mail). Save your address book as an Address Book Backup with an appropriate name, then click **Next**

▶ In the Window that opens, check the fields that you think need to be backed up. Click **OK** and then click **Close**.

Computer Won't Hibernate

Q I have Windows XP Professional running on an Intel Pentium 4 2.4 GHz processor. After a re-install, I face several problems. Whenever I shut the PC down, the system restarts automatically without any error messages. In the shutdown dialog box, the Standby option is disabled. And in the Power Options on the Control Panel, the Hibernation tab is missing!

Also, when I open the registry editor, it stops responding. What could be the problem? I don't want to reformat my hard disk.

Swarup

How to...

Organise Your Digital Photos

If you own a digital camera or a scanner, chances are you have loads of pictures on your hard drive. You spend most of your time hunting for a specific file from your collection. Get rid of this tedious process of rummaging through your hard disk using a simple tool such as Adobe Photoshop Album. It sorts, stores, retrieves, and scans your photos.

What Does It Offer?
Photoshop Album organises photos according to the time at which they were taken. It doesn't matter if the pictures are strewn across your hard disk across numerous folders. It also imports photographs from various sources such as digital cameras or scanners. You can organise your photos and present them as a catalogue, an album or a slideshow.

Photoshop Album can make a video-CD or a calendar out of your photos. It even groups the photos into audio and video clips. You can perform minor edits on the digital images, such as adjusting the brightness, or doing colour correction, using the tools that come with Photoshop Album.

How Do I Use It?
Organise your photos as albums, slideshows, video-CDs, greetings, e-cards or calendars. Once you start Photoshop Album, a quick guide pops up that can gather your photos from various sources. Navigate to Get Photos on this window and browse for the source of your images—hard drive, scanner, camera, CD or mobile phone. You can also click on **File > Get Photos** to do the same, or click on the Get Photos button placed at the bottom the main menu.

If you want to alter the lighting, colour or sharpness of any image, simply select that image and click on the Fix button on the main menu. Then select the option Fix Photo. Here, you can edit and apply changes to your photo. There is a preview box that shows all the relevant changes.

See DVD
Find Adobe Photo Album and Picasa on this month's Digit DVD

You can choose to see your photo collection in any of these three views—Photo Well, Organize and Calendar. You will find these view options on the View menu.

Photo Well view shows all your photos with the date and time they were created. You can choose to turn these details off on the Section Details, at the bottom of the screen. This view comes with a zoom-slider, also at the bottom of the screen, which helps you enlarge or reduce the size of the thumbnails.

In the Organize view, photos can be tagged and categorised as People, Places, Events, and Others. A tag will link a photo to a pre-defined category. All similarly tagged pictures will be stored in the same category.

The Calendar view shows you a calendar, by month or year. It also colour codes dates under which a photo is found in your collection. The calendar can be changed to a Month or a Day view.

To create an album, select the photos and click on the Create button just below the main menu, or go to the Creations menu. Next, choose the option that you want to create. In Creation Wizard, you will find six steps to finish the task. Here, choose a pre-defined template of presentation, then put a title and all the information it asks for. After this is done, the final screen gives the option of publishing your collection as a PDF file, print it, e-mail it or burn it to an optical disc. You can preview the presentation and customise it. Once done, the Creations Wizard saves the file. Saved creations will be placed in the Photo Well view along with all your photos. These are identified with a creations icon.

Show Off
Photoshop Album fulfils the need of a photo viewer, an organiser, a presentation maker and a CD-creator—all in one easy package. Managing photos with this software is really easy. Let alone creating albums and slideshows, you can even convert your photos to a movie clip and enjoy it on TV!

Avinash Rai
avinash_rai@thinkdigit.com
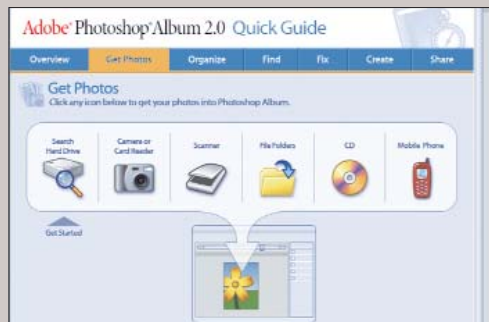
Select the source from where you want to import your photos

The Photo Well view shows you the pictures with the date and time of when they were created

With the Creation Wizard, you get to choose a template and add a title

Finally, you can save the album as a PDF, print, e-mail, or even burn it onto a CD

This dialog box lets you enable or disable hibernation

Locate the Windows XP partition entry in **boot.ini**

A This is happening because the settings in the **boot.ini** file are no longer correct, now that you have removed the Seagate drive.

What you can do is edit **boot.ini**. To do this in Windows 98SE, click **Start > Run**, then type **cmd** and press **Enter**. In the command prompt, type **CD** and press **Enter**. Now type **Edit boot.ini** and press **Enter** again.

This will open the **boot.ini** file, which will display partition information as shown in the screenshot. Here, you need to locate the Windows XP partition string. It looks like this: **multi(0)disk(0)rdisk(0)partition(1)\windows="Microsoft Windows XP Professional" /fastdetect**.

Take the digit next to the partition tag; subtract 1 from it, and save the file. You should now be able to boot into XP.

Of Bandwidth And Servers

Q I have a Reliance FWP (fixed wireless phone). I want to connect 20 PCs to this phone, 12 of which are Intel Pentium 4-based while the remainder are Pentium 3-based. I have six computers on the ground floor, six on the first floor, and eight on the second floor. The Reliance FWP has an inbuilt modem offering 115 Kbps of speed.
1. How do I make all the PCs run at 115 Kbps?
2. Does the length of the cable affect the speed of Internet browsing and downloading?
3. What is a server?
4. Can a phone with an inbuilt modem act as a server?
5. What are the components that I need to buy to connect all the computers effectively?

Krishnan

A 1. Computers sharing Internet connectivity provided by FWP can't go to 115Kbps. Even a single PC that connects at a supposed speed of 115Kbps doesn't offer more than 15Kbps.

2. The length of the cable must not exceed 1.5 metres for a CAT5 cable. Performance drops drastically as the length increases.

3. The FWP cannot act as a server.

4. To connect 20 computers spread over three floors, you need a Network Switch or Hub. One of the PCs will have to run WinProxy or some other Proxy server. Ideally, you need three network switches, one for each floor. This will shorten the length of cable running from the switch to the client system. ■

A Since you are using a Pentium 4 processor, it is likely that your motherboard supports advanced power saving features. Therefore, you need to update the motherboard drivers, assuming you had installed them earlier. If you haven't, install them now! Restart your PC after the drivers are installed. This should solve your problems.

The registry editor may not be working because of a data corruption of either the regedit.exe or some other support file. We suggest you re-install the operating system from a different medium. Go to the Administrative tool on the Control Panel, check the Event Viewer there to scan the log. In this way, you can identify the problem associated with restart.

Missing Memory

Q I have an Intel Celeron 2.4 GHz processor, with an on-board 32 MB S3 Graphics ProSavage chipset with 256 MB RAM. But in both my OSes, the System tab in the Control Panel shows 224 MB of RAM instead of 256 MB. How can I resolve this?

Abhay Rana

A Your video system is on-board, and is using 32 MB of your system's 256 MB memory as graphics memory.

Can't Boot

Q I have a PIII 800 MHz PC with 256 MB SD RAM and two 40 GB hard disks. My computer shows my partitions as follows: C: Samsung primary; D: Seagate primary; E: and F: Samsung extended; G:, H: and I: Seagate extended; J: CD-ROM. I have set up the Samsung as the primary master and the Seagate as the primary slave. I have installed Windows 98 on C: and XP on E:. When I removed my second hard disk, I couldn't boot into XP, as the E drive swapped with D. What should I do?

Purujit Deore

Making Sense of
LINUX

A typical Linux installation is an embarrassment of software choices. We bring order to the chaos

Ahmed Shaikh

With more than 3,000 software packages, a GNU/Linux distribution literally opens the floodgates to free software. More often than not, you will find yourself stuck knee-deep in badly-written programs, struggling to cope with frequent crashes.

We took a fine-tooth comb to a SuSE 9.1 Professional distribution, which had everything installed, and separated the good from the bad. Here, we will only stick to KDE and its associated applications.

NOTE: We tried to avoid the KDE menu structure. The idea is to simplify things. To launch a program, click on Run on the KDE menu and type the command specified. Note that these commands are case-sensitive.

Konqueror
FILE MANAGER

Let's start with the File Manager. Since we are dealing with the KDE environment, Konqueror is the application in charge.

Konqueror can open a bevy of files by default. Text, images, PDFs, icons, movies, audio files... the list goes on.

Konqueror will insist on opening them within its window, instead of launching the associated application. To change this behaviour, click on **Settings > Configure Konqueror**, and click on **File Associations**.

The window on the right will let you change associations or instruct Konqueror not open a file itself. Find this under the tab **Embedding** on the **Left Click Action** pane.

Of course, inbuilt support for

Launch applications from the Run command

popular formats has its advantages. When you copy something in Konqueror, it can be pasted using the browser itself. So there
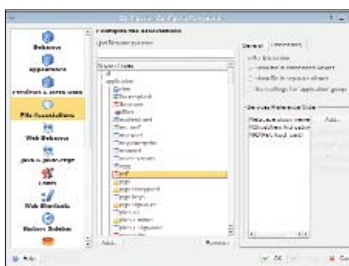
You can change the way Konqueror handles files here

is no need to launch a separate application. An example will make it clear.

Say, you have copied a passage of selected text using [**Ctrl**] + [**C**]. Next, browse to the destination folder and press [**Ctrl**] + [**V**] to paste that text as a new file. You can handle images in the same way. Simply press [**Ctrl**] + [**Print Screen**], and do a [**Ctrl**] + [**V**] to paste the image as a PNG file.

The best feature of the browser is the **Navigational Panel** on the left of Konqueror. Here, you can frequent favourite locations via the **Bookmarks** tab. To add a folder as a bookmark, press [**Ctrl**] + [**B**] while browsing it. You can even browse your local or remote network via the **Network** tab. Interestingly, you can add a Web URL to the Panel. Simply do a right right-click, and go to **Add New > Web SideBar Module**.

Kopete
kopete in Run window
INSTANT MESSENGER

Kopete is the Instant Messenger client for KDE. It supports popular networks such as MSN Mes-

senger, Yahoo! Messenger, ICQ, and IRC. It can even send SMS messages to cell phones. Click on **Settings > Configure Kopete**, then select **Accounts**, and click on **New** to add a new network.

To change Kopete's look to make it look more familiar, click on **Settings > Configure Kopete**, and then on the **Appearance** tab. Here, under the **Chat Window** tab, select the MSN style. The **Emoticons** tab lets you select an emoticon set of your choice.

Kopete supports a plug-in architecture. To configure avail-

Giving Kopete a familiar MSN look

able plugins, click on **Settings > Configure Plugins**. You can encrypt your outgoing messages with a personal PGP key. Some interesting plugins are **Auto Replace**, **Highlight**, **History** and **Web Presence**. The last one lets you synchronise your online presence with your personal blog or a Web site.

Desktop Sharing
krfb in Run window
REMOTE DESKTOP CONTROL

Desktop Sharing lets you share your current session under Linux with a user on another machine. The remote user can use a VNC client to view or even control your desktop. This comes in handy for a remote presentation,

Kopete has several useful plugins which you can deploy piecemeal

Kontact is the PIM of choice under KDE

or when you want someone to help you perform a task.

A good VNC client under KDE is the **Remote Desktop Connection**. All you need to do is type **krdc** in the **Run** window.

The sharing is done by sending out an invite. This can either take the form of an e-mail or can be done in person. In either case, you have to supply the remote

You need to send invites before sharing your desktop with another user

user the IP address of your machine along with a valid password. The password is randomly generated and, by default, remains valid for exactly an hour.

KNotes
knotes in Run window
STICKY NOTES
KNotes lets you jot down those Eureka moments or manage your day, one task at a time. It behaves like sticky notes that you come

KNote can print or e-mail notes

across on refrigerators. The notes get saved automatically once you exit the program. When you open the program again, the notes that you were working on last time, will show up. A note, once created, gets automatically assimilated within the Kontact program, which we will discuss in a while.

To print or e-mail your notes, just right-click on the title bar of any of the notes and select the appropriate option.

You can customise the display features of the notes. Do a right-click on the title bar, select **Preferences**, and adjust the colour, font, etc. To make changes to each note, right-click on the **KNotes** icon on the KDE taskbar.

Kontact
kontact in Run window
Personal Information Manager
A Personal Information Manager lets you maintain a central repository of vital information necessary for communication in an office environment.

A typical PIM, for example, lets you manage e-mail IDs, postal addresses, photos, birthdates, anniversaries, Web site URLs, etc. You can use the PIM to schedule events and add members of your team as participants or overseers. As the event nears completion, the members will be sent timely reminders. A person in-charge can keep all the members updat-

Kontact is a comprehensive and well-integrated information manager

ed on the percentage of progress of the event.

Kontact is the PIM of choice under KDE. It combines applications such as KMail, KOrganizer and KAddressBook into a single interface to provide easy access to mail, scheduling, address book, and other PIM functionality.

Kivio
kivio in Run window
FLOWCHART PROGRAM
Kivio is a basic flowchart and diagram application. It lets you create diagrams by arranging
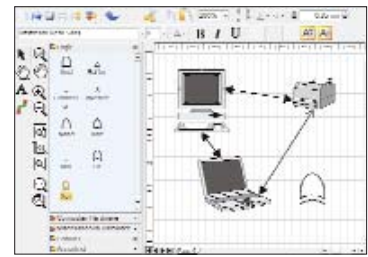
Kivio and its stencils
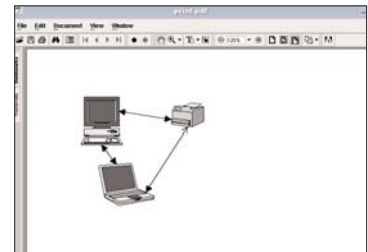
A Kivio file exported as a PDF

pre-drawn shapes and stencils on a virtual graph paper. Kivio offers a fair amount of stencils to choose from. Select them from **Tools > Add Stencil Set** menu.

A file created under Kivio can be saved as a PDF file. To do so, click on **File > Print**, and under **Name** select **Print** to file (PDF).

OpenOffice.org
OFFICE SUITE
Although KDE has its own office suite, KOffice, the collection of programs that it spans are not as well-integrated, or as easy to work with, as those included with the OpenOffice.org (OOo) suite. We will consider the latter and cover all solutions for word-processing, presentation and spreadsheets.

Before we delve into each solution, a quick word on compatibility. If your company uses custom macros created specifically for Word, then it is likely that you won't be able to use them under the OOo suite's Writer program. Third-party plugins will certainly not work with Writer.

Similarly, documents created under Word will not translate perfectly under Writer. You will invariably lose formatting, depending upon the nature of your document.

Thus, it is impossible to expect 100 percent compatibility between OOo and MS Office. OOo makes sense for an organisation looking to deploy a uniform set of applications across its workers.

It is good enough as an office suite, but problems keep cropping up whenever you need to

What Do You Want To Do Today?

I want to read PDF files: Use Acrobat Reader (type acroread in the Run window) or KPDF (KPDF in the Run window)

I want to zip and unzip files: Use Karchiver (type karchiver in the Run window) or Ark (ark in Run window)

I want a good calculator: Kcalc offers exponential, logical, trigonometric, and statistical functions apart from the regular arithmetic. Type kcalc in the Run window

I want to take screenshots: KSnapshot, ksnapshot in Run window, should do the trick

I want something similar to Windows Notepad: Kate is a good text editor. With a view to helping programmers, it has some project management options apart from an inbuilt Linux terminal. Type kate to launch it

I want an XML editor: KXMLEditor should be

enough. Type kxmleditor at the Run window

I want to sync my Palm handheld: KPilot offers familiar sections for your Palm To-dos, Memos and Addresses. It can also push applications to the handheld. Type kpilot on the Run window to launch it

I want an alarm: KAlarm lets you set up alarms. These can be triggered at specific times that are set, and can be made to recur. Alerts take the form of both audio files such as Ogg or Real Audio, apart from a visual alert. The alarms can also be set to trigger the launch of an application or send an e-mail. Type kalarm at the Run window to launch the app

I want an audio player: amaroK was our favourite player under KDE. It is fast, has a simple interface, and supports features such as an on-screen-display for song names.

Type amarok on the Run window

I want to burn a CD/DVD: K3b is the easy choice here. It can burn both CDs and DVDs, has a wizard to take you through the steps and it works. Type k3b at the Run command to launch this one

I want a video player: Kaffeine is our choice of the bunch. You will have to download codecs for some files. But that is the case with all the players under KDE. Type kaffeine to launch it

An IDE for programming: KDevelop is the best you have, like it or not. Type kdevelop in Run to launch it

An image editor: GIMP is your best bet. It rivals Adobe Photoshop over certain features. It offers layers, has lots of plugins, fonts, scripts, etc to make image-editing really easy

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share documents with others not using the same suite. As a workaround though, you can easily export an OOo file to a PDF for sharing with outside clients.

Before deciding to switch to OOo, make sure you run a comprehensive test. As a worst-case scenario, if you can't work without MS Office, consider that you can use WINE to run MS Office within a Linux distribution.

This discussion on compatibility is equally true for all aspects of the OOo suite—right from the word processor to the presentation tool.

