A 9.9 Media
Publication

digit

YOUR TECHNOLOGY NAVIGATOR

Vol. 9 Issue 7

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Wireless Devices

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Donning the white hat

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E-home
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security devices

Securing your **portable drive**

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Security lessons from the UK

Search engines: current and future tech

Re-imagining the Netbook

OUT TO GET YOU!
Your data or your life; nothing is safe anymore

AGENT 001 GOES SHOPPING FOR MOTHERBOARDS & CPUS

The online way

What I love most about being Indian, is our welcoming nature. I love belonging to a country where neighbours are often closer to us than family, and friends never need to announce their intentions of coming over. We're a warm, fun-loving culture, and we're really good at making even total strangers feel at home.

One would think such a deep-rooted ethos would also find its way online, but *Digit*, and I, learnt the hard way, that nothing's further from the truth.

The net's become a country of its own, with no laws, and certainly no official moral code of conduct. Of course, this is not something new to any of us, but I'm guilty of being foolish enough to think *all Digit* readers were different.

All of you know we are undertaking new initiatives to connect with each and every one of you – through workshops, reader meets, boot camps and webinars, which we kick-started under the "Eighth Anniversary Carnival" banner. You can turn to page 132 for details of some of the amazing experiences we've had over the past month. However, in this space, I want to talk about the solitary experience that caused me to write this month's column.

One of the webinars, conducted at a press conference – and thus in a relatively uncontrolled environment – was an interview with a global product-design head from a notable technology company. The idea was to get the person to take some time out to connect with our readers, and answer some of the questions they might have. It started disastrously, with no audio for about half an hour. The first thing we learnt from this was to make sure never to take hardware for granted. Half an hour later, we finally did get the audio working, and apologised profusely to both, the participants as well as the guest, but people were restless by then.
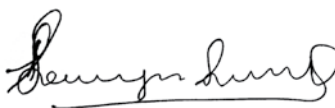
Here's where people hit the proverbial fork in the road, and are usually presented with two choices... In this case, the first is to just forget the initial technical snags and get on to making the most of the opportunity – to get some insights from someone most of us are likely never to meet in the normal course of our lives. The second is to continue to be peeved off and just keep disrupting the webinar. Thankfully, most of the participants chose the former, however, a few chose the latter. While one person started playing weird sounds through his microphone, others started ridiculing the guest speaker – especially when he stated that he was tired from traveling and had to wrap up the interview quickly. I don't know a single person who would behave that way if this were a face-to-face meeting. What's with the false bravado people show when they're online, and know that they're anonymous?

This is not something any authority will ever be able to control. We're here to learn, and to share insights with you, and we're going to continue to have such meetings – without technical snags – and keep giving you opportunities to interface directly with important industry people. It's our collective responsibility to keep the uninterested away, and outnumber them at every meet.

It is a pity that disruptive elements made that particular meeting much less fruitful for those who were genuinely interested in learning something. My concerns go beyond just netiquette, though. Blogs, for one, have changed the way the citizens of the web behave in general. With information flowing instantaneously around the globe, the false bravado that netizens display under the cover of anonymity has turned into a false sense of knowing. Edward has written previously about Wikipedia and how often it's wrong, and I also find that numerous blogs publish opinions that are riddled with factual holes. Most bloggers are not as open-minded as Wikipedia though, and choose to moderate comments on their blogs. Sometimes, this can end up meaning that a few hundred or thousand vocal netizens can control what a billion internet users just accept to be "the truth", thanks to search engines ranking them highy .

This is another reason why it's important that readers like yourself get your answers straight from the industry leaders – keep an eye open for more such webinars and meets, because we're certainly continuing undaunted.

editor@thinkdigit.com

Robert Sovereign-Smith, Editor

"**The net's become a country of its own, with no laws, and certainly no official moral code of conduct**"

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

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Enter
DVD Contents | **96**

Remote Monitoring
Keep tabs on what is going on at home using a webcam tool called Dorgem

58

Antivirus Suites Tested
We find out how Antivirus suites measure up against each other.

Tools
Multimedia
Picture Collage Maker Free 2.0.7
Picture Collage Maker Free is a simple-to-use Windows freeware
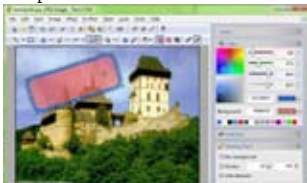
that turns ordinary photos and pictures into stunning keepsakes to share with family and friends. With just a few clicks, you can create digital collages, scrapbooks, posters, invitations, calendars and greeting cards.

- Advanced DVD Player 3.03
- All2WAV Recorder 4.0
- Alternate Pic View 1.415
- Apex Video Converter Free 7.66
- Converter Free 5.16
- Artisan CD & DVD Burner
- Berberus Mass Image Resizer
- FLVPlayer4Free 3.4
- FotoMorph 7.1
- Kodak Easyshare Software 7.1
- Memeo Share 1.0.1685
- Snapact Photo Manager 1.3.1
- WIA-Loader 1.5.6.1

Internet
- BearShare 8.0
- Camfrog Video Chat 5.3.208
- Download Accelerator Manager
- eMailaya 3.7.0b2
- Gbridge 2.0.0.1272
- IDrive Online Backup 3.2.6

- LimeWire 5.1.3
- Miranda IM Portable 0.7.19 Rv2
- Palringo 1.3.1
- RapidShare Downloader 4.8
- Skype 4.1.0.130 beta

Gaming

Games
- Cryostasis: Sleep of Reason
- Battlestations: Pacific
- Drakensang: The Dark Eye

Game Trailers
Need for Speed SHIFT

Push the pedal to the metal and understand how the shift works in this high-energy trailer.

- Lost Planet 2
- Mass Effect 2
- Operation Flashpoint 2
- Split/Second
- The Saboteur

Videos
Linux Journals

Introduction to Robotics
- Lectures 11 to 16, Lagrange Equations to Compliance

Astronomy 160
- Lectures 9 to 12 - Relativity and super massive black holes.

Digit

Digit
- Unboxing Videos
- Photos of reader meets
- Mumbai Bootcamp Video

**Secure Your PC,
12 Major Anti-Virus Suites,
Bloatware Replacements,
Tips n Tricks**

Tools
- Dorgem
- Digit Archive
- Opera Unite

Entertainment
HD Trailers
- Aliens In the Attic
- Away We Go
- Children of Invention
- Gamer
- Gooby
- Pandorum
- Princess and the Frog
- Sherlock Holmes
- Street Dreams
- The Road
- Toy Story 3
- Whatever Works

Movies
- Return of Street Fighter
- Night of the Living Dead
- Street Fighter

Music
- Doom - the Dark side of Phobos
- Boxing Fox - The Shepherd

hates us
- In Zaire - In Zaire

Coldplay - Left Right Left Right Left

Games
Overlord 2

Overlord II is the sequel to the hit warped fantasy action adventure that had players being delightfully despotic. In Overlord II, a new Overlord and a more powerful army of Minions take on an entire empire in a truly epic adventure, inspired by the rise of the Roman Empire.
- X-Motor Racing

E3 Videos
- Microsoft Press Conference
- Nintendo Press Conference
- Sony Press Conference

Head to www.thinkdigit.com to check out the online avatar of Digit

1 We first check out the tools and features that the home page provides

Sign-in:
If you are a forum member, you can click here to sign-in

Quick Registration:
Click here to register yourself to the forums

Newsletter Sign up:
Get the latest technology dose from Digit, click here to subscribe

Top Categories:
Want the latest Agent 001 dope? Jump straight to your favourite category by using this bar

Cart:
If you have added something to your shopping cart, the item(s) and total will show up here

Popular Stories:
Stories most loved by the Digit community will show up here, as will popular discussions on the Forum

Videos:
Check out the latest tech videos from Team Digit and around the world!

Downloads:
Frequently updated with the coolest and latest software

2 Now that you are familiar with the home page, let's take a look at what you will see when you click on a headline. There are plenty of tools to comment, rate and interact available here...

The stamp of approval:
Any article stamped with the 'd' logo means that it is written by Team Digit. If you see a 'u' here, the article has been submitted by a member of the Digit Community

Rate this article:
Like it, hate it — tell us what you think of the article you are reading. The '+' sign will show us your approval, while '-' means you think less of it

Comment:
Don't forget to comment — it's a quick, painless process that let's us know your thoughts on a piece. We love reading comments!

DIGG it, mail it, print it:
Use these tools to navigate stories and to share them with friends and your favourite community

Inbox

10 **Zicom**
A talk with Pramoud Rao,
Managing Director of Zicom

12 **Cleartrip**
PKX Thomas, COO, Cleartrip talks on
online security measures

✉ Regarding gaming section in the DVD:
i. You should also provide gave trainers, cheats etc. additionals in this section.
ii. Games category such as action, strategy should be maintained.
iii. Minimum hardware requirements to run the game should be given in the DVD.

Jasbir Singh
Jharkhand

d Hello, thank you for your feedback. It's great to know that we are contributing to your interest in technology, which is why we are here. Giving the trainers and cheats is of dubious legality, and we cannot include them in the DVD. However, updated cheat databases are a common request. We give only the latest game demos on our DVDs, which keeps a low count on the number of demos in every issue, categorising the handful of demos included is not an option. We will include the minimum requirements for the games we give, which is a great idea. To give us more feedback, or demand particular games you'd like in the DVD, head over to our forums at Thinkdigit.com. **Aditya**

✉ My issue is regarding the delivery dates of the subscription copy. Being your regular subscriber has its down sides too. When a news stand reader gets his copy of *Digit*

on the 1st of every month. I get mine only after the 15th of every month. That's weeks after the release date.

Last month, I got my copy of *Digit* on the 27th! I believe you heard me. I got it on the 27th May. When others were waiting for your anniversary issue, I just got your May issue! My only problem has been with your delivery dates. Year after year, you promise me to look into it, but that never happens! Now the June issue. God knows when I'll get mine... hopefully before July!

People out there, please look into this - after all I've been complaining for so long. Something has to be done about this. Next time you give me a chance to complain against my favourite magazine, I'll not settle for anything less than a proper compensation from your side.

Hmmmm ...

Mahesh Krishna.G

d Our subscribers have been complaining to us about the late delivery of the issues. It is unfair that they should watch the issues on the newsstands while waiting for their issues to arrive. This month, we were ironing out some kinks in our delivery system, and are working on delivering the issues on time to those who get it late.

Milind

✉ Happy Birthday *Digit*!! I bought your June Issue, and it

rocks! I'm a newbie of sorts to *Digit* as I started reading it occasionally, only from December last year. But after your March issue, I've moved on from PC World to *Digit*, permanently. All your cover designs from April to June have been fantastic. Same for the CD and magazine content. The June issue has a letter written by some guy called ------- who gives you a lot of crap feedback. Don't listen to him and continue the way you are. You guys are perfect and I bet that 99.9% of *Digit* readers will agree with me. Keep up the great job :)

Saurya Sengupta
Kolkata

d Thanks for the vote of confidence :)

Robert

✉ Firstly, Congratulations on 8 highly successful years of publishing this awesome magazine. Even though I subscribed to your magazine from March I have been following its development for a long time by purchasing an issue now and then.
I'll illustrate what I just love your magazine for (please excuse me for my English)
1) Your DVD's are awesome.
2) The Paper Quality of June issue was perfect
3) The articles in the magazine don't just concentrate on computers but on everything regarding technology, making it very interesting to read.

I can read your magazine for the whole month, and its great to receive another one with tons of goodies in the next month. I have a request regarding the *Fast Track* magazine. Could you publish a Computer/Technology Dictionary (especially all the short forms) so that we can understand and learn better from your magazine?

It's somewhat confusing to comprehend the efficiency of a gadget with all the short forms.

Moreover we can keep it and use it anywhere.

Thats all I ask.

Shobhit Khinvasara
Rajasthan

d Head over to the Unwind section, we have a short glossary of all the most difficult terms and phrases used in the magazine, for initiating the newer readers.

Aditya

✉ Congrats to all of you for another year of high quality paperback entertainment. It was sweet to see all the stuff you packed in.

DVD content was good I really liked 'Things' and I would like to see more of it in the future.

I have made a list of suggestion that you might like:
1. Updating The *Digit* DVD UI. I never liked Vista and when you imitated vista style I was a little uncomfortable at first but eventually I got a hang of it though I didn't really liked it. but now I think its time you upgrade.
• Smaller Volume Control Box and double click muting.
• Lose the sidebar, floating gadgets would be great.
• Widescreen support if possible.
• Software with a link to their webpage.
• a minimise button (semi-transparent large button like in Picasa-3) or u can hold a UI design contest where we enter and submit personal creation.
2. It would be great if you include the DVD background music in the DVD itself as you do with wallpapers.
3. Also I would like to see you giving out more movies like you used to give before and I would also like the readers to contribute if they find something interesting.
4. You published a book on c++ which was good and i would also like you to do something of that sort for Python for which i am not able to find any good study material or institute.
5. Some resources on digital painting for beginner and

Buzz
16 What's happening in the world of technology

Phenom 2
AMDs Phenom 2 processors are powerful as well as cool running. We tested a 3.2 GHz part that registered only 36 degrees at the core

Inbox

intermediate in Photoshop and Painter.

Sahil

d Dear Sahil,
You have some great suggestions, and we will try and incorporate them all soon. After finishing with the magazine redesign, we've started on the DVD, and you should see something new in the coming months.

Robert

✉ I have been a subscriber to *Digit* now for the last 10+ yrs and have always appreciated what you have offered to the readers. The learning has been immense, continuous and pleasurable. I thank you for that. For the last two months I was having serious problems reading the articles because of the font size. It causes a lot of strain on the eyes and depletes the joy of reading. Reading complaints from other readers was reassuring.

You did try to rectify but event is seems insufficient since the print quality has gone down too. You seem to have printed the magazine in the ink economy mode which again mars the happiness of reading *Digit*. Please compare the print quality with the Aug, 08 issue. I am sure you will make necessary changes to keep your readership intact.

Looking forward to a more readable issue next time.

Anand Duggal Batala

d This has been a common complaint for the last few months. We are continuously in efforts to improve the readability of the content that we provide.

Asheesh

✉ Hi and congrats on a great magazine! I'm glad to see your dedication towards improving the tech-savvyness of your readers. It is great reading about readers having learnt new hobbies through *Digit*! It just shows how a magazine can change lives! *Digit* got me interested in photography and I

LETTER OF THE MONTH

✉ Hi, This is my first letter to Digit. I have been reading Digit since 3 years and as far as I know their is no equal to Digit. It is absolutely wonderful and unbeatable (I have read 2 other top magazines so I can say that).

All of your articles are crisp, enlightening, knowledgeable and well versed, and as all of the Digit readers I am also considered the most knowledgeable guy in my class, family and neighbourhood which I think is the most common compliment you receive after being called "the best". People consult me before buying any electronic gadgets.

Although some points have to be pointed out. So here are some good points along with some suggestions for improvement (there can be no bad points).

Good points:
1) You guys know the pulse of the readers every time I think of writing to you for any DVD content I find it in the next issue (Ex: the office service packs)
2) The presentation of the content in the DVD and the mag is absolutely fantastic at the same time very professional.
3) The essentials part of the DVD is in fact very essential.
4) Even the ads are most of the time apt to the articles on the adjacent pages.
5) You guys are big time achievers in the field of promoting free and open source and anti-piracy
6) With reference to the point 5, most of my friends have turned quite ethical by turning towards free alternatives of commercial software's instead of pirated versions (Ex Gimp, Peazip and many games)
7) The tech sense articles on the first page is always informative.

Suggestions:
1) Don't you think you are slowly moving to being a mag only for the rich. No offence but even your hard drive listing starts from 500GB where as still 160 or better 250GB is considered more than enough the graphic card section could start from 9400GT for

HDTV or multimedia or even small time gamers. Please start listing from the lowest component price in the market to the costliest
2) Although the essential part of DVD is quite perfect wouldn't it be nice if you could cycle between Firefox and Opera, I know Opera is a pioneer but Firefox is the favourite browser of the world (28% share). You could provide Opera in one month and Firefox in the following month
3) The website could use a serious makeover like the Mag.
4) Revisit old articles, DVD contents and fast tracks i.e articles on Windows, and games like Ragnarok which you provided years ago and haven't repeated yet, considering the fact that lakhs have joined the digit readers bandwagon since then.
5) Provide more tutorials on Ubuntu and other popular Linux distributions (because I have seen a rival mag carrying articles on Ubuntu) sure you provided it in PDF format but that was last year and Ubuntu has grown since then.
6) Please separate the killer rig (suggestion for assembling PC`s) section into Basic, Entry level gaming, enthusiast gaming and workstation as you done in the issue of December 2007

Hope my suggestions are helpful but nevertheless you guys are unbeatable and masters of tech.

Saleem U.

d • We do cover all ranges of hardware. Next month, you can expect to see some budget graphics cards.
• We provide all the latest versions of FireFox when they're released.
• Visit the site now to see the redesigned look.
• If there are updates to a technology or a game, we cover / provide them, not otherwise.
• We will cover Linux more, read next month's issue.
• Popular demand wanted Basic, Multimedia and gaming configurations. In this case, sorry, but the majority wins.

Robert

hope to learn a lot more hobbies the same way! I didnt get my connection with computers through *Digit* though, the game *Half-life* is to blame for that.

When I first bought it, we had an aged computer that frequently crashed at the slightest provocation. As such, I developed a long-running fear of computers, but some sharp expertise in dealing with errors.

You guys should have a reader segment filled with their funniest screenshots / game stories / nostalgic comp moments etc.

I just filled in my subscription form for *Digit*, and cant wait for the next issue!

Introduce us to more *Digit* staff, besides Agent 001!

Varun, "Finalblur - The Happy noob"

d Great to know of your interests Varun. Keep looking at the thinkdigit.com web site, you'll find a whole community of like-minded readers on the forums, and we keep you posted on the *Digit* staff interacting with the readers through webinars, workshops, offline meetups, and of course, the forums.

Ahmed

Feel safe

Pramoud Rao, Managing Director, Zicom Electronic Security Systems Ltd sheds light on measures we can take to be safer in society and also on interesting facts of the security and surveillance scene

Nash David
nash.david@thinkdigit.com

You ventured into security when there weren't any Indian brands. Did you foresee it to be a viable business?

In 1995, electronic security as a category did not exist. With a large number of MNCs entering India and requiring security, we saw the opportunity, evaluated the risk and decided to build this category. We anticipated further growth with liberalisation, globalisation and the Y2K problem.

The business viability was a serious concern, since we were first generation entrepreneurs and category building often takes years. However, we took calculated risks and ventured into this unknown category. Fourteen years later, we're still in the process of building this category.

What are the upcoming technologies in the field of security systems?

Security being a closely related to IT, keeps evolving everyday. Currently, the flavour of the markets are remote video surveillance, video content analytics, explosive detectors, thermal imaging cameras, border security solutions, coastal security solutions, etc.

Do you personally carry products with you, such as a taser? If so, which one?

We do have a range of personal security products (PSPs). However, all of these are non-intrusive products. Tasers have not yet got the approval from the Home Ministry and cannot be used in India. I personally do not carry PSPs, although my wife carries a pepper spray.

Pramoud Rao, Managing Director, Zicom Electronic Security Systems Ltd

Which personal security product would you recommend the average Indian? Any tips for women and children who are highly vulnerable these days?

I would recommend people to use our home alarm systems while at home or even our video door phones. Women should carry Pepper Spray or personal security alarms, while children should carry an anti loss alarm kit.

What are the trends you have witnessed in the average Indian's needs for home security?

The video door phone is the most popular home security system currently being used. The latest model with memory is gaining acceptance and popularity. Home alarm systems come second. However, consumers are still not investing as much as they should do.

The demand for personal security systems would have definitely increased after the recent Mumbai attacks. Have you introduced any new products for public places, offices, halls, etc?

The demand post the terror attack has gone up indeed. Nevertheless, the demand is more for law enforcement products. We have recently introduced the MN 2000, which is trace and scent detection used for all kinds and types of explosives. There are many products in the pipeline, which will be released depending on market demand.

What is your opinion on the introduction of CCTV cameras and the 'Big Brother' critique of the same?

I personally feel CCTV cameras are a great boon especially for post investigation. Often, CCTV has proved to be a boon rather than a bane and whenever there is an incident the ROI is instant.

While the three security systems types (personal, home and public) are meant to complement each other, if you had to pick one over the other for yourself, what would be the order you prefer and why?

I would prefer a home security system since charity begins at home. Security also follows the same logic. At home, I have my personal belongings, my loved ones and valuables. Lastly, it is all the more important for me to protect what I value the most. d

Online Travel
Contributes close to 60 per cent of the overall eCommerce business in India

Going places
By 2010, online bookings will be worth $6 billion from about $1.75 billion in 2008

Clear to travel

Cleartrip.com is a portal that caters to air and rail travel as well as hotel booking.

As Chief Operating Officer, PKX Thomas oversees all operations and services of the company. Thomas comes to Cleartrip with experience in the field, spanning over 16 years. He specializes in Infrastructure Management and Knowledge Management.

Siddharth Parwatay
siddharth.parwatay@thinkdigit.com

What are the concerns you face in terms of security?

If you look at Cleartrip, instances of some kind of data theft or someone flicking credit card information is unknown – it's never happened. This is because of the level of security which we provide on the site and the level of security that we have in terms of access control for developers or the NOC team; they won't be able to see the card details. This is because it is stored in that fashion.

Even when a customer calls on the telephone helpline the agents answering the call will not be able to know all the details. They will know the first few digits and the last few digits. This is as prescribed by the banks. Other issues in security are strangely enough from the RBI's side. The RBI recently came up with a directive that if you do an online transaction, you should be able to validate it on the basis of some information that is not on the card. It can be a password or PIN or anything.

Now the trouble is that very few banks can support it without a VbyV (verified by visa) transaction or a Master Secured transaction. The way this works is by directing the client from our site to the bank's site, from the bank side to the gateway site and then redirecting the whole thing back. Here the efficiency of the system depends on three other people. None of the banks or gateway providers will say that in case the site is down we'll cover your damages. The attitude is that, here is the service, please use it, if you can't then that's your problem.

So currently what is the payment mode?

Currently it is through a gateway. You put your credit card and we have a validation mechanism. If your card is validated, it goes through a regular payment gateway so you are not redirected to another page. Most online transactions happen via credit card rather than debit card. When you go to the bank's site, your user experience changes. For example, some bank web

sites will compulsorily make you use a virtual keyboard. A shift towards VbyV implies a drop in business by 20 to 25 per cent. This is because many times consumers are not aware. The bank's web site will ask you for a password. The consumer may not be aware of it. Or perhaps it may ask you for certain details such as date of birth, which the consumer is very surprised answering and therefore wary of it. Ultimately, you just want to buy an air ticket, so why should you be asked for all these things – is what the customer thinks. Also, the moment redirecting to another page takes place, people are concerned if there is some kind of phishing going on. A regular guy is worried because he has no clue and an informed person is worried because he knows too much!

Is there an alternative?

No there is none. Bank validation has to take place and with the impending RBI directive which will probably come into effect on 1 August, there is definitely going to be no alternative. This gives us two disadvantages. One is that being an Indian company, being in India having a gateway in India, we are bound by RBI guidelines. Somebody who is not an Indian Co and has an international gateway is not obliged to follow any guidelines. So it's not a level playing field. A foreign travel company offering an India-based product can get by. In effect, we're being discouraged from transacting online. If you are a non-India company and you have a gateway abroad, you don't have to worry. So with this, what happens is you can buy a product on say amazon. com but not indiatimes.com. So on indiatimes it's an entire bank redirected transaction

while on amazon it's a single click. So in an era of one click systems, we're doing it the hard way.

Also VbyV is not going to stop frauds from happening. If VbyV is a solution to stop frauds, then everybody might have done that. When a bank sells you a VbyV gateway, they always say that if your fraud goes beyond three per cent they're not responsible. So banks know that ultimately it's only as secure as a regular gateway. A phishing email is easy to identify, but you should know how. Plus you should know how to react to it. Education and that level of comfort is required. Ask freshers out of college – they'll know all this terminology, but when it comes to detecting a phishing attempt it's a different story. Awareness and education about eCommerce, online transactions is much needed.

Another issue that goes towards making consumers more comfortable about transacting online is building a brand that they can trust. Branding is very important. Somebody buying a ticket is actually paying in advance for a service that he is going to use in the future. The ticket comes to you via email. It's digital and so the thought comes that anybody can create that email. So what is the credibility that assures me that I can take this piece of paper and board a flight? That is where the brand is important.

How do you resolve security issues?

Our fraud rates are very low. Much lower than the industry standards. Around 0.18 per cent. These frauds are what we call chargebacks. We catch most of the frauds, and many tickets are cancelled. However, whenever we cancel on account

Oyster.com
The service aims to provide users with professional reviews of hotels from around the world

What's here?
This latest option Google Maps lets users find out more information about any location on the map

Industry Connect

of a fraud, the airline will definitely charge us. For a fraudster, it's simply about getting somebody's card or card details. I need the card number, the date and the CVV number and I can transact. So if you have these details, you can do a transaction. Now, Cleartrip has a dedicated fraud team. When a warning is raised, depending on the case, the transaction is cancelled. We have a fraud scoring from 1 to 10. Anything above 7 is definitely a fraud. In tricky cases, like say 5.1, there is a process of physical verification of calling and confirming that we follow. We see the person's response and judge.

What about building something for the mobile platform?
We had in fact launched a few things in the mobile platform as beta. Problem is that though it created a lot of search volumes and hype, nobody booked. Conversion is also important, right? Purely WAP applications too need network provider support. So they're no good. These days phones in any case are offering full browser experience. You can easily access the site from these phones. Only a few of the functionality attributes may not be available such as drop down suggestions, not being supported. Our initial design philosophy provided for access by almost everyone. For example, ours is a machine readable page.

We want to be the Google of the travel space. Anybody looking for any travel products should be able to get it through us. Whether it's bus, flight, rail, accommodation, anything. That is our end game.

Hearing aid applications can read out the page easily.

Apart from mobile, we even tried voice-based search. So you call a number and ask your query and the recognition software interprets it and reads out results (text to speech). We keep

With clear trip you can search and book through over 5500 domestic hotels and 1,09,000 international hotels, railway tickets, holiday packages, insurance and mobile services for travel and global destination guides

trying all sorts of these things to enhance our customers' experience and they are like our "labs" applications. Some flourish, some die their natural death. Innovation is important.

Your train calendar and graph utility is one such initiative?
Yes, absolutely. The air graphs, in fact, were used initially by most of our suppliers to weigh out their positions. We created the tool for suppliers, but adapted it to our customers. Train calendar was then adapted from that. When you're travelling by train, often you're fine travelling any date. You have a desired date and a

week around that is OK with you. So with the calendar, you can just see visually which trains are available on what dates. Click on the suitable solution and just book. Instead of going day by day or searching for the next five days over and over again. The train calendar interfaces

with the back end of IRCTC. The integratin of the systems was quite a challenge and the reason most of our competitors are lagging behind in doing it. All the OTAs got the APIs at the same time except for one player who got it two months earlier. But we understood

the API quickly and built our application around it. We have a symbiotic relationship with the railways though. They sell rail tickets through us while we supply them with hotels. Many of the hotels on IRCTC's web site are sourced through us.

Any other new initiatives?
Google is an open company. They support development greatly. We too love technology and supplement our data with Google products. We use the Google maps API to show locations of hotels. Our web site is end to end web 2.0. We use various platforms for development. For example, our trains platform runs on a platform called Ruby On Rails.

It's a platform which we bet will be the next enterprise level platform to really hit it off. Many of our hotel applications are based on Java. Air products run on Lisp which is rarely used by people in India, or abroad for that matter. Again using Lisp as a back end, we're delivering a web 2.0 product. We have all our technology serviced in house. None of the development is outsourced, so we're able to integrate new products and platforms much quicker too. For instance, the API integration of IRCTC. Till the time the API released, much of the back end was already ready. Our product teams were busy understanding their system since long. We have tech development teams both in Mumbai and Bangalore. This makes our balance sheet stronger too. In-house technology and we love open source!

As far as user generated content we used to have

something known as Cleartrip videos, but we pulled it out eventually. These consisted of destination videos and we wanted to build a community around it. But the response wasn't that great, although, we did get some 1000-odd videos.

You're probably one of only few players in railway booking. Why should a customer book through you and not through the IRCTC web site? And what about the price difference?
There are several issues to consider here. At times, the IRCTC web site is working fine while their back end will not be working. Sometimes, it's the other way around; in which case we will do a lot of bookings. This is possible because their APIs and web site are on different systems. Again, there is the issue of branding. Some still feel that a ticket issued from IRCTC is an original, while that bought elsewhere is duplicate. As for price, we are allowed to take Rs. 10 per ticket that we book. Nobody minds Rs. 10 on a Rs. 300 ticket. Also, we provide a better user experience. Once you book a ticket and you want to act on it. Say you want to cancel it. It's much easier on our site. The way you search also is different. Some of these they 'borrowed' from us too. We have, for example, an all Mumbai search. This search will cover trains originating from VT, Borivli, Panvel and Thane. All of these are essentially Mumbai. This was a bit of innovation through human judgement. Multi-station boarding is also something we have. Sometimes a Mumbai–Delhi train is not available, but a Thane–Delhi train is. So people are OK with finding alternative modes of transport to Thane. We provide such kind of smart search on our web site.**d**

Office on a netbook
A new office suite has been announced by Corel, the Corel Home office. This suite has been designed specifically for SoHo environments. It is also said to be netbook friendly as it takes up low memory.

New GPUs
Five new mobile GPUs have been added to the 200M series by NVIDIA. These new GPUs are all based on the 40-nm manufacturing process and are said to be Windows 7 ready

Have you been to Istanbul?

AMD recently launched the world's first six-core server processor under the AMD Opteron series, codenamed Istanbul.

OEMs such as Cray, Dell, HP, IBM and Sun Microsystems are already in the process of churning out new systems based on the new six-core AMD Opteron.

The really great thing about these new processors is that they can be used to field-upgrade existing quad-core Opteron systems as the same Socket-F connector is used. This works out as a real plus point compared to the Intel Nehalem Xeon processors as one would have to go for new mainboards, systems, chipsets and sockets.

The Istanbul comes with a power-efficient DDR2 memory architecture and AMD virtualization technology.

These new processors will already be available by the time you read this and would be a great upgrade to your existing Quad-Core Opteron, as long as your server vendor gives your system the needed BIOS update to move to the new processor.

Obtaining computers is easy

Ncomputing, a low-cost computing solutions company catering to government schemes and even educational institutes, announced recently a partnership with Haier Computer Group. Haier Computer Group, part of the Haier Group, is based in China and along with Ncomputing hope to spread large educational and government computing solutions. Ncomputing is the same organisation that provided computer labs to students in Andhra Pradesh. That was a program implemented by the government to provide computer education to 1.8 million students in Andhra Pradesh.
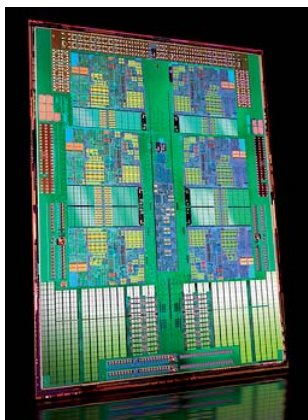
Ncomputing and Haier have already set the ball rolling as they have accomplished task of "one-computer-per-child" program in the Republic of Macedonia. Along with the help from the Macedonian government, the two groups helped install 1,80,000 computing seats throughout schools which included hardware, software and a network infrastructure. Now these companies are looking into the future as they have set their eyes on governments in Africa, Latin America, Europe and Asia to provide computing opportunities for everybody.

Tweeting to success

Currently, Twitter is known as a micro blogging site that people use for fun and enjoy typing out 140-character status updates to keep their friends and followers informed about what they have been up to. Now with the current world scenario, companies have started using this micro blogging site to post updates about services, offers and contests for people and in turn make a profit. And what is Twitter getting for all this? Nothing, as it is a free to use service.

Recently, Dell also has been Tweeting and has actually made a profit of $ 3 million, thanks to the followers on Twitter clicking their way through and making purchases on their site. Dell has been using Twitter for the past two years, but saw a significant rise in sales over the last 6 months, as they made more than $1 million in that time span.