WRITER
OOo-writer in Run window

Writer is an excellent replacement for Microsoft Word. It does everything that Word can do, and has a few tricks that it can teach the Windows behemoth. One of the most interesting ones is that of auto-completion. It maintains a database of all the words that you have typed over a period of time. Writer offers to complete the words whenever it identifies those that are repeated. The idea is to boost the typing speed. Tools that offer auto-correction and

It is impossible to find 100 per cent compatibility between OpenOffice.org and MS Office

spell-check are also present, in the **Tools** menu.

If you are accustomed to MS Word, you will miss some useful touches such as the right-click access to the thesaurus or the ability to hit a shortcut key to get the word count for a document. Right-click on the **Main** toolbar located on the left, and click on **Configure**. Then click on the **Keyboard** tab of the dialog box that shows up. This is where you can assign shortcuts to frequently-used commands. For example, assign [**Ctrl**] + [**W**] to give you the word count of a document.

There are several other features as well. You can directly export to the PDF format (**File > Export as PDF**). Writer also has a series of wizards to automate tasks located under **File > AutoPilot**. These let you perform tasks such as conversion of files from MS or OOo formats to the OOo XML format, create memos, import new dictionaries, etc.

NOTE: If you find that you can't edit anything with Writer, go to the **Edit File** icon (right next to the **Export as PDF** icon) and click on it.

CALC
OOo-calc in Run window

As Writer to MS Word, Calc is just as worthy a replacement for MS Excel, as far as functionality is concerned. Another benefit is that of a uniform interface between the OOo suite applications. This extends to both toolbars and the menu structure.

You won't face problems exchanging data from one application to another. A Calc table or
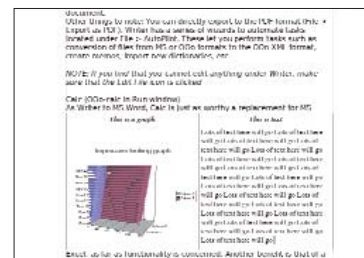
Table from Calc within Writer

chart is there to co-exist within a Writer document. Just as Writer, Calc can also export a spreadsheet as a PDF file.

IMPRESS
OOo-impress in Run window

Impress is the presentation tool. As you launch it, Impress takes you through a rudimentary wizard. But, the templates available
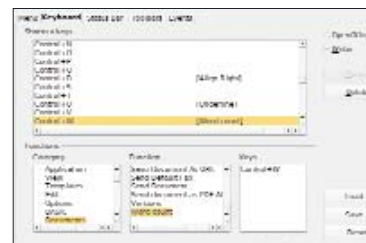
Impress is not very impressive

are minimal, and the wizard itself isn't quite useful. Despite that, Impress is a decent tool, with several interesting features. You can add text animations, page transitions, sound effects-the usual whiz-bang to add the gee-whiz to your presentations. It is not comprehensive by far, but it is good enough to get the task done. ∎

ahmed_shaikh@thinkdigit.com
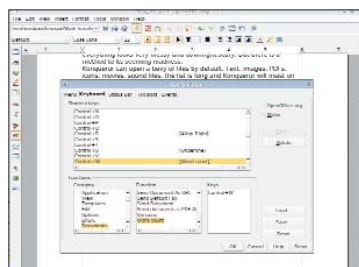
Associating shortcuts to frequent commands is simple
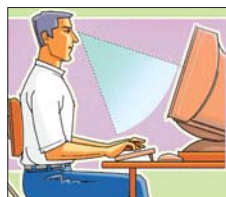
Case Study

For Your Eyes Only

100-person strong Anglo-Eastern Ship Management Ltd saved a whopping 80 percent of their costs on communication, when they implemented Virtual Private Network (VPN). Here's how you can communicate securely and cheaply over the Internet using VPNs

Aparna Krishnakumar

The Internet is an indispensable tool. Whether it's for communication—e-mail or browsing—or for research, or running corporate Web sites, most business houses rely on the World Wide Web. But for companies that have branches spread across the globe, the major question is—how secure is the Internet?

The issue does assume serious proportions, given that almost all corporate communication and research today, is done via the Internet. Your company could be headquartered in, say, Bangalore, and have regional offices dotting numerous places across India, or even abroad. In such cases, the Internet is the only bridge that connects the distant elements of your business.

It is common knowledge that the WWW plays reluctant host to a range of viruses, trojans, social engineering attacks, DDoS attacks, and other forms of cyber-nuisance. And it needs little mention that business houses, which rely heavily on the Web for communication, take a major risk in doing so. Is there an absolutely secure way for companies to exchange information over the Internet?

A Virtual Private Network or VPN could just be that answer. A VPN uses public networks such as the Internet and exactly the same physical infrastructure of cable and routers. In doing this, it not only drastically cuts down costs, but also offers smooth services with foolproof security.

The Company
The Anglo-Eastern Ship Management Ltd is located in a quaint area of north-central Mumbai. It advertises itself as a liaison company. In Mumbai, the company is the largest sup-

Imaging **Parag Joshi**

How Does A VPN Work?

Suppose there are three or four Branch offices and one main office. Each branch office is connected to one Point of Presence, provided by the main service provider. Together, all the networks form a larger network that lets them communicate with each other

Head Office

Branch Office

Point of Presence
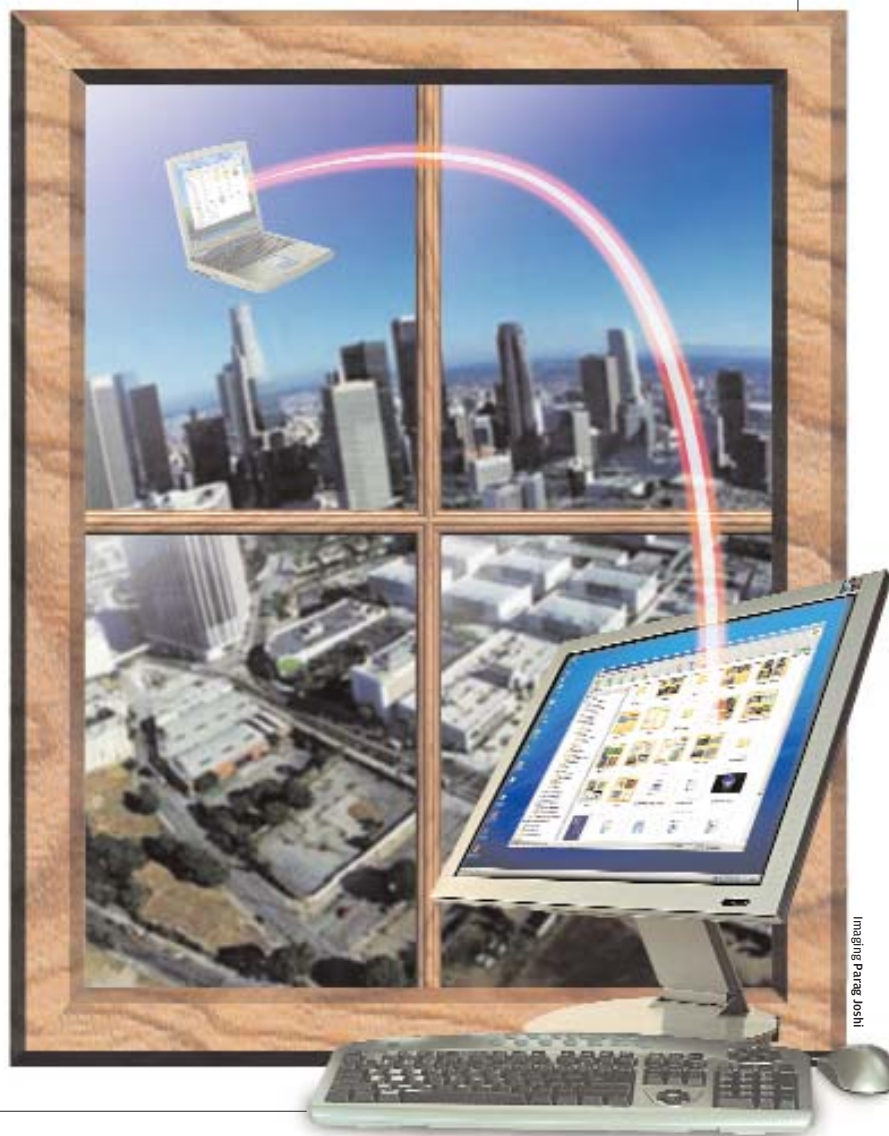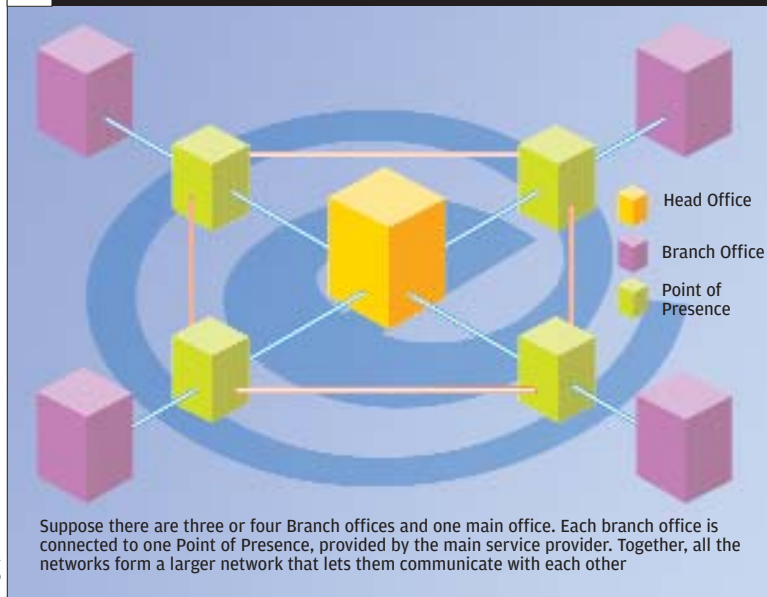
Infograph Solomon Lewis

> "One shouldn't stick to just one provider. If my leased line fails, or if the service provider is down, I can still reach by head office over any other ISP provided bandwidth, and pay only till the time I use it

Abbas Dean
IT Executive
Anglo-Eastern Ship
Management Ltd

plier of Indian Sea farers on Foreign Vessels. Set up 30 years ago, the company offers services such as ship management, technical services and crew management. The Mumbai office, with a staff of 100, takes care of a major chunk of the recruitment process.

The company is headquartered in Hong Kong. It has a long list of offices spread all over the globe—the US, Canada, New Zealand, Belgium, the UK, Japan, Philippines and Singapore. The communication network, thus, needs to be impeccable to allow the head office to keep track of all its regional branches.

The First Steps

Back in 2001, the company began reaping the benefits of technology by streamlining much of its work. During that year, Anglo-Eastern went online, offering full details of ships, including technical and financial reports. It installed an online vessel-condition and ship-management system. With such a setup, superintendents and owners could access technical reports, audits, accounting reports, and financial analyses—all over the Internet.

The next year, Anglo Eastern set up a frame relay network, connecting the head office in Hong Kong with all the regional offices. The idea was find an alternative for spending heavily on communication, without compromising on security.

A frame relay network establishes a WAN between the connected sites. The connection uses private lines or circuit-switches over leased lines. Despite a much faster rate of data transfer, there were a few problems.

According to Abbas Dean, IT Executive, Anglo-Eastern, "Whenever the connectivity to the Point of Presence (POP) through an MTNL connection snaps, as it happened to us during the monsoons, the connection simply goes down. We were helpless and without any means to communicate." Abbas recalls those days

when additional backup lines had to be maintained. One additional line meant a constant, heavy expenditure.

For an organisation that depends heavily on round-the-clock, instant communication, this posed a serious problem. So the hunt began for another form of network—a substitute that was more secure and cost-effective.

Enter Virtual Private Network

A Virtual Private Network uses 'virtual' connections routed through the Internet. Unlike a typical leased line, this connection is between the company's private network and a remote site or an employee. Imagine you are in Country A and wish to travel to Country B. The journey could be by road.

But that makes you visible to all and sundry who take the same route. Suppose, now, that Country A decides to build a bridge to the other country, keeping in mind exclusive direct access and better security. But building bridges is an expensive affair.

Given that VPNs play a similar role—that of an 'exclusive bridge'—the next big question is, how does it tackle the expenditure angle of the whole setup? We could give the inhabitants of Country A a small plane. A plane is ideal when it comes to speedy access as well as security and privacy.

This is exactly how VPNs work. Each remote member of your network can communicate in a secure and reliable manner using the Internet (the sky or airspace, in our analogy) to connect to the private LAN (using a plane, in our example). And this is precisely what Anglo-Eastern Ship Management Ltd.

The headquarters and all the regional offices were connected by a single network. All that the Mumbai office had to do was to invest in a dedicated leased line for a short distance, right up to the service provider. The result: with just a 2 Mbps line, the Mumbai office is constantly connected to the head office and regional offices all over the world.

VPN: What To Look Out For

There are many vendors providing such a service, from VSNL to Sify. According to Abbas Dean of Anglo-Eastern, keep the following things in mind when opting for VPN:

▶ **Data Security:** It is always not required to spend heavily on security. Spend on security as much as the business requires. If possible, outsource security related issues to the service provider
▶ **Geographical Location:** It is better to select a service provider who has POP in all countries or cities of your establishment
▶ **Reliability:** Depends on the service provider's infrastructure
▶ **Network Management:** What kind of add-ons does a service provider offer? Does he offer to manage Net traffic as well?
▶ **Telecom Infrastructure:** A VPN requires a good telecom infrastructure

Here Comes SSL VPN

VPNs have already been recognised by enterprises as the preferred medium of connecting globally strewn offices to their intra-networks. Even in India, VPNs are appreciated for offering significant reduction in costs and a secure means of connection. There is a new technology that is also gaining in popularity—SSL VPNs.

Secure Sockets Layer Virtual Private Network (SSL VPN) is an application-independent security protocol. It gives users access to the Web, server and file-sharing resources from Internet cafés, kiosks, wireless devices, or PCs. The SSL protocol is already embedded in most IP (Internet Protocol) stacks. Organisations that deploy SSL VPNs are spared any additional cost. It is ideal for businesses with their personnel always on the move.

The key considerations for evaluating SSL VPN products as a remote access solution are encryption, application support, end-point security and total cost of ownership.

Are VPNs Cost-Effective?

Once a business house sets up a VPN, drastic reduction in infrastructure costs follows. A VPN can extend across geographical boundaries without the use of dedicated leased lines. Says P J Nath, Senior Vice-President, Enterprise Solutions, Sify Limited, "We look at the number of users or networks that the organisation needs, the level of service required in terms of latency, uptime, and how far the organisation wants us to manage the network."

Abbas feels that it is always safer if an organisation doesn't get stuck to just one provider. "If my leased line fails or the service provider is down, I can still reach by head office over any other ISP provided bandwidth, and pay only till the time I use it," Abbas explained.

The money angle aside, security is a big concern.

Firewalls are used to make VPNs secure. Each remote user has a firewall client installed, which filters internal clients from external elements, and cuts down on chances of network disruptions. All the regional offices need to run the network on these two exchange languages, SQL or MS, to be able to decipher the encrypted information.

With firewalls in place, it becomes easy to restrict the number of open ports. Abbas feels that since the data exchanged is not extremely critical, a firewall is good enough for security.

Abbas feels that the kind of security required should be given importance considering the business requirements. Organisations that handle sensitive data should look out for network security. They must use the IPSec (Internet Protocol Security) Protocol and AAA Servers (Authentication, Authorization and Accounting).

The Communications Revolution

For Anglo-Eastern Ship Management Ltd, the change to a VPN has resulted in faster and better Internet speed. With the slash in bandwidth and port charges, the company could do away with leased lines and the mammoth costs they entailed. For the 100-odd employees, a 2 Mbps line is enough to keep in touch with the rest of the offices worldwide. Today, an Anglo-Eastern employee can connect from his home to the VPN without worrying about disruptions.

Says Dean, "The number of hours put in the office doesn't require any one of us to use this facility from home." And employees get to enjoy a well-deserved weekend. In sum, a Virtual Private Network cuts down on bandwidth costs for your business, and allows you to stay connected without nightmares about security issues and cyber-threats. ∎

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1/2 P V AD

Back To Front!