So why are we telling you all this, well the reason Twitter is still free, is because they are unable to come up with a business model to show how their site can rake in the moolah. Well according to a Gartner analyst, all they need to do is show the success of companies such as Dell, who have used the web site to their benefit and they should be set.

Twitter is working on new add-on tools and services for businesses too, but we sure hope this doesn't affect our daily tweeting rituals as nobody would give twitter a second look if you had to pay for using it.

Browser woes

Windows 7 is going to be released worldwide later this year, but in Europe, the retail copy of the latest OS from Microsoft will not come pre-installed with a browser. Internet Explorer, till recently was a part and parcel of the Windows OS. This change of circumstances has evolved due to the pressure from the European Commission, not only that, this was announced just before the ruling of Microsoft's anti-trust charges.

The European regulators also added that Microsoft abuses its dominant status by adding their own internet browser leaving users with no choice on that subject. They had suggested that other browser be included in the package so consumers can make a choice for themselves, but Microsoft have retaliated by giving European consumers no choice at all.

So guess who benefits from this major move? Google, Mozilla, Opera and Apple as each of them have a browser that can now be installed on the new OS. Internet Explorer is used by about 60 per cent of the world's population connected to the internet, followed by 30 per cent using Firefox, 4 per cent using Opera, and Chrome and Safari make up the rest, according to StatCounter.

The decision to force Microsoft to include options of browsers with Windows 7 is still in discussion, but we will have to wait and watch these turn of events.

The spam fighter

Spam and junk emails are a thing of the past. More recently spam through Short Messaging Service (SMS) has become quite a big thing. Most of you guys might have already faced such an issue of receiving pointless SMS ads and offers that never seem to stop even after activating certain servicing to stop receiving these messages from their service provider. So how does one counter these spam messages?

Not only in India are we facing this problem, but in China too it is not unusual to get at least a dozen SMSes in a single day. Well China has come up with an interesting way to keep the spam under control by limiting the number of SMSes that a single number can send per day. Now you might be thinking how absurd this is, taking away the right to send messages whenever one needs to, but relax it's not that bad either. They have come up with really good numbers that should keep people happy, as a single number cannot send more than 200 messages per hour or 1,000 messages per day on weekdays. For the weekend holidays, the SMS count goes up to 500 per hour or a total of
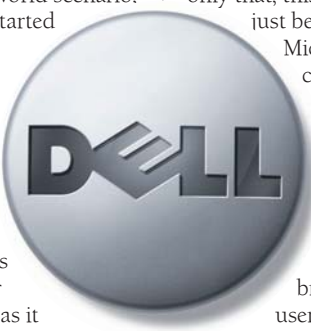
USB drives grow

The Kingston DataTraveler 200 has been introduced with a capacity of a whooping 128 GB. But don't expect these to come cheap as they are estimated to be priced at around Rs. 25,000.

Chinese Phones no more

The government of India has recently banned the import of Chinese mobile handsets without an IMEI number. Without this number mobile handset operators find it difficult to validate handsets and also track sales.

Buzz

2,000 in a day.

All three of the main mobile network operators in China: China Telecom, China Mobile Ltd. and China Unicorn, have given this method a thumbs up and have decided this to be a great way to deal with the SMS spam problem.

When are we going to see India come up with such ideas? Maybe once the mobile operators stop sending messages to users offering them new schemes…

When online romance goes wrong

Interesting internet love stories are not new - the type that even though it is forbidden and people know it to be wrong, still indulge in it. But what if it goes terribly wrong and one falls in love with a woman, who is actually a man wasting time and playing a prank, how does one react to that?

A common scenario of a prank like this is when the victim is actually known by the prankster, so all the details about his or her likes and dislikes are known and can be exploited upon. But why would anybody do such a thing.

Well recently, the latest person to have fallen prey to this type of internet abuse is none other than Antonio Castro, the son of Cuban leader Fidel Castro. The individual to blame for this – Luis Dominguez, who has been

exiled from Cuba and has been blogging from Miami. He posed as a 27 year old Columbian sports journalist under the name of Claudia. Now Dominguez knew that Antonio had a weakspot towards young women and sports, so he combined the two to create this fake identity.

How has this helped anybody? Well for starters Dominguez was able to

penetrate the wall of privacy, created by the Castro family, and came to know about the daily routines and life of Antonio Castro and also found out some very intimate details. Another thing this operation has revealed is how the internet can be used to conduct sting operations, though we aren't advising any of you to mess around with your friends in this manner.

Apparently, Dominguez is offering no apologies for what he has done and is proud to have achieved his goal by invading the privacy of the Castros.

In Cuba, people are denied internet access even from Hotels, but Antonio Castro used to chat with Claudia from his BlackBerry device which had unlimited access to the net. Here's the best part of this all, Antonio is engaged to a 26 year old TV producer in Havana, wonder how she is reacting to all this?

Do you still feel the need, the need for speed?

For those racing fanatics out there, the good news is that they are going to get a new NFS game in September 2009, the bad news here is that it is being developed by EA Black Box together with Slightly Mad Studios, titled NFS Shift.

If you remember, Black Box is who developed NFS Undercover, the last NFS title, which according to us was not up to the mark of a game in the NFS series.

The next piece of great news here is that the title going to be released after NFS Shift, is being developed by Criterion Games, the developers of Burnout Paradise.

EA had already stated in January that they are working on three games: NFS Shift,

which should be out in September, NFS Online, which is going to be PC centric, and NFS Nitro, something for the Wii and DS users.

EA's move of getting Criterion Games is quite a positive new approach, and we are quite certain that they will be working on NFS Online for the PC and not the Wii version first. But we hope that from now on the NFS series does not clash with the Burnout style of racing. Even so, it is going to be a long wait, as this will be out only after NFS Shift, sigh!

Adding to game racing news, Activision has announced a new Hot Wheels game along with Mattel. Hot Wheels is a very popular name amongst kids as they are basically small toy car models, even grown ups should know about this as it has been around for ages. The upcoming game is titled Hot Wheels: Battle Arena 5and is also scheduled to release somewhere in September.

This game will have a Transformers approach, where during intense battles, the cars can transform to get special weapons for use during gameplay.

Along with the game, *Hot Wheels: Battle Force 5*, the animated series will be aired a month prior to the release of the game on Cartoon Network.

Web 2.0 crowned the millionth English word

Web 2.0 has been claimed to be the world's millionth word or phrase in the English language by a US based language based monitoring group.

This has brought a lot of distress to linguists around the world as there is no set rules to have this determined.

The monitoring group has come up with this result as they used a math formula to track words that were frequently being used over the internet. They created a list of words which included Web 2.0, Jai Ho, Slumdog, Cloud Computing and even N00b. Out of these, Web 2.0 came up more than 25,000 times in searches across

the world and was therefore, awarded the status of the millionth word.

Web 2.0 basically means the next generation of the World Wide Web, it may include upcoming products, technology and services. The word had been coined some time back but has been used in an overdose within the last six months.

The same monitoring group, Global Language Monitor, has calculated that there are about 14.7 new English words or phrases being created daily and pointed out the pace at which the English language is evolving.

Freebies from Microsoft

Microsoft is soon to unveil its latest offering in terms of software. No we are not talking about a new operating system after Windows 7, but instead they are working on a Free Anti Virus for personal computers, codenamed Morro.

Testing of this software is already underway with its own employees and the product is said to compete against antivirus solutions sold by Symantec Corp and McAffee Inc. A trial version or beta version of the application will soon be available to download from their web site but an exact date of when this will happen is yet unknown.

If this free service is successful in what it is meant to do, then it will definitely hurt the sales of low-end similar products offered by Symantec and McAffee.

Morro is supposed to provide basic protection against a wide range of threats such as viruses, spyware, rootkits and trojans. A similar product from Microsoft was the Live OneCare suite, which was a major disaster and they are planning to kill the product to come up the free Morro service.

Speculations are that Morro will be a stripped down version of Live OneCare, but we will come to know only once we get our hands on the beta or complete product.

US military is using Facebook and Twitter to post Live news from Afghanistan ● Apple claims Windows 7 is 'old technology'

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Web watch

Mobile Watch
22 The latest happenings with mobiles, wireless devices and handhelds

Enter the mobile virus
24 With mobile devices advancing with each passing day, we need to be more aware of virus attacks

Search Engine Galore

Yes, Bing, Microsoft's revamped search engine, has launched to much hype. We got all sorts of reports from early adopters ranging from "meh" to "it's okay" to "it's good and I'm making it my default search engine". While we're all for change, should we really be switching to something sub-optimal just for the sake of change? Probably not. But is Bing sub-optimal? Let's look at what the search engine offers. Like Google, it's fast, it has image search, news search integration – which for local news is better than Google News – and your regular maps, videos and products search. It even offers auto suggestions as you type your query. However, in spite of all the glitter, a search engine is only as good as the results it's able to deliver, right?

To be able to look at this objectively we need to first analyse what the various search scenarios for most of us normally are. At times we're looking for some yes or no (factual) type of information. For instance, if you were to type Digit Magazine, you're probably expecting a search engine to take you to our web site. There is nothing better or worse that a search engine can provide other than a link to the thinkdigit web site and maybe a Wikipedia entry. But what about a search where you don't really know what you're looking for. In this case, your knowledge of a particular subject will be restricted to the search engine results. This brings in the question of trust. Here is probably where Bing stands to loose out to Google. When it comes to such searches, users will constantly find themselves cross checking with the search giant to see if the older more experienced search engine gives them better results. There is always the underlying doubt – "Am i missing out on
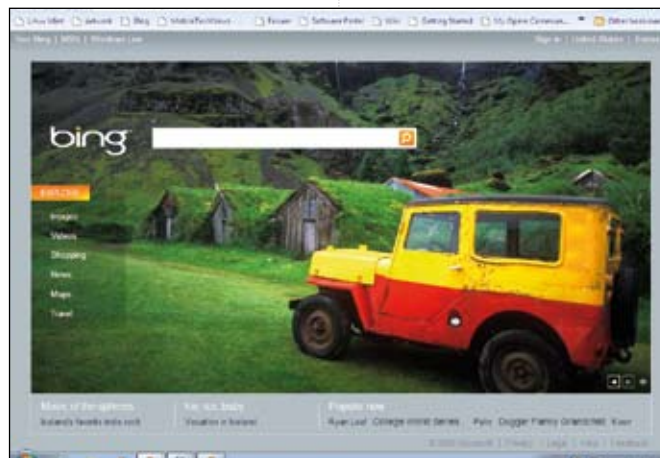
something. Will Google be able to show me something else?"

Let's put it through a small test. First to level the playing field, we change the location of Bing to United States. This is because the search engine has become notorious for geography based content filtering. There is no way to turn the censor off except to change your default location. Bing definitely looses a few points here. Next we threw a set of search terms at both the contenders. The terms include a deliberately misspelled word (yes many folks use search engines as spell checkers), a single answer query like "Population of India", and a more research oriented search term such as "server virualization". In the first query both search engines perform equally well. So we kept entering many more misspelled words. Google proved better at its "did you mean?" suggestions. For "Population of India" the results were quite curious. Google returned 1,147,995,904 while Bing showed 1,147,995,900 – from different sources! Next comes the more open ended test. Both performed quite well, returning almost identical results. Except Bing showed three sponsored results eating up valuable screen space. Google had a few news results too, which Bing did not

in the main results page. Bing, however, has a nice little feature that lets you expand the snippet text by moving the mouse over to the side of the search result.

This little back of the envelope test is of course not perfect but it *is* indicative. Even if Bing is just as good as the currently reigning search champion, will we trust it enough to be exhaustive and accurate? Most likely, we'll keep benchmarking it against Google for days to come. Are the breathtaking backdrops with tidbits of interesting click-able information enough to make it the search engine of choice? Some folks might switch, enamoured by the novelty and buzz. But most will keep coming back to Google at least for now. Until of course Google does some major blunder down the line.

Wolfram|Alpha

Wolfram Alpha is not a search engine. It's a computational knowledge engine. Confused? Well, in a nutshell it is designed to simply give you answers to factual questions. For example if you were to ask it – the distance between Mumbai and Mangalore. It will not only tell you the distance as the crow flies, but also by road, the time it will take to reach there by regular aircraft, at light speed or

even at the speed of sound. You won't even have to enter the Mangaluru form of the name. It already know it! Sounds like the sci-fi computers we've read in so many novels right? It is exactly that – the character Data from Star Trek but not in the android form. So, in effect what Google or other search engines try to do with questions like Population of India, Wolfram will do much better. Conventional search engines will either parse language on a page and return many results, or if human intervention by way of tagging is involved, it will return information based on tagged data, or as a last alternative point you to web pages that should contain the answer. On the Wolfram web site it says its aim is to make "all systematic knowledge immediately computable by anyone". Wolfram alpha has aligned all the data it has available to it in such a way that it can actually make sense of it; compute it. It has built tiny models of computational knowledge to compute human fields of data systematically. So you can ask it to tell you anything from "Number of internet users in Asia" or how much time it will take you to type 3000 words at standard typing speed, or find out which year in history was the name John most popular and it will actually compute the answer; replete with charts, graphs and any other information you might require. Of course by now you might have guessed that it is not pre-programmed with all sets of questions and answers that can ever be asked – that's just not feasible.

Whatever little gimmicks we mentioned so far are simply wolfram being told to be a cheap conjurer of tricks, and for the world to marvel at. There is however, immense power and value in this technology. It can be used to mash up and find co-relation between stock movements, create charts and graphs to make sense of tons of socio-economic data and reveal patterns. The domains in which the engine delves into are

27 Secure Digital Identity
Get to know how digital signatures make online transactions easier and safer

29 Secure your portable drive
Prevent your data from being abused in case of theft, loss or casual snooping on your portable devices

Web watch

vast too. You have engineering knowledge computation, music – ask it to play any note, finance, geography, even the human genome sequence. These are just some of the applications it can have. There are plans to leverage it to create custom versions for internal data, connections with other forms of content, and deployment on emerging mobile and other platforms. As it's database grows and computational knowledge increases it will only get smarter. As of now it has 10+ trillion of pieces of data, 50,000+ types of algorithms and models, and linguistic capabilities for 1000+ domains.

So if it knows so much will it take over the world? No, because it doesn't have a consciousness. But if everything is answered so easily it might make us brainless retards. Google only helped us locate stuff; we still had to make sense of it for ourselves. This little puppy on the other hand is going to answer everything for us.

Google Wave

Google wave is a cool piece of technology that centres around live and concurrent editing and workflow management. What this translates into is a personal collaboration and communication tool that is fun, and perhaps an extremely powerful a platform that can be used in many different ways. Now, there is an hour and a half long presentation available on the Google wave web site. But without going through it for you to get an idea of what wave is lets put forth this analogy. Think of a blank canvas. You and a bunch of other folks are simultaneously working on it. But you're not just using paint and brushes. Instead, you have a multitude of tools at your disposal such as videos, pictures, maps and so on that you can pin up to the canvas to better present your point. And all this happens in real time. Say one of your fellow 'artists' leaves. He or she can come back and rewind and playback the

flow of work to see what was missed. Okay now lets get down to the real world. Your canvas is actually based in HTML5 and can be run in several of today's browsers. To speed up communication and give added functionality it features a spell checker that auto corrects on the fly. The spell checker draws on a huge contextual linguistic model, so it knows the context of words being used and corrects them appropriately. The interface consists of panels which they call – you guessed it – waves. These waves contain conversations that can be edited in real time! Forget about hand picking text to first quote and then reply. You can just pin up your response to any part of the

original communication. What you're typing gets bounced off a server straight to the other recipients of participants of the wave. If you wish to add new participants to a wave its as simple as dragging their picture from a contacts panel on the left.

All this free for all communication might just not go down well with those who are a little reticent. That's one of the first things that comes to mind when you watch the wave presentation; "hey I don't want people to see what I'm typing while I'm composing a mail". Understandable. And the developers of Wave are not unmindful of that. They've incorporated a feature that hides you from the rest of the

Wave. Perhaps the best thing about wave is that it can be embedded on other sites. Another interesting feature of wave is that discussion and content collaboration can be done on documents in the same tool i.e. wave. So you don't have to follow the traditional Wiki and document format.

Wave is open source. That means that developers will get their hands on a set of external APIs with which they can build widgets for wave (which they call extensions) and even discover better ways of using its functionality. App developers only have to worry about coding XML on the client side and the server takes care of updating over the wire. Collaborative games are also on the drawing board amongst other things. There is also the scope of developing server side extensions using bots. Google demoed one such bot "Rosy" that can translate 40 languages on the fly! Since Google is keeping the much of the code open source, other corporations are free to come up with their own deployments of the wave system. By the the time Wave formally launches, in a year, it might very well become a refined and extremely powerful tool. We're eagerly waiting.
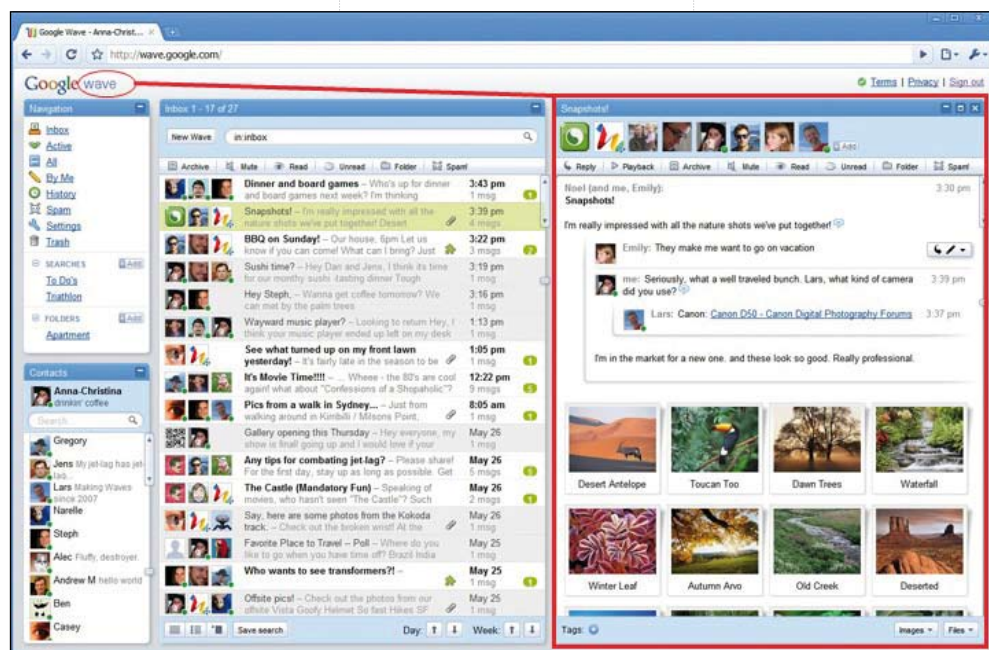
Fastest full touch handset
The current title holder is the recently launched Samsung Jet which boasts an 800 MHz processor.

Fold
Nokia's latest clamshell phone, the 3710 fold, combines style and functionality

A new iPhone... about time

iPhone 3G S and the compass feature

Apple recently unveiled the iPhone 3G S – a faster version of its popular smart phone. Yes, the 'S' stands for speed; trust Apple to come up with something simple, even in the naming convention. So what's so special about the 3G S ? Is it just an iPhone 3G with the new OS 3 software preinstalled? Certainly not. Although the 3G S may have the new OS 3, it's faster functioning lies mainly in the hardware. Many of the 3G S UI functions including copy and paste, MMS support, the new Voice Memos app, and search capabilities are part of the iPhone 3.0 software update. And consequently will be available to iPhone 3G users who simply upgrade to the new firmware.

spec comparison charts.

However a T-Mobile web page reportedly had put up hardware specs of the new phone. The page was instantly pulled down but several reports suggest that the page showed the 3G S to have a 600 MHz processor and 256 MB RAM. The iPhone 3G on the other hand had a 412 MHz processor and 128 MB RAM. So, twice the ram equals twice the speed? Going by what was said at the WWDC keynote during the phone's unveiling, most functions in the phone, including launching apps, opening web pages, and viewing attachments, will be at least twice as fast. The numbers thrown about were in the range of 2.4 to 3.6 times for different functions.

reports also suggest that the phone has a new graphics chip – Imagination Technologies' PowerVR SGX. This chip supports a shader-driven tile-based deferred rendering architecture.

The phone sports a better camera this time around. The camera is supposed to take better pictures compared to any of the earlier models thanks to the improved pixel count. The 3G S come with a 3 MP camera instead of the 2 MP one on the earlier model. The camera will work much faster in line with the other hardware improvements. Along with the camera come additional features such as auto-macro picture capability and 'tap to focus'. This feature allows you to tap and focus on any part of the screen. By default, the iPhone would focus on the centre of the screen but now you can tap on, say, an object in the background to focus on. Not only will the app now focus on it, it will also automatically adjust other settings such as white balance and exposure.

To give a Boy Scout helping hand to some of us who are directionally challenged, Apple has a built-in digital compass in the 3G S. The compass will tell the phone which direction you are facing even when you are stationary. Earlier this was figured out via GPS by judging your direction of movement. In the maps application the maps will automatically reorient themselves to the direction the user is facing. This should definitely help in navigation.

So, is there anything different in terms of looks? Not really. In fact we had difficulty telling the difference while

watching the video tour of the 3G S on the Apple web site. As for the body, it is supposed to have a new oil resistant coating that will make cleaning the phone easier. About time that they did something about the finger smudges.

Let's now conclude with the aspect that worries all of us – price. How much does the iPhone 3G S cost? The contractual schemes under which it is available through a network operator are as complicated as our constitution. But the full price of the phone without a network lock-in is $599 for a 16-GB model and $699 for a 32-GB.

Augmented reality browser
Imagine looking through your phone's camera. You see a couple of buildings, and within moments an overlay starts displaying all sorts of information about them. The kind of information you see will include, say, the price of the building, information on various establishments located within, such as bars and restaurants, and even whether there are jobs available there. Kind of reminds you of the heads-up display we saw in Terminator 3. Particularly the sequence where Arnie analyses clothes sizes for himself with information constantly being displayed on screen, and

Tap to focus and the improved 3MP Camera

What then do the innards of the new iPhone hold in terms of hardware? Well, no one is quite sure yet and Apple as always is tight lipped about the specs of the iPhone. Why should it bother with giving out specs anyway? Since the time of its launch Apple has sold the iPhone based on its design, mind blowing UI, and the bountiful app store. Not

It's not just the speed of the iPhone 3G S that's sent joygasms down the spines of geeks worldwide. The phone reportedly is going to come with graphics that will equal, if not surpass, some of today's gaming handhelds. The phone supports an advanced graphics API for mobile phones – the OpenGL ES 2.0. Unconfirmed

The launch of the iPhone 3G S saw a shorter line of customers compared to the launch of the original iPhone launch back in 2007

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Keyless phone
The 5530 XpressMusic reportedly doesn't have any physical keys. Brings new definition to the term full touch, right?

Eleven per cent
The number of mobile phone subscriptions worldwide that are 3G

Mobile watch

finally zeros in on one that's a perfect match.

Well, that type of overlay experience is now being offered by a browser through a mobile phone. Layar, a mobile phone browser launched by SPRXmobile, is the world's first mobile augmented reality browsers. It displays real time digital information on top of the visuals being viewed through the camera. Whilst looking through the phone's camera lens, a user can see things like houses for sale, information on popular bars and shops, establishments where jobs are available, healthcare providers and ATMs. Currently, the app is built only for the Android operating system, such as on the HTC Magic, but a version can presumably be built for other smart phones including the Apple iPhone. All the phone needs to have to support the browser is a camera, GPS and an in-built compass.

The service is for now only available in the Netherlands, where the content for the browser is provided by partners such as local market leaders ING (bank), funda (real estate web site), Hyves (social network), Tempo-team (jobs agency) and Zekur.nl (healthcare provider). The technology underlying the system is quite fascinating. When you look at a scene through the camera the GPS tells the service providers of your location while the compass tells them where the phone is pointing. The content providers then provide the relevant data that is tagged according to coordinate details, and this is displayed as a layer on top of the scene being viewed. Each provider gets access to one overlay, or layer. Tapping on the side of the phone switches between different layers provided by the different providers.

SPRX mobile is planning to

release the browser in other countries as well. Plans are being chalked out for sourcing local partners in Germany, the UK and the United States this year. Furthermore other platforms like the Apple iPhone 3GS are also being considered.

Nokia Life tools

Remember old eChoupal, the ITC initiative from a while ago that revolutionised information flow for the Indian farmer? Nokia has launched a similar service, except this one is available on mobile phones. Nokia had been talking about this kind of service since November last year, and it has now come to fruition after a
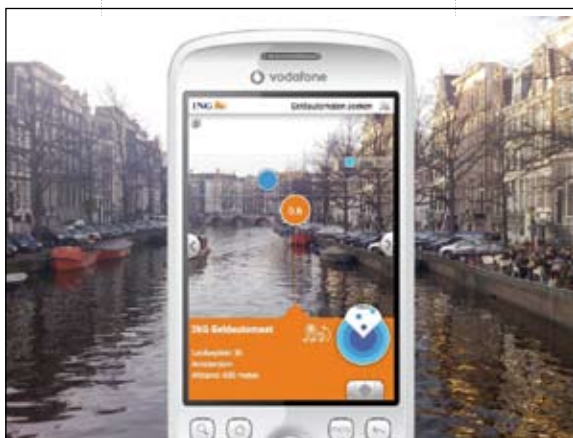
Layar in action

pilot project in the form of Nokia Life Tools. Life Tools, which was designed as a service specific to emerging markets, is a range of agriculture, education and entertainment services intended for the non-urban consumer.

The agriculture portion of Tools has two plans to choose from: the basic plan, available across India at Rs. 30 a month, provides daily weather updates and relevant agriculture-related news, advice and tips. The premium plan, at Rs. 60 a month, will be available in 10 states, including Maharashtra, and provides the closest market prices for three crops chosen by the subscriber, as well as weather, news, advice and tips. The service will commence first in Maharashtra before it goes countrywide. Nokia has implemented a tie-up with Maharashtra State Agricultural Marketing Board (MSAMB), who will provide expertise in the areas of commodity prices from its network of 291 local mandis (markets). MSAMB will in turn have the opportunity to deliver relevant news, alerts on schemes and other information directly to grassroots consumers. Reuter's Market Light (RML) Syngenta, Madison Research, Skymet will also provide inputs.

Under the Educational services banner, Nokia plans to offer three components: learn English, with basic, intermediate and advanced levels; exam preparation, which offers students tips and advice

for ICSE, CBSE and state board-level exams mapped to the relevant curriculum; and general knowledge, which gives subscribers useful information about the world around

them. The pricing of these components will be Rs. 30 a month.

Entertainment services will include astrology, news, jokes, cricket and ringtones, offered at existing market prices. The content provider for this will be OnMobile.

The pilot models to deploy this service are the Nokia 2323 classic and Nokia 2330 classic, but other models will soon be incorporated.

Audio Movies?

Movies are to be watched right? Well not anymore. Looks like the guys at UTV are planning to revolutionise the way we 'watch' movies. With the launch of the new service called UTV@Play's Audio Cinema they plan to bring to users one hour audio versions of movies, complete with dialogues, narration, and plot summary. Sure, there are people who recite dialogues of their favourite movies, but will anyone be able to sit around and listen to an hour of a movie without any supporting visuals? UTV sure hopes so. To access the service, users are expected to dial in to 505999555 and the charges are Re. 1 per minute. To start with, Audio Cinema is offering movies such as Fashion and Sholay (Hindi), Prem Loka (Kannada), Thalapathi (Tamil) and Gang Leader (Telugu). Just like in the theatres, the movie listing changes every Friday. The service has features that let you let you skip, forward, repeat scenes, or reconnect later and start from where you left off. The service is available through various operators such as Idea, Vodafone, Airtel Mobile and Reliance.

According to a recent study the world mobile phone market declined by 11.9 per cent in the first quarter of this year.

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E ven the most cautious of PC users will have certainly faced at least one instance of virus infection. We all know how frustrating a virus attack can be. Viruses, worms and trojans, under whatever category they're classified, can cause anywhere from minor irritation to total system failure. Instances of PC virus attacks are fairly common. These days, with mobile devices becoming increasingly similar to fully functional PCs, it makes one wonder whether

The virus story so far...

Ever since the iPhone changed our view of smartphones, there has been no stopping this segment. But that doesn't mean that smartphones weren't around prior to that. Sometime in 2004 came devices that were able to download applications from the internet and share software with one another through short-range Bluetooth connections; they also had worldwide multimedia messaging service (MMS) communications and memory cards. With these phones came the first mobile phone virus written for the Symbian series 60 OS. It was dubbed

The later variants of Cabir and other viruses could completely disable a phone, delete the data on it, turn icons into skulls, or force the device to send costly messages to premium-priced numbers. Soon the number of recorded viruses for mobile phones grew to about a hundred, but mostly on Symbian and Windows Mobile platforms. This growth was very similar to the growth rates of viruses on the PC platform after Brain, the first pc virus, made its appearance.

Soon, by 2006, there were several Trojans doing the rounds. Some of the common mobile Trojans to have attacked mobile

All you ever wanted to know about mobile phone viruses and other malware, and how you can protect yourself

The stage is set
Enter the mobile virus

these devices will be the next to face an epidemic of a virus threat. Turns out they are surely on the target list for malicious code programmers and that we may be on the brink of a widespread virus attack in the near future. A recent research study that appeared in *Science* magazine had scientists studying human behavioural patterns to find out the reasons behind this and what to expect if such a scenario were to take place. The study revealed that the only type of phone that is susceptible to a virus attack is one that runs an operating system – a smartphone. Considering that even in these difficult times the growth of smartphones is unstoppable and nearly doubling every year, the time is not far off when we see a full-fledged virus attack.

Cabir and was a classic proof-of-concept virus, clearly created to prove a point and perhaps claim bragging rights. The first variant of Cabir was not very harmful; it simply replicated itself through Bluetooth and draining the battery was its only malicious intent. Later variants, however, were not so benign and did considerable damage. The transmission mode for Cabir was through Bluetooth. The virus would basically search for other devices that were left in the 'discoverable' mode and jump that way from phone to phone. Cabir comes into a phone as a Bluetooth message in the inbox as a caribe.sis file. Opening the file would unleash the virus and soon it starts looking for other devices.

Soon many malicious code writers took a cue from Cabir and began modifying it to make more damaging forms of the virus.

phones and smart phones are: SymbOS. Sendtool – a trojan horse that runs on the Symbian operating system. This trojan drops a hacktool that can be used to send malicious programs, such as variants of the SymbOS.PBStealer family of trojans, to other mobile devices via Bluetooth. CDropper is another family of Symbian SIS file trojans that will install Cabir variants into the device. Mainly, this variant makes the menu icons go blank. Commwarrior then emerged on the scene and had its biggest impact in Spain where it infected about 1,00,000 phones in 2006. It infected phones running Nokia's Symbian series 60 second edition operating system and spread via MMS messages – text messages containing an audio, video or picture file. Certainly an irritant, it drew up large phone bills for users. According to Panda Security,

Mobile worms
Self replicating code that automatically spreads from one phone to another.

Mobile phishing
A fraudulent text message that lures people to reveal passwords, financial details or other private data

Feature

as of 2008, 90.34 per cent of mobile malware targets the Symbian platform, 4.14 per cent Windows Mobile, 3.35 per cent Palm OS, and 2.07 per cent targets J2ME.

Both networks and manufacturers soon realised the impending threat and steps were taken back then to stem the proliferation. Apple for instance, when it launched the iPhone, came up with the App Store so that trojans couldn't creep in through non-trusted third-party applications. Both Nokia and RIM have followed; creating their own app stores. Yet, people continue to jail break their phones or indiscriminately install any application that could perhaps hold trojans.

We asked Amit Nath, Country Manager, Trend Micro India & SAARC to tell us about the most problematic threat that they've encountered so far. He said, "Trend Micro researchers have encountered a fair number of mobile threats in the past two years, but

host's name then relays it to the malware author. WINCE_INFOJACK.A also changes security settings on the affected phone. The worm originates from an infected memory card on a mobile device or through SMS. In addition, another very recent virus attack was "Curse of Silence" virus. This denial-of-service attack prevents incoming SMSes from reaching the inbox once the user receives a specially formulated text message".

Phones affected by CurseSMS required a factory reset. Another important virus report of recent times was of the appearance of the first iPhone Trojan – a crude piece of code, with no means of propagation, purportedly written by a twelve year old.