Forget tech support, think lumbar support— from posture, to furniture, to tools, follow these guidelines for healthy working

1 The top of the monitor should be 2 to 3 inches above eye level

2 Maintain a viewing distance of at least 18 inches

3 The back rest of your chair should support your lower back

4 Chair height should be such that your keyboard is at elbow-level

5 Your elbows should be close to your body

6 Your feet should either rest flat on the ground or be supported by a footrest

Keep your work close ✔

Do not over-reach ✗

Type gently, do not hit the keys ✔

Keep your wrist parallel to the table ✔
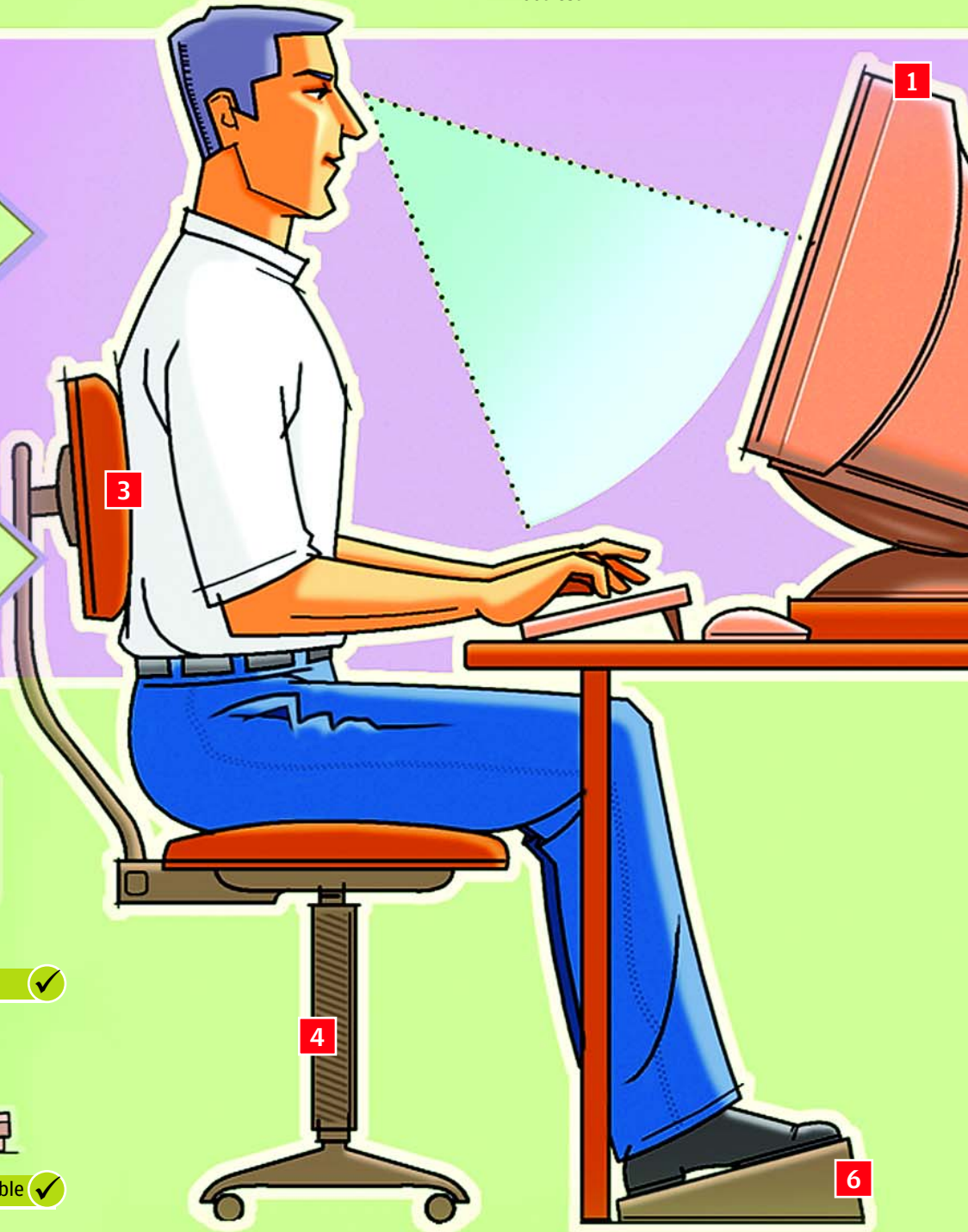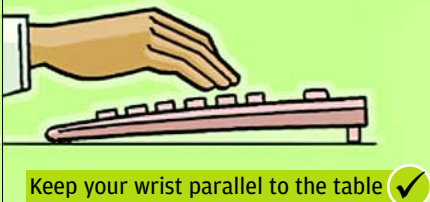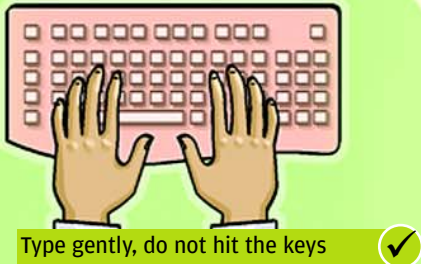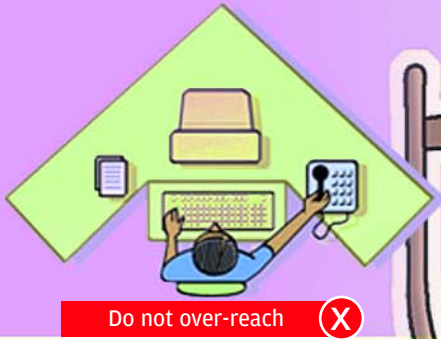
Working Right

A workplace should be such that everything you work with, is within easy reach. To avoid muscle strain and back ache, stretching and bending should be kept at a minimum. Bring your work closer to you, do not over-extend yourself

Seen here is the Stratum from *Blowplast Ergonomics*
E-mail: ergomum@bpergo.com
Phone: +91-022-5660-3590
Web site: www.bpergo.com

Whether sitting straight or at a recline, ensure that your wrists remain parallel to your keyboard. Moreover, your neck should be straight, in its neutral position—not twisted or to one side. Use a head rest to ensure the same

Seen above is *Herman Miller's* Aeron chair. On the right is their Mirra chair

On the left is Logitech's Cordless Desktop, to the right is Microsoft's Wireless Desktop Pro

Proper Seating is Vital

While seated, your lower back is under considerable stress. An ideal chair, such as the award-winning Aeron from Herman Miller, offers an adjustable support for your lumbar region. The Aeron's high and wide contoured back takes weight off the lower spine. The back of your knees are to be pressed to the 'Waterfall' front edge to reduce pressure under the thighs. This ensures that circulation isn't restricted

To contact Umesh Munot of Herman Miller's Bangalore office:
E-mail: umesh_munot@hermanmiller.com   **Phone:** +91-09845166570

Use the Right Tools

Palm rests put your wrists in a neutral position, preventing strain and ensuring blood flow. Some keyboards, such as the Microsoft Wireless Optical Desktop Pro, split their key layout to make sure that you do not need to move your wrists laterally while typing. This reduces stress to the tendons and muscles of the wrist

Logitech: www.logitech.com   **Microsoft:** www.microsoft.com

Text **Ahmed Shaikh**, Illustration **Mahesh Benkar, Jayan Narayanan**

How About Data At
Your Fingertips?

It's time you took stock of a much-ignored aspect of your business—maintaining sales data. Automate all your sales tasks, before it gets too late

Ram Mohan Rao and **Aparna Krishnakumar**

I f you walk into any sales department today, chances are you will find employees buried under reams of paper. Stockpiles of invoices, request forms, delivery forms, complaints, reports, and what not—the list gets bigger as your sales force traverses the country. The result: a mess of manual, paper records that run the risk of getting damaged or misplaced.

Sales data is as critical for any business as its transactions. Given the competition, a business

house has to go out of its way if it aims to excel and not just survive. And this calls for innovation. Contemporary organisations need to be all the more eager and explore new ways to store, maintain, and retrieve sales data quickly.

The good news is, there is a solution, in the form of SFA—Sales Force Automation. How would you like to maintain all your transactions with clients, and their contact details, in a central repository for everyone to access? Say a salesperson sets off with a proposal for a client. Wouldn't it be of immense help to get a quick history of the client at his fingertips? Or for that

Graphic Jayan Narayanan and Atul Deshmukh Photograph Jiten Gandhi

Case Study: Zensar Technologies

Zensar Technologies, a software services company, is headquartered in Pune. The company's sales operations are globally distributed and the work takes place across different time zones. The problem that the company faced was two-fold.

The direct sales people required a pre-sales support that included updates on a client's background, expectation and need. On the other hand, sales personnel were hesitant to share their follow up of a client's information, but expected instant organisational support. To solve the problem, the company installed the ACT! software in October 2003. The results have been more than satisfactory.

The software helped them handle both offshore and onsite activities better.

According to Shyam Kuddyady, head, enterprise pre-sales, Zensar, "The software has been a small investment, but it has brought a change in work culture. It has ensured a two-way communication between the sales and the support team." For Zensar, the software was all about reliability and transparency of information.

matter, how about sales forecasting? This is where sales force automation comes in—it helps you automate anything and everything about the sales process.

SFA is often defined as a technique of using software to automate the day-to-day business tasks of sales. These tasks include contact management, order processing, customer management, information sharing, and order tracking. This apart, SFA even takes care of inventory control, sales forecast analysis and performance evaluation.

Ideally, marketing materials should be electronically forwarded to the sales force. With such a system in place, salespeople have the materials needed to promote the latest products and services, right at their beck and call. Prices and inventory can be checked on the spot, and orders can be taken and transmitted electronically. SFA software makes estimation of sales forecasts and expenses precise and brisk. The business organisation can even maintain client lists without creating much clutter, and meticulously analyse buying patterns.

SFA can revolutionise a business on the administrative front. Salespeople can electronically file their time sheets, which eventually makes it easy for management to track their performance. Similarly, managers can analyse buying trends and profitability, and fine tune marketing plans and product lines accordingly.

With all the nitty-gritty of an SFA environment dealt with, a bottomline clearly stands out. SFA drastically reduces the paperwork involved in the sales process. It also cuts down heavily on the time spent on paperwork. All this leaves the business more time and resources for actual sales.

However, the decision to deploy sales force automation can be fraught with risk, given that the software doesn't carry a clean slate. There is no "one size fits all" SFA solution, and there are several glaring stories of how SFA strategies have flopped. Reasons range from poor implementation of the systems, to insufficient training for the employees to handle the software well enough.

But implemented correctly, SFA brings

With SFA in place, sales people can electronically file their time sheets. Eventually, it makes it easy for management to track their performance

home huge benefits for the business.

US-headquartered Phoenix Systems Integration recently conducted studies on successful implementations of SFA—the results say that proper implementation of the software pushes up revenues by 30 per cent. In fact, profits can shoot up even 60 per cent. These facts are proof enough of what SFA can do to your business.

ACT! 2005

Let's take a close look at ACT! 2005 Premium for Workgroups as an example of SFA software. Think of SFA software as Outlook on steroids. Only, it does much more. ACT! Premium gives you a powerful way to capture and share information in a collaborative environment.

You can find the trial version of ACT! on the Digit CD/DVD.

Contact and customer management is the process of capturing and managing every aspect of your business relationships, including
▸ Contact details
▸ Activity history and meeting notes
▸ E-mail and other correspondence
▸ Schedules, appointments and to-do items
▸ Proposals and reports
▸ Sales tracking and forecasting

The software stores detailed contact and customer information, including e-mail messages, history, attachments, activities, sales opportunities, etc.

You can find anyone or any detail easily by performing Lookups on any Field or by using the Keyword Searches. Lookups can also be saved as Groups.

For example, you can quickly define sales territories by performing a Lookup on State, and then you can simply save it for quick reference. This, in turn, gives your team a complete picture of the entire relationship.

ACT! creates and maintains detailed company records. All notes, histories and opportunities related to the company are stored in the same place. If core company information changes, each related contact gets updated. You can have Notes stamped with date and time, and History tied with each contact to keep track of important details, such as conversations and commitments.

ACT! includes features for individual as well

Comprehensive contact database with more than 60 fields

The Task List gives a team a comprehensive view of what's on its plate

Your team can view all sales opportunities at once

You can create, send and track e-mail using the ACT! E-mail Client

You can schedule activities, individually or for your workgroup

There are more than 40 standard reports

With Oracle Sales Online, you can analyse sales forecast data at all three levels—geographic, deal and product

as team scheduling. There's a Task List that gives your team a comprehensive view of what's to be done. You can schedule activities, individually, or for your workgroup.

The software displays the availability of your team at a glance. When you schedule a group activity, a notification appears on each team member's status bar. Users have the choice to accept or decline participation.

You can create custom Activity and History types specific to your business. For example, you could create and track "Billable Hours" as an activity type. Also, you can define a series of activities around a specific event.

Then simply schedule that series to automatically put the activities on the other team members' calendars. The activities remain linked, so when one activity moves, you are notified to move the related ones. If key information changes, a call can be scheduled for a salesperson to ensure that he doesn't miss it.

The software enables your sales team to meet its goals using inbuilt tools to track sales and make forecasts. You and your team can view all sales opportunities at once and then access, update and filter opportunities.

If you have a range of products or services, you can set them up in the Product List, and then track the product or service name, item number, cost and price. Once you have this set up, your users will consistently enter information as they sell. Scrutinising consistent information helps the analysts make better sales forecasts.

An Online Approach

Oracle Sales Online is a Web-based application for field sales representatives, resellers, and sales executives. It automates the entire sales cycle, right from account and contact management, to opportunity management and pipeline analysis, to order management.

The key functions include Customer Contact, Lead, Opportunity, Quote and Order Management. This application provides versatile tools to help sales representatives carry out their daily tasks smoothly. There is another feature called Oracle Field Sales for Palm that

Working of Sales Automation

Information such as the client's history, their wants, etc., is maintained at a central repository.

During a meeting or a sales visit, a salesperson accesses the repository via a laptop, an online interface or a PDA. The data helps the person make informed decisions and close or reject deals.

Infograph Atul Deshmukh

comes with Sales Online. It enables salespersons to take all information with them wherever they go on their PDAs.

Users of Sales Online get to easily set up and save frequently-used queries, such as which top deals are in the pipeline, or which deals are closing in the next 30 days. There are Inbox Indicators, which help users visually determine data elements that are new or have been changed.

Sales Online provides sales professionals with complete customer overviews at each stage of the sales process. Before contacting customers, salespersons get to review customer information, including products installed, outstanding requests, histories, contacts, opportunities, etc. With the loads of information, sales representatives find it much easier to manage their customer accounts.

Sales Online features integrated calendars for maintaining logs of daily tasks. Users can actually keep track of all their appointments. Group calendars can help users subscribe to a common calendar across multiple users. You can even set up Public calendars to air the company goals and events, such as a common marketing calendar. Users can synchronise their business calendars with Palm and Outlook to maintain common business and personal calendars.

With Sales Online, organisations can flexibly manage forecasts. You can analyse forecast data at geographic, deal and product levels.

Time to Go Automatic, or is it?

Today's businesses are left with little breathing space. Let alone vying for the lead in the gruelling race, organisations need to keep up with the breakneck pace at which more and more offices are exploring newer ideas. And when it comes to taking stock of the more-ignored aspects of business such as sales data, those who choose to continue ignoring, are simply left way behind. Sales force automation isn't magic, neither is it an overnight marvel. It is designed with a purpose—it cuts down all cumbersome paperwork, easing the sales process like never before. Are you ready? ◼

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The Really Mobile Workforce

Keeping up with technology, sales force automation has undergone loads of changes. With portability in mind, organisations are looking at how sales personnel can access information on a handheld. In India, companies such as Xserve India Pvt Ltd have the AnexTEK SP230. This is a handheld device with GSM Mobile functionality and GPRS connectivity running on the Intel Xscale processor and powered by Microsoft Pocket PC 2003. Ramco Systems have the Virtual Works Platform for Enterprise that promises an end-to-end solution for back office sales needs. The future of such applications looks bright with the pharma and the FMCG sector being the large customers for such applications.

5 Things To Do
Before Leaving On A Vacation
A list of must-dos to keep in touch and to make the most out of your time away

1 Set up an e-mail auto-responder before leaving such that your colleagues and clients are aware of your absence and your expected date of return. You can also subscribe to a service which forwards your e-mails to your cell phone. Orange, for example, can forward MS Outlook mail to selected handsets.

2 Purchase a water-proof case for your camera, especially if you plan to hit the surf and sands. Consider investing in extra lenses if your camera supports them. A zoom lens and a wide-angle lens can add life to vacation pictures

3 Carry an extra battery-pack which will serve as reserve power for your laptop. For your other gadgets, such as cameras and MP3 players, carry lots of spare AA and AAA alkaline batteries. Don't forget to carry your chargers!

4 If you wish to travel around European cities and within the United States, make sure that your cell phone is tri-band compatible and that you have activated a roaming service before leaving.

5 If you carry a PDA make sure it has applications for telling you the world time, displaying maps, converting world currencies, weather-tracking and maintaining your itinerary. WorldMate Pro, for example, can do all that

Illustration Jayan Narayanan

Serves IT Right

Sanket Naik

A s a growing computerised enterprise, whatever its size may be, sooner or later, the need for a server will be felt. Countless tasks, such as sharing files and resources, taking regular backups of your work, maintaining a repository of your digitised documents and other essential data and so on, can be done effectively and efficiently with a server in place.

But, can't a workstation double up as a server? A workstation PC with enough processing power and memory *may* suffice, but a server is more than computing power. There are other aspects to this beast.

For example, regular PCs are based on components with a short shelf-life as compared to those used in servers. So, if your server uses a motherboard meant for a desktop PC, you will have no option but to upgrade if something hap-

> **A workstation PC with enough processing power and memory *may* suffice, but a server is more than computing power. There are other aspects to this beast**

pens to it. And an upgrade is by no means a simple task: older software such as the OS, a client database, your sales figures, etc., would require migration, re-installation or optimisation—which is a big waste of time and money.

However, this won't be the case with a proper server, since server vendors ensure that spare parts are made available for a longer duration, even if they come at a price.

In a growing business, greater demands are placed on office infrastructure, and resources are pulled to their limit—demanding induction of new servers or upgrading existing ones. Investing in a scalable server will save a lot of trouble later on.

A server needs to strike a balance between performance, reliability, scalability and price.

State Of The Market

The words *server* and *expensive* were synonymous not long ago, but this has changed significantly. Basic servers today—deployed as file servers,

intranet servers or as small database servers—cost no more than Rs 75,000.

To test the best, we received six servers from five vendors—two reputed for their servers, namely HP and Acer (who sent in two for this test), and the other three from Zenith, Wipro and PCS respectively. All of them were based on an Intel platform; most of them featured a Pentium 4 processor, the exception being the Acer G520, which had an Intel Xeon. The price varied from Rs 40,000 to over Rs 1 lakh.