Why isn't there a big boss virus yet?
Having noted all the outbreaks so far, there has not been a single major catastrophic virus

the existence of the iPhone OS and strong contender Android. The Palm Web OS is also being hailed as a thoroughbred multitasker. The impending popularity and proliferation of these operating systems will likely bring in the era of wide-spread mobile viruses. Yet another issue regarding the spread of viruses needs to be addressed here. The transmission mode or vectors. So far we have seen viruses that have spread through Bluetooth primarily. This is also a reason that no virus outbreak is very widespread. For a virus to be spread through Bluetooth it needs to be within a 10 to 30 meter radius of another Bluetooth enabled phone. MMS proliferating viruses are not so restricted in their spread. Like computer viruses they spread using the address book of the device and a network connection. The bad news is that hybrid viruses are also conceivable and these will pose the most significant threat.

WINCE_INFOJACK has similar capabilities to the most dangerous information-stealing malware seen on the desktop. The worm targets the Windows Mobile PocketPC and runs on a Windows CE environment and steals information like the serial number, OS version, model, platform, and host's name then relays it to the malware author

it would be a stretch to call any of them *except one* anything truly problematic. The one exception we're referring to is WINCE_INFOJACK, which has similar capabilities to the most dangerous information-stealing malware seen on the desktop. More recently Trend Micro researchers detected malware targeting the Windows Mobile PocketPC. Detected as WINCE_INFOJACK.A, the worm runs on a Windows CE environment and steals information like the serial number, OS version, model, platform, and

event of the likes of Mellissa or Conficker in the PC world. Why is this so? According to recent research the reason is fragmentation in the market. Viruses will pose a serious threat only once a single mobile operating system's market share grows sufficiently large. For now, different vendors use different operating systems and so just as compatibility is an issue with applications so it is with viruses. A virus written for one OS will not work on another. A virus friendly eco-system is just what will happen in the near future given

What does the future hold?
Thieves will always go where there is money. Now that people have begun transacting business on their phones there is sure to be a surge in spyware written for mobile platforms. Around the end of last year a new report on emerging threats from the Georgia Tech Information Security Center mentioned that botnets are going to hit cell phones by mid-2009. Even if operating systems are different, browsers are still common. You have Opera Mini

Virus
A generic term to cover all malicious code such as trojans, worms, etc

Trojan
An application that is supposed to be useful but is actually malicious code

on most Java and Symbian phones while Windows Mobile comes with Internet Explorer; on Apple's iPhone you have Safari. All of these browsers have vulnerabilities that can be exploited, although not always on the mobile version. Now that people have started transacting on their mobile phones, we will see more instances of data theft than denial of service (DoS) attacks.

Attack vectors of the future

In virus parlance, a vector refers to the mode of attack. For example, an infected USB drive is a common vector for desktop viruses. In the case of mobile phones, there are several virus vectors too. And more are likely to emerge as we enter the 3G era. Some of the attack vectors for mobile phones could be:

Peer-to-peer connectivity – this includes Bluetooth and infrared. Bluetooth is used as a vector by most viruses.

Synchronisation with a PC – PCs are more susceptible to viruses. So, if a phone virus has crept in on one and is lying dormant, it can easily get transmitted when the phone is connected to the PC.

Data services – this includes MMS, SMS, WAP and other packet service connectivity. You click a link or download an application from a non-trusted source.

Wireless LAN – this will be the same as getting a virus across the internet.

Telephony – instances of such viruses have not occurred yet, but perhaps some

BLUE JACKING

The term BluJacking as it turns out is a misnomer. What is commonly believed by the general public is that BlueJacking is a way to take control of another phone using Bluetooth. Giving rise to the wrong belief that the word is an amalgam of Bluetooth and hijacking. This concept in fact is known as BlueSnarfing.

Bluejacking actually is simply sending messages via Bluetooth to other phones. Most commonly people would rename a contact in their phone to something like "You have been Bluejacked" and send it as a Vcard to nearby phones. More mischievous and startling messages would be something like "Hey there cutie, I like your black top". The technique is often used as a guerrilla marketing tool. The term is supposed to have originated when a Malaysian IT consultant used his phone to advertise a particular phone brand. The name was a combination of the words Bluetooth and ajack – his username on an online fan forum. BlueSnarfing on the other hand has a more malicious intent. It is a technique that could be used to copy sensitive data from a victim's phone as well as take complete control of their devices to make calls. This was done by exploiting a security flaw in the Bluetooth standard of earlier phones that has since been rectified.

ingenious method can be developed by malicious coders.

Physical media – Commwarrior has been known to infect physical memory media such as SD cards or memory sticks.

How do you protect yourself?

Prevention is the key. Most big names in antivirus software such as Trend Micro, McAfee, FSecure and Kaspersky have security solutions for mobile phones. In fact, some suggest that much of the hype and panic about mobile viruses has been raised by AV companies. So the obvious question is – do you need an antivirus solution for your mobile phone? The answer to this is ambiguous. Firstly, in the case of mobile viruses spread through MMS, they have to go through the network operator's servers. With malware filters, the threat can be curbed from proliferating. However, for viruses spread through Bluetooth, it's best to have protection native to your phone. Most of these antiviruses have trial versions, with

a full version starting at $20 upwards to around $50 a year.

Apart from antivirus packages, disinfection tools designed for specific viruses are also available. Such tools can detect and remove a particular type of virus. FSecure had a disinfection tool for both Cabir and CommWarrior. FortiCleanUp Tool from FortiGuard is also another clean up tool that is available free and offers the removal of most known viruses. Other packages such as NetQin and Commander are also available for certain platforms. But the efficacy of these will only be tested when more sophisticated viruses surface. Spybot Search and Destroy is also available for Windows Mobile, Windows CE and Symbian UIQ 2.

Apart from installing antivirus software there are certain simple precautions that you can take. The most basic precaution is to keep your phone in the hidden mode. You obviously lessen the chances of virus attacks if the phone is not visible to worms at all. Activate Bluetooth only when needed. Other Bluetooth precautions include devices pairing in secured areas and choosing a strong PIN. Some of the same rules of the web apply to the mobile world. Be extremely cautious when opening attachments to messages or emails; be it from known or unknown sources. Keep an eye on file extensions; an alarm should always ring in your head when an innocuous extension such as MP3 or JPG asks you for an application install dialogue box. Another rule of thumb that you must follow is – always choose no. Most of the Bluetooth viruses ask you to install a SIS file. In most cases, simply clicking NO would averted the problem all together. Although this may restrict the applications you install on your phone, it's best to stick to applications from trusted sources to lower the risk of infection.

Perhaps manufacturers and the powers that be should take a cue from what happened with desktops and provide for security from the word go, instead for waiting for malicious code to be developed first and then go about countering it. In conclusion we leave you with the boy scouts motto – be prepared. **d**

Malware Delivery Vectors for Mobile Devices

Peer-to-peer connectivity (Bluetooth, IR)

Data Services/mobile network Web connection (MMS, WAP)

Communication tower

Syncronization with PC

Telephony/mobile network

Communication tower

Wireless LAN or LAN network connection

Physical media (SD card, memory stick)

S/MIME
S/MIME (Secure / Multipurpose Internet Mail Extensions)
is a standard used for embedding the public key or the
signature in the MIME of the message

Feature

that time. It's all well and good to see proof of your love for your girlfriend carved on a tree years in the future, but it can get embarrassing with your wife standing next to you.

The biggest threat our online identities face is the damage that can be caused by unscrupulous and unauthorized intrusion. Many of us have been through the embarrassment of emails sent with our good name to unsuspecting habitants of our address books, and the sheer horror that follows. The messy explanations, "No, I'm NOT selling 'enhancement' products" OR "No, I don't have any relatives in Nigeria".

The worrysome fact is that this is so very easy in the digital world. Even though new forms of communication have become more popularised, and better secured, a large portion of our online persona lies in our email boxes.

Stories may be spun and rumours may fly, but when it comes right down to it, in the

authorship of documents with his signature.

A signature is something that anyone can read and possible verify, and as such it gives no security to the contents of the documents. Like any form you fill (in quadruplicate) for a government organisation, your signature just verifies that *you* filled the form, the contents of it are still open for perusal by the dozens of people it bounces between before reaching its destination or the Recycle Bin.

Any signature scheme needs to enable anyone to 1) easily and effectively sign their own documents 2) easily verifiable and identifiable as yours (or anyone else's), and 3) be very difficult if not impossible to forge. We see this in our day-to-day signatures, since they are almost a part of our identity, they are easy to produce. They can be verified by matching with a copy, and it is difficult to produce someone else's signature. A digital signature by comparison provides much

"It's not who you are underneath, but what you do that defines you"

A Secure Digital Identity

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I t's true – while your greatest accomplishments may barely see the light of day, it's your most embarrassing moments that will most often reach a wider audience. While we try our best to live our lives in frivolous anonymity, we are on some level aware, that we leave clues to our identity as we move through our lives. We may call up work and say we are sick with a fever while we watch a film, all the while knowing that all it takes is a simple call home to confirm our dishonesty.

A digital identity

As the internet draws inroads deeper into our personal lives, we find ourselves increasingly concerned about our online personality.

Today, a simple Google search can yield all your tweets on Twitter, all your blog posts, your forum interactions, your video posts, the list goes on. All the breadcrumbs Hansel and Gretel need to reach the deepest recesses of your identity.

One rarely worries about the implications of what we leave behind, and often forget who all can see it. The ease and seeming anonymity of the internet are just too lucrative. What many people do online is the equivalent of carving every bench, every tree, every wall we encounter in our lives with our thoughts at

world outside computers, it is your signature that defines the authenticity of the written word. Flawed as it might be it is a system that provides a measure of security to our transactions.

Digitised validity

How would you share a secret? Perhaps by whispering it to a friend, or discreetly slipping a note of the same. However, in most situations neither is an option. We may need to get secretive or sensitive information across, however the party delivering the message cannot be trusted with it. When we look at computers transmitting information over the internet, what we have is a communication being sent over a possibly unsecured channel that could be monitored or even tampered by adversaries. Depending on the content of the message, and its target audience, we relate to different security schemes. In some cases verifiability of a message's authenticity is all that is required, while in other cases the authenticity of the source is more important.

Here lies the difference between the concepts of digital signatures, message authenticity verification and encryption.

Digital signatures

A digital signature may be taken pretty much in the same terms as a physical signature, it identifies the authorship of a document, thus authenticating the source. It gives security to the author, as he is only liable to accept

more security than an ink signature as it is practically unforgable.

Authenticity verification

Authenticity verification is more to do with ensuring that the contents of the document are safe from modification, and any modification made by unscrupulous entities can easily be detected. This is similar to laminating a paper document with a plastic sheet, this prevents modifications, and any forced modifications made are liable to be easily detected.

Here, the source of the document is not important, what is important is the validity of the document. Although such is the case with the example of lamination, it is not necessary everyone should be able to detect unauthorised modifications. We can take the example of a document written in special ink which cannot be differentiated from normal ink by most people. In such a case, only people with the ability to differentiate the special ink will be able to detect whether there has been any unauthorised modifications.

Again as in the case of digital signatures, authentication tags need to be easy to produce and verified for the parties involved, but impossible for an outsider to produce.

Encryption

Encryption is the most effective way to keep things away from prying eyes. Unlike authentication tags and digital signatures,

Feature

Non repudiation
Non repudiation is a provision of Digital signatures to ensure that the signer cannot claim that they never signed a document

Secure signatures
To enable usage of a digital signature on multiple computers, it can be securely stored on a smart card

encryption garbles the content of the message / document / data in such a way that only the intended parties can decode it.

Encryption gives security to the content by making it impossible for anyone to access it unless they specifically know how. If digital signatures are similar to putting a name tag on your lunch, and authentication tags are like wrapping it in plastic, then encrypting is analogous to locking it in a 10-tonne stainless steel safe.

Encryption relies on algorithms for which the coding is far simpler than the decoding. The encoding operates on two things, the data, and the key. The algorithm is designed such that without the key it is nearly impossible (or unfeasible) to get the data back from the cypher. However unless combined with a digital signature mechanism, you have no way of knowing if the encrypted data is from right source.

Encryption schemes also present another conundrum. How do you transfer the encryption "secret"?Whether it is an algorithm or a key, transferring it through an insecure medium is as good as not encrypting at all.

Private-Key encryption
The private key encryption method is one that most people are aware of. Two parties agree on a secret key which will be used to encrypting any further communication. This initial communication where the key is exchanged can be done in person or via a secure channel. Much like whispering or passing a note.

The obvious disadvantage here is the need for a secure way of communication, and if that is available, the whole need for encryption becomes a little moot.

In simple cases, we may share a password over telephone with our friend for files we are about to share. When it is your job to be paranoid about your companies security however, that doesn't cut it, and a security enabled channel will be used. If having a secure communication channel is expensive, we can use the channel merely to exchange the key. After which the internet can be host to further communications which
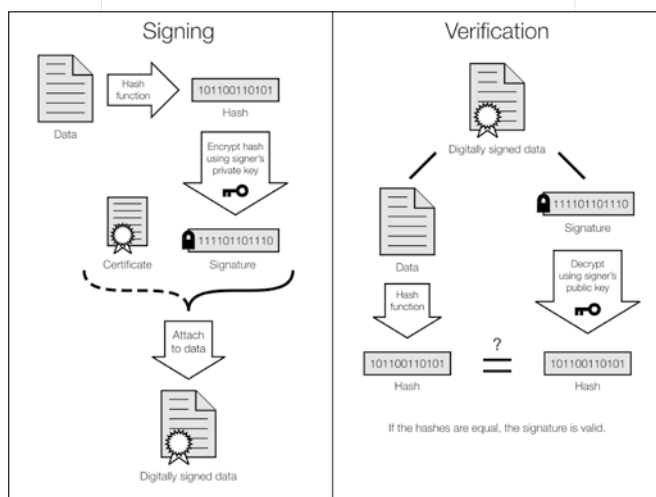
Signing a digital document with a "hash" key is a common security measure

have been encrypted with the private key.

Public-Key encryption
Unlike the public key system, which is symmetric, i.e. the encrypting key and decrypting key are the same; public-key encryption uses different keys for encrypting and decrypting data. This may seem counter-intuitive, but is incredibly useful. In a Public-Key encryption, the encryption key is openly published for anyone to see, while the decryption key is kept secret. What this essentially means is that while everyone is capable of encrypting messages that you can decrypt, however they are unable to decrypt any messages encrypted by the public-key even the ones they encrypted themselves!

In this case, a secure line of communication can be obtained by having the participants exchange public keys, and use them for any secure communication. A secure channel is not required for sending the keys in this case, since the key is only capable of encrypting and not decrypting, furthermore, it is impractical to determine the decrypting key given the encrypting key. Even if your adversaries were to gain access to you public key, it would only enable them to encrypt data with your key, they would still be helpless to decrypt any data that they intercept.

In this kind of system, the sending party encrypts confidential data with the public-key of the party which is to receive said data. The recipient of the data is then able to decrypt the message

Digitally sign your emails
It is quite easy to use digital signatures with Thunderbird. For this one merely needs to install an addon called Enigmail and an OpenPGP system such as GnuPG or gpg4win, all of which are free and open source software.
After installing both of them, you will see an OpenPGP menu in thunderbird. Enigmail comes with a setup wizard located in the OpenPGP menu, which will allow you to easily set up your email client to use the installed openPGP software to add digital signatures to your email.

since they have a decryption key (their private-key).

When we use digital signatures practically, a software generates a signature for our given message. The signature is such that if any part of the message / document is changes, the signature would no longer match and we would know immediately that someone has tampered with the message.

Digital signatures aren't limited to email messages or documents, they are not used in almost every field where the source of the data is important. Microsoft uses digitally signed certificates for drivers it has tested, and warns the user if an unsigned driver is being installed. Digitally signed files, if modified by a virus, will invalidate the signature, which can serve a warning to the user.

A signature is only as good as the one who signed it. A million dollar cheque will do you little good if the signature is of a pauper. Likewise, a digital signature by its nature needs to be easy to produce and as such by itself shouldn't inspire any confidence. A digitally signed virus which deletes all your files, will only do its job if it's signature is intact.

For simple cases of authenticating your emails and files for personal purposes, digital signatures are almost free to use. There are many tools capable of generating signature for your messages and documents. Software that work with documents have some support for digital signatures. Microsoft Office products, for example, allow you to generate and attach a digital signature to your documents.

Conclusion
As we see our digital identities take a increasingly important role in our lives, we need to protect it as much as we can. With digital signatures and encryption we can ensure that our message gets across unhindered and without misrepresentation. The need for security is thus becoming more apparent. The measures of security and privacy are becoming a more integral part of every online service.

The internet is no longer just for communicating with people far away. We use it daily to communicate with people in our schools, offices, with our neighbours or even the people in our own homes. This makes what we do online even more important and relevant to our daily lives. There is no longer a Neo and Mr. Anderson, we now have one personality of which the internet is a part.

The ease with which we can create online identities for ourselves only exacerbates the fact that it is as easy for someone else to assume our identity online as it is for us.

IronKey
The IronKey is marketed as the most secure USB drive in the world. The drive is lined with a small amount of explosive, to self-destruct on intrusion

Workshop

Secure your portable device

Prevent your data from being abused in case of theft, loss or casual snooping on your portable devices.

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Portable memory has become a mainstay of modern computer usage. Executives, employees, government officials and individual users have a range of reasons to protect the data on their portable devices. Two basic security measures include password protecting the

Simple encryption and decryption of single files

data, and encrypting it. Many portable device manufacturers, such as Buffalo Systems or Kingston, have versions of portable memory devices that offer in-built encryption and/or password protection. This is achieved through the agency of software that comes pre-installed on the portable device itself. Such devices are marginally more secure than the methods described below. These software are pretty straightforward to setup and use. Invariably, such software allow users to protect a section of the data stored on the portable device, or all the data stored on the device. The methods described below will allow you to use some simple tools for effectively disallowing access to your files.

PicoCrypt is a small encryption and decryption tool. It can be used to encrypt any kind of file. It is a small programme (16 KB) that runs without an installation, and can be carried around on a USB drive. When used to encrypt a file, the file will be visible, but not readable. An image or a text file will appear garbled or as gibberish. Some kinds of extensions cannot be opened at all. However, the thumbnail of the document will be visible if Windows has the thumbnail saved before the file was encrypted. Also, users can delete the file from the system if they want to.

To encrypt a file, simple drag and drop it into PicoCrypt. A window will ask you if you want to encrypt or decrypt the file. Click on encrypt. You will be prompted for a password, and a confirmation. If you drag and drop multiple files into PicoCrypt, you will be prompted to enter a password and confirm it for each of the files dragged into PicoCrypt. To view the files again, start up PicoCrypt, and drag and drop the files you want to decrypt, then enter the passwords for each of them in turn. Now the files can be opened and edited on programmes.

Another simple way to protect files is to put them in an encrypted archive. This is essentially the same as the above method, but the extension is changed to archive

format, such as a ZIP file. We will be using a free and open source archiving software called 7zip. 7zip stores archives in the .7z format by default, but also works with BZip2, GZip, TAR and ZIP formats. WinRar is a great software for handling archive files, but you have to purchase the full version before you can password protect your archives. Once you install 7zip, the archiving operations show up in the context menu when you right click on a file or folder you want to archive. Right-click and select "add to archive". In the Encryption field, enter a password, and enter it again. If you check the "Show password" checkbox, you don't need to enter the password twice. In the Archive Format drop down menu, select the archive format you want to use. 7zip portable and one of the more obscure formats, will discourage casual snoopers. If anyone wants to access the contents of the archive, they will need the password. This is a great way of sharing files over public hosting services, such as yousendit or rapidshare.

People can still delete the archive if they want to. To circumvent this, archives can be hidden inside other kinds of files, such as an image or a text file. To do this, once the archive is created, you will have to navigate to the folder using the command prompt. Go to Start>Run>cmd and hit [Enter]. First, copy an

image file to the same folder as the archive. Then use cd or cd.. to navigate to the relevant folder. Once there, enter the following command.

```
copy /b image.jpg +
archive.7z image2.jpg
```

The image2.jpg will be the image file with the hidden archive. To extract the archive, change the extension of the file from image2.jpg to archive.7z. Note that you need to remember the format the archive was originally in. Using a .zip extension for a .7z archive won't work. The image2.jpg file can be opened in image viewers, and even in image manipulation programs. The archive will get corrupted only if the image file is overwritten with changes.

Sometimes it is necessary to hide or lock away entire folders. When working regularly with files, the above methods are not of much help, and are pretty laborious.

TrueCrypt is a great open source encryption software for such purposes. When installing TrueCrypt, there are two options available. A disk installation will install the software on the hard drive. An extraction, will however place the software on an external drive, and can be run from there. This is essentially a portable version of TrueCrypt, but this version is limited in capability. After you encrypt

The image file, the archive to be hidden, the command line code, and the two images opened side by side

Workshop

Theft through USB drives
Companies should encrypt data on their hard drives as well, so employees cannot walk out with sensitive documents on their USB drives

Corporate Theft
Studies show that 45% of employees steal data while changing jobs, are often hired by competitors

Selecting a location for encryption

a drive in TrueCrypt, the computer will recognise a plugged in drive, but not allow you to access it. Instead, any computer will prompt you to format the drive before you can use it. TrueCrypt can be used to mount the drive, which means that the same drive will occupy to drive letters. The default one will be inaccessible and the mounted drive will be available only after you enter the password in TrueCrypt. TrueCrypt is available for Linux and Mac systems as well, so your encrypted drive will be truly portable.

To encrypt a drive, plug it into the computer, start up TrueCrypt, and go to `Volumes>Create New Volume`. A volume is a location where encrypted and password protected data can be stored securely. This starts up the TrueCrypt Volume Creation Wizard. There are three possible locations for the data to be stored. The first option is to create an encrypted file container. This option allows you to create an image file, which stores all the data encrypted; you can write any kind of data inside this image file. This image file can be carried around in portable devices. The second option lets you

secure an entire portable device, including USB drives and portable hard drives. This option is Encrypt a non-system partition / drive. The third option is to encrypt an entire partition or a system drive. Choose the second option and click on next.

The wizard then offers you two options for the type of volume. The first option is a Standard TrueCrypt volume, the second option is a Hidden TrueCrypt volume. The Hidden TrueCrypt volume adds another layer of security. If for any reason, anyone finds out
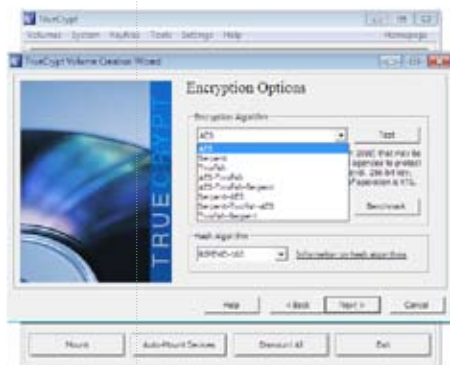
Selecting a cipher, or a combination of ciphers

that you have encrypted your portable drive, and force you to reveal it using a password, then the Hidden TrueCrypt volume will come to your rescue. You can hide sensitive looking data in the TrueCrypt volume, but the real sensitive data will be stored in the hidden volume,

CIPHERS IN TRUECRYPT

All the options available in TrueCrypt are block ciphers. Block ciphers take pieces of the input data, and convert it into pieces of coded data. The pieces range from 16 bits to 256 bits. The different encryption options available are different methods of substitution. The AES is the most commonly used encryption algorithm, and is the standard for the official purposes of many governments. The other options available include Twofish and Serpent. Serpent is more secure than AES, but is understandably slower. Users can use any combination of the three ciphers, or use all three together (very slow).

which leaves absolutely no traces as it is located invisibly within the encrypted volume. This is for advanced users, and not really necessary in most cases. Simply select the Standard TrueCrypt volume and proceed. The next step is to select the drive or device that you want to encrypt and password protect. Click on Device, and select a device from the list that appears, then click on Next.

The next step allows you to either format the device and encrypt it, or encrypt the partition in place. The first option simply erases all the data on the partition, then encrypts it. The second option, encrypts the drive, moves the data around, and encrypts the data as well. The second option is very time consuming, and it is faster to copy the data to a secure location, format and encrypt the drive, then copy the data back to the volume. Select Create encrypted volume and format it, then click on Next.

This is where things get a little geeky. You get to choose from a range of encryption ciphers. There are a range of options available. Generally speaking, the more the time displayed, the more secure the ciphers are. See box for more details. Once an encryption method for a drive has been selected, it cannot be changed later on. Click on Next.

The size prompt box now appears. This is useful only for creating containers, or volumes hidden within a file. The size of the drive will show up in this window, and you cannot change the values. Click on Next. You have to enter a password and confirm it at this stage. If you use anything less than a password of 20 strings in length, TrueCrypt will prompt you to choose a more secure passwords.

A ten character password or so should be beyond what a casual snooper can crack using a brute force method, which is trying every possible combination of letters and numbers as the password. Next you will be asked to move the cursor around the window in a random way. This just generates random strings of data that will be used in the encryption. Click on Format after this is done.

If there is data on your

Mounting the encrypted volume

device, you will be prompted about the loss of the data. Note that the drive will be formatted, and all the data overwritten using garbage values. Even a file recovery software cannot recover your data after you proceed. Click on Next to continue. TrueCrypt will now erase all the data, and encrypt the external drive. Even with the default formatting, and the fastest encryption algorithm, the process will take about five minutes for each GB. It is a good idea to leave the process overnight, if you are encrypting a portable hard drive. The portable version of TrueCrypt can mount volumes, but not create them. To mount a volume, select a drive letter from the list of available drive letters. Then click on Mount, and select the drive as it shows up in the system's drive list. You will be prompted for a password, which you have to enter at this point of time. Now the drive will show up in explorer. You can use it as any other drive, copy and paste data from it, but without TrueCrypt, and your password, it cannot be opened by anyone else. [d]

Master**One**

The Swiss audiophile company has come out with a new model of speakers, called the Piefa MasterOne. Piega's claim with the MasterOne is that these are the first dipole speakers that are designed as a single source of sound, which makes the speakers crystal clear even in demanding room conditions. A single unit is available for $20,850 (Rs. 9,92,055)

Anti Gravity **Globe**

The Levitron Anti Gravity Globe, is both, a great display piece and a toy for children. Microchip controlled electromagnets levitate a slowly revolving globe above an anti-gravity base. There are no anti-gravity waves involved, but the resulting effect is stunning nonetheless. Unfortunately, the countries and the continents are labelled, spoiling the effect a bit. Order one of these at Thinkgeek or Amazon for $80 (Rs. 4,282)

Switch**blade**

The Samson Motorworks Switchblade is a sleek, aerodynamic flying motorcycle designed with Ferrari aesthetics. The three wheeled motorcycle with a 120 hp engine has retractable blade wings. The motorcycle seats two people side by side, and has a small storage space at the back. The range of the bike on ground is 1,400 kilometres, and 550 kilometres in the air on a single fuel up

Nextbook
What started as a bare minimum
netbook, could become the
laptop of the future

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Drool maal
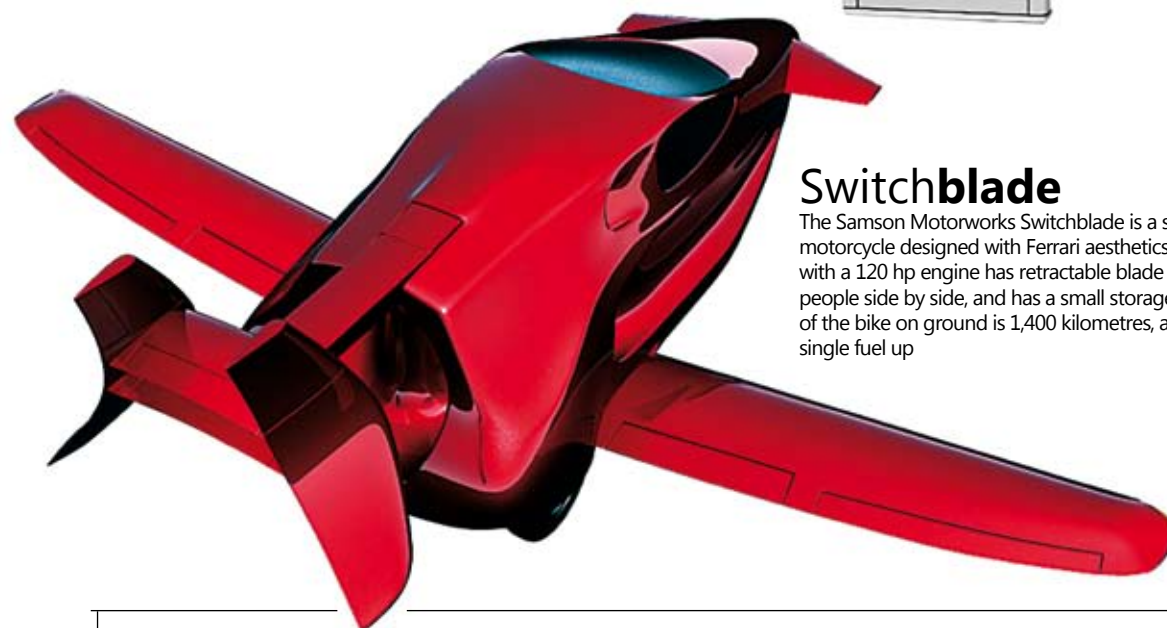
Flight System **G940**

Logitech's Flight System G940 is a controller kit aimed at flight-sim enthusiasts. Compatible with most flight-sim games, the package consists of a controller kit, pedals and a split throttle. We can understand the force feedback allows for turbulence and the behaviour of the aircraft, we are unsure of how the gadget can simulate g-forces, but Logitech claims it can. Club this thing with the CRV-43 for the ultimate flight-sim fanatic experience. Pick one up for $300 (Rs. 14,274)

CRV-**43**

The CRV-43 from NEC Display Solutions is a staggering 43-inch display. Four DLP monitors are stitched together, to give one seamless 2880 x 900 display resolution. We are guessing that the monitors will be used for workstations, but gaming rigs may benefit if the game can handle the 30:1 aspect ratio. The monitor is available for $8,000 (Rs. 3,79,680), but good luck finding wallpapers for it

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Man is a curious animal. Few people can get by a day without wondering about the working of the many things that surround them. How a bird stays in air by flapping it's wings, or how people get work done despite posting on Twitter every 5 minutes. Our curiosity drives us to understand the inner working of things despite the potential harm. People have taken great risks to examine the workings of this universe, and we are wiser for it.

With computers our curiosity found another dimension to explore. How does the software work? How did someone manage to make an algorithm that works so fast? We want to know. For the most part the information is all there,

a software itself is merely data about how it will operate.

When you look at it in the clearest sense, everything on your computer is merely data that you already have access to. It is a collection of binary instructions which direct the functioning of your computer, there is nothing stopping you from finding out exactly how, if you are capable of understanding it at its lowest level. Network communication is merely the transmission of collections of bits from one computer to another in such a way that the devices can influence each others functioning. There are no physical limitations on what we can do with the data, the boundaries here are legal.

It is like owning a toy car, but being forbidden to open it up and see how everything works together. A situation many a curious child will sympathize with. The legal framework is designed to protect the rights of the author

of the code. However in doing that it also curbs the freedom of people who are merely curious, with no harm intended. We can debate till the end of time about whether it is better for people to have freedom or whether such restrictions only manage to push an otherwise healthy curiosity to a crime. As you might remember though, curiosity killed the cat. The dogs are safe, so I guess its OK.

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Some people however just don't grow up, while once they were breaking toy cars, they now break code. For these such people hacking is merely a digital offshoot of their curiosity. The limitation they face seem so artificial, everything they need to hack into the code is right there, like the screws hidden behind stickers in toys.

To say they are misunderstood and misrepresented would be a gross understatement. Hackers

are perhaps most associated with teenage geeks who live within six inches of their computer keyboards. Eccentrics with non existing social lives, as it is for anyone whose work involves something that will merely annoy people.

The good news and the bad is that hacking is no longer a purely illegal domain, and as such is no longer as "cool" as it used to be. Today we have ethical hackers, whose curiosity and determination is respected instead of being restricted. It seems many companies have realized that such traits are rather good to have in their employees. Known as White Hat Hackers, these people tread on the same familiar hacking territory but in the sandbox of their organization.