It is not possible to pin-point a perfect server, since its performance varies dramatically with the applications you run on it. However, it is possible is to test overall performance, from which a buyer can guage a certain machine's performance under the expected workload.

The Heart Of The Beast: The Chipset

For any computer, there are four vital subsystems, namely the CPU, memory, I/O and graphics. Apart from the graphics, the others form a very important foundation for any server under consideration.

The chipset dictates the server's features, and the strength and efficiency of the CPU-memory subsystem. Know your chipset and you can make a wise investment. Intel's i875P and E7210 are commonly used by vendors for their servers.

The i875P is referred to as a Workstation chipset by Intel, whereas the E7210 is called a server chipset. Both are nearly identical in terms of features, and both extend support to the new Pentium 4 processor over an 800 MHz FSB (front-side bus), with speeds touching 3.2 GHz. They also support dual-channel DDR memory modules; the bandwidth this affords is rather critical from a server point of view.

Both the chipsets support Gigabit Ethernet via a dedicated bus called the Communication Streaming Architecture (CSA). This should help alleviate PCI bottlenecks, since in other chipsets, the Ethernet ports are tied to the PCI bus, which has a low bandwidth.

The most notable difference between the two chipsets is within the I/O sub-system. The E7210 natively supports PCI-X slots—64-bit avatars of the regular 32-bit PCI; a PCI-X bus is generally used by SCSI controllers, which demand higher bandwidth. The i875P supports PAT—Performance Acceleration Technology (*See box 'Jargon Buster'*).

Acer Altos G310; based on a i875P chipset

The chipset generally dictates the features of a server and the strength and efficiency of the CPU-memory subsystem. Know your chipset and you can make a wise investment

The AGP 8X bus, which is not supported by the E7210, is the reason for calling the i875P a Workstation chipset.

Also, since the E7210 is designed to be a server chipset, reliability would need to be an important aspect of the chipset itself. An i875P-based server is a cheaper option than one based on the E7210.

A third chipset in this comparison was the E7320 from Intel. This brand-new server chipset from Intel is similar to the E7210 save for two major differences. First, this chipset supports Intel Xeon processors. Moreover, motherboards based on this chipset can support two Xeon processors.

Secondly, the inclusion of high-bandwidth PCI-Express buses gives it the edge. This makes the peripheral sub-system fast, robust and future-proof. Solutions for this bus, however, are not yet mature, nor are they widely available.

The i875P chipset is a good choice for medium loads, offers good features, has a decent performance and is well-priced. The E7210 offers a stable server platform with a robust I/O subsystem at a reasonable price.

The E7320 chipset offers the best features and, since it's designed as a server chipset, should serve you well.

The Contenders

Two servers—Acer's Altos G310 and PCS Siirus Compact V—use Intel's i875p chipset. Zenith's Data Server, the HP ProLiant ML-110 and Wipro's NetPower 1120 use the E7210 as their backbone, whereas Acer's Altos G520 had the feature-packed E7320 chipset.

The Processors That Power Them

The Intel Pentium4 2.8 GHz processor, based on the Prescott core—with 1 MB of L2 cache running over an 800 MHz FSB—formed the processing powerhouse of servers using the i875P chipset.

Which Server Is Best For You?

Before deciding on a server for your enterprise, there are a few questions that you must have the answers to:
What is the role of the server?
Is the server a multimedia application server, streaming audio or video over a network? Is it a less demanding Web Proxy or an I/O transfer-dependent fileserver? Based on the server's designated role, you will need the appropriate memory and processing power.
Does it have room to grow?
Your business needs are likely to outgrow your server offerings. Before buying a

server, ensure that the setup you're looking at has enough room for growth. Look for sufficient number of extra drive bays, memory slots, PCI slots, etc.
What about security?
In the event of a crash or a virus infection, how does the server stack up in the recovery department? Does it have an efficient RAID setup? A RAID setup can mirror the same set of data across hard disks to minimise the risk of data loss. Equally important are signed memory modules with ECC (Error Checking and Control) support.

How good is the support and warranty offered?
When a server goes down, how quickly can the dealer's support staff help you bring it back up? Does the warranty cover all crucial components?
How much can you spend?
Lower cost doesn't translate to cost-effectiveness. If the server has enough processing power, but not enough memory, the bottleneck created will amount to wastage of CPU power. So pick a well balanced, well-rounded configuration that fits in your budget.

How We Tested

We assessed the servers on three basic parameters—Design, Features, and Performance.

Design
We took into account the wiring of internal components, proper tying and clamping of wires, expansion bays, tool-free design, ventilation system, etc. We opened up the case and tried installing a new hard drive, removing the existing PCI cards etc., to assess how effortless it is to do these basic things when the server goes down.

Features
Features included processor speeds and type, amount of memory and the speed of memory modules. Hard disk speed and the controller in use, such as SCSI, RAID, etc, make a lot of difference to the I/O speeds.

More emphasis was put on the server management software that should accompany these machines.

Performance
We ran the regular bunch of benchmarking tests that we use on different hardware to gauge performance at subsystem levels.

These subsystem tests included PC Mark 2004—a system suite; SiSoft Sandra; Pov-Ray 3.5—a pure CPU test, the video encoding test and ZD Bench's Content creation 2004.

Being entry level servers, they will perform the role of fileservers or Local Intranet servers, or as Database servers. You can use them as mail servers too.

We used PC Mag's NetBench 7.0.3 benchmark program that measures how well a file server handles file I/O requests from 32-bit Windows clients, which pelt the server with requests for network file operations. The final output of NetBench reports throughput measurements.

For gauging the performance of the servers when used as Web servers, we ran PC Mag's WebBench 5.0 benchmarking program. WebBench returns two scores; requests per second and throughput as measured in bytes per second.

For Database performance, we used Oracle 9i as the database application and ran Oratools—Open source tools based on the TPC-C benchmark. We used the ORABM tool which typically answers the question, "How does a server perform under a CPU/memory intensive Oracle database workload?" The load necessary for benchmarking is generated using the ORABMload script, which creates all the necessary objects such as tables and indices, and loads the data. The final result gives the number of transactions per second the server is capable of.

For the Netbench and WebBench benchmarks we used two clients that pinged the server with requests. To avoid the influence of network characteristics on the results, we did these tests on isolated networks consisting of a Compex DSG-1008, a gigabit 8-port switch and CAT-6 cables for connecting them. We used Windows 2000 Server as the operating system.

The Awards Process
The scores noted from Design, Features, and Performance tests and from the Price Index were given weightage. An overall score out of 100 was calculated. The product that scored the highest in the overall score was adjudged the winner of the Digit Best Buy Gold Award for its category. The runner-up received the Digit Best Buy Silver award.

Zenith's 3 GHz-based server was the fastest processor in this server shootout. Acer's Altos G520 had an Intel 2.8 GHz Xeon processor running at 800 MHz FSB with 1 MB of L2 cache. Hyper-threading was common on all the servers tested.

Memory: Crucial For Performance
The memory subsystem is critical to the performance of a server. Nearly all the servers shipped with 400 MHz memory modules, except for the Acer Altos G520. In the i875P category, PCS was the only one to offer 512 MB of memory, whereas HP and Acer came with just 256 MB. However, none of these servers could take advantage of the dual-channel configuration, since they had only one memory module.

The Servers from Zenith and Wipro were based on the E7210 chipset. They had 1 GB of memory and were configured in dual-channel mode. The Acer Altos G520, also in dual-channel mode, had 512 MB of RAM.

The I/O Subsystem: A chain is only...
Your system is only as fast as the slowest component. The I/O subsystem often comes across as the bottleneck in a server system.

A SCSI system overcomes

Your system is only as fast as the slowest component. The I/O sub-system often comes across as the bottleneck in a server system

Zenith's Data Server performs well for its price

this problem, but SCSI drives are expensive. They cost nearly twice as much as IDE or SATA drives, and the performance difference is not substantial. But as of now, these drives are the fastest, and until SATA drives mature enough to live up to their potential, SCSI drives will remain the backbone of most servers.

Some of the servers we received had the SATA controllers onboard. Their performance did not match that of SCSI controller cards. Also, an onboard controller will hog CPU time, which doesn't happen with dedicated SCSI cards.

The HP and Wipro servers, as well as the Acer Altos G520, had SCSI hard drives and were hooked up to an Ultra 320 SCSI controller. RAID controllers were also offered on these three models. Wipro bundled three drives, whereas the Altos G520 had two SCSI drives. In both cases the storage space amounted to 80 GB. HP came with just one 40 GB drive.

Zenith offered two SATA hard drives totalling 240 GB. The onboard SATA controller provided the necessary support and RAID features.

Acer's Altos G310 offered two SATA drives, each 80 GB, and these were driven by the onboard SATA and RAID controllers.

The PCS Siirus Compact server offered just one 80 GB drive hooked on to the motherboard's onboard controller.

Of Network Adapters
Nearly all the motherboards had an onboard Gigabit Ethernet controller, freeing up one PCI slot. The Acer Altos G520, the Wipro Netpower and the Zenith Data server all offered both a 10/100 Ethernet and a Gigabit Port. The graphics

Upgrades And Extras

When server loads increase, you'll need to go hardware shopping. Look for this:

Processor
If you need a streaming server, your tasks are likely to be multimedia heavy. Consider adding a second processor to fulfil client requests faster.

Memory
Heavy traffic can generate a lot of temporary data on the server, making performance take a hit. Minimise the need for disk paging by installing additional memory modules.

Storage
If your server is going to be used as a file server, consider getting an extra hard disk. Improve performance using a RAID 0 (striped) configuration, or increase reliability by using a RAID 1 (mirrored) configuration, or better still, get both performance and reliability by using a RAID 0+1.

Backup (Tape, DVD)
Get a tape drive or DVD-R and backup all your data regularly. While tape backup is a very cost-effective solution, data access is faster with DVD-Rs.

Ventilation is of paramount importance for a server's optimum operation. Machines based on the latest Intel chips, in particular, need good airflow

was the most underpowered sub-system on these servers. The ATi Rage XL adapter found onboard on most of them is more than sufficient, and also saves one valuable PCI slot.

The PCS and Acer Altos G310 were the only ones to ship with Geforce Mx440 and SiS Xabre AGP cards respectively.

The Power Supply: Handling The Load

Both the Wipro NetPower and the Acer Altos G520 offered high-wattage power supplies to feed the most demanding of loads. The 600 and 460 Watts offered by the Wipro and the Acer systems respectively are enough juice for bundled peripherals and more.

The PCS Siirus, Zenith's Data Server and Acer's Altos G310 offered 300-watt power supplies, which is barely adequate if there will be upgrades. Similarly, the HP ProLiant ML-110's 350-watt power supply is enough for the present hardware, but would need upgrading later.

The Wipro NetPower and Zenith's Data Server were the only ones that offered a power supply with an exhaust fan over the processor area for effective cooling.

What Comes Bundled

15-inch monitors, keyboards, mice, driver CDs, etc, were bundled with all the servers. Some, strangely enough, missed out on manuals. CD-ROM and floppy drives were common across all the servers, except for the Zenith, which offered a CD-RW—good for instant backups. Acer and HP had the best package content.

EasyBUILD, the customised server management system from Acer, was simple to use and understand. HP provided diagnostic tools. Zenith came bundled with Intel's server management tools, while both Wipro and PCS had tools that allowed for some server management.

Accessibility, Ventilation, And More

A good server is more than just a performance machine. Being swtiched on 24x7 demands a great deal of attention and care from their manufacturers so that downtime is at a minimum.

These machines need to be accessible—access to hardware such as hard drives, memory modules, etc, should be easy to do without the need for any tools. But from a security point of view, access to the internals should be restricted to system administrators. This is where locking facilities come in. A chassis intrusion detection system, for example, informs an administrator in the event of unauthorised access.

Ventilation is of paramount importance for optimum operation of a server. Machines based on the latest Intel chips, in particular, need good airflow.

As a general rule, air should enter from the front of the chassis and exit from the rear, with the help of fans. Various factors determine this flow—chassis design: the dimensions of the server case, the placement of the fans, etc. The internal wires from the power supply also need to be clamped together so they don't block air passage.

Wipro's Netpower had the roomiest cabinet of all—clutter was minimal. Ventilation is aided by a well-designed cabinet and is amply sup-

The Wipro NetPower 1120: Feature-loaded, expensive

What A Well-designed, Easy To Manage Server Must Have
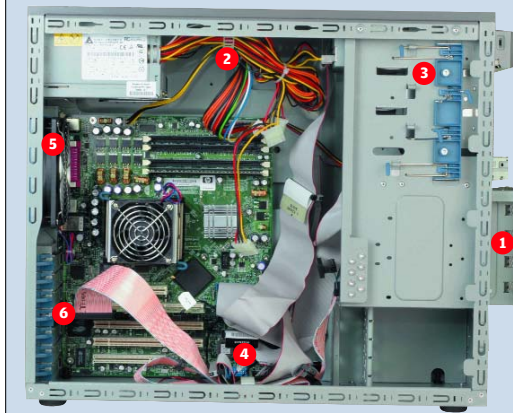
1. Removable Hard disk bay

2. Properly tied power cables

3. Tool-free attachments for optical drives

4. Properly clamped IDE cables

5. Large fans to ensure proper ventilation

6. Easy to use tool-free clamps for expansion cards.

Jargon Buster

Hyper-Threading allows multi-threaded server applications to execute multiple threads at once, and in parallel on a single-processor core.

PAT stands for Performance Acceleration Technology, a technique Intel introduced with their 875 Chipset, wherein the system performance is improved by optimising memory access between the CPU and system memory.

PCI stands for Peripheral Connect Interface, a standard for connecting various expansion cards in a micro-computer system. It succeeded the ISA standard used in older computers. This interconnecting bus is 32 bits wide, and runs at 33 MHz.

PCI-X stands for PCI-extended; the evolution of the PCI bus saw the bus speed increasing to 66 MHz and the width extending to 64 bits. PCI-X is often used for connecting high-bandwidth requirement devices such as RAID cards and SCSI controllers.

PCI-E stands for PCI-Express, a new standard that promises to replace the older PCI standard due to its high bandwidth and other advantages. Each device connected on this bus will have four times the bandwidth offered by a regular PCI bus.

RAID stands for Redundant Array of Inexpensive Disks. The technique behind RAID is to use small, inexpensive disks to build an array of disks, which provide fault tolerance by making redundant copies of data. There are various architectures, from RAID 1 to RAID 5.

SCSI stands for Small Computer System Interface. This is an interface that allows for the connecting of internal or external peripheral devices via a SCSI card, which can connect up to 15 devices per channel. It can reach a peak speed of 320 megabytes per second. There are various types of SCSI, classified on speed, such as Ultra 320, Ultra 160, etc.

SATA stands for Serial ATA, the new standard that is soon to replace the PATA interface standard, often used for connecting devices such as hard drives and optical drives. Being serial, it is a point-to-point interface, and hence offers higher bandwidth.

---

ported by three fans. Component accessibility is a non-issue due to abundant space. A screwless design ensures tool-free maintenance and installation of drives.

HP's ProLiant comes within a regular ATX cabinet. However, air flow is maintained well via a large 120 mm fan. Additionally, the internal wiring is clamped properly, thus avoiding clutter. The ProLiant ML110 is a showcase for tool-free design, easy accessibility to components, etc. Chassis intrusion detection was, however, missing.

Acer, too, had tool-free servers, clamped wiring, and drives that can be removed and re-attached without fuss. The server can be locked to avoid unrestricted access, or to prevent people from turning it off. A chassis intrusion-detection system is also present.

PCS does a great job on the ventilation front, with the help of deflectors that direct air-flow.

Zenith's Data Server was the worst-designed: the wires were not clamped properly and dangled dangerously close to the CPU fan. The front was completely packed with little room for air to be sucked in. The box is a typical desktop box, and an administrator would require effort to perform everyday maintenance.

Performance: Who Fared How

We did a two-tier performance test on these servers. First, we ran the usual benchmark suites to determine component-level performance. Then tests such as NetBench, WebBench and Oratools were used to evaluate the server's overall performance.

We take a look at how each server fared in the component-level tests. In the PovRay and ZD Bench Content Creation 2004, PCS's server topped. Following closely was Zenith's Data

BEST BUY digit OCTOBER 2004

The Acer G520: The best when it comes to performance and scalability

Server. These results were significantly better than those of other servers. This was quite interesting since there were better chipsets around, and some good configurations too, but the PCS server managed to beat the rest in Content Creation 2004. Also, this was the only server to have a GeForce class graphics card, and hence would make a good choice as a workstation.

In the SiSoft Sandra memory subsystem test, the variation was striking. Wipro and Zenith posted the best memory scores, followed by Acer's Altos G520. Both Wipro and Zenith had 400 MHz memory configured in dual-channel mode, and therefore scored well. The Altos G520 runs on a DDR 333 MHz sub-system, which was reflected in its score. All the other machines were running 400 MHz RAM but were configured in single-channel mode, effectively halving their potential bandwidth. This clearly shows the boost a server gets when memory is configured in dual channel mode.

The processor subsystem revealed nothing much except for the fact that Zenith's 3 GHz processor was beating the rest, which were running on 2.8 GHz processors.