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Many people regard Ethical Hacking is an oxymoron, a phrase invented by offended

Donning the White Cap

Illustration: Ashvini Baviskar

Team deathmatch?
Teams of hackers or security experts are often called tiger teams or red teams

FSF
The free software movement is a heavily infused with the same principles as the hackers ethics

Geek life

programmers to justify their sinful ways. Hacking sounds just too violent and in most other contexts it would involve masked men lopping off body parts. How can people accessing your data without invitation be considered ethical?

The perception is the issue. Surely it is wrong of a person to barge into your home but if he really did is just to appreciate your lawn, you might throw in a few concessions. That is the truth about the White Hat hackers today. They aren't barging into your home to steal your money, they do so because of the thrill of it, they do it because of the challenge, and most importantly they do it so they can point out to you just exactly how many times you need to turn the key in the lock.

The reason this is confusing is that the ones we are securing from are Hackers themselves, but without the ethical code that the White Hat hackers follow. Describe These people are known as Black Hat hackers or crackers. Their motivation is not just curiosity, but a desire for profit, or even just a malevolent joy in disrupting others. Like with most things the malicious few ruin things for the others. We are more inclined to see a serial killer in a muscular man carrying a large knife than to recognize him us the friendly neighbourhood coconut vendor.

In any other field of security, whether it be bullet-proof glass or car bodies, or bank safes, we expect the companies to do the best they can to ensure that our security is never compromised. How do you know whether a glass is bulletproof till you shoot it, or how safe a car is till you crash it? How do you know you computer firewall is strong enough to resist any penetration.

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The job of an ethical hacker is to judge the level of security of any computing infrastructure. In order to do this they may have to subject it to the same kind of treatment that a malicious entity might. They need to discover any open routes of attack, any unsecured entry into the system.

The intent behind performing a penetration test is to evaluate if a system is ready to be deployed in an environment like the internet, where it is open to attack. To obtain a full security audit a penetration test can reveal a lot about how susceptible the system might be to attack, how measures may be taken to avoid such breaches, and what would be the impact of such a breach on the company and its data (if it were to happen). Since any system is bound to be susceptible to an

attack of some form or the other, how seriously the threat will be taken will obviously depend on how feasible the attack is and how serious is its impact.

To fully secure a system it needs to be tested under all possible scenarios. For any external attack on the system the attackers will most probably be unaware of the specifications of the system. Simulating such attacks is called BlackBox Testing. To test the resilience of the infrastructure to attacks from an internal party which may be partially or fully aware of the systems' configuration, a WhiteBox test is performed.

BL4(|< b0>< 73571|\|9
A black box is meant to signify a closed opaque system where you cannot immediately determine the composition of its contents. Every time you play around with a new closed source software which you know nothing about, you are in a way doing some blackbox testing of your own.

Real blackbox test, meaning testing which is done in order to ascertain the security of a system (and not say finding out how to create a cube in Lightwave 3D) is much more complex. It is like handing a microwave oven to someone in the 1800s and telling them to make a roast turkey. For this reason blackbox testing is not something which can be automated, and requires extensive work by a professional hacker.

Since Black Box testing is independent of the internals of the system, it can expose bugs in the system which can be missed even by people who have full knowledge of the system. However it is difficult to be exhaustive, since the tester has no knowledge about the range of tests that need to be performed.

While playing around with something you don't have any knowledge about, there is always a chance that you will break things. However this is a risk that often has to be taken in order to ensure

that such a situation does not happen for real when the damage done would be much more catastrophic.

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White Box testing is performed with full knowledge of, and perhaps even access to the internals of the system. Since White Box testing is based on knowledge that we aleady have, some of its aspects can be automated. As such it is much simpler to accomplish than Black Box testing.

It can evaluate the security of the system in case of an attack by people who have knowledge of the system, its configuration and structure, and possibly even some passwords. It is a simulation of an attack which could be an inside job, or in case of information being leaked about the system.

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Steven Levy lays down some guidelines for hacker ethics in his book "Hackers: Heroes of the Computer Revolution". Anyone who calls themselves a hacker usually adheres and believes in these principles.

- *Access to computers–and anything which might teach you something about the way the world works–should be unlimited and total. Always yield to the Hands-On Imperative!*
  Limited access implies that there is only a limited amount that you stand to learn. Copying other peoples work might be regarded as wrong, but for faster and better progress, copying means that you have more time to innovate. You can put your effort into improving things rather that just coming to terms with them.

- *All information should be free.*
  By charging for or otherwise restricting information, the number of people who can be exposed to it is reduced. People with need for information are not necessarily the ones who can afford it.
  Information is what innovations and inventions are

THE GRASS IS GREENER ON THE GREYER SIDE

With white hats and back hats, white boxes and black boxes, you might get the wrong impression about how simple this world is. As always, nothing is merely black and white, it is the grey area in between which is the most people's abode. Grey Hat Hackers: They are more representative of normal people with faltering consciences. People who operate legally for the most part but aren't immune to the occasion thrill that can only come from committing a crime. Grey Box Testing: By using a limited knowledge of a system, and its internals you can perform Grey Box Testing. These tests are performed like Black Box tests, by merely fiddling around with the external access points of the system, while using information that is not available during black box testing.

built upon, farther the reaches of information the greater the good it can do, and the more people it will inspire.

One of the biggest reasons the internet is popular is that it is a free resource of information. Companies are beginning to learn this the hard way, as we can see with Microsoft's recent abandonment of their Encarta Encyclopedia.

- *Mistrust authority–promote decentralization.*
  Centralizing is akin to putting all your eggs into one basket. By making everything dependent on a single authority you become slave to it. We have seen over time that any trust placed in authority is trust misplaced.
  Corporations such as the RIAA damage the consumers and artists by punishing fans on the artists' behalf while the artist watched helplessly in disgust. In a decentralized system each person has control over their own work, and how much you plan to share and with whom is entirely up to you.

- *Hackers should be judged by their hacking, not criteria such as degrees, age, race, or position.*
  Let your code do the talking! Your shiny degree from MIT is pretty much worthless if you need help from a cross referenced instruction manual in order to butter your toast.

Age, race, sex, and position are non-factors when the only thing of value is the work that you do. It is only the work that you do which lives on after you. Ignoring someone's experience and work based on any of these factors is sure to act as a hurdle to progress. Everyone is capable of contributing something, and the only measure of the contribution should be the the contribution itself.

- *You can create art and beauty on a computer.*
  Art and beauty are subjective considerations, not limited to a medium. You don't need a canvas and paint to bring you imagination to life. Computers can give you many, many more dimensions to play with and express yourself. Your art can transcend the mere three dimensions of physical art. Software code is a great source of beauty to those who understand it's intricacies. Creating code that runs faster, or uses less memory, or fewer steps, is an art in itself.

- *Computers can change your life for the better.*
  Computers are something that can greatly increase the grasp a person has on the workings of the world. Computers literally put all the information within the reach of your fingertips. Anything is possible if only you can imagine it (and program it).
  We no longer need to deal with static

pieces of paper which contain information that is outdated minutes after it is published. You can now be an active part bringing people what they need to know. With initiatives like Wikipedia, you can have the knowledge of the entire world at your fingertips and not just the words of a select few whose voice reaches farther than others'.

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Hacking is no longer the realm of a hobby or a crime, curiosity should never be considered an ill trait. It is in out very nature to discover the workings of the things surrounding us and the best thing is, you can now get paid for it!

Hacking is not everyone's cup of tea, but for the few people who have what it takes it is no longer something they need to suppress into a hobby. More and more people are putting their curiosity to better use with careers in professional hackers, the ethics are part of the job if nothing else.

We have always paid homage to the brave people who have "hacked" the laws of this world and brought us the modern day conveniences that we can no longer imagine living without. Computer hackers are merely people who test the laws of computing and push the limits of what they can do. In a way though we are all hackers. Every day we test the working of the things around us whether we know how they work or not and no matter which hat you chose to wear, there is no greater joy in discovering the limits and pushing past them. **d**

CCTV in Mumbai
CCTV footage captured at Chhatrapati
Shivaji Terminus (CST) railway station in
Mumbai is among the key evidence in the
26/11 terror probe

Feature

Who's looking at you?

David Kelly
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In the 15 years since government funds first became available for public CCTV, the UK has evolved to be the most surveilled country in the world. It has more surveillance CCTVs than anywhere else on Earth. Even as long ago as 2002, according to researchers, the average UK city dweller, going about their ordinary business, is caught on camera more than a hundred times a day.

So enthusiastically has the UK embraced public space surveillance that this small island is now home to 20 per cent of the world's CCTV cameras. Huge sums of money have been spent, and over 600 of the UK's towns and cities now deploy CCTV cameras on their streets. And, though accurate figures are hard to come by, best estimates suggest there is now one CCTV camera for every 14 citizens — an

As India considers significantly stepping up its use of CCTV surveillance as part of increased security measures in the wake of the Mumbai attacks, we ask: will CCTV work? The UK has more CCTV cameras than anywhere else on earth and it's now the world's most heavily surveilled society. We look at the benefits and lessons that can be learnt from the UK CCTV experience

astonishing 4.2 million lenses pointing at the population.

CCTV is now a routine and accepted part of British daily life. It is omnipresent. It's in every major public space, at every transport hub, inside every shop and office, in schools, stadiums, colleges and hospitals, it covers every major highway and every major public event.

Does CCTV work?

So what's been learnt in these 15 years of public scrutiny? Has CCTV increased public protection?

Well, the short answer is that CCTV is proving a very useful and valuable tool for a whole range of different applications – except for the one thing it was originally installed to achieve: crime prevention.

All of the research conducted thus far, and there have been several academic studies, indicates that CCTV's power to deter (or displace crime to areas without CCTV) – just through the fact of its being there – is quite limited. It can have a deterrent effect on a few specific types of crime (for example, car crime in controlled areas such as multi-story car parks). But

IllustrationsChaitanya Surpur

research by the UK Home Office and others, shows that the mere fact of CCTV surveillance does not prevent many serious crimes. Those involving violence, or crimes of vandalism, especially those where the perpetrator has been consuming alcohol. The reasons for this are obvious, if you think about it. People who indulge in crimes of passion have no time to take into account that they are being filmed. People who are drunk tend not to think rationally about the consequences of their actions. And of course, any would-be terrorist or suicide bomber probably doesn't care less one way or the other if he is captured on CCTV immediately prior to carrying out his attack. An additional factor is that CCTV is now so all-pervasive in the UK, that it is pretty much impossible for the career criminal to avoid. They must work within its gaze, because they can't work beyond it.

However, luckily for all those who earn their living through CCTV, the measure has come to be acknowledged as an exceptional,

Every nook and corner in UK is captured on CCTV

even indispensable, tool for a number of other purposes. CCTV has turned out to be very good indeed for:

Investigating crimes
Nearly every major police investigation now involves seizure of all relevant CCTV image data, and a great many criminal prosecutions now include CCTV evidence. Even in the case of a recent double-murder that took place inside the victims' house, CCTV evidence from street cameras was used to show that the perpetrators then used the victim's cash till cards following the crime − a critical piece of evidence helping to sway the jury to bring in a guilty verdict. CCTV evidence is proving to be

enormously persuasive with both juries and, more importantly, with the arrested criminals themselves. If the analysis was to be done (which unfortunately it hasn't been) then CCTV would be shown to be paying for itself, probably several times over, in terms of the time and money saved to the police, criminal justice system and courts through its power to encourage criminals who are shown CCTV images of their crimes to opt for early guilty pleas.

There has also been a separate benefit of CCTV. It has uncovered a whole new layer of crimes taking place in society's public places, which hitherto would have gone unnoticed, or unreported. Police now view CCTV as the 'third forensic discipline', rivalling DNA and fingerprint evidence in importance. CCTV data is now routinely recovered following any major incident (and increasingly following more minor incidents), and it is often now handled and processed by specialist police CCTV evidence teams, operating within newly established regional forensic CCTV image labs. A particular advantage with CCTV is that, because cameras run 24/7, investigators can view the events leading up to an incident.

For example, following the London terrorist bombings in July 2005, security services were able not only to identify the bombers, but also discover the background to the crimes and view the rehearsal that the bombers made in the weeks prior to the attack − giving the security services important new clues about the background to the attacks and the individuals involved.

Intelligence gathering
CCTV is now frequently used to investigate those who are believed to be planning criminal activities. This surveillance is either carried out overtly or covertly. Often this will involve the deployment of temporary CCTV cameras for the duration of the operation. For this, the authorities use either mobile CCTV (vehicle-based cameras) or relocatable CCTV (cameras that can be temporarily mounted on lamp posts). In May this year, in a bizarre overt example of this type of investigation, police used Body Worn Video cameras (miniature cameras that are worn, usually either on headgear or on uniform jacket) to follow the activities of a group of suspected burglars in Essex. Police notified the individuals concerned by letter that they would be

CCTVs monitoring London's busy streets

videoed, and then they followed them with cameras. Burglaries in the area during the period of the operation fell by half.

Aiding response to incidents
The third way in which CCTV has proved valuable is though its ability to help police and other responding services, including paramedics and social services, to provide appropriate response to incidents. Monitoring staff in CCTV control rooms can provide a 'live' assessment of the type of incident, allowing responders to roster response accordingly. If the event escalates, staff can inform police who will take necessary action to perhaps increase resources being devoted to the incident. Authorities responding to an incident are also reassured, knowing they are being watched on CCTV. There are documented instances where a police person, seeking to control public disorder, has been prevented from calling for back-up, but has been seen in difficulties by CCTV staff, who have then been able to quickly notify police to send reinforcements. CCTV staff can also quickly review CCTV data in the lead-up to an incident, even as it is happening, and communicate directly with police attending the scene, to ensure that police on the ground question the right people, or to ensure that key witnesses do not wander away from the scene.

Lessons learnt
In its short history, CCTV in Britain has evolved as a powerful and useful tool for tackling a wide range of different types of public incidents. However, the learning curve has been steep. There are some lessons that have been learnt:
- 👁 *CCTV is of no use of itself.* The biggest mistake the UK made was only to provide money for camera system installation. No funds were made available for the on-going operational needs of these systems, and no money

London terrorist attacks on July 7, 2005
The London terrorist bombings on July 7, 2005 and the subsequent attempted terrorist attacks a fortnight later on July 21 pushed the limits of the capital's CCTV control room operations, and presented security authorities with a huge logistical task – not least how to search the vast volume of available CCTV footage for evidence

Feature

was set aside to assist the police and courts service in handling the huge volumes of CCTV images these systems produced. As a result, for a long time, the police largely turned a blind eye to the existence of any CCTV evidence, unless the case was of a very high profile. It is now understood that CCTV only works as part of an integrated programme that takes CCTV images all the way from camera to court. It is no good generating images unless some action is taken as a result – whether that is deploying police to the scene, presenting images in court, or detaining those identified driving stolen vehicles.

◉ *Technical standards.* Somewhat after the event, the UK is now very keen to retro-actively apply a swathe of technical standards for the type of CCTV kit that is allowed to be deployed to view members of the public. This is because CCTV from private sources – shopping centres, offices and so on – is often of insufficient quality for use in court. It has also been because the migration from analogue to digital operation across the whole of the PSS CCTV estate has caused so much difficulty. At the last count, there were over 800 different technical standards for image data storage on DVRs. This has made image recovery following any incident enormously more time consuming, sometimes even impossible. For example, some DVR systems have no facility for saving data out to disk. Others save data out, but without the necessary viewer software needed to view the images.

◉ *Standards for operation.* Protections for the public against being inappropriately surveilled are weak and the law for so doing lacks teeth. Also, many criminal prosecutions involving CCTV image data from privately operated CCTV systems continue to fail – usually because of mistakes by CCTV owners in carrying out basic procedures to ensure the necessary audit trail of the evidence (for example, trivial problems like having the automated date/time image watermarking system on the recorder incorrectly set).

◉ *Successful CCTV operation is mostly about people.* Contrary to what was initially thought, research now shows that only a few people have the ability to spot incidents seen by cameras at the monitoring centre. It turns out to be a skill that some people have and others don't. Specialist staff selection methods have had to be developed. Also, research

NEW TECHNOLOGY

Surveilling the future

Once captured, a digital video image can now be analysed using software tools. This has lead to a number of new or emerging CCTV applications:

Video analytics: Here, AI-based software automatically analyses the video data looking for pre-identified patterns of behaviour. When such behaviour is identified, pre-set actions are then triggered. An enormous amount of research is underway in this area, since it has the potential to aid monitoring staff by highlighting potentially significant events for their scrutiny. However, the technology is still very much in its infancy. Plagued by high false positive rates, only the very simplest of these applications have so far been shown to be commercially deployable. Generally these applications require a very controlled environment to operate effectively. For example, video analytics is used to reduce employee fraud in supermarkets by reconciling shape recognition in CCTV data of items filmed on the check-out belt with EPOS data from items keyed by checkout staff. It is also used in an anti-terrorist application to detect abandoned packages on, for example, railway platforms or other public areas where people gather. Software 'learns' what the camera view looks like, and compares successive image frames looking for new items that remain stationary. London Underground has trialled this technology with some success. Other video analytic applications that are for the moment more of a work in progress, include algorithms to identify people running, fighting, falling, carrying guns or knives. There are algorithms for car crime (identifies human-sized object, moving from car to car to car in a car park) and potential suicides on railway platforms (apparently, would-be suicides stand as far away from the platform edge as possible and then move to the edge, and repeat this activity several times before making their

attempt. This pattern of movement is in theory identifiable using video analytics).

Facial recognition: A branch of video analytics. Currently this can be made to work with a high degree of reliability, but only in very controllable environments, for example police interview suites, access control gates, or border control points. The latest generation of systems being used at border control points work by projecting a grid of light 'stripes' onto the individual's face and then using CCTV images of the distortion of the grid to build a 3D model of the face. Recently this technology has been shown to work to a useful level of reliability as travellers walk normally through a turnstile type 'pinch point' designed for the purpose. The still unresolved problem is the level of time consuming data crunching required for matching each new person passing through against the data of known 'wanted' targets. Currently it takes about three seconds for comparison, making the system still unworkable for high footfall urban transit applications.

Intelligent storage: Existing video storage systems automatically apply 'metadata' tagging to video image data to provide various search functionalities. The simplest of these metadata tags are date, time and camera ID number, allowing users to search CCTV data by time and date, or by the images from a particular camera. However, as a by-product of video analytics, if AI software can identify objects in CCTV image data then it can also automatically apply appropriate metadata tags to the image data. An example might be 'person running' or 'red truck'. In the future such metadata could be streamed live (which would require only small bandwidth) from the various CCTV systems around the country to a central real-time searchable database facility. However, for the moment, the lack of a standards for metadata tagging is hampering any such efforts.

A would be terrorist buying bomb materials, caught on CCTV

undertaken on behalf of the airline industry – looking at security staff viewing baggage X-ray machines – shows that even those with the correct aptitude can only maintain the necessary level of concentration for short periods at a time – perhaps only for 20minutes or so. CCTV monitoring is often a mundane occupation, so there is a need to rotate staff through other duties at the monitoring centre for variation, and also to develop programmes whereby good staff can progress – otherwise staff churn will continue to be a significant problem.

HDcctv
CCTV footage often is blurry and features are not resolved enough for identification. The HDcctv alliance hopes to change that

CCTVs in Kolkata
The City of Kolkata is planning to mount over 100 CCTVs on all busy road intersections

👁 *Successful CCTV operation is about partnerships.* CCTV works best if the monitoring staff are in close two-way communication with those who use the outputs from their systems. Incidents seen on CCTV need to be responded to quickly and appropriately. It's also important for monitoring staff to have real-time access to intelligence networks such as police radio, as well as commercially operated equivalent networks such those within the retail and entertainment industries.

Big Brother is watching

Has CCTV turned the UK into a surveillance society? Many argue that it has. CCTV is just a tool, like any other, in the law enforcement armoury, so much depends on in whose hands it is used. In recent years there have been a number of high profile incidents that have raised public concerns. In 2005, CCTV control room operators in Merseyside used street CCTV to spy into the home of a female resident and film her preparing to take a bath — they were found guilty of voyeurism and jailed. A test case in the European Court considered the case of a man who was saved from committing suicide by being spotted on CCTV but who later claimed that his Human Rights had been violated when the local CCTV operator released CCTV images — in which he was identifiable — as part of a publicity campaign to demonstrate the value of CCTV. The EU court agreed his Human Rights had been violated. In the UK a number of organisations — including the government's own regulator, the Information Commissioner's Office — have raised concerns about the use of CCTV.

Probable terrorists buying explosive materials

ANPR CAMERAS

Automatic Numberplate Recognition Cameras are special roadside CCTV cameras that capture an image of a vehicle's registration number-plate and then use on-board software to extract the vehicle number as alphanumeric data from the image. Because the cost of this technology has fallen dramatically in the last few years it is now widely deployed for a whole range of applications. Car parks and car rental companies use it for reconciling vehicle inventories; the City of London uses it to detect cars that have failed to pay the daily fee for driving within its limits; petrol stations use it to tackle bilking (the practice of driving off without paying for fuel); and it is the technology at the heart of a new generation of motorway speed cameras that calculate in real-time every vehicle's average speed between two ANPR cameras set a distance apart (forcing motorists to maintain lower average speed over distance, rather than simply slowing down in the vicinity of the camera itself, as with a conventional speed camera).

Since 2005, the police have received central funding to develop a nationwide network of ANPR cameras, positioned at strategic 'pinch points' on the nation's road network, to 'deny criminals the use of the roads'. All of the cameras on this police network feed back to a central police data centre a real-time data stream of every car number-plate passing every camera. This nationwide data can then be searched in real-time for particular vehicles. As with conventional CCTV, the system is only as good as the resources that are available to act on the output it generates. So, for example, seeking data matches against databases held by the Driver & Vehicle Licensing Agency or by insurers to find those driving unlicensed or uninsured vehicles produces such a volume of uninsured or untaxed vehicles that the police simply don't have the resources to stop and detain all the offenders. Notwithstanding, the police ANPR system is proving very effective at quickly finding individual cars, for example, those that have been stolen or used in the carrying out of a crime.

There is a dynamic between, on the one hand, the police and intelligence services who wish to have as much freedom to surveil whoever they wish and, on the other, civil liberties groups who believe all such intrusions into people's lives should be curtailed. What's the appropriate point between these two extremes that will give the public the maximum protection for the minimum of privacy intrusion? Recently the UK Parliament's House of Lords has considered this vexed question, and has made a number of recommendations intended to curtail CCTV's excesses. These recommendations include that CCTV should only be deployed where its use is 'proportional' — where the activity it is to surveil is of sufficient seriousness to justify the intrusion of people's privacy that it will entail; that the use of 'privacy impact assessments' should be considered prior

Terrorists on their way

to each new CCTV deployment; and that all CCTV data (including ANPR data) should only be kept for the minimum period defined as necessary within the Operational Requirements. The Home Office and the police have between them produced a National Strategy for CCTV in the UK, which includes the recommendation that, because CCTV necessarily entails privacy intrusion, it should not be everyone who can use it — there should be a licensing/registration/vetting programme for CCTV.

However, regardless of all of this, national surveys of the UK public's attitude to CCTV continue to show acceptance levels for the measure of greater than 80 per cent.

High sales figures
Netbook sales are the silver lining in economic cloud, says research firm iSuppli: while PC shipments dropped 23 per cent, netbook sales went up by 10 per cent in 2008

Convenient savers
Netbooks might just be the ultimate thin clients: go to work, log into a central server and use its resources, come back home, enjoy the web

Feature

With any luck, the Voice of Reason may yet prevail, and someone's going to do the netbook right for a change

Nimish Chandiramani
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NextBook

There's no way to say this without inviting some ire. Netbooks suck. They're the product of a great idea gone sour – when you buy your netbook, you're settling for the let's-just-get-it-out-quickly product. Netbook makers have taken the most essential features of the desktop and squished them into a much smaller package; the results are… interesting.

Cramped

We've had the considerable displeasure of using Windows on a 7-inch, 800 x 480 screen. We've seen the OK and Cancel buttons of dialog boxes vanish below the taskbar, we've seen word processors give us barely enough space to see a paragraph of text, and we don't like it one bit. Though the experience on bigger screens is less annoying, the fact remains: Windows (and nearly every application for it) was never built for such small screens, and that's not likely to change.

This brings with it a potential future problem too: what happens when these tiny screens become tiny touchscreens? Windows XP's Tablet PC edition is uneventful at best, and while Windows Vista and 7 deal with touchscreens better, you'll still have to drag around the little on-screen mouse to use most features, because Windows isn't finger-friendly either.

And you Linux fans sitting in the back there: stop sniggering.

Even though netbook manufacturers have customised their Linux distributions with startup screens that work well for small screens, they're still running the same applications, on the same desktop environments (GNOME, Xfce, or KDE, as the case may be), making their interface enhancements pointless beyond the program launcher. In some cases, Linux desktops are even worse: the massive fonts and buttons make even a 13-inch screen seem insufficient and uncomfortable.

And it isn't just the software that doesn't belong.

Overkill

We're supposed to look at netbooks as minimalist, almost purpose-built devices. They're supposed to let us use the internet, do some basic office work, and maybe watch the occasional movie. Anything they do beyond that is a welcome bonus. And yet, instead of a hardware platform that's built to do a few things really well, netbooks run on a platform that's built to do as many things as possible, as best as it can – x86.

Using the x86 platform on the netbook makes sense–it's what we're exposed to the most, whether we're using Windows or Linux, and more importantly, it powers our favourite applications. As a general-purpose processor, its architecture is built so that it can handle anything that you try to do on your home PC – the web, office work, games, protein folding, and much more. In the interest of general purpose-ness, the x86 platform sacrifices speed to be able to do everything.

But the minimalist netbook doesn't need a can-do-anything processor, it needs a will-do-the-essentials-perfectly processor. Such processors exist in the wild, too:

Illustration: Chaitanya Surpur

No more bloatware
Corel Home Office is "optimised for netbooks", apparently: it weighs in at 100-ish MB, maximises screen space, and at $70 (Rs 3500), is much cheaper than MS Office

Netpal
Disney and ASUS have partnered to release the Netpal—a netbook for kids—complete with a "unique Disney interface"

they're powering your game consoles, PMPs, Internet tablets, and smartphones.

So if the hardware doesn't belong either, where do we go from here?

Rethink

We already know what we expect netbooks to do properly: connect to the internet, run the essential office applications, and entertain in between.

On the software front, then, we want applications that are designed for small screens, don't hog resources, and still have the features we're used to. We also hope for cheap touchscreen netbooks in the future, so the interfaces also need to be finger-friendly.

This is where everything starts to sound oddly familiar. We've seen these things before, but nobody called them netbooks. They're already running operating systems and applications that are perfect for their small screens (some of which are touchscreens), and while they may not do movies, they do manage to let us use the web, get some office work done, and listen to some music. They're called PDAs and smartphones.

Maybe the ideal netbook isn't a shrunken desktop after all — maybe it's a pimped-out smartphone.

Perfect sense?

Apart from their ability to do nearly all the stuff we want to do with netbooks, there's a lot more to love about the smartphone. Because they've been small-screen devices forever, every application for a smartphone is designed with that screen in mind. The applications for touchscreen smartphones, too, are designed to be finger-friendly (well, the better applications, at least). The operating systems themselves are designed not to hog memory or processor cycles, much unlike the

Is the Android-based Alpha 680 the shape of things to come?

systems we're using on netbooks right now.

And then, there's the hardware. Most smartphones and PDAs run on ARM-based processors, which are the mobile world's will-do-the-essentials-perfectly processors we just talked about. They're designed to consume as little power as possible, and can even include hardware tweaks to play movies and music better.

So if you take the innards of a smartphone, inject them with even more computing power, and stick them into the body of a current netbook, you might just get the netbook that should have been.

This isn't the dream of an annoyed writer, either — in the coming months, we'll see the netbook market slowly divide itself into the ARM-based and the x86-based.

In this corner...

The idea of an ARM-based netbook probably started with Google Android. It was the first Linux-based smartphone OS to see any real success, and when Linux meets success, it's widely regarded as a Good Thing®. Even though Android won't run standard Linux applications, it's probably the most mature avatar of Linux that runs on an ARM chip. Naturally, this begets the question "Can you call a really big Android phone a netbook?"

It's being answered.

Back in March, market research firm Ovum predicted that we'll see the first Android-powered netbooks later this year. At Computex in June, Qualcomm demonstrated a sleek little netbook based on ARM's Snapdragon chip—the same chip that powers the iPhone. A Chinese company called Guangzhou Skytone Transmission Technologies has already put up a product page for the Skytone Alpha 680, an Android-based netbook with a 7-inch touchscreen.

By next quarter, Freescale wants to push its own Android-based netbook onto the masses. And in Taiwan, an OEM has come up with a netbook that has both ARM and x86 chips — you'll run Android on the ARM, and Windows on the x86, should you miss the OS that much. The kicker? All these netbooks will cost less than $250 (Rs 12,500).

And the ARM madness isn't just confined to Android, either. NVIDIA is now the proud parent of the Tegra, an ARM-based "system on a chip", which sticks a CPU, GPU, northbridge and southbridge into a tiny die, and is all set to power UMPCs running Windows Mobile or CE. And yes, it'll run Android too, if vendors want it to.

And yet, as ARM-based devices are set to make their big entrance, they might just trip over something silly — Adobe hasn't ported Flash to ARM yet, and since a sizable chunk of your internet experience involves your Flash

plugin, these devices may end up being non-starters.

Meanwhile...

The x86 camp isn't sitting idly by, either. Intel has been spearheading Moblin (short for Mobile Linux), a Linux desktop built for small screens, and optimised for the Atom. We've poked around in the beta, and it does address several of the issues we have with current operating systems. Instead of wasting space with irrelevant panels, it uses a simple tabbed interface at the top. Applications invariably occupy the whole screen, and have only the most essential buttons, giving you all the screen space possible.

All these features come with a rather pretty UI, powered by Clutter, a new user interface toolkit that uses OpenGL to deliver the "richness" we have come to desire from our interfaces. Under that, though, it's using GNOME Mobile, which means that unlike Android, it'll run regular Linux applications easily.

Moblin still has a way to go before it's truly usable — some parts of the interface are still the same old windows and it

The tiny NVIDIA Tegra started as a chip for Mobile Internet Devices (MIDs), but may soon power netbooks as well

doesn't have a word processor yet, but with Intel pushing it strongly, this isn't over yet.

On the less exciting front, Ubuntu now comes in a "Netbook Remix" flavour, which also uses Clutter to make the interface better for small screens. However, apart from some minor tweaks, it's still the same interface underneath, which means you still lose pixels to unnecessarily large buttons, and other such frills.

But even as the platforms are evolving to make 7-inch screens usable once again, another problem rears its ugly head.

WREL
Intel has powered a netbook over thin air, using a Wireless Resonant Energy Link (WREL). Right now, though, this is just limited to a few watts over a metre

Windows in, Linux out?
NVIDIA's Tegra prefers Windows CE over Android or Linux for its ARM-based netbooks. Tegra play HD video quite well—something that Android can't do, because it renders video using Java, not the hardware.