In the hard disk sub-system, nothing came

> To sum it up, if you are looking for an all-rounder, nothing beats the Acer Altos G520. It is also the best from a scalability point of view

Contact Sheet

Brand	Company	Telephone	E-mail	Web site
Acer	Acer India (Pvt) Ltd	080-25219520-23	Shishir_Singh@acer.co.in	www.acer.com
HP	Hewlett Packard India Ltd	1600-444-999	india.iss@hp.com	www.hp.com
PCS	PCS Industries limited	022-28521177	arunnarayan@pcsil.com	www.pcsil.com
Wipro	Wipro Infotech	080-28440188	sameer.mutalik@wipro.com	www.wipro.co.in
Zenith	Zenith India	022-28377300	info@zenith-india.com	www.zenith-india.com

Score Board

Brand	ACER	Acer	HP	PCS	Wipro	Zenith
Model	Altos G310	Altos G520	ProLiant ML-110	Siirus Compact UP V	NetPower 1120	Data Server
Features	**21.81**	**28.88**	**23.79**	**14.97**	**24.78**	**19.46**
Motherboard Specification						
Chipset	i875P	E7320	E7210	i875P	E7210	E7210
No of PCI-X / PCI / AGP slots	0/ 5/Yes	2/2/No	3/ 2/No	0/5/Yes	2/2/No	3/1/No
Number of processor supported	One	Two	One	One	One	One
Dual Channel Memory support	Yes	Yes	Yes	Yes	Yes	Yes
Maximum memory support	4 GB	8 GB	4 GB	4 GB	4 GB	4 GB
Processor						
Type of processor	Pentium4	Xeon	Pentium4	Pentium4	Pentium4	Pentium4
Speed (GHz) / FSB (MHz) / L2 Cache / HT	2.8/800/1 MB/Yes	2.8/800/1 MB/Yes	2.8/800/1 MB/Yes	2.8/800/1 MB/Yes	2.8/800/1 MB/Yes	3/800/1 MB/Yes
Memory						
Amount / Speed (MHz)	256 MB/400	512 MB/333	256 MB/400	512 MB/400	1 GB/400	1 GB/400
Configuration (no of modules)	256 MB x 1	256 MB X 2	256MB x 1	512 MB x 1	512 MB x 2	512 MB x 2
Hard Disk						
Type / Speed (RPM) / Capacity (GB)	SATA /7200/160 GB	SCSI 10,000/80 GB	SCSI/10,000/40 GB	SATA/7200/80 GB	SCSI/10000/80 GB	SATA/7200/240 GB
HDD Controller						
SCSI / IDE / SATA	SATA	Ultra 320 SCSI	Ultra 320 SCSI	SATA	Ultra 320 SCSI	SATA
RAID	via onboard controller	Via LSI 1020S card	Via LSI 1010s card	Via onboardController	Adaptec 2010S Card	Via onboard Controller
Network Adapter						
Ethernet / Gigabit	No/Yes	Yes/Yes	No/Yes	No/Yes	Yes/Yes	Yes/Yes
Graphics						
Type	SiS Xabre	ATi Rage XL	ATi Rage XL	Geforce MX-440	ATi Rage XL	ATi Rage XL
Powersupply						
Wattage	300 W	600 W	350W	300 W	460 W	300 W
Miscellaneous Features						
Optical Drive	CD-Rom	CD-Rom	CD-Rom	CD-Rom	CD-Rom	CD-RW
Floppy drive	Yes	Yes	Yes	Yes	Yes	Yes
Monitor	Yes	Yes	Yes	Yes	Yes	Yes
Keyboard	Yes	Yes	Yes	Yes	Yes	Yes
Mouse	Yes	Yes	Yes	Yes	Yes	Yes
Package Contents						
Driver CD's	Yes	Yes	Yes	Yes	Yes	Yes
Server management software	Yes	Yes	Yes	No	No	Yes
Manuals	Yes	Yes	Yes	Yes	Yes	No
Miscellaneous	None	None	Power Cables	None	None	None
Design	**6.05**	**7.00**	**7.40**	**4.15**	**7.78**	**3.65**
Screwless Cabinet	Yes	Yes	Yes	No	Yes	No
screwless Drive attachments	Yes-Uses Rails	Yes	Yes	Yes-Uses Rails	Yes	No
detachable HDD bay	Yes	Yes	Yes	No	Yes	No
Number of cooling fans	one - 80 mm	Two-80 mm and 120 mm	One - 120 mm	Two- 80 mm	Three- 80 mm	Two- 80 mm
Air Flow (Scale of 5)	3.5	3	3.5	3	4	2
Internal Wiring (Scale of 5)	3.5	4	4.5	4	4.25	2.5
Accessibility of Components (Scale of 5)	4	3.5	4	3	4.5	3.5
Performance	**24.33**	**27.04**	**26.62**	**24.42**	**26.59**	**26.66**
Pov-Ray 3.5	2880	3095.31	3083	1973.19	3094.17	2867.45
ZD Bench Content Creation 2004	20.7	20.6	17.5	25.4	20.8	24.4
Sisoft Sandra 2004 Pro Memory sub-system						
ALU / FPU	2897/2917	3582/3581	2962/2964	2022/2024	4833/4787	4870/4796
CPU sub-system						
CPU Dryhstone / Whetstone	8151/3179	7675/3225	7691/3223	7179/2048	7505/3222	8254/3568
Multimedia CPU Integer / FPU SSE	21240/28459	19779/26451	19845/26705	17363/20545	19809/26624	21190/28421
Disk drive						
Drive Index MB/sec	32028	44259	38241	32779	34641	33789
Sequential Read MB/sec	47	61	52	48	52	50
Random Read MB/sec	8	16	15	7	18	8
Sequential Write MB/sec	45	61	51	47	20	46
Random Write MB/sec	10	18	14	10	11	14
Average access time	6	3	3	7	2	7
Real world Test						
Video Encoding (Dr. DIVX)	141	148	146	124	146	138
ORATools (Transactions per second)	593	800	754	575	692	586
NetBench (Mbits/second)	6.109	6.211	6.311	6.108	6.112	6.103
WebBench (Requests/second)	553	583	702	547	592	595
Price Index	**7.78**	**5.57**	**8.18**	**11.95**	**4.19**	**8.70**
Price	62,990	87,999	59,900	41,000	1,17,000	56,300
Overall Score	**59.77**	**69.42**	**65.51**	**55.84**	**64.61**	**58.81**

A good I/O sub system makes the HP-ML 110 an ideal fileserver

close to Acer's Altos G520 performance. This is despite the fact that HP and Wipro both had an Ultra 320 SCSI controller. This clearly indicates the superb I/O sub-system of the E7320 chipset, which is a good buy for a fileserver.

This was followed by good scores from HP and Wipro servers using the Ultra 320 SCSI controller. Zenith's Data Server, with the onboard SATA controller, also delivered good performance.

In the ORABM test, which gives the transactions handled per second, Acer's Altos G520 took the top spot. Coming second was HP fol-

lowed closely by Zenith and Wipro. If you plan to run database applications, the Acer Altos G520 is for you.

The HP ProLiant Ml-110 returned the best throughput and the lowest response time in the NetBench test. Acer's G520 was a hair breadth away from the HP machine but it returned a higher response time. Wipro turned in a third position. HP will make a good fileserver.

WebBench saw the HP ProLiant ML-110 topping the chart and handling the load well. Zenith's Data Server cruised past Wipro's Net-Power 1120 and Acer Altos G520 to claim the second position, while the two followed respectively. This was the only arena where the Altos G520 lost to the others.

To sum it up, if you are looking for an all-rounder, nothing beats the Acer Altos G520. It is also the best from a scalability point of view: it can take an extra processor, and you can ramp up the on-board memory to a mammoth 8 GB. For all these reasons, the Acer Altos G520 gets our Best Buy Gold award.

The runner-up is the ProLiant ML-110 from HP; with its super I/O sub-system and good overall performance, it takes the Best Buy Silver award.

The Wipro NetPower 1120 came close but stumbled on its price—the Acer Altos G520 with a Xeon processor, and plenty or room for scalability, costs less.

If you are looking for a cheap but reliable solution that offers good performance, has good features but is little more than a desktop PC, look to Zenith's Data Server.■

sanket_naik@thinkdigit.com

The Holiday Tech Guide

Going on holiday, but can't afford to miss family or work? Here's how you can keep in touch

12 Great Tips

Follow That Mail
Some service providers, such as Orange, allow access to your mail Inbox for MS Outlook. This is possible for both a GPRS-enabled as well as a normal phone

Wherever You May Roam
Before leaving on your vacation, make sure that you enable roaming service for your cellular phone

Group Hug
A Closed User Group, such as the one offered by Reliance, lets you call within the group for free. The connection charges apply, only when you make calls between cities. Evaluate its benefits

Catch the Web
If you own a GPRS-enabled cellphone or a smartphone with a Web browser, such as the Sony Ericsson P900, you can browse the Internet via the phone

Cross Talk
Make sure that both your PDA and your cell phone support the Bluetooth wireless format. This way, your PDA can access the Internet using the phone as a modem—you get the benefit of a larger screen!

At a Distance
A PDA with WiFi connectivity can access the Internet over a much wider range than afforded by a Bluetooth connection. Make sure you carry the charging cradle along; WiFi drains battery fast

Bluetooth
A Bluetooth connection forms a Personal Area Network. The range is within a few dozen feet. Bluetooth devices are common and cover the gamut—from hand-free sets to keyboards and mice

WiFI
A WiFi wireless connection allows for greater range. However, it drains battery extremely fast. Make sure that your PDA, if it has WiFi also, has a greater-than-1,000 mAh battery for practical WiFi usage

To Stay in Touch

Your PC Online
Online services, such as GoToMyPC, let you access your home or office computer from any Web browser. But first, you have to open an account. Do that before you are on your way, at: www.gotomypc.com

Virtual Private Network
Use a Virtual Private Network to connect to your work PC while away on vacation. A VPN is cheap and secure and is an ideal way to access your office work while away. (*See* Case Study, Digital Business, for a detailed account of a company that successfully implemented VPN)

Wireless Connectivity
Make sure that you laptop has either Bluetooth support or WiFi support—having both will be ideal. This will allow you to use either a similarly enabled cellular phone or a PDA to stay in touch wirelessly. WiFi hotspots are common internationally—in airport lounges, hotels, etc.

Use a Card
If you do not wish to use your cellphone to connect online, invest in a PCMCIA GPRS card, such as Reliance's GTRAN solution. This will enable connectivity *sans* the phone

Text **Ahmed Shaikh,** Photograph **Jiten Gandi**
Model **Gurpreet Singh**

Oracle CRM leverages Oracle's single data model to provide organisations with a single version of 'truth' about their customers. It enables customers to move from fragmented, high-cost architectures, and improve the quality of their data. The CRM application is designed to help both marketing and sales aspects of an organisation by providing sales users at all levels through daily business intelligence, transaction reports and ad-hoc analyses. It is an application that can be implemented across different sectors—from banks, to telecom, to insurance. Training in CRM applications is not very difficult and helps them manage CRM optimally. However, unless there is someone at the top who can drive change across the company, and make decisions when departmental silos disagree, the technology will never be adopted.

S P S Grover
Senior Director, Government
Education & Health, Oracle India
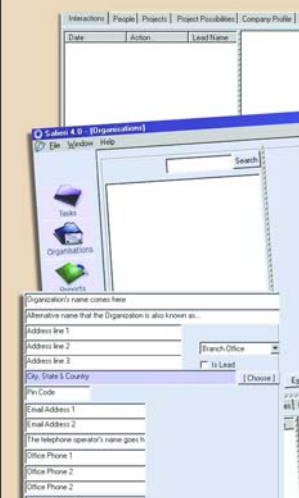
MANAGE CLIENT

CUSTOMER RELATIONSHIP MANAGEMENT (CRM) is a software solution that helps businesses manage customer relationships in an organised manner. By the end of 2002, market analysis firm IDC estimated the CRM market in India to be worth Rs 40 crore. Is CRM the ideal customer management solution? We present views from five industry experts who have deployed CRM in their domains

We specialise in selling solutions. Unlike a product, a typical sales cycle for selling a solution would be between nine to 10 months. The CRM Module is used as an interaction tool between the sales people in the US and the support team in India. The number of companies approached, contacts made, and the whole sales loop can be tracked by a support person in India—with the help of CRM. It helps sales directors all over the world in accessing data anytime. The CRM module helps them in strategising, campaigns, and design the sales approach. In this way, the sales cycle is reduced to six to seven months. It subsequently translates to much higher profits for the company, and better utilisation of resources. The training required for the module varies on its complexity. A CRM module makes sales management more effective and shortens the sales cycle of a solution.

Argho Chatterjee
Inside Sales Specialist
Lionbridge Technology

Imaging Atul Deshmukh

Like any hospitality entity, Le Meriden uses Fidelio, a Property Management System. Like any conventional CRM module, we get anytime data on the number of guests arrived, their duration of stay, the food they eat. It all helps us judge their likes and dislikes, and convert them into loyal customers of Le Meriden. In addition, the module helps keep a list of contacts of people who bring orders for us, and companies that regularly use our rooms for seminars or business stay. So, we are in the know of things of who gives us more business. The module should be ideally implemented in two phases, but most hotels implement it at one go. The prices for such modules specific to the hospitality industry also varies. We were charged $76 per room, and a training stint of 20 days cost us $350 a day. We have been using the module since 2000. For us, it's like a magician that helps retain customers and build lasting relationships.

Harish Chandra
Manager, Area Information
Systems, Le Meriden

DELIGHT

With ever-changing customer expectations and increasing competition in markets that are already saturated, survival is getting more and more difficult. Part of the problem is that most organisations still don't have a comprehensive view of their customers. They still don't understand who their customers are, which ones are the most prospective or profitable, what their preferences and attitudes are, and what they respond to. CRM bridges this information gap by leveraging the organisation's existing investments in technology, as well as all of data from multiple sources to give a complete view of all the customers across channels. CRM enables organisations to collect, analyse and interpret customer information, have confidence in the results, and communicate the results across the enterprise. It helps organisations build more profitable customer relationships, and retain their existing customers, thereby, providing them with measurable return on investment.

Rajesh Dixit
Senior CRM Specialist
SAS India

At UTI Bank, we always felt the need to provide a uniform and standard response towards customers. We did keep in mind the necessity to cater to customer queries on banking products, with standard answers, and conformed to our intention of customer satisfaction. We also considered customer feedback, since it forms the basis of value-added services. Hence, the UTI committee decided to implement the standard Oracle CRM Suite to manage our requirements. We just finished implementing the query phase last July. This tool will be used by our 150-seater call centre to handle customer queries. All our call centre executives have been trained to maintain the standards that UTI subscribes to. With this system in place, we expect to relieve our branches of day-to-day queries. This would help the staff speed up work. CRM without analysis is like food without salt. Apart from being used to service customers via phone-banking, the CRM tool assists in analysing customer behaviour. It enables the bank to gauge the effectiveness of services, product penetration, and marketing information.

As told to Aparna Krishnakumar

Pritesh Thakker
Manager
UTI Bank

Security: Outsource it?

How does an organisation handle its security? We ask two experts with contrasting views

"It's not healthy to be entirely dependant on consultants"

Shashi Bhusan
IT representative, Students Council, IIM Calcutta

Indian Institute of Management, Calcutta, has 500 students on campus. Like any other organisation, we have some critical data that needs protection, such as e-mails exchanged between the professors and the students, CAT results, Web casts, message boards, etc. Add to this, the servers and Internet gateways that need to be filtered for junk mails. The placement season is a critical time when students' profiles, resumes and company-related information become vulnerable to misuse.

The list of to-do things for IT security may seem large and one might ideally want a third-party to take care of security issues. But we have realised that it isn't healthy to outsource security completely, or to be entirely dependant on consultants. We have a LAN Squad that consists of 12 members drawn from both years of management. The Squad is headed by an IT representative elected by the students. Every member of the squad is in charge of one server, apart from the proxy servers.

We have Norton Firewall for Internet security and the proxy servers are running on Linux, which has IPtables. Our gateways also have an Access Control List (ACL) that restricts the illegal access to our proxy server. Swatch and Trip is used for intrusion detection.

Managing the security is a little hectic for the students, especially during placement season. But it's a hands-on experience; from the design to the implementation of a security system—something you usually don't get once you start working for organisations.

"Outsourced security gives us peace of mind"

Atul Bansal
IT Head, BLA Industries Ltd.

We are a 70-year-old company, manufacturing metallurgical coke. The link between factory, the coal mine, and the corporate office used to be a closed LAN/WAN line. As our usage of the Internet increased, we realised the need for greater security. Threats keep changing in names and forms. Prevalence of hacking, need for constant security updates, and increase in the number of users prompted us to secure our networks more fiercely than before.

However, we were just three people managing the IT needs of the company. We decided that it would be prudent for a third party to handle the security of the company. After internal discussions on the kind of security needed, we approached Trident Infotech Securities to manage our network security.

Trident has dedicated personnel for every aspect of security—anti-virus, firewalls, and storage. We had earlier met the company in a few seminars for security, had further meetings on what the company offered, and finally opted for their services. During the few months during which we had firewalls installed, we haven't faced even a single virus threat.

An unprotected network is far more expensive than investing in its security. Having outsourced security, we have some peace of mind in terms of security updates, patches and improved versions.

— As told to Aparna Krishnakumar
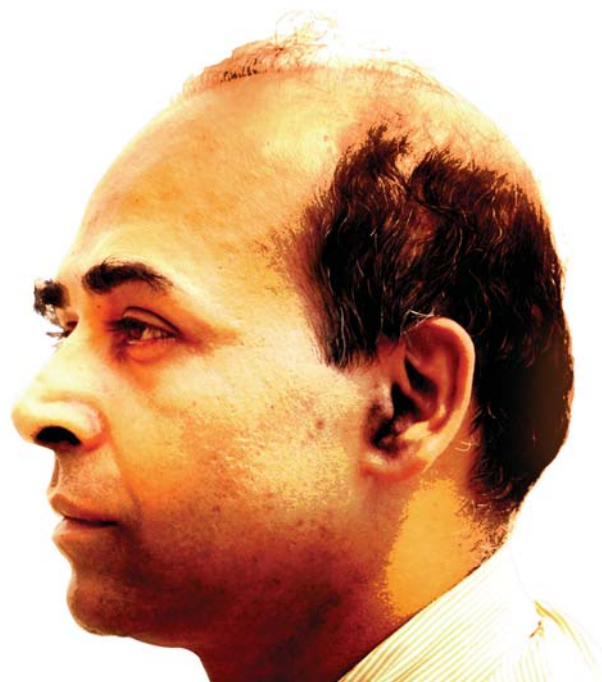
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Meera Vankipuram and
Aparna Krishnakumar

F orty-year-old Jomiben Jairanbhai of Madhura village in Satalpur, Gujarat, has studied up to Standard VII, but is adept at using e-mail—"I learnt how to e-mail during a workshop conducted by SEWA. I was a little doubtful, but equally determined to learn about the computer and make my world a little easier." Jomiben, who is proficient at Bharathaam, a tradi-tional form of tapestry, vividly recalls, "When the designs were made on paper, we had to maintain records with great care. Now, with the PC, we create all our designs on the computer." Gauriben B of Satalpur is also a Bharathaam artisan, she says, "our art is recognised not just in India, but we also get orders from abroad, thanks to our Web site. Our designs are stored on a computer and we can customise them depending on our customer's needs."

Mobile phones have allowed these artisans to stay in touch with their peers from other villages about new designs and on the status of orders.

In a country where women's empowerment is a work-in-progress; a voluntary organisation has deployed technology to help women help themselves.

Founded by social worker Ela*ben* Bhatt, the Self Employed Women's Association (SEWA), based in Ahmedabad, is one of the most powerful and well-known NGOs in India. SEWA strives to achieve self-reliance for women.

Registered as a trade-union in

Touched by Tech
Women on Top, the Tech Way

Here's SEWA, an all-women NGO that believes in self-reliance through technology. No wonder it bagged NASSCOM's Best IT User of the Year Award
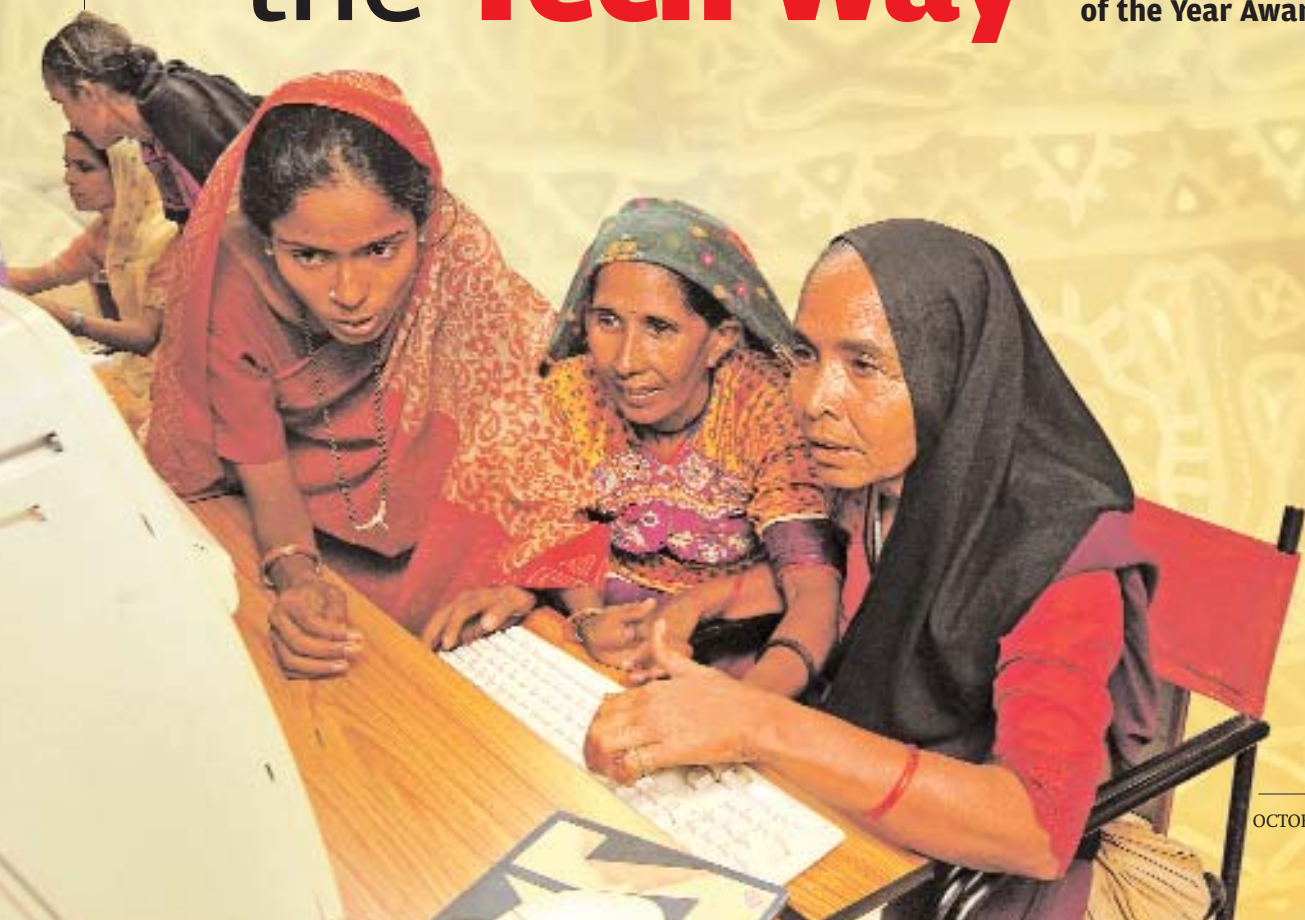
1972, SEWA is an organisation of self-employed women, mostly employed in the unorganised labour sector. The body currently has a membership of about seven lakh women, with five lakh in Gujarat alone, spread over 14 districts.

This NGO was recently chosen by India's apex software body NASSCOM as the country's Best IT User 2004, in the NGO category.

Apart from setting up co-operatives and conducting awareness campaigns, SEWA provides supportive services for women—savings and credit schemes, health-care and child-care initiatives, insurance, legal aid, and communication services. It has also developed monsoon- and disaster-proof housing methods, set up fodder-banks. Interestingly, SEWA has developed community-based health centres in a tie-up with WHO and the Gujarat government.

What sets SEWA apart is its innovative use of Information and Communication Technologies (ICTs) to streamline its operations and achieve its goals.

Going Fully Tech

SEWA hit the ICT road with the use of radio, video, mobile phones, fax machines, computers and video-conferencing. These serve as a means of communication and as

> **I learnt how to e-mail during a workshop conducted by SEWA**
> **Jomiben Jairanbhai** of Madhura village, Gujarat

Riyaben Rana Aaiyer uses the mobile phone to replenish supplies for her Bharathaam embroidery

IT User Awards: How SEWA Did IT

According to NASSCOM, the IT User Awards were based on a survey model developed by research firm IMRB to assess an organisation's "e-Readiness or preparedness to adopt ICT infrastructure to boost their business excellence." According to Sangeeta Gupta, Vice President, NASSCOM, "We realised that IT-usage among the NGO community in India was quite low, and decided to find out how many voluntary sector organisations are IT-savvy. Out of the 10 organisations surveyed, SEWA showed how best IT could be leveraged to achieve the 'digital unite', through their innovative use of computers, mobile phones, et al."

an alternate means of employment to the rural poor.

Says Bhatt, "SEWA provides computer-based training to women in local languages. Team leaders are given mobile phones and we use video-conferencing and satellites to communicate with women in other countries."

During emergencies, SEWA uses a satellite talkback communication programme to convey relief and rehabilitation measures to villagers. "SEWA aims to eliminate middlemen and make members self-reliant."

Technology has also helped people avert disasters. She cites the example of a situation in the Kheda district of Gujarat. When heavy rains and floods ravaged the village, the team leaders swiftly contacted the SEWA District Association offices in Anand, Gujarat using mobile phones.

They informed them about the nature of the damage, and eventually sought help from the block administration office. They could also call the District Development Officer and the Collector and asked for medical support and damage assessment teams.

Computers Galore

In trying to increase computer awareness and literacy, SEWA has installed 400 computers across nine districts in Gujarat. Women are given basic training in computer literacy skills, with instructions imparted in the regional language. Community Learning Centres (CLCs) have been set up in several districts to encourage interest in computer-based and general education.

SEWA employs telecommunication and satellite communication devices to conduct educational programmes on themes such as leadership building, forestry, water conservation, health education, child development, and financial services.

The organisation

uses radio broadcasts and video devices to educate people and study community initiatives. Video-conferencing makes it possible for women labourers in rural areas to interact with their counterparts in countries such as Afghanistan, and Pakistan.

The organisation plans to set up information kiosks to communicate government schemes to people at nominal charges. The kiosks will offer surfing and e-mail facilities in rural areas.

They also plan to provide community-specific infotainment content, and create IT-enabled jobs, such data-entry tasks for government agencies and SMEs. SEWA plans to set up region-specific call centres, in collaboration with local private companies.

SEWA is planning tie-ups with some big names, such as Reliance, Tata Consultancy Services and Oracle India to expand the reach of its ICT-enabled initiatives. Oracle India will help SEWA develop a complete database of its members. The idea is to trace their income, health status, education of their children, access to savings and credit, among other things.

SEWA's ICT initiatives are helping women across Gujarat become tech-savvy and self-reliant.

Jasodhaben Bhil, 24, of Vallabhnagar, Radhanpur taluka, did not study beyond SSC. She uses a laptop with consummate ease to maintain accounts of savings and credit groups in her village.

"Initially, I was very apprehensive about learning to operate computers. But after a ten-day training stint and a little practice, I am able to use the PC fairly well."

Jasodhaben's excitement is apparent—"My husband is illiterate, but he is proud of the fact that I know how to work on a PC!" A shot in the arm for the women's movement in India, courtesy SEWA.

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LED Wars, And Countries On Sale

1 Jeffrey Lee Parson pleaded guilty for creating a variant of the original worm that affected an estimated 1,20,000 computers around the world in the summer of 2003. Can you guess which variant this is?

a. MSBlast.B   b. MSBlast.A
c. Sasser A   d. Sasser B

2 Before eBay or eTrade, this Web site was the first ever to conduct a secure retail transaction over the Internet on August 11, 1994. It sold the CD "Ten Summoner's Tales" by Sting for $12.48. Name the Web site.
a. Amazon
b. Orbitz
c. NetMarket
d. Traf-o-Data

3 Nichia Corporation and former employee Shuji Nakamura have locked horns over a patent of a product that Nakamura had supposedly invented. Six months ago, the Tokyo High Court ordered the company to pay 20 billion yen, which Nichia is contesting. What is this product they are fighting over?
a. Blue LED
b. CD
c. DVD
d. Paper Disc

4 Microsoft had to recall 2,00,000 pieces of Windows 95 from India. What was the reason behind the big move?
a. It had 8 pixels in different colour representing Kashmir, which, for them, was "disputed territory"
b. Faulty registration codes
c. Poor packaging
d. The Spanish version got shipped

5 WWiSE, a group of technology companies, including Texas Instruments Inc., STMicroelectronics and Broadcom Corp., recently proposed a new wireless networking standard—a version of an 802.11n standard. What is the speed that this technology offers?
a. 400 megabits per second
b. 500 megabits per second
c. 540 megabits per second
d. 640 megabits per second

6 The eBay rulebook says that one cannot sell stuff that one doesn't own, and so they had to stop the auction of a European country that was being sold for six pounds! Can you name the country?
a. The Netherlands
b. Belgium
c. Finland
d. England

7 US-based Turbine Entertainment Software will release a virtual world in 2005 that would allow thousands of PC owners to step into their favourite world and create characters as well. Can you identify the book on which this virual world is modelled?
a. The Age of Empires
b. The Harry Potter series
c. The Lost World
d. The Lord of the Rings

8 David Beckham's text messages with PR executive Rebecca Loos has not affected his status of being the brand ambassador of this telecom company with whom he signed a new one-year contract to promote its live mobile portal service. Name the company.

a. Hutch   b. Vodafone
c. Viacom   d. Samsung

Got an interesting question? Send it in with the answer to editor@thinkdigit.com

Crossword

Across
1. Extreme value (5)
4. Computer display of tropical lizard (7)
8. Swindle portable shelter for subject information (7)
9. Internet Service Provider (abbr) (3)
10. Company emblem (4)
11. 'w' in www (3)
12. Electronic Card Assembly and Test (abbr) (4)
15. Symantec's anti-virus solution (6)
16. Country with domain 'ca' (6)
19. Fundamental unit scatters mite (4)
21. Transport Control Protocol (abbr) (3)
22. Changes in a file reverses a current (4)
26. Period of 24 hours (3)
27. _____Programming (XP) (7)
28. Numerals (7)
29. Management Information Systems (abbr) (3)

Down
1. 'L' in LAN (5)
2. A conductor of programme for basic computer operations (7)
3. ___ Structure, parent-child data organiser (4)
4. Main circuit_____board in a computer (6)
5. NUST Institute of Information Technology (abbr) (4)
6. Subject of study upsets optic (5)
7. Tech target site disrupts toaster (7)
13. A period or decimal point (3)
14. Computer Aided Testing (abbr) (3)
15. Cybercitizen (7)
17. Location of an e-mail user (7)
18. Log on a straight line, we hear (6)
20. Hardware device connecting a computer to a phone line (5)
23. 8th letter of the greek alphabet is an object-oriented language (5)
24. Eight bits(4)
25. Strange moat is the smallest component of an element(4)
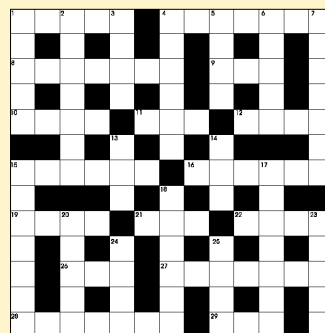
Compiled by Nitaa Jaggi

According to research firm IDC, the number of mobile phone users worldwide will touch 1.4 billion by the end of 2004, of which India accounts for 40 million.

Answers

Quiz
1: a, 2: c, 3: a, 4: a, 5: c, 6: b, 7: d, 8: b

Crossword
Across: 1. Limit, 4. Monitor, 8. Content, 9. ISP, 10. Logo, 11. Web, 12. ECAT, 15. Norton, 16. Canada, 19. Time, 21. TCP, 22. Edit, 26. Day, 27. Extreme, 28. Numbers, 29. MIS
Down: 1. Local, 2. Manager, 3. Tree, 4. Motherboard, 5. NIIT, 6. Topics, 7. Rosetta, 13. Dot, 14. CAT, 15. Netizen, 17. Address, 18. Access, 20. Modem, 23. Theta, 24. Byte, 25. Item

Media**Wise**

Not In iTune With Asia

ASIA IS THE hotbed of new technology, at least when it comes to adopting personal entertainment systems. MP3 players are one of the hottest selling gadgets here, but in a continent riddled with piracy, is it any wonder that buying music online is almost non-existent? *Time* magazine's Bryan Walsh tried to find out why:

All Nick Freer wants is his digital music, and he's even willing to pay for it. When the Hong Kong-based client-services director bought an iPod, it came with software to link with iTunes, Apple Computer's fee-based Internet music store that now dominates 70% of the online-music market. From his computer, Freer can browse every one of iTunes million-plus songs. He just can't buy any of them—consumers can only purchase and download iTunes tracks now in the U.S., the U.K., France and Germany, because the service only takes credit cards issued in those countries. "I find it very annoying," says Freer, who instead swaps music with friends and uses file-sharing networks.

Commercial online-music sites have hit it big in the US and Europe, thanks to the success of iTunes, which recently sold its 100 millionth song. Even Microsoft is shouldering its way into the business. Last week, the software giant launched its U.S. online-music store, MSN Music. But to the frustration of millions of willing Asians with MP3 players and broadband connections, buying the latest hits online is difficult, because the big U.S. music sites are ignoring the region and local alternatives are few.

An Apple spokesman declined to discuss why iTunes is not offered in Asia, saying they don't talk about future marketing plans in the press. But according to industry experts, the added complexity of licensing music and handling digital rights in unfamiliar territories and fractured markets has dissuaded heavies such as iTunes, RealPlayer and Wal-Mart from catering to Asian users for now. Rampant online piracy in places like Taiwan and South Korea also means that many recording labels in Asia still view the Internet as an enemy, not a sales opportunity. They don't want to license tunes to online sellers, fearing songs downloaded legitimately would soon be widely circulated illegally. One of the main online priorities right now, says Yashudi Ide of Sony Music Entertainment, the Japanese electronic giant's record label, "is to protect copyrights."

A handful of enterprising entrepreneurs find that attitude anachronistic. They're trying to make space in Asia's $5.2 billion music market for legal downloads. In 1999, Sudhanshu Saronwala quit his job as the managing director of MTV Asia to co-found the Singapore-based online-music store Soundbuzz. The venture made little progress for four years, but after iTunes proved a commercial success last year, Saronwala is trying again. "The labels have seen that online can be a real, viable distribution channel," says Saronwala.