Feature

A chat that occured on our IRC server between two friends — uncensored (well almost)

\<A\> if only the 7-inch screens were actually usable
\<B\> oh they are, so long as you don't surf
\<B\> everything else is fine on them
\<A\> 800x480
\<A\> dark age stuff
\<B\> heh they should get 10 inch resolution on the 7 inch
\<A\> i'm waiting for the ARM netbooks
\<A\> with android
\<B\> which might work... or might not
\<A\> it's cool because android is designed for small screens
\<A\> unlike windows or linux distros
\<B\> betcha microsoft designs WM for netbooks
\<B\> or at least their own netbook OS
\<A\> doesn't look like they are doing that for 7
\<A\> which is surprisingly snappy, btw
\<A\> the whole netbook approach is arseways anyway
\<B\> how so?
\<A\> they should have said let's make a big smartphone
\<A\> not a small PC
\<B\> nah
\<B\> you are arseways
\<B\> tell me 10 things you do without typing
\<A\> i'm not saying ditch the keyboard
\<A\> i'm not talking design at all
\<A\> i'm saying use ARM
\<A\> and use an OS that is meant for small screens
\<A\> and apps that are meant for small screens
\<B\> nah, ARM can't run OSes to do what we want
\<A\> but the whole point of a netbook is net + basic office stuff

\<A\> at least the cheapest ones
\<B\> so imagine you using Symbian ALL the time
\<A\> my phone's symbian.. it does docs, and internet, and other misc shite
\<B\> there's a certain speed you just cannot live without
\<B\> and a certain screen size
\<B\> and that's quickly looking to be 9/10 inches
\<A\> yeah, and even at that size, ARM is capable of doing wonders if someone writes an OS around it
\<B\> but apps aren't available
\<A\> the x86+windows is the easy way out
\<B\> in this day and age, no tech company wants to invest time and money into something that will come out in 3 years even
\<B\> even Apple took that easy way out
\<B\> why not others :)
\<B\> look at the need
\<B\> the need is "computing on the go"
\<B\> not mobile on the go
\<B\> or powerful mobiles
\<B\> people want to be able to compute ... and the way we know how to compute today is the notebook
\<A\> yeah but how much computing is computing?
\<A\> ARM is perfectly capable of everyday use
\<A\> and has built-in hardware mods for video and audio
\<B\> you seriously think ARM would have enough power to run something like microsoft office
\<A\> not MS office, but the Next Mobile Office Suite (TM)
\<B\> no one wants that
\<B\> like no one wants to shift from outlook

\<B\> try teaching the massses how to use irfanview instead of MS Picture and Image viewer
\<B\> you cannot break MS dominance that easily
\<A\> course not... but that doesn't mean everyone should just say "ah **** it" and give up
\<B\> but right now at least netbook = cheap alternative to notebook, which = MS OS
\<A\> people train themselves to learn their mobile OSes quickly enough
\<A\> assuming the OS is decent
\<A\> why not netbooks?
\<A\> why not on a portable device that does everything they want it to?
\<B\> because humanity still associates them both as different tasks
\<B\> mobile = texting, calling and fun
\<B\> laptop = work, chat, mail and fun
\<B\> anyway i still think netbooks will remain MS / Linux dominated, simply because everyone wants and buys a PC
\<A\> android is linux-based though
\<B\> sure but a lame version
\<A\> all they have to do is make it run regular linux apps
\<B\> oh like that's gonna happen overnight
\<A\> no, but start work
\<A\> analysis paralysis is a dangerous thing
\<B\> like Google is gonna enable yum install lol
\<A\> Google doesn't have to
\<A\> android = lin = open source
\<B\> fine, let's wait and watch...

For more chats like this one, you can go to irc://irc.thinkdigit.com, and chat live with other readers, as well as members of the Digit team.

Moblin's M-Zone page takes a leaf out of your mobile phone's "Home" screen, with a quick overview of the stuff you've done recently

Teh unsolvable interwebz

Ironically, the one thing 7-inch netbooks won't be able to do — not while they're 800 x 480, anyway — is provide a great internet experience. Most sites are designed for screens that are at least 1024 pixels wide, so you're going to see ugly horizontal scrollbars as you surf. And since 800 x 480 is way bigger than your mobile phone's screen, the mobile layouts for the sites will look quite silly.

It's wishful thinking to expect that web developers are going to modify their sites just for a bunch of netbook users—no matter how much the world loves netbooks—so unless the 7-inch, 1024 x 600 LCD becomes much cheaper, netbook manufacturers will either have to apply custom stylesheets to make sites look right, or just let you suffer.

But even badly designed sites are not going to stop anyone.

Fight!

Unbeknownst to you, this topic has been the subject of a few heated IRC debates, even within the *Digit* team. While some of us are rooting for the ARM-based underdog, others don't see the merit in trying to redo the netbook — "try getting professionals to ditch Outlook", they say. As long as Intel continues to improve on the Atom (and any x86 platform that succeeds it), there's no compelling reason to switch to a completely alien platform.

But we train ourselves to use our smartphones quickly enough — why not on a cheap netbook, as long as it does everything we want it to?

It all comes down to you: do you want to stick to your Windows or Linux netbook, or will you jump ship to an Android netbook that'll do all that you need it to, only in different programs? The forums, as always, are open.

eHomes
Electronic homes, for both control and security

Have you ever landed in mid-winter, wishing you could telephone your flat and have the heating turned on and bath water warming up? Intrigued by the possibility, Edward Henning went along to visit a couple of eHomes projects from Designarch, and meet the architect responsible, J. K. Jain.

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J. K. Jain uses the term eHome – which he has trademarked – to mean much more than just electronic-home. It is that aspect that is of most interest to us, but we should first describe the full range of meanings. There are four specific intentions in the use of this term:

Electronically operated: both for control of systems in the home and for security.

Eco-friendly: energy conservation, better hygiene and reduced environmental impact.

Earthquake resistance: taking into consideration the soil type and foundation of a building and the materials and design.

Entertainment: the facilities available with the home.

We'll take these in reverse order, in increasing interest to us here.

Entertainment

The eHomes projects consist of high-rise block in two locations, both near Delhi – Vaishali and Greater Noida. The entertainment aspect mainly involves communal facilities that are available to all the apartments in the blocks. These include such things as health club and swimming pool, a small "home" theatre (couple

of dozen seats), communal library, billiard room, steam room and sauna – with more planned. A key feature is that a resident can check availability of these services from the electronic control system in the home and also make bookings. This is being extended to home delivery from the local mall, where one exists, and also certain local shops.

Earthquake resistance

This is a topic in which J. K. Jain has taken a particular interest over many years, and in which he is considered something of an expert. He explained that, like most developers, his group extracts ground water for mixing concrete, but unlike many, they purify the water before use. This removes chemicals that would be likely to react with the steel reinforcing in the concrete and cause deterioration over time, with the concrete separating from the steel, thereby losing strength.

The frame structure of these buildings is also strengthened by the addition of extra rings at junctions, and fly ash (a residue from burning coal) is used to produce a more rich and dense, hence stronger, form of concrete; one that also strengthens over time as it dries out and is generally more durable. Less water is needed to produce concrete using fly ash, which is also a recycled material, otherwise a waste product, and its use thereby contributes to the eco-friendliness of the buildings.

Eco-friendly

There are several aspects of these buildings that contribute to a more eco-friendly approach. The most obvious is energy conservation, and there are many ways in which this is achieved. One is the use of foam concrete blocks – partly composed of the just-mentioned fly ash. These provide generally better thermal insulation. Also providing extra insulation are uPVC windows. everybody has heard

Illustration: Shrikrishna Patkar

Home Automation
A setup whereby all the electronic appliances and fixtures in the house are intuitively controlled by the movement of the people through the homes. Look at the leading research at smarthome.com

Remote control is green
Controlling appliances remotely and monitoring electricity usage can decrease the carbon footprint tremendously. Such measures would also help individuals save up on running costs

of PVC – polyvinyl chloride. uPVC is unplasticised PVC, sometimes called rigid PVC. This also has good thermal insulation properties as well as sound insulation. However, not everybody would agree that these are otherwise eco-friendly – there are chemicals involved in their manufacture that have been recognised as carcinogenic.

As much recycled material as possible is used in the manufacture of the buildings, and also in their operation. For example, water drained from the sinks is recycled and used for flushing toilets and watering the small gardens (just a few square yards each) that are attached on the balconies of each flat. Non-toxic paints are also used in the buildings to help provide more hygienic conditions.

Another key element is waste management. Every kitchen sink has a waste crusher so that biological waste can be pulverised and flushed down. All general waste is also segregated for recycling as appropriate – bio-waste, solids such as tins and paper, and glass. These are then sent to private companies for recycling.

Power is also saved by having certain lighting systems automated. For example, the lights in the corridors by the lifts are usually off, but sensors detect when somebody comes into the area and turns

the lights on for as long as they remain. A similar feature is also applied inside the homes where appropriate. Naturally, there are multiple backup power generators and voltage stabilisers

Just as I was about to leave J. K. Jain's office, I noticed a book about trees on his desk. He then started to tell me about which trees use up the most ground water, which use little, which attract termites, and so on. He has been researching these issues in order to determine which are the most appropriate and environmentally beneficial trees to have in the grounds of the buildings. One may not agree with many of the choices made in the style of these homes, but there is no denying that

considerable attention to detail has gone into the design.

Electronically operated
What should one expect from an electronically operated home, one that is wired for modern technology? Certainly the ability to have an internet connection, but what about connectivity within the home? We might well want to connect one or two PCs, the odd laptop, printer, scanner, media hub (such as recently released by Cisco), television, audio system and so on.

Some of this will be done using USB, but the first thing I looked for in the eHomes was the presence of Ethernet connectors – I expected at least one in every room, perhaps more in the key rooms such as living room. These are completely non-

existent, and this strikes me as the biggest mistake that Designarch has made. How can you possibly call an apartment an eHome, without in-built connectivity between rooms? It just does not figure.

In answer to this question, J. K. Jain told me that he would expect an owner to set up a standard broadband connection using the telephone line, and then install a WiFi router to communicate with and between devices in the home. This is all very well for those devices to communicate with the internet, but not much more than that. If I am in the living room with my laptop, can I print out on my printer connected to the PC in the spare bedroom? There are some ways in which one can stream data between devices talking to the same WiFi router, but this is not straightforward or common. At the very least,

it is very much easier with Ethernet. Also, WiFi degrades very badly as you move away from the router. At the time of writing we are testing such routers here in our offices, and with a couple of concrete walls between the router and a laptop, we have been measuring something around a 60 per cent drop in signal strength and similar drop in data throughput rates. Some routers attempt to self-adjust when they receive a weak signal from a device, but this is not at all a perfect fix, and the devices themselves do not necessarily do the same. There is nothing better yet than a simple direct connection.

The central focus of the electronic control of an eHome is basically a PC with a flat touch-screen placed on the wall relatively near to the front door. This control system can be accessed also by means of a remote control - similar to one that you would use with a TV, also remotely by telephone, and, most interestingly, from a browser across the internet. This means that you can have access to all the main controls of the home when you are travelling.

The system is a normal PC running Windows, and so, at least theoretically, it could be integrated with any other PC systems in the house, although I have not seen this in operation. The control system allows access to many basic features in the home. You can turn certain appliances on and off, such as water heater, television, lighting and air conditioners, lock and open the front door, and so on. When I first discussed these ideas with Designarch I was told that only a simple on/off control was possible. However, now further levels of control are becoming available, such as one might want for turning on an oven and setting it to a particular temperature. I am not sure such an oven is available, but this is a good example of the kind of control one might need.

Some presets are available for so-called "mood settings". You can, for example, save certain lighting levels in particular rooms

and set for the curtains to be opened, and save this as your morning setting, and of course have it come on at a particular time, just as your alarm goes off. Similarly, you could save different settings for "watching a movie", and so on.

The control extends out to the general building, in that the whole site is managed by an Intelligent Building Management System. This is the basic control system which takes care of power, fire and water management. A key factor in the overall management is of course, security. For the overall system, one interesting feature is the ability to check during the night if the guards are awake! But it is the security of the individual homes that is most interesting.

The first security feature that you notice is the front door control. The lock itself can be controlled in three ways – by a magnetic card that you hold in front of a reader, by the main control system in the house – which you could, if you really wanted to, access from a mobile phone as you approach the door – and by a good old-fashioned key. The key is the most likely way one would secure the apartment when it is empty, as the electronic control only engages a latchbolt, whereas the key engages first the latchbolt and then three deadbolts.

It seems that the electronic control would be best used when the home is occupied. When somebody comes to the door and rings the bell, you see them from the camera at the front door and can speak to them and then release the door catch. Usefully, their image is captured. This also happens when the home is unoccupied, and when you return home you have a complete set of images of all the people who have come near the front door, even if they have not rung the bell.

As the system can be accessed remotely, you can call it up across the internet, and access, for example, the images captured at the front door since you left. This may not seem immediately useful, but security devices are for unexpected circumstances. Similarly, you can have cameras installed inside the home, and these can also

Touch screen access to the main control system. Top left window shows view from the front entrance.

be accessed remotely. You can call up your system, turn on the lights and inspect the rooms. When might you do this? Just to give yourself peace of mind, perhaps; to check that the kids have not wrecked the place with a party, and also when some alarm has gone off.

There are sensors in the home that detect motion inside and if a window has been broken. These intrusion alarms can trigger SMSs or emails, and you can then call into the home and see what has been going on. Similarly, there is a gas leak detector that will also send a message so that you can then call up the home, turn off the gas supply, and then turn on the cameras to check if there has been a fire. The detector should capture the presence of gas before enough accumulates that turning anything

on or off might cause ignition!

In the second eHome that I visited, I noticed no internal cameras. Surprisingly, these are now optional extras, as many customers have complained that they are an intrusion of privacy, even though they are under the complete control of the occupants.

Conclusions

We looked at these eHome projects from Designarch as an example of the direction in which electronic control and security are moving. The individual products used are not the key features here – there are many suppliers that can equip a home with controllable cameras, switches for internal systems such as heaters and curtains, and so on. The main control system featured in the eHomes is by Homesdigital (**www.zeos.co.uk**), a company that is based mainly in the UK and India.

Increasingly, the prices for all of these products are falling and there is no doubt that demand is rising. So, you could assemble most of what has been described here and have it installed in your own home. However, to see it all in one place, then the first projects in India of which we are aware are these ones from Designarch. No doubt many others will follow in the near future.

In my view the most impressive aspect of the eHomes projects is certainly the security. This has been well thought out and seems comprehensive. I asked about the reliability of the systems, and was told that where possible, multiple means of control are in place. The most obvious was the front door lock. Not only do you have both electronic and key access, but there are two electronic systems, and they are separate. So, the magnetic card works in parallel to, and not through, the central control system, and if the latter should have failed – it is a PC running Windows, after all – the card should still work, and vice-versa.

The type of setup here would be suitable for people wanting a modern electronic home, but not with particularly demanding comuting needs or expectations. More demanding home owners would no doubt expect Ethernet to come as standard – the most surprising thing missing from these particular projects.

Kitchen and dining area. Not visible in this photo, a TV image can be displayed on the mirror.

Long sceptical of Tim Berners-Lee's vision of the semantic web, Digit's Edward Henning met up recently in London with Gianpiero Lotito, co-founder of the Italian company Facility, and discovered that there are other ways to organise and retrieve the information out there on the web. And they're coming to a PC near you soon.

Facility:
The next evolutionary step in search?

Edward Henning
edward.henning@thinkdigit.com

One of the interesting, and perhaps key, points about the history of the Facility search engine is that the project grew out of a publishing background. One of the two founders of Facility, Gianpiero Lotito has worked in the publishing sector for many years, transferring the processes there over to digital systems.

He told me "We began to work with desktop publishing in 1987, with Aldus Pagemaker on the Mac, together with Adobe Illustrator. We were one of the first companies in Italy to work with DTP, in Milan, and soon, after about a year or year and a half, we started to work with big publishers. In this way we began to work with many big projects, which were being transferred from analogue processes to digital processes. To help them make this passage, we began to learn the core of the processes, we began to learn and understand the secrets of the publishing workflow and processes. In about three years we had learned to work with all the modern digital technologies: multi-media, CD-ROM, internet sites and so on.

"Through ten to fifteen years, we came to learn these processes for books, magazines, archives, photo-guides, CD-ROMs and so on, and we translated all these processes into an idea: the next generation search that is not only able to search and to find information, but is also able to organise it and to manage it. The problem for the next generation of search engine is to help people to organise information. I agree with your earlier comment that the semantic web is a chimera. Also, if it were possible to tag everything on the web (as suggested, for example, by Tim Berners-Lee), if this is not coordinated, if you have no standard, then you lose the advantage of tagging. On the other hand, if you have purely algorithmic engines, you cannot solve many search problems."

The work on developing a next-generation search engine started in 2001 — so what is wrong with existing search engines? Lotito explained to me the difference, as he sees it, between the approach of the engineer, typified, presumably by Google, and the approach of the publisher. The engineer's approach would consider the perfect map of London to be on a scale of 1:1 — it would be the same size as London, and would contain every single detail. But this is not practical — you cannot put it in your pocket. The job of the publisher is to find that balance; to make the map small enough to fit in your

WolframAlpha, anyone?
Is WolframAlpha really a search engine?
It does not search the web for answers,
but its own database of information, and
computes answers from its data.

4,609,984
The number of web sites the
open directory project currently
catalogues and organises into
over 5,90,000 categories.

Feature

pocket, but sufficiently detailed that you can find the places that you need.

The engineer's approach to information produces too much unnecessary data when a search is performed. Data-management experience is needed to filter the data appropriately. This is the publishing approach. Information is not normally the domain of engineers, and yet it is they that have been designing search engines up until now.

The implied point is this: does having several tens of thousands of search results which you will never look at really help you answer whatever question you are posing or problem you are trying to solve? Of course not, it is just a big number that might well be impressive, but where in that haystack is the one needle that you need?

Early search engines were blind in their search methods, and it is for this reason that users needed to develop skill in entering their search in the most effective way to narrow down the results and focus in on the information they were trying to find.

Lotito gave me the example of a warehouse. If you simply fill a warehouse with boxes, then when something is needed, you will have to go through and search in all of them to find the one that is needed. But if when filling the place up with boxes in the first place you label and tag them all properly, when one is needed, you can go straight to it. It is the same difference with the information on the internet — access to this information needs to be

Facility is more flexible in its approach while searching

any way that they want. He told me "This would be very confusing. If you do not regulate this, or you do not have technology that is able to recognise when words and phrases are semantically the same.

"When you tag information, the context cannot be constructed automatically. For example, sometimes the term environment

the semantic confusion in the Ballmer example just given. In a dictionary, you might find the words "fly", "flying" and "flown" all grouped under the lemma "fly (v)", the headword or keyword for that semantic group.

Ontological search is similar to some of the principles used in Wolfram|Alpha,

Does having several tens of thousands of search results which you will never look at really help you answer whatever question you are posing or problem you are trying to solve? Of course, it is just a big number that might well be impressive, but where in that haystack is the one needle that you need?

structured properly.

So, what is the approach offered by Facility? It is not a blind crawler-based search like Google, and it is not a limited computational engine such as Wolfram|Alpha. It can in fact use methods similar to both of these, and perhaps in that flexibility lies one of its strengths.

During our meeting, to stress the importance of the semantic approach in search, Lotito ran three Google searches, on "Steve Ballmer", "Steven A. Ballmer" and "Steven Anthony Ballmer". All came up with different results, and yet all refer to the current president of Microsoft. Lotito's point was that all three are semantically equivalent, and for the search to be truly meaningful, this should be understood by the engine, so that all three searches produce the same set of results.

He does not like the idea that we should simply leave people to tag information in

might refer to technology and the Windows environment; sometimes to ecology, and other times to a situation. Tagging words in this way has a level of precision that is very low. There are two ways to solve this problem: humans will tag information, or you will have an engine that will help humans to tag information. But I don't think it is possible to have a completely automatic system."

The point was made that if you had software that could accurately tag all textual information, then the tagging would no longer be needed, as the software is effectively understanding the main meanings of the words and their contexts. We are probably many decades away from this possibility, and so some kind of human assisted tagging is needed.

The approach taken by Facility involves tagging, but also the use of lemmas and ontological search. Lemmas help to alleviate

where an answer, or result, can be computed from existing and well-structured data. For example, you may have two simple taxonomies: a list of cities in England, and a list of European cities that are capitals of their countries. If you ask the question "Which is the capital city of England?" the result can easily be computed from these two lists, as London is on both lists. If you ask for the capital of England, you are asking an ontological question, because the ontology is the connection between any two taxonomies. You are asking for the intersect between these two: London is a city in England; London is a capital city; therefore London is the answer to the question "Which is the capital of England?"

The Facility engine does not avoid the algorithmic approach — it can go out there and crawl websites with all the others. It combines these different methods in a flexible manner.

According to Lotito, his methods can bring greater precision to the accuracy of search results. He claimed that the accuracy of results from purely algorithmic engines is of the order of 30 per cent – in other words, for every meaningful hit, you get three or four results that are just data noise. He claimed that with better automated organisation of the information that the precision could become around 70 per cent, but with some human intervention to validate and organise the data, you can come close to 100 per cent precision. Of course, this will not be possible every time.

But it will be possible when you have closed data sets of information, and if you begin to put many closed data sets with the same kind of organisation, you can get better results. So this is highly applicable to intranets, social networks – any closed set of data.

For this reason, the first uses of this system will not be a publicly accessible general search engine – although that will come – but the engine embedded in some system such as a social network, university web site, government web site, scientific research database, linked network of sites with a common theme, and so on. There are many possibilities.

Lotito agreed with my comment that Facility sounded like an advanced engine for LASEs (limited area search engines), but added that these could be combined together, eventually covering most of the web. I got the strong impression that he wants to set a standard here.

He made the point that "The problem

Gianpiero Lotito and Mariuccia Teroni, the two founders of Facility

for all future search engines is to be able to structure the information that you need to search." It is impossible to provide advanced services in search without structured information, or, structured access to that information. And there lies the difference in his approach to that usually suggested.

It is important to point out that there is no intention here that web sites should themselves be changed in order for their information to be tagged and structured – the methods of Facility lie in creating a structured approach to information on the web. Part of that structuring process lies in assessing the reliability of sites, and this can only be done by human intervention. This also changes the ranking of sites – engines such as Google rank mainly on the basis of the number of links to various sites, but this is completely blind to issues such as reliability.

Facility employs a pre-filtering engine which reduces the number of potential sites, and then the experts judge those that are the most reliable from the

results. Their starting point is the ODP taxonomy of the internet. The Open Directory Project is an ongoing attempt at cataloguing the contents of the web, and claims to be "the most comprehensive human-edited directory of the Web, compiled by a vast global community of volunteer editors."

Going down a level of detail, there is also built into the system an ability to catalogue structured sites automatically. This is called the Automatic Taxonomy Extractor, and would be useful for such things as blogs, databases, perhaps news sites, and so on. Sites where there is a regular format to the information. The engine will produce for you an automatic taxonomy, which you can then go in and edit – discarding mistaken headings and tags, adding or combining others, and so forth. This is an example of how the human editing function is aided by software that performs the first part of the work.

This can also work in two ways. If I am developing a search engine for a particular field, then the taxonomy that is developed in this way does not, of course, change the entries in the target site. But, if it is my own site that I am preparing, then I could very well use this tool as a way of tagging directly. This does more than just tag individual items – the overall collection, on say a blog, is structured because the taxonomy is developed and stored. Many people are currently tagging posts on such sites, but without having an overall scheme. This system can propose such a scheme for you, which you can then edit and improve. It will also read those existing tags if they are there.

So, with Facility you have a two-way connection between the engine and the contents of the web. Of course, this is not the semantic web of Tim Berners-Lee that grows from the bottom up. Instead, this is a pragmatic approach, because the tagging of all information on the web in existing web pages is simply not possible. It will never happen.

For Lotito, the display of information in a structured manner is as important as the way in which the results are obtained. The interface is complex at first sight, but easy to use.

The interface is entirely based on Web 2.0 and all the technologies used are open source – the engine can be embedded in other internet systems without licence problems.

The display screen is divided into several sections – Lotito calls them widgets, perhaps not the best term – which include the different formats of information, sources and media that have been identified by a search. These are tiled panels on the screen, in three
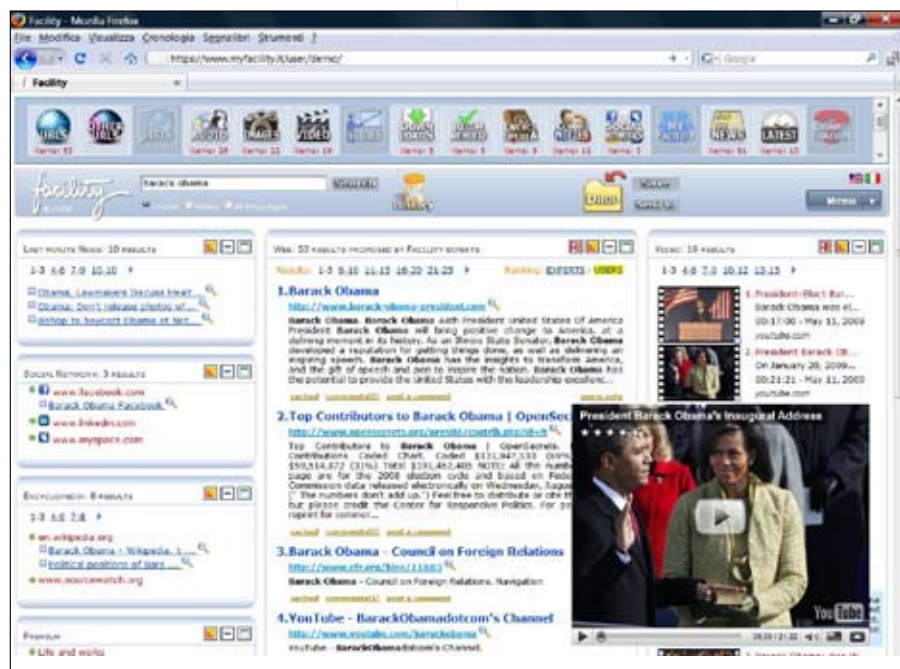
Facility structures, organizes access to information being searched and then displays the results as the widgets seen here

Search engine rankings
According to research firm comScore, Google is the leader in the US market with 9.3 bn searches, followed by Yahoo! at 2.9 bn and Microsoft at 1.2 bn searches.

Google reigns
With the near apparent failure of three attempts – Cuil, Trooker and Exalead as Google alternatives, Page and Brin have reasons to cheer.

Feature

columns, the top one in the middle being the most important: this main display panel is called simply "Web" and tells you the number of results that are proposed by Facility experts. In other words, the results from Facility's editorialised map of reliable sites.

The other widgets need not necessarily have been through the same filter, and may very well be the result of "normal" algorithmic search methods; they display other categories of results. The various categories include: *Last minute News* for any relevant items on news sites; *Social Network* – possibly relevant comments found on social networking sites; *Encyclopedia* – for hits in Wikipedia and similar sites; *Downloads* – these are typically PDF files; *Presentation* – any presentations, typically education or perhaps business oriented; *Video*, *Images* and *Audio*, all self-explanatory; and, *Disambiguation* – this is to display a variety of possibilities, such as in the search shown, on Leonardo da Vinci. You may well have been looking for information on the man himself, or a hotel that uses his name, or, of course, a certain best-selling book by Dan Brown. This widget displays such possible ambiguities.

An interesting point about the display is that the widgets give you, where possible, a preview of the contents of the site. You do not have to click and open a new window or tab; the widget itself will expand and display the movie or whatever format the information might be in. You can, if you wish, also save the content. In this case you are saving the content itself for later viewing, not just saving a bookmark or link to the item. It is clear here where Facility's background in publishing comes into play – this would be a suitable interface for any kind of multi-media based set of information.

The display is also customisable. The user can move the widgets around according to their relative importance. If you were doing a search on the use of the tobacco mosaic virus in genetics, then the News widget should hardly be at the top, but it certainly should be prominent if the search were on the US president, as in the example screenshot that is with this article.

You, as an end user, can add comments to search results, so that if another user makes the same search, they will be able to see your comments. How this will work, if at all, when large numbers of people use the system remains to be seen.

So, Facility does not only structure and organise the access to the information that is being searched, but it also organises in a customisable way the display of the results. Potentially very useful is the fact that when you save a result – a video, PDF, etc. – the search request that produced that result is also saved; this way the context is retrievable. This should help avoid problems such as seeing a saved bookmark and not remembering the particular line of thought that led to it being saved. Every item that might result from a search can be managed in this way. The exception to this is anything that is copyright protected. This is detected automatically and the item cannot be saved.

The idea is to give users maximum flexibility to manage information. They do not have to keep leaving the search system to view information – it is brought into the Facility system instead. Of course, this has benefits for advertisers, who like it if the user is not always shooting off to some other site.

Over the next few months the final patents for this system will be settled, and the engine will start appearing in certain sites such as social network sites. The frequency with which Gianpiero Lotito mentioned such sites suggests that at least one must be high on his list of prospective clients. The general purpose public search engine will follow later. **d**

INTERNET

GeoIP data is downloaded from an online server

How the Conficker worm works

Viruses have evolved into intelligent programs. Conficker is the perfect example of the modern day worm. Here's a visual representation of how it spread over the months using loopholes and constantly updating itself to paralyse security suites .

Conficker opens up ports in the firewall to allow external access

Local Network

Conficker spreads over the local network through shared folders

Top 10 countries with Conficker infections (A and B)

Country	Count	%		Country	Count	%
China	26,49,674	25.00%		**Italy**	3,74,513	4.00%
Russia	8,35,970	8.00%		**Malaysia**	2,12,477	3.00%
Argentina	5,69,445	5.00%		**Chile**	2,80,182	3.00%
Brazil	10,17,825	10%		**Korea**	2,01,107	2.00%
India	6,07,172	6.00%				
Taiwan	4,13,762	4.00%				

SEPTEMBER 2008	OCTOBER 2008	NOVEMBER 2008	DECEMBER 2008
Initial reports of Conficker hit the internet	Microsoft patches the critical vulnerability - MS08-067 which involves the Windows service (SVCHOST.EXE)	Conficker.A out – exploits the MS08-067 vulnerability quickly spreading over networks	Conficker.B out – adds infection DLL to removable drives which further increases the reach

Binary Host

The worm binary is downloaded from the server

Firewall

Conficker checks if the keyboard layout is set to Ukrainian, if yes, the PC is not infected.

A later variant of Conficker hooks onto removal flash drives

```
56136DF6 E72EFE45 CA86ECDF
ABE91715 31ED091B 5037EF78
970B077A E816D789 364173F6
98574572 617BF0CF 56B9248A
5BF2764E 56136DF6 E72EFE45
E85616BA ABE91715 31ED091B
50F4E6C3 970B077A E816D789
4B96E24F 98574572 617BF0CF
CA86ECDF 5BF2764E E72EFE45
5037EF78 E85616BA 31ED091B
364173F6 50F4E6C3 E816D789
56B9248A 4B96E24F 617BF0CF
```

Verification of the worm binary is completed.

```
admin        12345
admin123     freedom
abc123       games
qwerty       aaa
qweewq       work
zzzz         cookie
1234         account
123          1234567
5555         1234abcd
4444         123456789
root         test
login        .
passwd       ..
password123  ...
```

Conficker has a list of passwords it uses to access shares

```
cert         bit9
avg          f-prot
nai          kaspersky
microsoft    nod
symantec     eset
spyware      quickheal
malware      etrust
f-secure     sophos
gdata        panda
wilderse-    ..
curity       ...
avp          ....
```

Sites with keywords such as these are blocked

```
unlocker
con·ck
autoruns
·lemon
regmon
tcpview
sysclean
wireshark
·lemon
..
...
....
```

Applications and services with these names are terminated

FEBRUARY 2009
Conficker.C out – downloads content using HTTP from 250 random domains

MARCH 2009
Conficker.D out – disables access to security sites by blocking DNS; virus scan updates and access to sites are cut off.

APRIL 2009
Conficker.E out – disables removal virus removal utilities; antivirus and security suites are disabled

Security suites

snap it, print it
Here we look at printing
photos and sharing them
with friends and family
64

Free Yourself
802.11 is here to stay. For all who
missed the bandwagon we present
the means to connected freedom
70

As much as we might like to deny it, computer viruses in their various guises have made people paranoid. We've even met some not so computer-savvy who've thought it's a real biological virus! In addition to viruses, there are trojans, spam, popups and rootkits that can easily take over a system and wreak havoc without you ever knowing. Numerous PCs are infected and slowed down by viruses. There are many that run unstable and users assume that to be their hardware at fault. Unfortunately, many don't have the patience and systems are usually infected, because these rules are broken.

It's not only about viruses today; there are way too many malicious scripts and code in advanced forms that don't really infect PCs, but make the system unusable. Random reboots, horrible performance, services not running anymore are just some of the visible symptoms. An antivirus isn't sufficient to protect your system. Although many developers still offer standalone antivirus solutions, they're also looking at security suites. They are a combined suite of an antivirus and a firewall system that can also handle spam, filter ADs, and other suspicious content. There are too many solutions available, but we've selected some of the best that are locally available.

A look at the features

While all of the suites have an antivirus and firewall component, there are suites that come with some additional features and is probably where the major differences between the suites will be visible. Norton 360 and McAfee's Internet Security Suite, for example, came with data backup features. The features let users move data to a different drive, a network share and in the case of Norton 360, even to their online service. The service provides 2 GB of online backup space that can be expanded. This is a great way to ensure no data is lost if your PC gets infected or even if there's a system crash.