To read the entire article, visit **http://snipurl.com/whereisthemusic**

Jobs Galore, Or Just A Mirage?

HERE'S AN INTERESTING article from *Time* that talks us through the paradox of the job market in the IT sector in India. It's an insightful piece on the crushing unemployment problem despite the trumpeted hiring spree:

For job seekers in India's tech sector, it's the best of times—and the worst. When Venugopal Rao Moram, a 29-year-old software engineer living in Bangalore, began looking for a new job in June this year, it took him just two weeks before he found the work he wanted—a position with Microsoft in the city of Hyderabad. "The moment you put your résumé on the Internet, the offers start coming in," says Moram, who's been working in the tech sector for six years. "Everyone looking for a job has at least five offers."

Lalit Kumar, a 22-year-old resident of New Delhi who works part time as a data-entry operator, hasn't found the job market quite as receptive to his talents. Kumar, one of the tens of thousands of young Indians who thronged a giant IT job fair in the city's Pragati Maidan exhibition center on Aug. 23, squats in a corner of the hall at the end of a long day. He's been trying to hand out résumés all morning, but no recruiter has bothered taking one. "Everyone in Delhi wants to be in IT right now. There are a hundred applicants for every post. It's impossible to get a job unless you have experience," he says. Pankaj Kamboj, a 22-year-old recent engineering graduate who has come with a half-dozen friends from the neighboring state of Haryana, complains: "We've traveled 200 km for nothing. There are no software positions here, only call-center jobs."

India's tech sector is in the grip of an extraordinary paradox. With almost all tech companies on a hiring spree, there's never been more demand for élite employees who have attended the right colleges or have a few years' experience at a prestigious company. Yet for hundreds of thousands of starry-eyed young men and women who are drawn to the IT sector in the hope that it will provide a way out of India's crushing unemployment problem, the promise of a high-paying job is turning out to be a mirage.

India's tech companies are expected to hire 75,000 to 100,000 people this year—a 50% increase compared with last year-because after years of relatively sluggish growth, the sector is roaring again. Revenues for India's IT businesses will grow by a heady 40% this year, according to Vijay Baoney, a technology analyst at Indian brokerage house Enam Securities. The problem for companies is finding enough midlevel executives who can train, groom and oversee the influx of raw recruits. "Experienced hires are not there on the scale that the industry needs them," says Hema Ravichandar, head of human resources at Infosys, one of the three largest Indian IT companies.

For more, visit http:**//snipurl.com/indiajobs**

Churning Out Warriors, Virtually
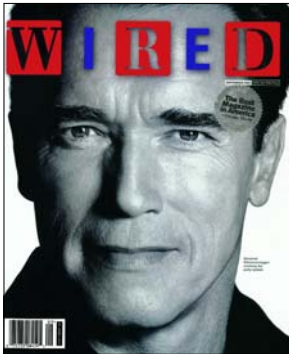
HOW LONG DOES it take to convert tech fiction to become science fact? If you are in the US army, not much. *Wired*, the magazine that redefines writing, sent contributing editor Steve Silberman to the facility where the next generation US soldiers are being trained. He came back with this report.

Twisted rebar, concrete, and splintered furniture lay scattered across the floor of this room. Our view through a jagged hole in the wall looks out on the city, showing steady civilian traffic crossing a bridge over a river below. Sparrows flap through the gray haze, and Arabic music and the voices of merchants filter up from the street.

An Army major beside me, Paul Tyrrell, scans the high-rises on the other side of the river through his laser rangefinder. He is the frontline eyes of the coalition, responsible for calling in air strikes. A platoon sergeant named Donald Prado tells Tyrrell that an office tower half a mile to the west is an enemy stronghold.

In eight minutes, coalition soldiers will storm across the bridge. Prado radios in for the Air Force to drop a smoke screen for cover. He's also spotted snipers on the roof of a hospital to the north but cautions the major that the civilian facility is off-limits to targeting.

Then Tyrrell sees something Prado missed: Three of the antennas on the roof are tactical radio masts, a tip-off that insurgents are using the hospital as a communications base.

"That's a high-payoff target, brother," says Tyrrell. He gets approval to deliver a "limited lethality" fragmentation bomb to the hospital roof. The office tower will receive the full treatment—a 1,000-pound GPS-guided bunker buster.

Seconds later, the missiles smash into their targets in perfect synchrony. Smoke and dust billow out in bright plumes, followed by shouts and the keening of ambulance sirens.

The air is thick with heat, but it's not the merciless 120-degree swelter of Baghdad. It's late spring in Lawton, Oklahoma. We're in the battle lab of an Army base called Fort Sill, and the air-conditioning is on the fritz. The river, the bridge, the civilian traffic, the birds, the bombs, and Sergeant Prado are all virtual—a simulation generated by flat-panel displays on the walls, a subwoofer in the floor, and half a dozen Windows and Linux boxes down the hall. Only the smashed furniture, the officer standing beside me, and the adrenaline spikes are real.

This is the new way soldiers will train for battle.

Michael Macedonia
Head of the Simulation Office

To read the entire story, visit http://snipurl.com/warroom

Enough Of SPIT, Time For It To Quit
First there was regular spam, then cell spam. And now there's SPIT, or Spam over Internet Telephony. Not many companies received SPIT so far, but there's one out there that aims to nip SPIT in the bud. Qovia Inc filed two patent applications for SPIT-thwarting technology.

Navigation Headed For A Whole New Way
Navigation software specialist ALK will allow Windows Mobile-based smartphones to be used as in-car map-readers this September. The software will provide both 2D and 3D maps with spoken directions for navigation while in motion.

Illustrations Farzana Cooper

Escape

SEARCH FOR EXTRA-TERRESTRIAL INTELLIGENCE

The Day Aliens Came Calling!

Rumours about finding an alien civilisation spread across the Internet on September 1, following a report by New Scientist that an interesting signal had been picked up by SETI@Home's radio telescope in Puerto Rico.

New Scientist quoted Dan Wertheimer, chief scientist at the SETI@Home project, as saying that the signal was the "most interesting" identified thus far. "We're not jumping up and down, but we are continuing to observe it.", he remarked.

Now that's just the kind of stuff rumours are made of, and Wertheimer had to tell the BBC the next day, September 2, that the idea of contact with an alien civilisation was all "hype and noise". "We have nothing that is unusual", he said, "It's all out of proportion."

Out of proportion it may have been, but what prompted the initial report that something interesting was picked up? It turns out that the signal was picked up at one of the main absorption frequencies of hydrogen-SETI's favourite

place to look for deliberate signals from other worlds. Scientists at SETI said that the signal had not been observed long enough for it to be properly analysed, and there is plenty of room for explanations. It could be a natural phenomenon, they said, or ground-based interference-or even the possibility that somebody had hacked into the SETI@Home program!

PHISHING

Hijacking is Fun, Jail isn't

Phishers were suspected of having managed the domain-hijacking of the eBay Germany site on August 28. But on September 4, German police arrested a 19-year-old

Illustrations Farzana Cooper

responsible for the act.

For several hours, visitors to eBay Germany were redirected to a site hosted by Internet provider Intergenia AG. This caused quite a loss in revenue for the auction giant.

It came as something of a surprise that the 19-year-old is not a computer nerd, as the police confirmed. What he did was to request a DNS transfer for several high-profile sites including Google, Amazon, Web.de and eBay Germany. Most of

Win!

My Desktop

Think you have the most beautiful, most innovative desktop around? Send it to **mydesktop@thinkdigit.com,** and Digit shall publish the most eye-catching of them every month.

The winning entry will win a KUSBDTI/128FE USB stick worth **Rs 1,300.** This month's winner is **Utpal Pande.**
Sponsored by
Kingston

**PLANE SILLY: Where 'crashing' takes on a new meaning.
Sent by** Vaibhav Joshi

The Age of Software, Not Soft Toys

"Child's Play" sent in by Frederick Noronha, Goa. Congratulations!

the transfers were denied, as expected, but for some reason the eBay request went through.

Interestingly, the boy says he did it for fun, and that he didn't believe it would be possible. He used existing tools on the Internet, without any sophisticated hacking techniques. This leaves open the question of how many other, high-profile sites are in danger of being hijacked.

Also, if it's so easy, why hasn't something like this been done more often - especially when it turns out that the tools to do it are right there on the Net? There's a lot of money to be made off attacks like this one. Once the site is hijacked, the hijacker has potential access to users' usernames, passwords, credit card numbers and other such juicy stuff.

ONLINE DATING
Divorce And The Internet

Statistics from the UK's Office of National Statistics recently reported that divorce rates in England and Wales have risen for the third successive year, from 2001 to 2003. Can there be a link between divorce and online dating sites? There can, according to Relate, a UK-based counselling service. Christine Northam, a counsellor at Relate, said that sites such as Friends Reunited bring together former lovers, which in turn hastens the breaking up of existing relationships. However, Northam also said that there were other factors at play here as well - including work pressure and a decrease in the stigma associated with divorce.

The number of Web sites that act as a bulletin board for people seeking old school friends and colleagues have risen in the past five years.

A spokeswoman at Friends Reunited said that it was incorrect to suggest that such sites are undermining marriages and families. Explaining the innocence of sites such as Friends Reunited, she said, "We are no more to blame for divorce rates than the advent of the telephone. We are an intermediary and we ... reunite ...what occurs afterwards is beyond our control."

FriendsReunited.co.uk does seem to make it really easy, though, to find old flames - there are over 11 million members, and it's free to search for old friends.

DVD OVER INTERNET
Ring One Up For Panasonic

It may seem like luxury to the point of uselessness, but still, it's a first. September 8, Panasonic announced a DVD recorder that you can programme over the Internet and via cell phone as well. The DMR-E500H has a 400 GB hard drive, which makes for 700 hours of recorded video. It will be available in Japan beginning September 21. This, and similar players let you watch a program from

The Pixel

This year, the pixel turns 50. Yet, how many of us are aware?

1954, the year the transistor radio was invented, also saw the birth of the pixel in New Jersey, USA. At Princeton's Institute for Advanced Studies, an enterprising team of mathematicians and engineers created the first ever computer graphic. Their breakthrough effort saw the first instance of digital typography-on a computer the size of a Manhattan apartment! The Princeton's pioneers used a small matrix of glowing vacuum tubes to spell out letters. It was the first ever instance of mapping com-

puter memory directly to dots in a display.

Soon, the earliest personal computers, with 300 x 200 screens, sprung up. They came with a separate 'text mode', which still features in Intel-based computers. 30 years after the geniuses at Princeton's created the first pixel, Macintosh entered the scene. And we saw the first PC that treated on-screen text as just another graphic.

Fast forward to 2004-pixels are everywhere. Today, most of our sources of entertainment and work are broken down into pixels, and disseminated digitally through satellite, cable, compact discs, and the Internet. The brainchild of a bunch of New Jersey mathematicians and engineers has revolutionised the way we see the world.

The DVD Hollowcast

Once in a while , here at *Digit*, processes change hands, people are introduced into entirely new situations, and responsibilities. Why? Because it helps to build a stronger organisation, and gives our employees firsthand experience of varying processes, and newer, more uncomfortable places to sleep.

Raaabo (Robert Sovereign-Smith to the world) was given one such opportunity. He went from copy editing the magazine to content coordinating the DVD and CD. Sounds simple enough, right? Wrong! The only similarity was the thousands of little things he had to worry about? It went from thousands of words to thousands of MBs!

Somewhere along the way, he realised that the DVD needs to be sent for replication long before the magazine! Ouch! Shorter deadlines! Which obviously meant longer hours in the office? Caused mainly due to his bumbling about, and deleting the wrong folders in his sleep! We walked in a few mornings and found him sound asleep on his chair, and other mornings, he seemed to have disappeared...until we found him asleep under his desk. For over a week, his life revolved around his 4x4 foot workspace, and he finished the DVD just three days past his deadline!

So cheers to Raaabo! Hope he's got the hang of things, and finishes the DVDs on time from now on...mainly because none of us wants to tell his wife when she calls, "No, you can't speak to him because he's drooling over the carpet under his desk...sound asleep!"

DIGIT DIARY

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an earlier moment in a live broadcast - courtesy: the hard drive.

Panasonic said the recorder offers high-speed dubbing from its hard drive onto DVD-RAM and DVD-R disks. It can record a 1-hour program onto a DVD-R disk in just 56 seconds, the company claims.

Connections include an Ethernet port and a broadband receiver. Use the Ethernet connection to view MPEG4 video and JPEG photos on a PC in another room. Using two such recorders, you can access MPEG2 video on one by the other via the LAN.

P2P SUES RIAA
Poetic Justice

For a change, a P2P company has sued the RIAA over a patent. Altnet, a subsidiary of Brilliant Digital Entertainment, says the RIAA infringed on one of its patents in the course of its efforts to enforce copyrights on P2P networks. Also named in the lawsuit are Overpeer, a copyright company, and MediaDefender.

Altnet has been looking for funding sources and ways to strike back at the record labels' efforts to undermine P2P networks. In 2003, it announced that it purchased patent rights to the process of identifying files on a P2P network using a hash, or digital fingerprints based on the file's contents.

Altnet's lawsuit centres on the fact that despite being notified several times in 2003 about the patent, RIAA executives continued to support Overpeer, and conducted their own enforcement procedures on the KaZaA network, thus infringing the patent.

Overpeer is a 'spoofing' company that posts millions of false or corrupted files on networks such as KaZaA, which makes real files hard to find. Media Defender uses 'interdiction' techniques, which clog networks with requests that block download efforts. Both these services use unauthorised versions of KaZaA and the underlying FastTrack P2P technology. Altnet contends that this means they are using their patent without permission.

PRIME NUMBERS CRACKED?
A Disaster For All e-commerce?

September 7, 2004, *The Guardian* newspaper's headline screams: "Maths Holy Grail could bring disaster for Internet." That headline is as tabloidish as they get. But then, maybe not. It depends on whether Louis de Branges has really solved the Riemann hypothesis. If he has, "Financial disaster might follow. Suddenly all cryptic codes could be

whatweretheythinking.com

www.Deathclock.com

Some say, it's impossible to foretell death, some say, it's not. Some don't give a hoot about kicking the bucket, while some freeze at its thought. Here's a Web site that actually tells you when you are going to die-exactly when! As you visit www.deathclock.com, you will be greeted with the punchline—'Death Clock: The Internet's friendly reminder that life is slipping away...'

An info box, laid out with utmost matter-of-factness, asks for your date of birth, sex, and whether you are a pessimist, optimist, sadist, and what not. That's not it. It has something called a body-mass index, which is calculated using your height and weight. Deadly jargon, eh? After this ludicrous round of inputs, hit the blood-red 'Check your Death Clock' button. And Voila!—the exact date of your looming death!

Don't waste time in trying to get over the shock-there's work to be done. A Deathclock poll invites you to cast your vote on exactly how you think you are going to die! Deadly democracy, isn't it? Draft your Will, or take your time and compose that last prayer. And have faith people, a section actually helps you postpone your death, with the perfect recipe to boost your longevity!

While you keep rummaging Deathclock to find out how to die another day, we try to figure out why on earth they made such a site. Chances for both are dead as a dodo. Woody Allen's famous confession keeps haunting—"It's not that I am scared of death. I just don't want to be there when it happens."

breakable. No Internet transaction would be safe."

So what is the Riemann hypothesis? It's too complex to explain in its entirety here, but in essence, proving it would explain the seemingly random pattern of the sequence of prime numbers. And prime numbers are at the root of cryptography, and hence, security of transactions on the Internet and elsewhere.

What has happened is that this year, Louis de Branges, a French-born mathematician at Purdue University, claimed a proof of the Riemann hypothesis. His colleagues have remained unconvinced thus far, and the mathematical community is sceptical.

Prof Marcus du Sautoy of the Oxford University explains, "The whole of e-commerce depends on prime numbers. I have described the primes as atoms: what mathematicians are missing is a kind of mathematical prime spectrometer. If the Riemann hypothesis is true,

it won't produce a prime number spectrometer. But the proof should give us more understanding of how the primes work, and therefore the proof might be translated into something that might produce this prime spectrometer. If it does, it will bring the whole of e-commerce to its knees, overnight. So there are very big implications."

Blog WATCH

Here's taking a look at a few riveting posts from the world of blogs. This month, we examine a discussion on the VoIP revolution, across the globe. More on spam—why online newspapers require registration, the new face of cyber crime, and why spamming is "the online equivalent of the teenagers who drive around smashing mailboxes."

Om Malik on Broadband
http://www.gigaom.com/2004/09/the_voice_over_i.php

The Voice over IP Insurrection
The VoIP insurrection over the last decade marks a milestone in communication history no less dramatic than the arrival of the telephone in 1876. We know data networks and packetized voice will displace the long standing pre-1995 world rooted in Alexander Graham Bell's invention. It remains uncertain whether telecom's incumbent carriers and equipment makers will continue to dominate or even survive as the information technology industry absorbs voice as a simple application of the Internet.

Mike
http://www.techdirt.com/

Why Online Newspapers Require Registration
The main reason most sites require registration: spam. Direct mail marketing companies are offering ridiculous ($300 CPM) fees for email lists of registered newspaper readers for spam purposes.

Never mind the fact that many of those email addresses are bogus dirty data, the newspapers see cash from spam. This isn't, as they claim, about having more detailed demographic info to "more accurately target advertising," but about having your email address to sell to spammers. Once again, BugMeNot becomes a useful anti-spam tool. It seems hard to believe selling email addresses to spammers could be a successful long-term business strategy.

JC (Knight)
http://www.seochat.com/showblog/282/The-new-face-of-cybercrime

The New Face of Cybercrime
Today's hacker isn't just out to show off, they're just in it for the $$$. Read the 'full story' for a very insightful look into today's state of affairs, and the means necessary for protection.

[Reference URL: http://news.com.com/2010-1029-5275150.html?tag=nefd.acpro]

Most spammers want to "phish" your credit card number. Messages now zip around the Internet purporting to come from trusted companies and asking you to "verify your account." This is the new face of cybercrime.

Alex D
http://killthespam.blogspot.com/

Respect and the Internet
On television, in print, or on the radio, ads disguised to look like an emergency warning would be pulled immediately. Why is this practice permitted online?

We humans have turned the world of computers into virtual living. As a computer operates like an individual mind, the Internet mimics the global community.

When you are online, you are virtually taking a walk down the street. Entering a site is like being welcomed as a guest into another person's house. If you're rude and attempt to start disrespectful arguments or fights, the owner has the right to throw you out and repair damage.
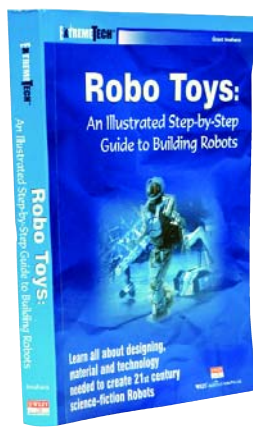
Build Your Own Pet Robot

GRANT IMAHARA IS no amateur. He works on animatronics and model-making for George Lucas's Industrial Lights and Machines and was one of the geeks behind R2-D2 in Star Wars.

Imahara sticks to the basics and practicalities of serving his passion-designing and building robots fit for the battles of BattleBots. And in this, he leaves nothing out. Right from picking up the paper, designing the robot components, selecting tools, to assembling drives and control systems, to what not.

A better part of the 500-page book reads like a starter course on workshop technologies. If you have been nurturing that fantasy of having a wire-bristling pet someday, go get a copy of this book. Don't worry about skipping a page or two and landing up clueless. You can trust the detailed troubleshooting sections.

The book is also a must-read for those who love tinkering with homegrown mechanics. The richly-illustrated pages will guide you through metalworking, fasteners, housing and installing motors, mountings, transmissions, wheels and tracks, power system, and even pneumatics for gizmos.

The book doesn't shy away from doing the mathematics wherever required, sprinkling essential formulae at several places. However, the Appendix provides all the specs in American standards.

Grant gives us a lowdown on IFI system programming without actually intimidating with gory details, in the Appendix. Another gem is a wealth of online resources provided in the Appendix.

In Grant's own words—"This is an expensive sport, and you should have an idea of what you are getting yourself into." His introductory robot costs around $4,000.

Rahul Singh

Robo Toys: An Illustrated Step-by-Step Guide To Building Robots
Publisher **Wiley Publishing, Inc.**
Author **Grant Imahara** Price **Rs 349**
E-mail **wdt@vsnl.net** Web site **www.wileydreamtech.com**

One For the Bot Killers

YOU PLAY JACK Carver—stranded on an island with a pistol, a bad temper, and a taste for bot gut. Before each mission, you have to endure a singular long load. This is one of the primary reasons that there's a seamless transition as you move from coast to coast or the indoors to the outdoors.

Whilst playing the game, there aren't any loading hassles in between, but the territory comes with an irritating encumbrance in terms of the save mechanism. The game will only pause occasionally during checkpoints, which is where a save point is created. You cannot save your progress in the game whenever you feel like, and in a game such as *FC*—offering more than 20 hours of reasonably tough game play—this can be tiring.

The AI in *FC* is something else. Bots show their inhospitality rather vehemently. Once they see you, fighters will summon fellow coded gun slaves, or follow you for a considerable distance. All-in-all, Crytek has come up with a gem of a game.

SKOAR!

Far Cry
Publisher **Crytek**
Developer **Ubisoft**
Web site **www.farcry-thegame.com**

5
TOP SELLING GAMES

1. **Driver 3 PlayStation 2**
   Rs 2,999
   Milestone Interactive Software Pvt Ltd
2. **Need for Speed Underground**
   Rs 1,299
   Gayatri Impex Pvt Ltd
3. **Jumpstart**
   Rs 699
   Express Interactive Software P Ltd
4. **Counter-Strike**
   Rs 699
   World Wide CDRoms
5. **Harry Potter: Prisoner Of Azkaban**
   Rs 1,299
   Gayatri Impex Pvt Ltd

List Courtesy **Crossword Mumbai**

Shocking and Awful!

BACK TO BAGHDAD picks up from where its predecessor left off. Surprisingly, *BTB* is still set in 1991.

BTB, however, disappoints hugely on all fronts. America may have won the war, but Pivotal Games is fighting a losing battle against bad gameplay. To its credit, the missions are varied.

You start off by rushing to the rescue of a downed chopper *à la Black Hawk Down,* then blowing a communications station to Kingdom Come, getting caught by a bunch of ferocious Iraqis, escaping (and blowing up a chemical weapons plant, if you please), and finally neutralising 'super-guns'. There are 10 agony-filled missions.

The default view is from a third-person perspective, where moving around is relatively easy, but accurate firing is impossible. The first-person mode just doesn't have the FPS feel to it.

There isn't a single hotkey for any weapon in the game. It might be excused on the grounds of trying to make combat more realistic. If any joy was to be wrung out of the game at all, it's killed by the poor 'inventory management'.

SKOAR!

Desert Storm II—Back To Baghdad
Publisher **SCi Games**
Developer **Pivotal Games**
Web site **www.conflict.com**

Subject **Whats my wish-list**

vinitg
Analogue Novice
Location: Mumbai

Hi guys,
This is my first topic as I am new to the forum (needless to say completely hooked). I am a gadget freak with a never ending wishlist. Just yesterday, I read about the new digital cameras launched by all major companies. But not even one of them featured Bluetooth. Now if only digital cameras had Bluetooth, it would be so easy to transfer pix. So rite now I would love if some company (Sony?) came up with Bluetooth digicams.

****

krazydude
In-House Geek
Location: Follow me and I shall set u free

I wish for a mobile phone on which my friend and I can play DOOM 3 multiplayer at 1024 x 768 with all the eye candy.

****

gxsaurav
Digitized!
Location: Lucknow

Publicly, I wish for peace on Earth.
In actuality, here's the list:
AthlonFX 55, 2 GB Kingston DDR1, 6800 Ultra, a Zalman reserator with GPU Block, a Ducati S400, an nForce 4, 10 MBPS VDSL, a 20-inch Dell 2001FP, a 76 GB Raptor, a PS3, an MS Optical Desktop Comfort edition and a job as the Marketing Manager for nVidia in India.

****

plasmafire
Warmed-Up Nerd
No 12 will be hell 4 u.. I'm dead serious. I called up the guy's office. So I know.
I also believe u r missing out a speaker system.
I wish for a Powermac G5 running Half-Life 2 and a Microsoft OS that never crashes.

****

techno_funky
Digitized Spammer
Location: Mumbai

A Swatch (still using a Timex) | AthlonFX 55 | Ferrari F430 | A job at Nasscom | A Bajaj Pulsar (as of now) | Sony Ericsson P900 | PS3 | a T1 Net connection | Creative THX S750 7.1 speakers | Creative Sound Blaster Audigy 2 ZS Platinum Pro Sound Card | To become a DJ

To post your comments on Digit Forum,
visit www.thinkdigit.com/forum

Smart Cards, Smarter Bar Codes

Sachin Kalbag's editorial on the incorrect use of smart cards was enlightening. The purpose of a toll booth is to collect toll on a monthly basis from regular users and spot toll from casual users.

The sticker he referred to was for the monthly user, the purpose being to identify the vehicles who have paid for the month.

A simpler solution would be to print a sticker with a bar code. As soon as the vehicle approaches the toll booth, the attendant with a simple bar-code scanner scans the barcode into the PC, the PC would authenticate and if the vehicle has paid for the month a green light would light up, else a red one would light up along with an audible beep, and the gate at the far end would not open.

For this new regime, only a new bar code sticker would be required instead of

Editorial

Smart Cards, Dumb Bureaucrats

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

Sachin Kalbag | Executive Editor

the expensive smart card. Even if this bar code sticker is lost, stolen or damaged, a new one could be issued at a ridiculously low price of less than a rupee.

This simple solution costs far less than a smart card-based solution, and it is much faster. There is no need of a "dog tag" and it is simpler to implement.

Apart from providing another unique Identity Code to each vehicle (first on being the registration number), which is also not needed, I see no purpose of using smart cards in toll booth kind of usage.

Sanjive Mehta,
New Delhi

Phone Moan

Many people wonder why Internet services in India are most hated. I used to wonder, too. Until I found out for myself a few weeks ago. I have an MTNL Internet account. I could not get past the login screen. I called the MTNL Internet Services Hotline. Here is what happened:

The person who picked up the phone (let's call him A) told me to check the number of the error. I did so and called back, only to find a different person (let's call him B) on the line.

I had to explain my problem all over again. This person told me to dial a different number and find the duration for which I can hear a fax tone. I did so and called back. This time A picked up the phone. I disregarded the fax line report and told him the number of my error. He told me to dial MTNL's phone line number.

I called that number only to find that it was not in use! So I dialed the Hotline again; now B picked up the phone. So I gave him the duration of the fax tone. He asked me to dial the same number which A had given. I told him the number was not in use. He asked me to find the number MTNL's phone service to ask them to repair my line as he felt the problem was in my phone line, and not the Internet connection.

Three days, and numerous attempts later, I found the 'working' number for MTNL's local phone service in my part of Delhi, only to find that my phone line was perfectly ok! So I dialed the Hotline again, and a third person picked up the phone.

With a sinking heart I told him my problem all over again. This person, however, immediately gave me a new password and told me to try again. Miracle! It worked.

While I was happy to get my Net connection back, it was a harrowing five days for me. With such customer service, is it any wonder that MTNL complains of very few customers! Oh, and by the way, did I mention the slow speeds?

Amrit,
Delhi

I Won, Thanks To Digit

I am a computer applications student. I am not a subscriber, but I make sure I buy *Digit* every month. Some time ago, the institute where I study had a Digital Fest between four selected houses—Microsoft,

Linux, Oracle and Cisco. I was lucky enough to be the House Captain of Microsoft House. One of segments was a Multimedia Crossword with topics ranging from general knowledge to information technology. I am happy to report that *Digit*'s *1001 Amazing Tech Facts* helped us win the crossword, and eventually made us overall champions.

Chhama Chenkual
Aizawl

Thank You For SP2

The best thing about the September issue was the inclusion of Microsoft Windows XP Service Pack 2 Final Release. Even better was the review that went in the magazine. It rightly pointed out the

compatibility problems of SP2 with over 200 programs.

I also find your Upgrade to DVD offer remarkable. It is a perfect excuse for buying a DVD-ROM.

Shailesh Moolya
On e-mail

More Game Reviews, Please

I am truly impressed with the new-look *Digit*, and the changes you have brought about in the magazine, especially the new, practical way of looking at technology, and it applications. It is also great news for *Digit* readers that you will now bundle a DVD with every

issue.

But I was disappointed not to find many game reviews in the September issue. I also miss Agent 001. Despite all these minor irritants, *Digit* remains my favourite magazine.

Kiran K
Kerala

Lost In The revolution?

I have been a faithful reader of *Digit* for the last three years. Undoubtedly, I like *Digit* and the revolution it has created in technology media in India, but there are some things still missing in the revolution.
▶ Agent 001 is lost somewhere in Lamington Road
▶ Celebrity wallpapers no longer enhance my desktop
▶ My Winamp no longer looks great
▶ Something called desktop themes is now Extinct
▶ My PC finds many common files in the DVD and the CD

May I also request you to add a complete manual of how to use a Linux distro, and its complete set of commands, preferably in PDF.

Kunal Patankar
On e-mail

Negative? What Negative?

As a regular subscriber of *Digit*, I am pleased to see it in its new avatar. A few readers may not like the latest version. The primary reason being the rigidity of the human mind to remain attached to older and 'safer' realms. I could not, honestly, find a single minus point with the current format.

It is easier to read and talks about everyday application of technology, and how it transforms our thinking. All I can say is: carry on the good work

Shobhit Agarwal
On e-mail

Change Is The Only Constant!

Change is inevitable in life, and *Digit* has managed to change at the right moment, with the right content. This is the real reason behind *Digit* being the No 1 technology magazine in India.

The other day when I was surfing the internet, I came across a forum posting that was rather hostile to *Digit*. The members seemed angry because your company promoted big games in *Skoar* magazine rather than giving it in *Digit*. The common complaint was that *Digit* neither provides full version games nor big software. Therefore, they felt *Digit* readers were not given a good deal. They were also not happy with anniversary issue. Hence they were planning to boycott *Digit* en masse.

But your timely changes proved that you are better judge of market than anyone else, and that you are a forward thinking organisation. You have not only begun giving full games on the *Digit* DVD, but also provided a fabulous offer to upgrade to DVD at low prices. This is surely a double blow to both your critics and competitors.

If you allow me, may I also suggest some changes that will make the magazine much better?
▶ Make the Contents page simple. Can you provide page numbers on the cover so that people can navigate directly to the page they are interested in?
▶ Can you include Indian astrology software every month?
▶ *Digit* can even start giving readers hardware prices prevailing in the market.
▶ Do provide full-sized games on the *Digit* DVD which have been old favourites like IGI 2: Covert Strike, Unreal II: The Awakening, The Great Escape XIII, World Racing, Lock On, Silent Storm, Sindbad: Legend of the Seven Seas, Halo: Combat Evolved, etc.
▶ CD-ROMs will soon go out of use. Maybe *Digit* can then start giving two DVD and create another revolution just like you did when you started giving two CDs years ago.
▶ Upgrade 2 DVD offer should be kept valid for a longer time.

Sartaj Sharma
On e-mail

LETTER OF THE MONTH

Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

Sell Nothing For Anything

You can sell anything on eBay. In fact, you can also sell 'nothing' on it, as people have done in the past. But news is made by people selling next to nothing, for quite a lot of money.

Jay Loewer, from the US, had an old beer can lying about his house for as long as he could remember. The front of the can has a camel draped with a blanket that reads "Are you thirsty".

His friends suggestd it might fetch him some money. Well it did—$10,999.99 (Rs 5,06,000) to be exact.

Three cheers for eBay, and remember, be careful what you throw away!

Putin' A High Stake

A Web site (*Kavkazcenter.com*) hosted on Lithuanian soil pledged $20 million for the capture of Russian President Vladimir Putin. The Web site has accused the President of war crimes.

The Russian Foreign Ministry wasted no time in requesting Lithuania's ambassador Rimantas Sidlauskas to pull the shutters on the offending Web site.

The request was denied. The site used to operate from servers in the US and Britain, but was removed after it was accused of being a source of spam. It is now hosted by Elneta on a server located in the apartment of renowned Soviet-era dissident and political prisoner Viktoras Petkus.

The Lithuanian Foreign Ministry said that the site cannot be shut down as yet. A court ruling is expected next year from the country's Constitutional Court on a pending case. The case will determine the site whether goes against the Lithuanian law.
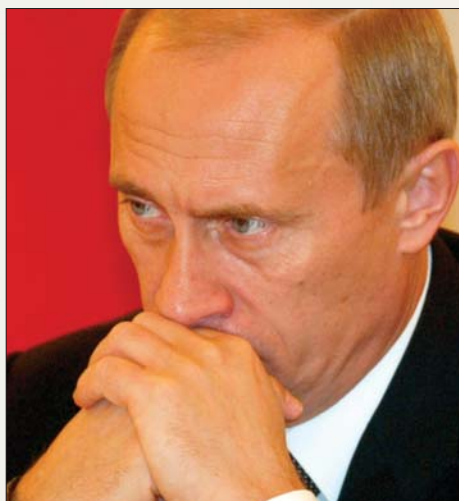
Vladimir Putin: The 20-million-dollar President!

Follow That Nose!

You move your head and the cursor follows your nose. Blink the right eye and it is translated to a right-click, blink the left one for a left-click.

Dmitry Gorodnichy, an inventor from the Institute of Information Technology, Ottawa, has developed a computer navigation system that uses your nose to direct a cursor, *New Scientist* reports.

The nose-steered nouse is expected to make using a computer easier for people with disabilities, or for gamers who would like nothing better than to slay monsters with a blink of an eye or play tennis by bobbing the head.

The technology uses a USB-connected Web cam to track the user's nose. Gorodinchy chose the nose because it is the easiest facial feature to track. Motion detection software is used to pinpoint the blink of a user's eye. A double-blink switches the nouse on.

Dmitry has a nose for innovation

Klingonese, The New Lingo

The Klingon ambassador congratulates Erik Bettermann of Deutsche Welle

Bumpy-headed aliens from the Class M planet Qo'noS can now get the latest news beamed live from the *Third Rock from the Sun, The Milky Way, The Spiral Arm*. German broadcaster Deutsche Welle (DW) recently added Klingon, spoken by the alien species from the science-fiction franchise *Star Trek*, to the 30 languages used on its Web site.

The pages at http://klingon.dwworld.de/english/index.php were added to celebrate the site's 10th anniversary. The portal-within-a-portal covers snippets of information on the Klingons, their customs, their rituals, their history and their culture. "The dialogue of cultures does not end at the edge of our solar system," Deutsche Welle Director Erik Bettermann said. The sentiment will surely be shared by the late Gene Roddenberry, the creator of *Star Trek*.

Deutsche Welle was Germany's first public broadcaster to go online in 1994 (*www.dwelle.de*).