Norton 360 has a free downloadable parental control addon that gives control over every user account on your Windows account and over the kind of content allowed. There is a feature that lets you delay the startup of suspicious applications during bootup. Other than the backup and malware components, special emphasis is on system cleanup utilities as well as security online. G DATA too has a free downloadable addon for parental control and a file shredder to delete files and make them unrecoverable. F-Secure InternetSecurity 2009 focuses on parental control, and access to the main control panel is denied unless authorised.

McAfee Internet Security's installer recommends that the installation be downloaded from the internet. The suite even scans the system before the installation to make sure that the system isn't already infected. Another one of the unique features from McAfee is the ability to securely delete files to prevent recovery – something similar to G DATA's file shredder.

Another unique feature of G DATA InternetSecurity is that it constantly monitors the registry. It immediately prompts you whether you want to allow it or block the process that needs to make registry changes. AVG is one the suites

Locked&loaded

**Security suites are here to ensure your
PC isn't mistaken for a playground for
viruses and worms!**

Rossi Fernandes
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Bazaar
80 Latest exciting products
reviewed. Read more...

P2P VPN
The Pirate Bay
launches a VPN
service aimed at P2P
users

Security suites

with a lot of features. One of the features is the ability to set the firewall into gaming mode which allows access of games to the internet through the firewall without any hassles. For those who don't have an internet connection, AVG allows updating of downloaded virus definition by importing them from a folder.

eScan Internet Security's approach towards flash drives can be considered a little over-the-top, but is an effective way to make sure no one infects your PC with a flash drive. It requires the user to enter a password to access the flash drive. This is great if you have many users using a single PC. An easy-to-use parental control system is available as well.

Kaspersky has one of the nicest looking interfaces and one they've implemented is an on-screen keyboard that allows users to type in passwords on online banking and shopping sites without worrying about the password logged. Onscreen keyboard is available with Windows, but the suite makes it easily accessible. It even scans your system for vulnerabilities asking you to patch the bugs. All the alerts are displayed in one single window. The updating was a bit of a problem for us. We updated and it kept on asking for even more updates. After a couple of updates and a reboot or two, everything was back to normal.

ESET Smart Security has basic features, but the customisations and controls available for those functions are very detailed. This might be a good thing, but for users looking for a simple solution, this might be a little overwhelming. Panda Internet Security 2009 monitors the wireless network and if a new PC appears, it shows up an alert asking whether it is to be allowed access to the PC or not. As part of the services

HOW WE TESTED

All the tests were run on Windows XP with the internal firewall turned off. We made a disc image of this installation of Windows. After every security suite was tested, we restored the system back to its initial clean state with no viruses present or any security suite installed. The next security suite would then be installed and all updates completed. We used the default settings with which the suites were installed. Tweaking the settings would make it unfair.

The first component to be tested was the antivirus. We had a collection of around 300 viruses from the last couple of years all put into a folder on the drive. We copied the files from a flash drive and checked if the scanner would detect the viruses on the flash drive itself. This folder was copied to the local drive and then scanned to see how many of the viruses

and worms were detected by the suites. As part of a basic network test, we did some ping flood attacks and then some port scanning trying to find if the security suites detected these attacks and displayed any security alerts or messages.

For the spam, we setup two different dummy accounts with POP3 access enabled. One after the other, we setup Outlook Express to download mails from these accounts. One of the accounts had mails that could exploit the vulnerabilities of mail clients and the other had spam mails in it. We downloaded mails using Outlook Express trying to see if any of the suites detected and filtered the mail.

Those using Firefox or Opera are rarely victims of spyware and malicious scripts on the internet, so we used Internet Explorer to access some sites with popups and ADs. At the same time, we also looked at

the parental control features of suites which had them that could block the explicit content on these sites.

One of the biggest complaints that users have about security suites is that they are very high on system resources and the PC slows down a lot once an antivirus or security suite is installed. We checked the memory consumption of the suites and the accompanying services when idle and then again while scanning the drive for viruses.

Finally, we must emphasise that we've only used a small sample of viruses available and so the detection results from this test are not an accurate way to judge the performance of a suite. The fact is that there are new viruses released every day and the performance of every suite will differ every day. A lot depends on the frequency of the update.

menu, Panda Internet Security lets you create rescue disks and upload suspicious files to their database for inspection.

Detection rates

In all, we had 289 viruses and trojans packed into separate ZIP files and the antivirus component of the suites had to scan each ZIP file before detecting the virus and then trying to either clean it or quarantine it. All the suites detected almost all the viruses in the folder, with a few minor exceptions. It was odd to find

suites that detected more viruses and worms than we put into the folder. AVG Internet Security and Kaspersky Internet Security detected more viruses than were in the test sample. All the suites were able to delete the viruses from the folder, but Kaspersky Internet Security suite was one the top performing ones that could fix the files. K7TotalSecurity 9.0 was able to detect all the viruses accurately.

Most users today use web-based mail services and many of these have built-in spam removal features. Developers advertise their suites' ability to locally clear spam from mail clients. We used Outlook Express because it was the client that came bundled with every Windows installation. We were shocked to see almost none of the suites being able to filter out spam or even the set of vulnerability test mails. Once

again, McAfee stood out and it was able to find and mark vulnerability and spam mails. It did so once the mail had been downloaded to the mail client. ESET's Smart Security 4 was the other one which was capable to finding the spam mail. It almost detected all the spam accurately, but it couldn't detect any of the vulnerability test mails.

Some of the other suites such as K7TotalSecurity required the user to train the filter for the spam and over time, it could be more effective. On a clean install, the suite couldn't catch any of the vulnerability test mails or the spam. F-Secure InternetSecurity 2009 was able to detect some of the sites with popups and banners.

There were no such issues as far as network security was concerned. All the firewalls blocked the denial of service (DoS) attempts and the port scans completely. Kaspersky Internet Security displayed clear alerts pointing out to the source of the attack and it even blocked the entire IP. eScan Internet Security and solution from Kaspersky were able to block out objectionable content

Opera Unite
Opera's new service allows users to host web pages, share music and even chat on their browser

End to rights!
Moby calls for the Recording Industry Association of America (RIAA) to be disbanded

Brand	AVG	ESET	F-Secure	G DATA	K7	
Product	Internet Security 8.5	Smart Security 4	Internet Security 2009	InternetSecurity 2010	InternetSecurity 9.0	
Price	Rs. 1,999 (out soon)	Rs. 2,879	Rs. 1,154 (1 yr, 1 PC)	Rs. 1,500 (1 yr, 1 PC)	Rs. 1,678 (1 yr, 1 PC)	
Features (Out of 35)	31.5	28	31.5	33.25	33.25	
Performance (Out of 65)	32.11	44.77	35.51	37.02	40.36	
Overall (Out of 100)	63.61	72.77	67.01	70.27	73.61	
Features						
Antivirus	Y	Y	Y	Y	Y	
Firewall	Y	Y	Y	Y	Y	
Anti-spyware	Y	Y	Y	Y	Y	
Data and Identity protection	Y	N	N	N	Y	
Instant messenger protection	Y	N	N	Y	N	
Ad/popup blocker	Y	Y	Y	Y	Y	
Parental Controls	N	N	Y	Y	Y	
Performance						
Virus and spam detection	527	265	292	288	290	
Infections detected (Out of 7)	0	0	0	0	0	
Vulnerability mails (Out of 10)	0	6	0	0	0	
Spam						
IP bombing attacks (Y/N)	Y	Y	Y	Y	Y	
Port scan (Y/N)	Y	Y	Y	Y	Y	
Ads/popups blocked (Y/N)	N	N	Y	N	N	
Memory consumption (Idle) (MB)	82.6	53	90	41	28	
Memory consumption (Activity) (MB)	82.6	55	133	104	124	

banners and popups effectively. The others weren't able to stop the ads or popups. For now, it's still recommended that users use alternatives to Internet Explorer.

Performance

Most security suites run many background services each of which consume a lot of memory. Kaspersky had few services running in the background in comparison to the other suites. On idle, the consumption was a tiny 30 MB of system memory. However, while scanning this consumption went right up to 150 MB. This version of Kaspersky Internet Security suite is a big improvement over earlier Kaspersky products.

eScan Internet Security allows users to turn down the process priority of the scan so system performance isn't affected a lot. Even without the CPU utilisation level altered, eScan takes considerably longer to scan and clean viruses. In our test, 10 MB of files with some 289 viruses took around 5 minutes to complete. Disinfecting speed usually isn't a priority for most users.

ESET Smart Security and Norton 360 were also very light suites to run at all times. ESET Smart Security was particularly impressive as it only consumed some 55 MB of system memory while scanning the drive, which is a lot lower than the rest which used over 100 MB of memory. K7 TotalSecurity too consumed under 30 MB of memory while idle, but went to as high as 124 MB during scans.

eScan Internet Security and McAfee Internet Security were some of the suites with the most features and the memory consumption also showed. If you have systems with over 1 GB memory, you should have no problem running these suites. With 512 MB, you might notice some slowdown.

G DATA InternetSecurity 2010's memory consumption was constantly around the 100 MB mark. It would occasionally shoot upto 200 MB or more and come right down. When it isn't scanning, it's a very sane and stable security solution to use. There are two virus scanning engines in G DATA, both of which can be used for better performance or better detection. It's a unique feature

missing in other suites. AVG was a consistent 82 MB on idle and also with some scanning operations on. CPU utilisation kept spiking randomly as well while constantly trying to validate certain files.

Panda Internet Security had considerably high resource consumption at all times. There was an option in the preferences window that let CPU load be dropped to allow other tasks to run simultaneously without any major performance hit.

Ease of use

Security suites are some of the most complicated piece of software you can find. There are too many controls which have all been stuffed into a tiny interface. They have to be practical while not being overly complicated for the end user. Of all the suites, we found that Norton 360 had the simplest approach. Like the antivirus program that we've all seen over the year, Norton 360 is now a very easy to understand application with four separate sections – PC security, Identity protection, Backup and PC Tuneup. The controls are now

	Kaspersky	McAfee	Microworld	Panda	Symantec
	Internet Security 2009	Internet Security 2009	eScan Internet Security	Internet Security 2009	Norton 360
	Rs.1,559 (1 yr, 1 PC)	Rs. 1,986 (1 yr, 3 PCs)	Rs. 1,250 (1 yr, 1 PC)	Rs. 2948 (2 licenses, 1yr)	Rs. 3,760 (3yr, 3 PCs)
	35	35	35	35	35
	40.48	44.30	34.29	30.45	32.80
	75.48	79.30	69.29	65.45	67.80
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	454	262	287	280	251
	0	10	0	0	0
	0	7	0	0	0
	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y
	Y	N	Y	N	N
	30	150	105	110	52
	142	10	155	155	105

hidden away behind the very user friendly interface. All the settings are clearly explained so even if a new user decides to explore, it's a reasonably easy environment.

McAfee on the other hand is a little more feature-rich but isn't as light as Norton 360 or Kaspersky's suite. There are plenty of options to play and they aren't tucked away behind any fancy interface. When you first use Kaspersky, it looks as simple like Norton 360. We really like the presentation of Kaspersky Internet Security 2009 program. The use of great colours, icons, graphs and clearly distinguished sections of the suite like Norton 360 makes it a nice solution to use.

eScan Internet Security Suite probably is the dullest of the lot. The colours and design are a little too simple even though it performs rather well in the tests. As a client for home use, it might not be the simplest to configure but for a SoHo environment with a system administrator, it's should work just fine. It's a similar case with K7TotalSecurity. The interface is very plain but there aren't too many advanced menus and

options to get into.

K7TotalSecurity was simple to use but the interface wasn't the nicest design. The custom options aren't a lot but they are put into separate menus and tabs which can be confusing. A lot of the spam and AD blocking filters are left for you to setup for yourself. This can be a tedious job. The filters present are very basic and might not be enough to block a lot of ads.

ESET Smart Security 4 is simple as well. The main emphasis is on the local disk scans and also on the statistics. There is a real-time display of the amount of activity on the network and the disk. There's also a list of programs and connections being made to and from it. Although the primary interface is really simple to understand and use, it's the options that might scare some. There are plenty of menus and checkboxes for almost every setting. ESET are the same company that made NOD32 which is known as a great antivirus and it too had a lot of controls that users could tweak.

G DATA InternetSecurity comes with a very simple

Security suites

DirectX 11 soon?
ATI predicts huge flow of DirectX 11
games later this year

Nicknames
Facebook offers free
personalised IDs

interface and almost all
of the controls are visible
right in the first menu. The
advanced scanning functions
can be accessed through
this menu itself by clicking
on a dropdown. It's similar
for almost all of the features.
The settings window for each
component of the suite can
also be accessed from the main
window.

F-Secure Internet Security
has a wizard at the end of the
installation. This wizard helps
setup everything for the suite
including the parental control.
Information such as categories
to block and time limits
during which internet access
is allowed can be entered.
Updating is also done right
before the installation process.

Conclusion

At the end of the test, there
were a few shocking revelations.
It was weird to have AD
banners and spam passed
through almost all security
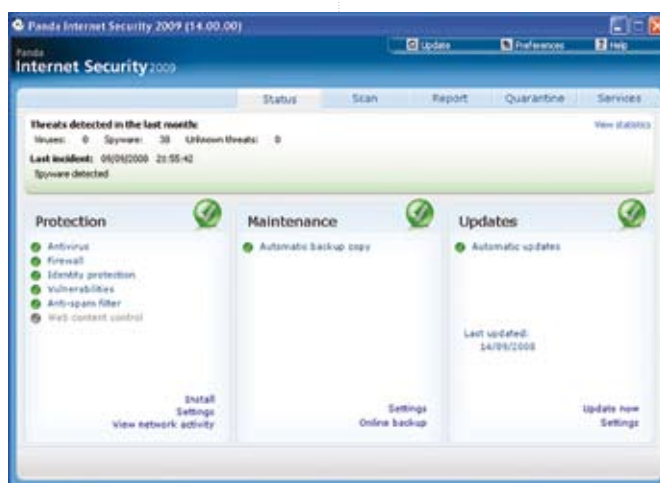
suites without any errors or
alerts. The next was plugging
in a flash drive with almost
300 viruses. Some of the times,
even copying files to the local
drive didn't sound any alarms.
On manually scanning, viruses
and worms in comparison were
handled a lot better by all the
suites.

Of all the suites, we found

McAfee Internet Security 2009
to be a good overall solution
but the only downside being
its high memory consumption.
Like we mentioned earlier, if
you have a sufficiently powerful
system, this shouldn't worry
you. Right after McAfee
Internet Security 2009 in
the rankings is Kaspersky's
Internet Security 2009. It's
a very good
overall solution
but without the
same memory
requirements. ESET
Smart Security 4
is also suitable
for your needs
although not as
flashy as the other
two winners.

Norton 360
is recommended
if you want
something that's
extremely simple
to use with zero
hassles. G DATA
InternetSecurity
2010 is one of the

Staying out of trouble

- Use Firefox (with Adblock plus), Opera (with a urlfilter. ini list installed) or any other secure browsers
- Disable Windows file and print sharing if yours is the only computer on the network
- If you must use file sharing, use password protected shares with permissions to certain users and PCs
- Update your Windows at all times
- Choose a secure for your Windows account
- Disable Guest accounts and any shared folders
- Avoid executing suspiciously named files
- Avoid clicking on links sent on e-mail, instead copy the URL and paste in your browser after verifying it
- Do not use the autorun function while inserting flash drives, instead Explore using Windows Explorer
- Every once in a while, run MSCONFIG and look for any suspicious applications loading on startup
- If you do not use an antivirus or security suite, use free online scanners to check your system for viruses

new comers to the market and
it's a very promising solution.
Right from its interface to its
two virus engines and a light-
weight system, it's something
that is worth considering. We
were impressed by it.

Some of the other suites
such as K7InternetSecurity and
eScan Internet Security were
pretty good as well but their
interface and aesthetics let them
down. The performance and
detection rates even with our
tiny sample are at par with some
of the well known suites. 🔳
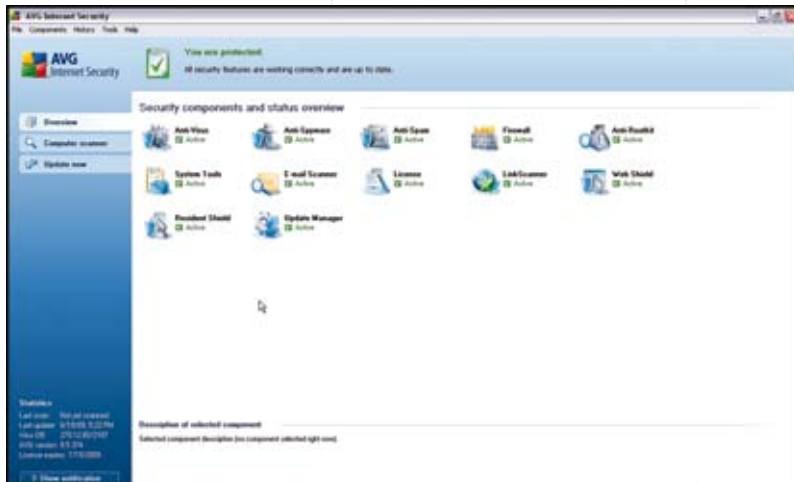
CONTACT SHEET

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AVG Internet Security	Milestone Interactive Group		sales@milestoneinteractive.com	www.avg.in
Microworld Internet Security	Microworld Software Services	+91-22-2826 5701	sales@msspl.co.in	www.mwti.net
ESET Smart Security 4	ESET			www.eset.com
F-Secure Internet Security Suite				www.f-secure.com
G DATA InternetSecurity	ACI Infocom Ltd.	+91-22-4037 1999	gdatasupport@aciinfo.com	www.gdatasoftware.com
K7 Internet Security 9.0	K7 Computing Pvt Ltd.	+91-44-6611 7777	info@k7computing.com	www.k7computing.com
Kaspersky Internet Security 2009	Kaspersky Lab			www.kaspersky.com
McAfee Internet Security	McAfee	+91-22-4029 1300	hemant_baghel@mcafee.com	www.mcafee.com
Norton 360	Symantec India	+91-22-3067 1400		www.symantec.com
Panda Internet Security 2009	Panda Security		info@es.pandasecurity.com	www.pandasecurity.com

Dye sublimation
This technique is used by certain printers to transfer dye on a medium such as paper, plastic card or even fabric using heat

The new core
Rumours have been spreading about Intel releasing a new CPU: The Core i7 960. Intel was supposed to have released a new Core i7 950 CPU at the end of May, but those plans did not see fruition

Kumar Jhuremalani
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Taking photos is just half the fun. Who doesn't like to print pictures of loved ones and important events, and pass them around? At the same time we desire good, if not the best, quality of print. For these purposes a new range of inkjet printers has emerged, known as photo inkjet printers. These photo printers are suitable, not only for budding photographers, but also for people shooting family reunions and outings with friends and families.

There are two types of photo printers: compact and well, not so compact. Compact photo printers are used mainly to churn out instant snapshots with standard print sizes, usually of 4 x 6 inches and not larger than 5 x 7 inches. The non-compact photo printers can print photo quality images on A4 sheets and some even print on A3 sheets of paper. There are even photo printers used for business purposes that give quality prints at sizes starting from 24-inches right up to 60-inches, but we are not testing these here. We have kept this test specific to compact and non-compact photo printers.

We received products from Canon, Epson and HP for this test. We also made contact with Sony, as it does have some compact photo printers, but the company did not want to participate in this comparative review. Why, we don't know; you can draw your own conclusions.

Canon Pixma iP1980

The Pixma iP 1980 is an entry level inkjet from Canon. The design is rather plain and simple with the colour of the body being entirely black. There are only two buttons on this printer: one to power on the device and the other to clear any paper jams.

Since this is just a basic photo printer, its connectivity is also very limited and the only option you have is to connect via a USB cable. There are no ports for networking, no card reader and not even a USB port for PictBridge support.

The body of the iP1980 is predominantly made of plastic and does not feel that sturdy. There is no locking or clicking mechanism present to stop the lid from accidentally being lifted, as happened quite often with us when moving this printer around.

The printer is easy to setup and the iP1980 uses two cartridges, black and colour. Once the head alignment page is printed you have to manually adjust the settings and select the boxes with the least number of lines.

The paper is loaded from the

snap it, print it

Taking photos is just half the fun. Here we look at the second half – printing them out to share with friends and family. Read on to find out the best photo printers out there in the Indian market

History lesson
The first high speed computer printer was used on a Univac computer and was developed by Remington-Rand in 1953

Cook while you surf
A USB microware has been created by Gama Microwave Technoloy and Heinz called the Beanzawave. This device once connected to your PC, doesn't really use microwaves, but instead, warms food using combinations of cellphone and radio frequencies.

Photo printer test

Canon Pixma iP1980

rear via the document feeder, but here there is a major design flaw: there is no paper out tray. This means that printouts are bound to slide all over the place, and if the desk on which the printer is placed is too small, the paper will fall to the ground.

The print quality of the Pixma iP1980 is not that great. The overall outcome of the three test photos showed that the colours were on the warmer side and there was also some visible bands printed. The first test photo showed the end of the darker shades of black merging together in the greyscale chart included in the image. The ripples and reflections in the water do not look that good either. There is huge loss of details with this printout.

The second test image shows that this printer wasn't able to recreate some subtle details in the photo and was left with some dull and blended portions. The black wasn't really looking that black in the third test image due to the abundance of red tingeing throughout. Also in one scene in which there are purple pebbles in a fish bowl, these pebbles came out on the darker side and tended to merge with one another. Our Combi document showed the text to be sharp and readable, but at the same time the images were rather pixelated and the reds weren't reproduced correctly.

The eco-mode prints showed a clear difference in quality as well as print speed, but the prints were very fuzzy and even the text showed jagged edges. There were also yellow bands visible when we printed out the test image number three in eco-mode. This clearly shows that the Canon Pixma iP1980 is overall rather average, although it is priced at a very attractive Rs. 2,695.

Canon Pixma iP2680

The Pixma iP2680, as the name suggests, is also a photo inkjet printer from Canon and is in a different series from the iP1980. The design of the iP2680 is similar to that of the Pixma iP1980, but is more stylish with a black glossy exterior with a silver line, running horizontally, facing the front.

This printer also has only two buttons, one for power and the other to clear paper jams. There is also no network or PictBridge support with the Canon iP2680.

One much needed improvement over the iP1980

Canon Pixma iP2680

is the inclusion of a paper-out tray. This tray has to be pulled down to use and there is also an extension on the tray that you can swing into place so that the paper doesn't slide off. Paper is loaded from the rear document feeder and this printer can hold a maximum of 100 sheets of plain paper.

Setting up the printer is the same as with the iP1980. The two print cartridges the iP2680

uses, black and colour, are the same as that of the iP1980. The head alignment in this case is also a manual task in which you have to judge for yourself which box has the least lines.

The print quality of this Pixma is slightly better in the first two test photos than the iP1980, but overall the prints from this printer also had a warm tone. A little less banding, compared to the iP1980, was visible when we printed the first test image. The darker shades of black also merged together in the greyscale portion of the image. The print showed a slightly better effect of ripples, but overall it looked dull and there were many details missed.

The second test image also showed some banding, and some pixels in the image were visible, but not as much as with the iP1980. The third test print had an excess of red, to an extent that some black areas looked red and merged with an object behind them. Also some shadows on the object were not printed correctly and looked very artificial. The Combi document showed better results than the iP1980, as the images looked better and the reds were not merged as with the iP1980.

Eco-mode gave us similar results to those of the iP1980, with some yellow banding on the image and jagged edges on the text and very bad pixelation in the images of the Combi document.

The Canon Pixma iP2680 has not taken a huge step forward in terms of print quality. Moreover the speed at which this printer prints is almost the same as that of the iP1980. It certainly has a few design improvements, but paying Rs. 3,695 for it doesn't make much sense as it is still only average in print quality.

Canon Pixma iP4680

Finally, Canon shows its game face with its Pixma iP4680. This printer is good looking, and although there are design similarities to the iP1980 and iP2680, this printer offers more

in terms of connectivity and features.

The Pixma iP4680 sports a nice silver border along the top. It also comes with two buttons, but the position has been shifted from the top to the right side of the printer. One button is for power, while the other is to clear paper jams.

This Pixma comes with USB PictBridge support, something missing from both the iP1980 and iP2680. It also comes with a paper tray at the bottom, which is supposed to be used for normal paper. The rear document feeder is supposed to be used for photo print paper. We don't really see why Canon has opted to make this a bit more complicated. The bottom tray is tightly fitted and not really visible. Unfortunately, there is no display or additional properties that can be adjusted on this printer. Compared to the iP1980 and iP2680, this printer can hold 50 more sheets, a total of 150 sheets of A4-size plain paper. There is

Canon Pixma iP4680

also a CD tray with this printer, in which you can place CDs or DVDs in order to print images onto them directly. There is a slot above the paper-out extension where this CD tray has to be fitted.

Five print cartridges need to be loaded into the Pixma iP4680; these consist of CMYK colours along with a separate black cartridge. Installing these cartridges was very easy, as there is just a simple push and click mechanism involved. This printer automatically does a head alignment — all you have to do is load the paper for it to print the alignment sheet.

The overall print quality of the Pixma iP4680 gave a cooler tone compared to the warmer

Printing Press
The mechanism of the first printing press was invented by a goldsmith named Johannes Gutenberg around the year 1440 in Germany

Stop music sharing
Jammie Thomas-Rasset, a mother of four from Minnesota, has been put to trial and ordered to pay $1.9 million in a case against her for violating music copyright laws as she was caught sharing 24 songs illegally

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tones produced by the Pixma iP1980 and Pixma iP2680. Along with that, there was clear banding and pixellation visible. The first test image does not show the reflections in the water, or even the ripples of the water, clearly. Also the darker shades of black were merged towards the end of the greyscale chart.

The second test image gave a complete lack of reds and it was not able to give a good quality print. The third test image revealed the same blue tone over the entire image, though the black was reproduced better than the iP1980 and iP2680. Some brown colouration looked better in this image, but there was still loss of detail and pixelation all over the image. The Combi document print showed us that this printer was not able to reproduce reds correctly and the grey text was leaning towards green. Even so, the red cherries in the image, though rather pixellated,

Canon Pixma iX5000

were well differentiated and looked better, but this wasn't enough to ignore the other flaws we found in the quality of the prints.

The Canon Pixma iP4680 costs Rs. 8,155; this would be a decent price if the print quality were really good. But it is not, judging by the bad results we obtained. This is one printer that we cannot recommend you buy.

Canon Pixma iX5000

Another entry level printer from Canon, but this time around it is an entry level A3 photo printer. This is the only A3

HOW WE TESTED

We setup a test rig for this photo printer test as follows: CPU: Intel P4 @ 3.2 GHz, motherboard: ECS PF5 Extreme, memory: 2 GB of DDR2 memory running at 800 MHz, graphics card: Nvidia 7300 LE, monitor: 17 inch LG Studioworks 700E. The photo paper used was Compu Color's Premium Gloss Photo paper, which is 130 GSM paper.

We calibrated the LG monitor using the Spyder3Elite so that we could compare the print-outs to the test images as closely as possible. We used a total of three test images and one PDF document.

The first test image is a compilation of images which include a green scene with

a pond and a house, with reflections of the house in the water and ripples on the pond. This can give us a good idea of how well greens are reproduced and also how some nice details are printed. There is also a scene with buildings which is used to spot the name of a shop. There is also a greyscale chart and a sharpness test included in this image.

The second test image we used is a photograph shot by Manas Parekh, our photographer. This photo depicts a glass of cognac; this includes some fine details, and also enables us to judge how well the printers are able to recreate the more subtle tones

in this image.

The third test image is another mix of many small scenes; these include a wide range of colours, many details and skin tones.

In each test we also made a printout of our Combi.pdf document; this is a combination of text and images and the intention here is to judge the quality of the printed text.

All the images were studied under a magnifying glass in daylight in order judge which one of the printers gave us the best results.

The time taken to print the images in best quality as well as in the fasted quality or eco-mode was also recorded.

photo printer we received for our test, but we followed the same procedures and testing as with the rest of the printers, using A4-size paper only.

This printer will need some desk space especially with a width of 23.6-inches. It looks pretty simple before the covers have been opened, but the rugged looks begin to show when you lift the paper loading and receiving trays. It has a very angular design, with no smooth edges. The buttons are located, facing the front. Canon has stuck with the no display and two button approach with the iX5000 as well; one button for power and the other to clear paper jams. The USB PictBridge port is located below the buttons and allows you to print straight from a compatible digital camera without the need to connect it to a computer.

Paper is loaded through the rear tray and this Pixma can hold up to 150 sheets of plain A4 paper. The rear portion can be extended and unfolded to quite a height as it has to give support for A3 paper, the same is the case with the paper out tray which can be extended to hold A3 paper. The process

of using this extension is not too smooth and the tray feels wobbly.

The Pixma iX5000 uses four print cartridges, each for the CMYK colours, and installing them is quite easy with a simple clip mechanism.

The printer also reproduced our test images with a warmer tone, similar to the iP1980 and iP2680 but not as strongly. In the first test image, there was some loss of detail, but there was no banding. The image did not show clusters of pixels as was seen with the others. Also the darker shades of black were merged.

The second test image

Canon Pixma iX5000

was clear, but wasn't able to reproduce some dark shades correctly. The third image was also on the warmer side, and did not reproduce black correctly. The purple pebbles present in one scene, though differentiated, were printed out with a darker shade. There was some detail loss but not as

much as with Canon's iP1980, iP2680 and iP4680.

You do not expect to move an A3 printer frequently, but once it is set, there should be no problem; the PictBridge is an added bonus, but like the other Canon Printers, a display would have certainly benefited this printer. Paying Rs. 18,995 for the Canon Pixma iX5000 would make sense for a SoHo print media workplace, certainly if you are on a budget and can't spend too much.

Canon Pixma iP100

There were mixed opinions regarding the Canon Pixma iP100: whether it should be in the general category of photo printers or it should be considered a compact photo printer. In the end, we decided that this should be included as a general photo printer, due to the fact that it can print sheets in A4 size.

The Canon Pixma iP100 is a portable photo printer, it has a very thin and stylish form factor, which lead us to consider that it was a compact photo printer. The silver exteriors with smooth edges really add to the printer's sleek look. The main reason this printer is a portable printer is not that it has a carry handle, but that Canon has also provided an attachable

Laser printer
The prototype of a laser printer was invented by Gary Starkweather working at Xerox in 1969. The printer was built by modifying one of the Xerox copiers

Languages etc.
Facebook has launched the Swahili version of their social networking site. This move was done to target the 110 million and above Swahili speaking people so that Facebook can increase its userbase

Photo printer test

Compact Photo Printers

There are many people who sometimes just need to see their photographs printed out immediately, wherever they might be. To that end, the new trend in photo printers is the compact photo printer, that can be carried anywhere and print mainly 4 x 6 photos – also called as 4R size. We tested two such compact photo printers; the Epson PictureMate PM 215 and Canon Selphy CP 760.

Canon Selphy CP 760

The entire range of Selphy products from Canon are compact photo printers and the one we received was the Canon Selphy CP 760. This Selphy is really compact, smaller than the Epson compact printer and also lighter, weighing in at around 950 grams. The CP 760 comes with a 2.5-inch display located on top. This display can't be tilted or rotated, but it already has been positioned at a slight angle which indicates a well thought out design from Canon. The buttons of the printer are located just below the display. There are two USB ports on the left side of the printer, one to connect to the PC and the other for PictBridge connectivity.

The Canon Selphy CP 760 uses a single ink cassette which is very different from that which the Epson PM 215 uses. This ink cassette is loaded into the printer from the right side; this is pretty easy, as it just needs to be pushed in and once you hear the click, you are all set.

The Selphy CP 760 also supports direct printing from memory cards, slots for which are located at the front side of the printer. This printer works with detachable paper cassettes that correspond to specific paper sizes. These will have to be carried separately, if you intend to use this printer on the go.

The paper cassette provided only prints postcard 4R size, which we found is slightly different from the regular 4 x 6 photo paper. Canon does

provide a few sheets of paper so that you can try printing on postcards directly. There are no separate trays for in and out, the single paper cassette functions as both.

This Canon Selphy CP 760 prints in a very different manner with the ink cassette that was mentioned earlier; it prints in layers. Once the print command is given, the paper goes in and only a layer of yellow is printed, with all the yellows present in the image and this is followed by magenta, then cyan and lastly an overcoat is printed that keeps the print safe from water spills and finger prints, generally supposed to give prints a longer lifetime. This is known as dye sublimation.

The quality of the prints was exceptional – the first test image showed the overall tone to be slightly on the yellow side, but the detail that was printed was just perfect. Each and every tiny detail could be seen under the magnifying glass and that too with these relatively small 4 x 6 prints. Even so, the darker shades of black merged together in the greyscale chart. The second test image was spot on – it was just perfect. The third test image showed the same yellowish tone, but again the detail was brilliant. The only place where the Selphy CP 760 was not able to output a great quality print was with the Combi document – the images were printed out stunningly, but the text was bad. It was not smooth at all, and the ink did not spread evenly on all characters. Each character had different shades of green and black which made some

Epson PictureMate PM 215

areas dark and others light; basically unreadable. The yellow text on a black background was equally bad and unreadable. Text is not this Selphy's strong point, but if you give it images, it will just produce them with ease.

Priced at Rs. 5,495 this makes a great buy, with the only exception that you will need to replace the ink cassette after every 36 prints. Canon sells postcard packs with a combination of 108 sheets of postcard size paper and three ink cassettes – this will cost you around Rs. 1,250, which is still a good deal for the quality that this printer delivers.

Epson PictureMate PM 215

The shape, size and weight of the Epson PictureMate PM 215 is very different from the Canon Selphy CP 760. It is larger and also much heavier, with a weight of about 2.2 kgs. The PictureMate PM 215 looks like a small square plastic bucket or picnic basket that you would take to the beach, and it even has a nice handle so it can be carried anywhere conveniently.

The PM 215 has a 2.5-inch display which is covered by a turquoise coloured lid. The lid also has a dark-tinted window right above the display, so you can have a quick look without even opening it up. When you lift the lid, the display and the buttons of this printer are exposed. The display, by default, is flat, but can be tilted to adjust the angle. The paper feeder is located just behind the display. The paper-out tray is revealed by a simple push at the front, which then reveals the tray. Memory card reader slots are also present behind this tray and the direct print button is together with all the other buttons. The power adapter is connected at the rear of the printer, where you also find the USB ports to connect the PM 215 to a PC or to a camera.

Canon Selphy CP 760

Similarly to the Canon Selphy CP 760, the Epson PictureMate PM 215 also comes with a single cartridge called an Epson Photo Cartridge which has to be loaded from the rear of the printer. If the cartridge is not installed, the PM 215 displays an error message and also gives instructions on how to install the cartridge.

The Epson PM 215 was the fastest printer to deliver prints at maximum quality as it took just 47.1 seconds. The colour reproduction with this printer was quite accurate, but there was loss of detail. With the first test image, the scene with the water was good and accurate with little loss of details. In the greyscale chart, the last two shades of black were merged together and in the sharpness zone, there was some jagged lines reproduced towards the end. With the second test image, the entire image looked balanced, even though there was supposed to be more of a green tone to the image; also the colours at the base of the image were too fluorescent. The third test image was also well-balanced and had black reproduced correctly. Even so, there were details missing in some parts of the test image, such as the dimples in the golf ball and some textures. The Combi document was much better than that produced by the Canon Selphy CP 760, and the text was also reproduced smoothly. The red cherries looked great and were well differentiated. The only place where this printer was lacking was with the yellow text on the black background; here it showed a similar outcome to the Selphy CP 760.

The Epson PictureMate PM 215 is priced at Rs. 9,999, which is slightly high, but you get overall well-balanced colours.
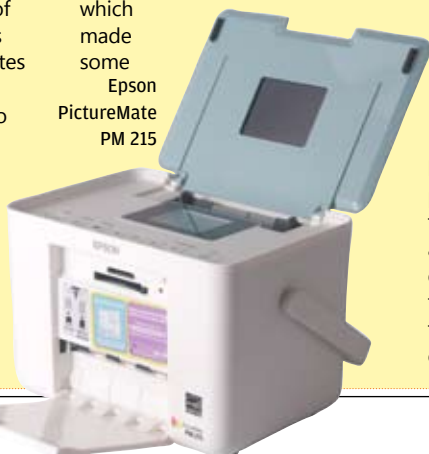
Olympus shrinks a DSLR
The new E-P1 DSLR, is part the classic Pen series of compact cameras from Olympus. This camera comes with a 12.3 megapixel MOS sensor, 3-inch HyperCrystal LCD and can even play 720p movies

Amazon's MEGAFAIL
Amazon.com, the online retail shop, mistakenly cut prices of certain music albums and were available for 29p each till this mistake was corrected after four hours

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Brand	Canon	Canon	Canon	Canon	HP	Canon	Epson	Canon
Model	Pixma iP1980	Pixma iP2680	Pixma iP4680	Pixma iX5000	Photosmart D5468	Pixma iP100	PictureMate PM 215	Selphy CP760
Price	2695	3695	8155	18995	6498	20995	9999	5495
Grand Total (Out of 100)	39.8	40.25	45.61	53.04	71.41	54.81	72.07	62.24
Features	3.19	3.26	13.82	10.33	24.5	10.4	23.89	19.09
Performance	36.61	36.99	31.78	42.71	46.91	44.41	48.18	43.2
Connectivity								
PictBridge Support (Y/N)	✘	✘	✓	✓	✓	✓	✓	✓
USB Flash Drive Support (Y/N)	✘	✘	✘	✘	✓	✘	✘	✘
Network printing support (Y/N)	✘	✘	✘	✘	✘	✘	✘	✘
WiFi support (Y/N)	✘	✘	✘	✘	✘	✘	✘	✘
Bluetooth Printing (Y/N)	✘	✘	✘	✘	✘	✘	✘	✘
Memory Card support (Y/N)	✘	✘	✘	✘	✓	✘	✓	✓
Features								
Number of Print Modes	4	4	4	4	4	4	3	1
Maximum print resolution (dpi)	4800 x 1200	4800 x 1200	9600 x 2400	4800 x 1200	600 x 600	9600 x 2400	5760 x 1440	300 x 300
Power Saving Mode (Y/N)	✘	✘	✘	✓	✓	✘	✓	✓
Ink Saving Mode (Y/N)	✘	✘	✘	✘	✘	✘	✘	✘
Red Eye Reduction (Y/N)	✓	✓	✓	✓	✓	✓	✓	✓
Zoom / Fit to Page (Y/N)	✓	✓	✓	✓	✓	✓	✓	✓
Colour Correction on printer (Y/N)	✘	✘	✘	✘	✘	✘	✓	✘
Size of display on printer	NA	NA	NA	NA	1.5 inch	NA	2.5 inch	2.5 inch
Number of Cartridges Used	2	2	5	4	5	2	1	1
Cartridge Colours	Black and Colour	Black and Colour	CMYK and Black	CMYK	CMYK and Black	Black and Colour	PicturePack	Ink Cassette (Y, M, C and overcoating)
Ease of cartridge installation (So 10)	7.5	7.5	8	8	8.5	8.5	9	9
Build Quality of Tray (So 10)	4	5	5.5	5.5	7.5	6	8	7
Total Paper Tray Capacity (Plain A4, 4 x 6)	100	100	150	150	145	50	20	36
Performance								
Photo 1 (Quality Test) (So 10)	6.25	6.5	6	7.5	8	7.75	7.25	7.5
Photo 2 (Quality Test) (So 10)	6.5	6.75	5	7.5	7	7.5	7.25	7.75
Photo 3 (Quality Test) (So 10)	6	5.5	5	6.75	7.75	7.5	7	8
Mixed Document Print Quality Max settings (So 10)	6.75	7	4	7	7.5	7.5	7	6.75
Mixed Document Print Quality Eco mode (So 10)	4.5	4.75	3	4.75	5	5.5	7	NA
Photo Quality (Eco mode) (So 10)	3	3.5	4.25	4	4	4.25	7	NA
Time taken Photo print (Max quality)	163	163.8	89.7	113.9	67.9	112.4	47.1	78.9
Time taken Photo print (Eco Mode)	35.2	35.1	43.2	27.2	15.6	28.5	42.2	NA
Miscellaneous								
Bundled Cables	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable	Power cable, USB cable
Software Supplied	Easy-Photo-Print EX	Easy-Photo-Print EX	Easy-PhotoPrint EX	Canon Easy-PhotoPrint, Easy-Web-Print, Photo Record, Easy-Print-ToolBox	HP Pho-tosmart Essentials 3.0, HP Smart Web Printing,	Easy-PhotoPrint EX	Epson EasyPrintMod-ule, Epson Easy Photo Print	Canon Utilities, EOS Util-ity, Ulead PhotoExpress LE, ZoomBrowser EX
Dimensions (mm)	442 x 237 x 152	442 x 253 x 142	431 x 296 x 153	601 x 317.6 x 193.2	457.9 x 385.6 x 183.2 mm	322.5 x 60.9 x 182.8	231 x 169 x 149 mm	200.6 x 83.8 x 142.2
Weight (Kg)	3.3	3.7	5.7	9.3	5.8	2	2.2	0.95

Hydrogen cars for everybody
A car that runs on Hydrogen was revealed recently in London and will be available in UK sometime in 2010. The manufacturers plan to make the design of this car 'open source'

SMS craze
A 15-year old girl won the LG National Texting Championship and won a cash prize of $50,000. She defeated 2,50,000 fellow competitors and went through various rounds including blindfolds and quizzes to win the title.

Photo printer test

battery pack. The size has been intelligently designed to accommodate for travel purposes and the addition of a battery pack makes a huge difference in portability.

There is a magnetic clip mechanism used to open the lid of this printer, and once you open the rear lid, the small front tray also opens. This front tray is not too long and won't really hold paper, but being a portable printer, this can be overlooked. Paper is loaded from the rear tray and this can be extended to keep the paper in place.

The Pixma iP100 also has a two-button design, similar to all the other Canon photo printers we tested, and they perform the tasks of powering on/off and clearing paper jams. These buttons have small LED indicators next to them; this helps somewhat if you need to print in the dark, but complete backlit buttons would have been even better. There is a small clip near the base, where you can switch between envelope and normal paper. Unless this clip has been set in the right place, your print will not start and you will be greeted with an error.

The print quality of this Pixma iP100 was really good; similar to that of the iX5000 in some cases, but overall, managed to outperform it. The iP100 was also similar to the other Canon products in that it produced an overall warm colour in the images, though not as much as the other Canon photo printers. The first image showed detail in some parts and was able to reproduce shades of blue very well, though the darker shades of black towards the end in the greyscale test were merged. The second image revealed this printer missing out on a few dark shadows and did not blend a part of

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HP Photosmart D5468

the photo correctly. The last test image did not show any major differences between the iP100 and the ix5000, but the purple pebbles were more differentiated and looked much better in the case of the iP100.

This printer is priced at Rs. 20,995, and we do feel this is a bit on the high side. But if you really need something portable, especially with the addition of a battery pack, this does make for a sensible buy, but it will not give you the best prints.

HP Photosmart D5468

The HP Photosmart D5468, HP's one and only entry in this test, is part of its D5400 series. The printer has a nice rounded edge design with grey and white colours. There is a front facing silver bezel, atop which a 1.5-inch display is present. Next to this are the printer controls, Print photo button, red-eye removal button, cancel and power buttons.

Along with this printer being the only one in this test to have a display, other than the compact photo printers, the Photosmart D5468 also has memory card support and a USB port that can be used as a PictBridge connect; it also supports USB flash drives, another feature missing from the other photo printers.

This printer comes with two paper trays arranged one

above the other, the top tray being used only for 4 x 6 photo prints, while the lower paper tray can be used for other paper sizes, including A4. The top paper tray can be removed to make the bottom tray more accessible. This printer can also print images straight onto a CD or DVD. To do this, there is an extension located at the base of the bottom tray where the CD or DVD has to be placed.

This HP Photosmart D5468 gave us the most balanced colours of all the non-compact photo printers that we tested. The first image shows that the colours were nicely reproduced, but there was a slight concern with the greens, as two shades looked as though they were merging. This photo printer was the only one to differentiate all the colours of the black and white chart that is present on the test image. The overall reflections and ripples in the water were also much better than with the other printers.

In the second test image, though the image looked good, there was slight over-contrast of orange towards the bottom of the image. The third image showed the best results among all the printers, where the black was actually reproduced properly as black. With our Combi test document, we found that some parts that contained yellow were printed

more on the orange side. Also the yellow on black text was unreadable at smaller font sizes, something that the other printers were able to get correctly. The red cherries in the image looked good and well differentiated.

In eco-mode, there was a huge difference and you could clearly see jagged edges on the text and lots of pixels all over the image.

The HP Photosmart D5468, with a few exceptions, did reproduce some really great images and with a price tag of only Rs. 6,498, it really makes an excellent purchase.

The final decision

If you are looking for the most basic photo printer, you don't really want to spend much money and can do with average quality, then you should get the Canon Pixma iP1980. If you want something better and are willing to pay more for it, and at the same time want added features such as PictBridge and USB flash drive support, along with something that you will use occasionally to print images on CDs, then you should definitely go for the HP Photosmart D5468.

If you are frequently printing A3 sheets, then starting off with the Canon Pixma iX5000 makes good sense, as it is an entry level A3 photo printer. If you need portability and something that prints A4 size sheets, then the Canon Pixma iP100 is a good choice. Though it might seem a tad pricey, it gives above average print quality, has a compact design and the extra battery pack is a much needed feature. If you are someone who likes to take snapshots and keep collecting them, the Canon Selphy CP 760 is the one for you as the details are superb and it also comes at a reasonable cost.

Contact Sheet				
Brand	**Company Name**	**Email address**	**Phone number**	**Web site**
Canon	Canon India Private Limited	info@canon.co.in	1-800-1803 366	www.canon.co.in
Epson	Epson India	think@eid.epson.co.in	+91-80-3051 5000	www.epson.co.in
HP	Hewlett-Packard Sales India Pvt. Ltd.	bharat.kharbanda@hp.com	1-800-4254 999	www.hp.com/in

Wi-Fi Test

New Netgear
wireless-N router
Netgear Unleashes WNR3500
RangeMax Wireless-N Gigabit Router

Wi-Fi enabled phones satisfy
Survey by ABI Research shows that 77 per cent of
users of WiFi enabled handsets are fully satisfied
with their devices

F R E E Yourself

Michael Browne
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802.11 is here to stay. For all who missed the bandwagon we present the means to connected freedom.

To most users Wi-Fi is a buzzword...the kind that everybody uses and wants a piece of. Unfortunately, IEEE 802.11 (the proper name for Wi-Fi and interchangeably used hereon) is a phrase that is most often misunderstood or at best, poorly understood. At Digit, we're believers in the goodness of 802.11, but most of our readers aren't – if the mails and calls we receive are an indication. A general consensus is 802.11 is mostly for technology buffs with very little real world advantages. After all, good old RJ45 (wired LAN) is still faster right? Not to mention the multitude of security concerns. An allied technology WiMAX (also called IEEE 802.16) has become the darling of urban internet service providers (ISPs) in India. Although 802.11 finds many a fan in the corporate fraternity, its adoption in households has been painfully slow.

One myth we'd like to bust right now is that Wi-Fi networks aren't secure – this is hogwash. With adequate caution, a half-decent wireless router and the correct settings, a wireless network is as impregnable as a wired one. In terms of speed, Wi-Fi is still a good bit away from RJ45 speeds; but, things have gotten faster the last time we checked. The fact is no household internet connection in this country delivers even 20 per cent the bandwidth that a wireless connection provides. So if you feel that a wireless access point will bottleneck your download speeds, think again. For other users Wi-Fi is a hassle to set up and a bigger hassle to secure. Quirks still abound, but setups and security features have been simplified. One of the major assets this technology has, and one we cannot deny, is convenience of use. Wireless internet browsing on a single internet connection for all devices including desktops, notebooks, PDAs, phones and even Wi-Fi-enabled PMPs; the possibilities are virtually limitless.

We tested 24 wireless devices. Five out of these were ADSL routers that come with RJ11 (telephone) connects for internet. There were 18 routers and one access point. An access point simply accepts a wired connection and passes on a wireless connection — it has no routing abilities. We had the biggest brands and some of the finest models in the global market. Among the people who did not participate were ASUS, Gigabyte and MSI. These brands are not selling Wi-Fi devices in the market at the time of this test. Level One is another well known brand we contacted, but they didn't seem too keen on participation for unknown reasons.

ADSL routers

A few service providers still offer internet access via telephone lines and when you purchase such a connection a modem is required. An ADSL router does

everything a router does but instead of having an Ethernet, (RJ45), WAN port it has an RJ11 WAN port. Additionally, an ADSL router will also have a built in modem. In fact, such routers are often referred to as DSL modems. If you are opting for a new internet connection you should make sure exactly what interface your ISP will provide. In case a regular Ethernet connection is provided, you cannot use an ADSL router for your internet connection. We tested five ADSL routers across Dlink, Netgear and Linksys.

Features
Linksys' design on both their routers was attractive and very space age-like. Since your router is likely to be placed on a table or mounted on a wall we figure looks should warrant at least a cursory mention. The WAG160N looks futuristic with a square appearance with no sharp corners. The outer bezel is higher and the centre portion gently bulges. The centre is finished in piano black and the outer bezel is gun grey. The design has no external antennas. All activity LEDs are embedded in the black bezel and icons of the indicators are clearly visible that speaks of a top quality product. The LEDs green aren't intrusive. The WAG54G2 is entirely black although the finish is matte and not glossy. Netgears DGN2000 also looks neat with its rounded design. Build quality is top class. Both the WAG160N and the DGN2000 are Draft N routers and the WAG160N supports MIMO technology that helps throughput by improving spectral efficiency or the ability to transfer more bits per available hertz of wireless bandwidth. The other routers were based on the slower 802.11G specification. There is also a stark difference in the price and the Draft N

ADSL routers cost more than double some of the others. The Netgear DGN2000 has a power button on the rear which many routers don't have. There are also a couple of buttons on the side, one to toggle Wi-Fi on and off which is very useful

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Dlink DSL-2640T

and the other to enable WPS, a security feature. The Netgear DS834G was built around the same lines as the DGN2000, but it's a glossy white finish instead of black. Interestingly, Netgear provided a couple of feet for this router so it can stand by itself, no such paraphernalia with the DGN2000 which is weird because we found the signal to be stronger when the device is standing up instead of lying flat on the table. The Netgear DS834G misses a few options in the firmware. Under Wireless Settings, you can only select between B and G modes. There are no speed settings available that nearly every other router/ADSL router had. The firewall section is very easy and intuitive and there is a simple option available to block IM ports. There is no option for conditional blocking of IPs.

Performance
We expected the Draft N routers to be speed demons and they were. Since this new

specification is some time away from finalisation nobody knows for sure which of the Draft N devices will fully comply with the final specifications. For your information IEEE will decide the final specification for Draft N sometime later this year. The real world transfer tests were what we most closely monitored and the random file transfer was of special interest because it stresses the device. The Netgear DGN2000 is by far the fastest device in this segment and it was the only device to transfer more than 1 MBps in zone 3. Surprisingly in zone 1 it also had the lowest signal strength (80%) and still managed a whopping 4 MBps which is pretty good. The Linksys WAG160N is the second fastest device, but it trails by a huge margin. The Dlink DSL-2640T is also pretty decent and for an 802.11G device, gets pretty close to the DGN2000. Interestingly, none of these devices are really suitable for streaming video content so multimedia junkies will want to look elsewhere. The Netgear DGN2000 does manage well with DVD videos, but 1080p content proves a bit too much to handle, especially in zone 2 and 3.

Conclusion
Since these zones are more indicative of a

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Netgear DGN2000

household scenario (it's unlikely the router will be placed in the same room as all the clients) we don't recommend anyone looking to stream videos wirelessly waste his time here. The Netgear DGN2000 is wonderfully fast at transfers but it's also quite expensive at Rs. 8,260. The Linksys WAG160N is equally costly but much slower and so totally loses out. The Dlink DSL-2640T is what we recommend for budget users who need an ADSL router and it wins our Best Buy award. If you must buy ADSL for speed, get the DGN2000 − the best performing ADSL router. If you don't need the RJ11 connectivity, consider buying a non-ADSL router.

Routers
A lot of ISPs provide Ethernet connectivity for the internet. A wireless router can also function as an access point if need be. Since all wireless routers (including ADSL routers) have at least four LAN ports they can be used as a wired LAN, a wireless only LAN or a mixed (wired and wireless) network. Their WAN port is RJ45 and they can serve the functions of a router to both wired and wireless clients. There were big names from the 18 wireless routers we tested; these included Belkin, Linksys, Netgear, Dlink, Senao, Buffalo, Apple and Compex. The price range was as diverse, the cheapest router was an uber-affordable Rs. 1,990 while the costliest router weighed in at Rs. 10,999. For the purpose of comparison and awards we divided this category into two parts, routers up to Rs. 5,000 and those above Rs. 5,000.

Features
Some routers were beauties − works of art with great care taken in their sculpting and design. Apple's Airport Extreme 802.11 N was built like a tank. This pure white square shaped router had rounded edges and

Wi-Fi Test

Seagates new FreeAgent series of USB drives get new giant, a 640 GB version replaces the 500 GB at the top of the lineup

Suggestive Google?
Google Suggest disabled in China due to porn

will look completely at home with your Apple Macbook and iPhone. There is a single large LED that is a capable diagnostics tool, it can remain steady, blink slower or faster and has three colour options – orange, green and blue that represent the status of the device. The LAN ports at the rear also have tiny LEDs, but there is no indication at the front. The software interface is very different from most routers and is available after installation of software present on CD. There are fewer options when compared to the firmware of other routers. The presence of a USB port means it can be hooked up to a printer or a USB drive. The Senao EnGenius ESR-9750G is really compact and well built with a glossy white body. The blue front LEDs are painfully bright and there are fewer options available in the

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Belkin Wireless G Router

firmware menu although to be honest this will be a relief for newbies as the menu is really intuitive to work with. A hardware button is provided for enabling WPS, but there's no indicator for whether the feature is active or not. The Dlink DIR-655 is a classy looking router finished in a glossy white with a black band running around three sides. Build quality is exemplary and it has three large, detachable, external antennas. The front LEDs are bright and blue – too garish. Instead of cutting the shape of numbers into the plastic, Dlink chose to simply cut little squares, so the wired LAN indicators are bright blue little squares – this

felt slightly cheap and a letdown from the overall quality. The menu system is simple with a lot of options available. This router also has a USB port and can be used as a multimedia server. Netgear's WNR3500 was the largest router physically and it cannot be wall-mounted, thankfully it has a neat stand so takes up little space. It's built well and looks classy with a mixture of plain and glossy black finishes. A strip of blue LEDs flash along the top of the router and this becomes annoying because we could find no way to switch them off. After dark, it's super annoying and the blue colour hurts the eyes. This router has a very neat firmware interface that is shared by all Netgear routers – simple, well laid-out and pretty intuitive. The wireless repeating function is present. Content filtering is powerful and easy to set up with very transparent settings. Sites can be blocked on the basis of keywords, while sites can be blocked to certain or all IPs and all these activities can also be set on a toggle timer – useful if kids surf the internet at particular times or otherwise as a security feature. We noticed that Netgears firmware interface is simpler than Linksys' – less jargon used, which is newbie friendly.

The WNDR3300 was the next Netgear product we looked at. It's large, but neat looking with a glossy black finish and a transparent bezel running right around the sides. There is a large, translucent dome atop the unit that doubles as a WPS button, the bright blue LEDs inside are overdone though and a part of the blue PCB used is visible through this button. There are two activity indicators for Wi-Fi – one each for 2.4 GHz and 5GHz bands. This is a dual simultaneous band router, meaning that not only can it create two wireless signals of two different frequencies, but it can do so simultaneously. In

HOW WE TESTED

We divided the products into three categories:
1. Access Points
2. Routers (subdivided into two parts on the basis of price)
3. ADSL Routers.

In terms of features, we logged everything from the connectivity options to the firmware interface, build quality, security features and configurable settings. We did not give scores for all the features though, only the ones we felt were pertinent enough to warrant attention. The weights assigned to each feature were given on the basis of its relative importance in making the product more usable, functional or feature rich. Testing was done simulating all possible real-world conditions, for which we created the test 'zones' that we've described below. Please note that distances aren't as important for benchmarking any sort of 802.11 networks it's the obstructions between the emitting device and the recipient that matter. Metal along with brick and concrete cause the most signal attenuation. Even wooden furniture and an unclear line of sight (LOS) will scramble Wi-Fi signals. A reduction in signal strength brings about a crippling reduction to bandwidth and therefore slows data throughput. With this in mind, we designed each of these zones to actually take each of these wireless devices to their performance limits.

Zone 1 – The laptop was placed within eight feet of the wireless device although a clear LOS was not allowed since the device was placed on a table, away from the edge

Zone 2 – We placed the laptop within 30 feet of the router. This time we ensured that there was a good deal of obstructions. There was a concrete wall and also a couple of wooden partitions

Zone 3 – Our test laptop

was placed 25 feet away from the router. Here we actually moved the laptop one floor lower. We also ensured the laptop wasn't exactly above the router placed a level below (this would be too easy). This was the most difficult test for the any wireless device as there are multiple obstructions and also a lot of metal in the ceiling structure that really messes with Wi-Fi signals.

Our first test involved a sequential transfer (one large file) and a random transfer (multiple small files of varying sizes) from a desktop PC wired via Ethernet to the wireless device and a laptop. The speeds were recorded in Megabytes per second (MBps). Please note that most manufacturers quote figures in Megabits per second (Mbps) where 1 byte = 8 bits.

Next we used PassMark's Performance Test as a benchmark. The inbuilt network benchmark simulates a data transfer and measures throughput in megabits per second (Mbps). PassMark's Wireless Mon 3.0 was used to measure signal strength as a percentage.

Next we streamed a 1080p video clip from the desktop PCs hard drive to the notebook wirelessly. We awarded points based on the entire viewing experience. We also streamed a DVD and watched for jerkiness in both cases. All this testing was repeated through the zones.

Test PC: Core 2 Duo E6700 (2.66 GHz), 2 GB DDR2 800 MHz RAM, Gigabyte P965 DQ6 motherboard, XFX GeForce 9600GT graphics card, Seagate 7200.11 500 GB HDD.

Test notebook: Dell Studio XPS 16 – Core 2 Duo 2.53 GHz, 4 GB RAM, ATi Radeon 3670 graphics card, 320 GB, 7200 rpm HDD, Intel 802.11n WiFi solution (Centrino 2)

theory, this is useful when extra bandwidth is desired. A 2.4-GHz band can be used for regular network traffic and browsing, while the higher bandwidth

5-GHz band can be used for streaming movies or gaming. Conceptually, this reduces congestion in a wireless network since different functions can

DMZ Demilitarised zone, an army term. It allows one computer on a wired/wireless LAN to be placed outside the NAT since this allows

WiFi enabled phones satisfy
Survey by ABI Research shows that 77 per cent of users of WiFi enabled handsets are fully satisfied with their devices

Wi-Fi test

be assigned to different bands and there is double the theoretical bandwidth available. Sadly, this device had no bundled stand; we found that adding a stand boosted signal strength in zone 1, 2 and 3 by 17, 6 and 3 per cent respectively.

The Netgear WRT610N was another stunner. It looks like something Darth Vader would wear and has a dark blue outer bezel with the entire body finished in glossy black. A USB port has been provided along with the RJ45 ports and any storage device connected means you have a ready multimedia server that can be accessed both from within the network or even over the internet. This is also a dual simultaneous band router and the firmware is replete with options and settings, advanced users will have a field day. The Linksys WRT310N and WRT160N also share the same shape as the WRT610N and its sterling build quality but are slightly smaller in terms of their footprint. Since these routers all have internal antennas they do not have stands and are meant to be placed flat atop a table or wall mounted. The WRT310N has a silver outer bezel, while the WRT160N is totally black. The WRT310N supports 256-bit SPI firewall, while the WRT160N has regular 128-bit SPI. Once again the firmware features are rich with a lot of options and the menus, although replete with advanced settings are pretty intuitive.

Buffalo's WHR-G300N is a super-slim router with a sleek stand, although removing the stand after inserting it is a pain and you can actually see the two sides of the routers fibre bezel move apart to free the tines of the stand. Other than this build quality is very good and the firmware interface is intuitive and easy to work around being less technical than Linksys' interface. Belkins N1 Vision

was really something else. This MIMO supporting router is built very well and skips the activity LEDs for a monochrome LCD display that is very useful and not just a cosmetic add-on. Not only can you change quite a few settings here via the soft, rubberised buttons but one can also view the connection status, connected clients and even check on the quantity of data uploaded and downloaded – ultra neat. The matte silver body and glossy black facia are certainly attractive and the overall effect is classy. The firmware interface shared by the other two Belkin routers is intuitive with sufficient settings and clearly designed with the newbie in mind. Like the other Draft N and some 802.11G routers from Netgear and Linksys, Dlink and Buffalo this one supports DMZ.

EDITOR'S PICK
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Netgear WNR2000

Performance
When it came to raw throughput and our gruelling real-world transfer tests three routers stood head and shoulders above the rest – Linksys' WRT610N and WRT310N and Netgear's WNR2000. Trailing a bit behind was Linksys' own WRT160N. In fact the scores in zone 3 surprised us – both the WRT610N and the WRT310N managed over 2 MBps in the sequential transfers and well over one megabyte per second in the assorted transfer – super stuff. When it came

to video streaming though the Netgear WNR2000 ate them for breakfast and while the performance gap wasn't very great it was noticeable enough. Buffalos WHR-G300N also performed well in zone 1 and 2 but performance dropped off in zone 3, this bespeaks a slightly weaker antenna. Dlinks DIR-655 was the fastest performer when it came to sequential transfers in zone 1 – it crossed the magic 5 MBps mark. Netgear's WNDR3300 is also pretty fast and although it cannot trail with the quickest it does manage to hold its own with good scores in zone 1 and zone 2 that trail off in zone 3. The missing stand really hurts this Netgear product and we hope retail versions of this router ship with a stand for desktop use. Belkins N1 Vision did well overall and beat its cheaper sibling, the Wireless N Router by a fair margin. Sadly most of the 802.11G routers get left behind no doubt due to their lower maximum throughput. One revelation post test was that none of the Draft N routers are as fast as the 802.11N specification claims they should be. A mere 40 MBps is a poor score for a standard that is supposed to deliver 600 MBps.And these devices are nowhere close to even half this figure.

Conclusion
Up to Rs. 5,000
Belkins Wireless G Router took our Best Buy award. It's not particularly fast, but will get you through all but the most bandwidth intensive operations. It's built well, if simply and at a price of Rs.

seamless connectivity for applications like games or video conferencing

Wi-Fi Comparison Test

	ADSL Routers				
Brand	Dlink	Netgear	Linksys	Linksys	Netgear
Model No	DSL-2640T	DS834G	WAG54G2	WAG160N	DGN2000
Price (Rs)	3700	4731	4999	7925	8260
Plus (+)	Good Value	Looks neat, solid build	Neat looks, solid build	Slick, futuristic look, features	Fast, built well
Minus (-)	Slow	Slow	Slow	Very slow	Expensive
Grand Totals (Out of 100)	46.93	45.50	45.45	47.85	61.81
Features (Out of 40)	30.16	28.31	29.72	29.87	29.00
Performance (Out of 60)	16.77	17.19	15.73	17.98	32.81
Features					
Protocols Supported (802.11 A / B / G / Draft N / Draft 2)	G	G	G	Draft N	Draft N
Type Of WAN Port (Ethernet / ADSL / USB)	ADSL (RJ11)	ADSL (RJ11)	ADSL (RJ11)	ADSL (RJ11)	ADSL (RJ11)
No Of RJ45 (LAN) Ports	4	4	4	4	4
No Of USB Ports	0	0	0	0	0
Device Features:					
Power / Connectivity / LAN port / Activity Indicators (✔/✘)	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ / ✔
Security Indicator / Hardware Security button (✔ / ✘)	✘ / ✘	✘ / ✘	✘ / ✘	✘ / ✘	✔ / ✔
Factory-Defaults Reset Button (✔ / ✘)	✔	✔	✔	✔	✘
Wall Mountable (✔/✘)	✔	✘	✔	✔	✘
Security:					
Encryption Types	WEP, WPA, WPA 2	WEP, WPA	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2
Firewall (Types Supported)	SPI	SPI	SPI	SPI	SPI
LAN I/P Based Site Blocking (✔/✘)	✔	✔	✔	✔	✔
Wireless Isolation (✔/✘)	✔	✔	✔	✔	✔
Port Mapping (Forwarding)	✔	✔	✔	✔	✔
Firmware Interface Features:					
Basic Setup Wizard (CD / Browser) (✔ / ✘)	✔ / ✔	✔ / ✔	✔ / ✘	✔ / ✘	✔ / ✔
Online / Offline Firmware Upgrade (✔/✘)	✘ / ✔	✘ / ✔	✘ / ✔	✘ / ✔	✘ / ✔
Settings, Backup To HDD / Load From HDD (✔ / ✘)	✔ / ✔	✔ / ✔	✔ / ✔	✔ / ✔	✔ / ✔
Ease of Installation/Use (So 10)					
Bundle (Includes Software, except firmware)	5	5	5	6	5
Firmware Interface	7.5	8	8	8	8
Device Configurable Settings	7	6.75	8	8.25	7
Build Quality	8.5	8.5	8.5	8.25	8
Performance					
Zone 1 (100 MB File transfer)					
Signal Strength in Zone 1 (Wireless Mon 3.0, %)	82	90	85	86	80
Sequential (MBps)	1.402	1.425	1.164	2.381	4.052
Assorted files (MBps)	0.546	0.649	0.577	0.732	1.079
Zone 2 (50 MB File transfer)					
Signal Strength in Zone 2 (Wireless Mon 3.0, %)	33	41	33	41	33
Sequential (MBps)	0.988	1.304	0.867	1.232	3.429
Assorted files (MBps)	0.496	0.829	0.761	0.582	1.313
Zone 3 (50 MB File transfer)					
Signal Strength in Zone 3 (Wireless Mon 3.0, %)	27	30	21	31	22
Sequential (MBps)	1.032	0.855	0.617	0.856	2.012
Assorted files (MBps)	0.688	0.637	0.523	0.469	1.256
Passmark Performance Test Zone 1 / Zone 2 / Zone 3 (Mbps)	12.77 / 12.53 / 8.16	11.21 / 11.33 / 8.37	12.53 / 9.11 / 5.6	22.68 / 16.05 / 8.831	25.01 / 24.19 / 12.58
Video Streaming (1080p) Zone 1 / Zone 2 / Zone 3 (So 10)	7 / 5 / 2	3 / 5 / 2	8 / 5 / 2	8 / 3 / 1.5	8.5 / 7 / 3.5
Video Streaming (DVD) Zone 1 / Zone 2 / Zone 3 (So 10)	8 / 5 / 1.5	5 / 6 / 2.5	8 / 7.25 / 3	6 / 4 / 2	9 / 9 / 5

WPA – Acronym for WiFi protected setup. It was created as a simple, newbie friendly security protocol that can be con·gured to

BEST BUY — digit — JULY 2009

Routers up to Rs. 5,000						
Dlink	Belkin	Linksys	EnGenius	Linksys	Compex	Belkin
DIR-300	**Wireless G Router**	**WRH54G**	**ESR-1221EXT**	**WRT54G2**	**NP25G**	**Wireless N Router**
1990	2143	2299	2520	3199	3500	3993
Very affordable	Good pricing	Solid build, looks neat	Ultra compact	Built well	Solid build	Affordable, neat looks
Slow	Plain looks	Very slow	Ultra slow	No draft N support	Terribly slow, over-priced	Very slow
48.23	51.67	46.34	43.59	53.15	38.98	43.08
32.02	30.70	30.52	29.87	29.38	29.56	30.53
16.21	20.97	15.82	13.72	23.77	9.42	12.55
G	G	G	G	G	G	Draft N
Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)
4	4	4	4	4	4	4
0	0	0	0	0	0	0
✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✗ / ✓ / ✓ / ✗
✗ / ✓	✓ / ✗	✗ / ✗	✗ / ✗	✗ / ✗	✗ / ✓	✓ / ✓
✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓
WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA	WEP, WPA, WPA 2
SPI	SPI	SPI	SPI	SPI	SPI	SPI
✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓
✓ / ✓	✓ / ✗	✓ / ✓	✓ / ✓	✓ / ✗	✓ / ✗	✓ / ✗
✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓
✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
5	5	5	5	5	5	5
8	8.25	7.5	8	7.5	7	8.5
7	8	8	6.75	7.5	6.5	8.25
7.25	7.25	8.5	7	8.5	7.75	7.5
85	83	87	92	90	81	81
1.691	2.408	1.75	1.596	1.763	0.417	2.812
0.759	1.363	0.795	0.584	1.267	0.352	0.602
42	41	31	41	47	40	38
1.265	1.776	1.236	0.73	1.618	0.623	0.455
0.674	1.377	1.056	0.648	1.081	0.437	0.236
25	30	23	28	30	23	30
0.589	0.49	Failed	0.563	1.011	0.244	0.642
0.283	0.449	Failed	0.449	0.963	0.218	0.583
17.1 / 14.08 / 4.83	21.96 / 5.56 / 3.43	15.67 / 12.26 / 4.34	15.05 / 6.24 / 2.9	16.17 / 14.62 / 11.31	9.32 / 7.64 / 3.15	4.943 / 12.12 / 10.34
6.5 / 4 / 1.5	9 / 7 / 2.5	9 / 6 / 1.5	6 / 3 / 1	8 / 7.5 / 1.5	6 / 3 / Failed	4.5 / 2 / Failed
7 / 6 / 3.5	9 / 9 / 2.5	9 / 9 / 2	7 / 4 / 2.25	9 / 8 / 4	7.5 / 3 / Failed	5 / 3 / 1.5

protect with minimal settings. It used a lot of the protocols laid down by the yet unprepared (at the time) IEEE 802.11i.

Wi-Fi Comparison Test

	Routers up to Rs. 5,000				
Brand	Netgear	Apple	Linksys	EnGenius	Buffalo
Model No	WNR2000	AirPort Extreme 802.11n	WRT160N	ESR-9750G	WHR-G300N
Price (Rs)	4720	4900	5999	6580	7000
Plus (+)	Blazing speed, superb value	Amazing looks and build	Looks great, very fast	Built well	Very compact
Minus (-)	Looks boxy	Few settings, interface	None in particular	Expensive	Slow, overpriced
Grand Totals (Out of 100)	66.70	52.44	60.88	60.97	54.87
Features (Out of 40)	32.60	25.94	29.87	32.23	32.30
Performance (Out of 60)	34.10	26.50	31.01	28.74	22.57
Features					
Protocols Supported (802.11 A / B / G / Draft N / Draft 2)	Draft N	Draft N	Draft N	Draft N	Draft 2
Type Of WAN Port (Ethernet / ADSL / USB)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)
No Of RJ45 (LAN) Ports	4	4	4	4	4
No Of USB Ports	0	1	0	0	0
Device Features:					
Power / Connectivity / LAN port / Activity Indicators (✔/✘)	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ /	✔ / ✔ / ✔ / ✔	✔ / ✔ / ✔ / ✔	✔ / ✘ / ✔ / ✔
Security Indicator / Hardware Security button (✔ / ✘)	✔ / ✔	✘ / ✘	✘ / ✘	✘ / ✔	✔ / ✔
Factory-Defaults Reset Button (✔ / ✘)	✔	✔	✔	✔	✔
Wall Mountable (✔/✘)	✘	✘	✔	✔	✔
Security:					
Encryption Types	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2
Firewall (Types Supported)	SPI	SPI	SPI	SPI	SPI
LAN I/P Based Site Blocking (✔/✘)	✔	✘	✔	✔	✔
Wireless Isolation (✔/✘)	✔	✔	✔	✔	✔
Port Mapping (Forwarding)	✔	✔	✔	✔	✔
Firmware Interface Features:					
Basic Setup Wizard (CD / Browser) (✔ / ✘)	✔ / ✔	✔ / ✘	✔ / ✘	✔ / ✔	✔ / ✘
Online / Offline Firmware Upgrade (✔/✘)	✘ / ✔	✔ / ✘	✘ / ✔	✘ / ✔	✘ / ✔
Settings, Backup To HDD / Load From HDD (✔ / ✘)	✔ / ✔	✔ / ✔	✔ / ✔	✔ / ✔	✔ / ✔
Ease of Installation/Use (So 10)					
Bundle (Includes Software, except firmware)	5	4	6	6	5
Firmware Interface	8	0	8	8	7
Device Configurable Settings	7	6.5	8.25	6.75	8.5
Build Quality	8	9.5	8.25	8.5	6.5
Performance					
Zone 1 (100 MB File transfer)					
Signal Strength in Zone 1 (Wireless Mon 3.0, %)	87	57	86	78	68
Sequential (MBps)	5.171	3.296	2.922	2.814	3.085
Assorted files (MBps)	1.277	1.275	1.509	1.108	1.118
Zone 2 (50 MB File transfer)					
Signal Strength in Zone 2 (Wireless Mon 3.0, %)	43	25	33	42	38
Sequential (MBps)	3.207	2.731	2.406	2.309	2.127
Assorted files (MBps)	1.272	1.058	1.115	1.784	0.722
Zone 3 (50 MB File transfer)					
Signal Strength in Zone 3 (Wireless Mon 3.0, %)	30	18	33	27	17
Sequential (MBps)	1.476	1.536	1.654	1.462	0.738
Assorted files (MBps)	0.791	0.933	0.798	1.098	0.603
Passmark Performance Test Zone 1 / Zone 2 / Zone 3 (Mbps)	36.69 / 25.22 / 11.48	25.34 / 20.72 / 8.58	32.9 / 20.61 / 20	27.7 / 26.43 / 13.89	39.08 / 22.51 / 14.12
Video Streaming (1080p) Zone 1 / Zone 2 / Zone 3 (So 10)	8.5 / 9 / 9	8 / 5 / 1.5	9 / 7.5 / 4	7 / 4 / 1.5	9 / 6.5 / 2.25
Video Streaming (DVD) Zone 1 / Zone 2 / Zone 3 (So 10)	9 / 9 / 8	8.5 / 6 / 3	9 / 9 / 9	8 / 6 / 3	8.75 / 6.5 / 3

WAN – Wide area network is a network whose communication links span regional or national boundaries   DSL – Digital subscriber line

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	Routers above Rs. 5,000						Access Point
	Linksys	Netgear	Netgear	Dlink	Belkin	Linksys	Dlink
	WRT310N	WNDR3300	WNR 3500	DIR-655	N1 Vision	WRT610N	DAP-1150
	7999	8142	9145	10500	10616	10999	3192
	Super fast, feature rich	Very neat looks	Great look and build	Compact, built well	Novel LCD display, features	Speed demon, feature rich	Solidly built
	Expensive	Mediocre performance	Poor performance, pricey	Expensive, slower than expected	Expensive, mediocre performance	Price	Poor video streaming
	64.00	57.09	50.07	60.69	56.21	67.51	42.52
	29.96	32.72	32.60	35.08	30.25	32.42	33.03
	34.04	24.37	17.47	25.61	25.96	35.09	9.49
	Draft N	Draft N	Draft N	Draft N	Draft N	Draft N	G
	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	Ethernet (RJ45)	NA
	4	4	4	4	4	4	1
	0	0	0	1	0	1	0
	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✗	✓ / ✓ / ✓ / ✓	✓ / NA / ✓ / ✓
	✗ / ✗	✓ / ✓	✓ / ✓	✗ / ✓	✓ / ✗	✗ / ✗	✓ / ✓
	✓	✓	✓	✓	✓	✓	✓
	✓	✗	✗	✓	✗	✓	✓
	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2	WEP, WPA, WPA 2
	SPI	SPI	SPI	SPI	SPI	SPI	SPI
	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✗
	✓ / ✗	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✗	✓ / ✗	✓ / ✓
	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓	✗ / ✓
	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓
	6	5	5	5	5	6	5
	8	8	8	8	8.5	8	7.5
	8.5	7	7	8	8.25	8.5	6.75
	8.25	8.5	8	8.5	8	8.5	7.5
	80	60	80	80	86	76	87
	3.426	3.96	1.819	5.187	2.426	3.521	1.241
	0.945	1.208	0.665	1.102	1.163	1.084	0.441
	26	30	26	38	40	36	41
	3.195	2.71	1.157	1.705	2.511	2.9	0.891
	1.523	1.376	0.679	1.07	1.249	1.202	0.45
	26	18	13	21	25	20	26
	2.153	0.58	0.678	0.788	0.915	2.45	Failed
	1.104	0.282	0.422	0.295	0.555	1.538	Failed
	26.23 / 17.51 / 22.63	25.27 / 18.51 / 4.021	28.5 / 18.3 / 10.02	37.96 / 13.36 / 5.32	52.75 / 16.9 / 10.33	25.7 / 20.57 / 18.6	9.9 / 8.06 / 4.3
	9 / 8 / 6	7.5 / 7 / 3.5	6 / 4 / 2.5	9 / 7 / 6.5	8.25 / 7 / 3.25	9 / 9 / 7	5 / 1.5 / Failed
	8 / 9 / 9	8.5 / 8.25 / 4	7 / 5 / 2	9 / 8 / 8	8.25 / 6.75 / 3	8 / 9 / 9	6 / 3 / 1

is the name given to a spectrum of technologies that provide digital data transmission over regular telephonic networks

Wi-Fi WolksWagon

If you drive off with the newer versions of the Wolkswagon Routan, you will get a moving hotspot, as the car comes with a Autonet Wi-Fi kit.

If you know exactly where your PC is going to be you can opt for a directional antenna which will provide a much better signal strength in a certain direction and location

2,143 we reckon this router is a steal. Linksys' WRT54G2 is a smart looker that also just missed out on an award, its faster than the Belkin Wireless G Router and costs around a thousand rupees more, if you want a bit more speed this may be a better bet.

If you happen to want blazing speed and still don't want to burn your pocket we have a stunner for you – Netgear's WNR2000. A sweet looking router that's well-built, feature-rich, highly configurable and to top it all a sterling performer with superb scores all round. At a price of Rs. 4,720, it is the second fastest device in the entire test and is less than half the price of the costliest model. If you want a Draft N router and have five thousand bucks to burn, you couldn't spend it any better, and the WNR2000 is our unanimous choice for Editor's Pick.

Above Rs. 5,000

While some might argue there's not much value to be had when one goes burning upward of Rs. 5,000 on a router, we disagree. Features matter to some users as do security, configurability

BEST BUY digit JULY 2009

DLINK DAP-1150 – ROUTE ME NOT

Dlink sent us the only access point in this comparison, the DAP-1150 – a solid little AP with a large antenna and a good build. The entire device is black and has a silver front bezel. It's attractive enough to warrant attention and Dlink thought it prudent to supply it with a hardware security (WPS) button and a security indicator. It's wall mountable as well and screws have been supplied for the same. The interface is pretty simple and the firmware certainly newbie friendly. In terms of performance, sadly this little thing cannot keep up with many of its 802.11G brethren let alone the Draft N speed demons. We were surprised to see it fail the transfer in zone 3 and tried this thrice. With a price tag of Rs. 3,192, it's as costly as routers that are faster and as such we suggest giving it a wide berth.

and build quality. Linksys' WRT160N is another speed demon not very far from the fastest trio in terms of throughput. It's a great looking router that delivers the best of features and performance at this price point and is our Best Buy award winner. Another highly recommended device is the Linksys WRT310N – a smart, feature packed router and the second fastest wireless device in test. At Rs. 7,999 it is costly, however advanced users will swallow the bill with little fuss. The Linksys WRT610N is the most expensive device in test at Rs. 10,999 and while few will be looking to spend that much we guarantee blazing speeds and features galore. It has USB

connectivity as an option and is the fastest device in test winning the Best Performer award. In fact it was faster than the Netgear DGN2000 that won the Best Performer award in the ADSL router category. With nearly 20 megabits per second for sequential transfers in zone 3 and the highest score of 12.3 megabits per second for assorted transfers the WRT610N is the one for you if you demand the best.

Although there were some truly amazing routers in this comparison and we were surprised both by the prices and their firmware features and options careful readers will notice that while we praised some of these devices for their performance we weren't happy with the overall performance on display. Our maximum performance figure was 60 and the fastest performer just about crossed 35, (35.09 for the

Linksys WRT610N), this shows the performance overall was well short of both our expectations and acceptable levels. And this is not really a device flaw. When a device supporting a standard that promises 75 megabytes per second delivers 40 megabits per second we call it a new technology that's yet to mature. Like SATA 2.0 for hard drives or USB 2.0 for USB devices we're yet to see theoretical limits even remotely approached. However five megabytes per second is rather ludicrous even for a specification that hasn't fully emerged. And what about signal attenuation? If even eight antennas cannot boost a signal past 88 percent when the router and client are just four feet apart with thin air

BEST PERFORMER digit JULY 2009

Linksys WRT610N

between, what will? To mention nothing of that fact that a single 3-inch thick wooden partition is enough to cause signal losses of more than 50 per cent! Draft N has seen two revisions and there is still no final standard so manufacturers are free to include or drop features. While this is a liberty of sorts it's also a pitfall since very few people are sure just how many of these routers will quality as 802.11N devices when the standard is finalised by September this year. We're waiting impatiently to test the new lot of devices based on the final 802.11N specification. Sure, things have gotten a lot better (read faster) since our last test but we're an impatient bunch and the orange glow dancing on the horizon holds much promise.

Linksys WRT160N

Contact Sheet — Wi-Fi Comparison Test

Brand	Company Name	Phone Number	Web site
Buffalo	Buffalo INC	+91-99713 52580	www.buffalo-asia.com
Belkin	Belkin Corporation	+91-99996 36133	www.belkin.com
Apple	Apple India Pvt. Ltd.	+91-80-2574 4646	www.apple.co.in
Linksys	Cisco Systems (India) Pvt. Ltd.	+91-22-4043 4020	www-in.linksys.com
Netgear	NETGEAR Technologies India Pvt. Ltd	+91-11-2620 7270	www.netgear.com
Dlink	D-Link India Limited	+91-22-2659 1088	www.dlink.co.in
Senao	Rashi Peripherals Pvt. Ltd.	+91-22-6709 0828	www.rptechindia.com
Compex	Rashi Peripherals Pvt. Ltd.	+91-22-6709 0828	www.rptechindia.com

802.11i – An amendment to 802.11 specifying the security features and mechanisms to be used in wireless networks

Bazaar

Keep Scanning
With two new scanners from Fujitsu named the ScanSnap S1500 and the S1500M. The S1500 has support for Windows operating systems while the S1500M has support for Mac OS X

VAIO NW
Is the new range of VAIO laptops from Sony aimed at being a Lifestyle range. This notebook has a 15.5 inch display, new textures and even two-tone colours

Apple iLife '09
And life began anew

System Requirements:
OS X 10.5.6 or later, dual core CPU 2.0 GHz or more, 512 MB RAM (1 GB recommended), 4 GB disk space, DVD-ROM for installation

RATINGS

Features 7.5
Ease of Use 8
Performance 7
Value for money......6.5
Overall 7

Apple's iLife series is a bundle of image and video viewing and editing software, music player and a host of other multimedia and fun applications that Apple likes to call "lifestyle utilities". Whichever way you look at it, there's a fair bit of additions and tweaks since iLife '08.

iPhoto — Apple's answer to anything related to imaging has been spruced up with a couple of new features — Faces and Places. Besides this, the interface is a lot less cluttered as compared to earlier versions. Faces uses face-recognition algorithms to identify people. Once you name a face that has been identified, Faces can scan through other photos and identify those with that person and suggests a name to all the faces that match. Places is a geotagging application that allows tagging of photos. Places can either automatically tag the photos by looking up the GPS coordinates of the photo and place it on a map, or manually where you have to add a location to each photo. This is done by entering the name of the nearest city. Places has a slightly confusing interface.

iPhoto has a few nifty new image editing options. For one, the saturation slider can preserve skin tones — obviously very useful and sorely missed in iLife '08. The retouching brush will not dull edges anymore, useful for highlighting and subtly merging as required. There is a *Definition* tool that can be used to highlight edges. Some of the new features seem like they've been borrowed from Aperture, Apple's image editing software.

GarageBand is has also seen major overhaul. Gone is the podcast-heavy interface and the focus is once again on instruments and music. Lessons is a nifty not to mention useful addition for budding musicians that teaches the basics of guitaring and the piano. The interface is cleanly laid out with the instructor occupying the top half of the screen and the piano keyboard/guitar fretboard occupying the bottom and you can learn the guitar and the piano. The Lessons themselves consist of a brief introduction followed by a demonstration from the on-screen teacher and after that you get to practice the piece. You can loop the piece if you need more practice. Once done, you can play along with the instructor.

There are more advanced lessons available for a small fee from the Lessons Store.

iMovie '09 is the next application we looked at. A very nifty feature is the ability to minimise image shake in captured videos and we were surprised to find this works pretty well. Although it cannot compensate for a jerky hand while shooting (obviously), it does iron out the odd shake. *Precision Editor* is another feature worthy of mention — it allows you to choose exactly which frame to edit and the navigation between frames that have been edited is smooth. You can see exactly which frames will be affected by the changes being made and the interface is intuitive and simple. However, editing is very resource intensive and even our 2.66 GHz Macbook Pro with 4 GB of DDR3 memory was slowed to a crawl.

iWeb, Apple's application that enables easy creation of personal web changes hasn't seen much changes and iWeb '09 is very similar to its predecessor. The interface is very simple. One addition since the previous version is a new tab called Widgets. Some of the widgets include YouTube video embedding and an RSS feed viewer. To be honest with the number of social networking sites around, one has to question the inclusion of this feature. iDVD hasn't been changed at all and the interface looks the same. Burning Blu-rays is still impossible which we think is a glaring omission.

Priced at Rs. 4,700, iLife '09 can be termed as feature rich just as easily as someone else might term it as overpriced — it all depends on how much use you have of the bundled applications. We really liked iphoto and GarageBand and these applications are something that will satisfy needy users. Some of the others like iWeb are nifty but a little unnecessary. People buying a new system will save a load of cash and end up with a free copy, and nobody throws away freebies, especially good ones.

More Satellite TV
Kolkata will be the first city in India to experience Videocon's new Direct to Home service called 'Videocon D2H'.

Rs. 9,999
Is going to be the price of a new PC called Wizard Utility – People's PC from eSys. The price has been set to compete against Acer's entry level desktop – EL-1600.

Bazaar

Seagate Momentus ST9500325ASG

The price is right

The Momentus series of 2.5-inch drives from Seagate are great notebook storage solutions. The ST9500325ASG model that we received has a capacity of 500 GB with an 8-MB cache.

Seagate has used a two platter design for this 2.5-inch drive. This drive is 9.5 mm thick which is the standard for notebook hard drives now.

Synthetic benchmarks aside, this drive did well in our real world tests too. It took 56.4 seconds to write a 4-GB sequential file and 72.7 seconds to write 4-GB assorted data resulting an average write speed of about 64.48 MBps (sequential and assorted). Read times were also mighty impressive as 4 GB of sequential data took 60.6 sec while 4 GB of assorted data took 67.7 sec giving an average read speed of also 64 MBps. Opening a 1 GB Photoshop image took 60.6 seconds, which is really great for a notebook drive. The only area where this drive lost out in performance was when we did an internal file copy of the 4 GB data files. This hard drive took about 240 seconds for both sequential and assorted files.

This is a great drive if you want an upgrade for your notebook, especially if you like to store a lot of data on it. Paying Rs. 5,250 for this drive would definitely result in a win-win situation for you. The Seagate Momentus 5400.6 is great value for money considering its performance and price. If you are buying a notebook hard drive look no further as the

Contact
Fortune Marketing
Phone: +91-11-2641 4468,
2647 2491
Email: sales@fortune-it.com
Web site: www.fortune-it.com
Price: Rs. 5,250

Specifications
Specifications: Interface: SATA 3.0Gb/s, **Cache:** 8 MB, Areal density (avg): 394 Gbits/inch2, Spindle **speed:** 5400 rpm **Dimensions (H x W x L):** 9.5 x 69.85 x 100.35 mm **Weight:** 98.8 grams

RATINGS
```
Features ..................8
Performance ...........7.5
Build Quality ...........8
Value for money......8
Overall .....................8
```

Benchmarks	Gigabyte EG45M-UD2H	MSI P7NGM Digital
Average Read (MB/s)	67	63.4
Average Write (MB/s)	59.4	57.23
Random Access Time (Read) (ms)	18.9	15
Random Access Time (Write) (ms)	–	3
CPU Utilization	4%	–
Burst Speed (MB/s)	246	–

Genius BT-031i

Just slide

Contact
KYE System Corp.
Phone: +91-11-4158 0611
Email: sales_india@geniusnet.com.tw
Web site: www.genius.com
Price: 4,500

Specifications
Support: A2DP
Grip: Silicon ear hooks
Charging: USB connector
Weight: 82 grams

RATINGS
```
Features ..................7.5
Performance ...........5
Build Quality ...........6.5
Value for money......5.5
Overall .....................6
```

Stereo Bluetooth headsets are becoming the new thing to have, especially if you're always on the move. The Genius BT-031i is one such stereo Bluetooth headset and that too with touch sensitive buttons and a very unique design.

The BT-031i is a street style or neck band style of a headset, though it may look similar to standard headphones that rest on the head. There are rubber straps over each side of the headphone which are supposed to hook onto your ear. The earpads themselves are on the smaller side and we did not find them very comfortable.

The touch buttons are located on the left side, while the mini USB port (for charging) and the power switch is on the right side. To adjust the volume, slide your finger in a circular manner. Tap the centre area to accept and end calls. The touch buttons respond well. One feature we didn't like is the way it lights up each time the buttons are touched; there is really no point in this.

The sound quality of this headset is decent. Although the BT-031i reproduces decent bass, it lacks in mids and highs.

Call quality was above average as we could hear the person speak, but the microphone wasn't able to pick up everything that was being said clearly. Pairing this device was simple and wasn't an issue.

Paying Rs. 4,500 for just average performance is really not a good idea and we don't recommend you buy this.

Novatium Navigator

When Windows is better than Linux

For the users on the go, manufacturers have come up with netbooks, but what about for those that want to use a desktop solution just for the internet. That's where nettops come into play. Nettops are computers that perform the most basic tasks such as surfing the internet, basic audio and video playback, and document processing. The Novatium Navigator is one such nettop.

The cabinet is compact and fits an Intel G945CLF mini-ITX form factor motherboard. When placed vertically, the 150 W power supply, custom made to fit into the cabinet, is mounted on the top.

There is a choice of operating systems that needs to be made before purchase; either a custom made Linux OS for the Navigator or Windows XP Professional before you purchase this.

With the Linux OS, it takes around 100 seconds to start up, excluding logging in time. The desktop of this OS is really clustered and there is also an Ad banner present on the bottom on the screen. You have four sections on the desktop: Internet, Documents, Games and Utilities. Applications such as Skype, Ebuddy, Radio and Mozilla Firefox. Mozilla Firefox has also been modified to fit the Navigator, but it hasn't been executed very well. It looks like Firefox has been cut, the Help menu on the menubar is missing, each menu on the menubar does not have a border and looks really bad. One really big problem we see with this OS is that you can't download any word, excel or powerpoint file formats as there is nothing installed that can view them. The only thing available under Documents is a PDF viewer. Most of the

games are flash games that are access through the browser as they have been stored on local. One really irritating thing about this OS is that everything you open is in full screen mode and there is no way to even minimize these windows.

The Navigator OS does not support all printers, infact it only supports the HP brand of printers, which again will be a problem if you have anything other than HP.

As a nettop it is not bad, but if you intend to buy this, we suggest you go for the one with Windows XP, as the custom OS does not let you do much. The barebone PC costs Rs. 3,999, but you have to pay a BSNL subscription cost of Rs. 195 per month for a single user or Rs. 99 per month for two users. This might even be a good solution for cybercafes just for browsing.

Contact
Novatium Solutions (P) Ltd.
Phone: 1-800-425 6682
Email: info@novatium.com
Web site: www.novanavigator.com
Price: Rs. 3,999

Specifications
Motherboard: Intel G945CLF,
Processor: Intel Atom @ 1.6 GHz,
150 W Power Supply Unit, 512 MB DDR2 memory, 160 GB Hard drive.

RATINGS
Features 7
Performance 6.5
Build Quality 7.5
Value for money......8
Overall 7

Canon MF4370dn

The small office companion

Contact
Canon India Private Limited
Phone: 1-800-180 3366
Email: info@canon.co.in
Web site: www.canon.co.in
Price: Rs. 27,395

Specifications
Print Resolution: 600 x 600 dpi,
Print Memory: 32 MB
Paper Feeding: 250 sheet cassette and single sheet multipurpose tray
Dimensions (W x D x H): 390 x 442 x 470 mm
Weight: 15.15 kg.

RATINGS
Features 7
Performance 6.5
Build Quality 7.5
Value for money......8
Overall 7

The imageCLASS MF4370dn is a monochrome MFD from Canon, aimed at being an all purpose solution for offices.

This MFD is dark grey in colour with the buttons and controls of this device on a silver bezel. A small display is also present on this bezel. The cassette tray comes with a dust cover that does not completely attach, but is just left atop the tray. It also has a multipurpose tray that supports single sheets, located above the paper cassette slot.

You can quickly select between Copy,

Fax and Scan. There are also buttons to change the size of the document, change the image quality either and also to set the order of the prints. The MF4370dn also offers two-sided printing and copying. PC Fax is also possible and so is network scanning. Network

scanning is also possible with this MFD.

The first print of a text document took 12.1 sec. Individual prints in both standard and economy mode were tested and they took 9.5 sec each. The print quality in both standard and economy mode were identical, making it wiser to print using economy mode so as to save on the toner. But this was only the case for text documents. It took 16.8 sec to print our test PDF document in economy mode and 20.3 sec in standard mode. The quality of the images were almost identical with slight brightness missing in economy mode.

Overall, this printer has some good print speeds and well the quality is also way above average. This makes a good buy for small to medium sized businesses looking for a fast feature rich printer that doesn't need a PC for its operation.

Don't Pre-Plan
Finally the one phone that is supposed to beat the iPhone or atleast be the closest to defeating the iPhone is here – Palm Pre. Too bad it hasn't launched in India yet, wonder when that day will come...

They live!
Alienware is soon to launch their M17x gaming laptop in India. Base specs include C2D 8600, 64-bit Windows Vista and an Nvidia GTX260M as a graphics solution. The price of this mean machine will start at around Rs. 86,000 but it will definitely go higher.

Bazaar

Hitachi Travelstars

A tiny difference

Notebook hard drives are the 2.5-inch versions of 3.5-inch drives. We received two 2.5-inch notebook hard drives from Hitachi – the Travelstar 5K500 HTS545050KTA300 and the Travelstar 5K500. B HTS545050B9A300. Both have a capacity of 500 GB and an 8 MB cache.

The 5K500 measures 12.5 mm whereas the 5K500. B has a height of 9.5 mm. Both these drives have SATA interfaces with the only difference here being that the 5K500 does not have a cover

over the SATA connectors while the 5K500.B does have it. The 5K500 drive is based on a three-platter design, whereas the 5K500.B drive has a two-platter design.

We tested these drives with Windows Vista, an Intel Core 2 Duo E6700 processor @ 2.66 GHz and 2 GB of DDR 2 memory. The benchmarks for these drives include HD Tach RW, SiSoft Sandra 2009. SP2, 4 GB file transfer tests and a 1-GB Photoshop scratch disk test.

In these benchmarks, the 5K500 showed better overall performance in read and

write tests in comparison to the 5K500.B. The CPU utilisation of the 5K500 drive is less. The only place where the 5K500.B shines is the burst speed — 246.5 MBps in comparison to 184.6 MBps. The higher the burst speed, the faster you will be able to open up files and applications.

When it comes to real world tests, the 5K500.B outperforms the 5K500 by quite a margin. With our real world file transfer tests, we found the average read and write speeds of the 5K500 drive to be 41.92 MBps and 58.23 MBps, respectively. In comparison, the 5K500. B gave us average read and write speeds of 58.17 MBps and 61.98 MBps, respectively. These scores clearly show why the 5K500.

B is the superior drive.

Both these drives kept silent and neither of them got too warm. When it comes down to pure performance, it would be better to get the Hitachi 5K500.B rather than the 5K500.

The 5K500.B is priced at Rs. 7,500, whereas the 5K500 is priced at Rs. 7,800. The prices of both the drives are on the higher side, and if you intend to go for a notebook hard drive, then we suggest you get the Seagate Momentus 5400.6 as it is great value for money.

Contact
Cyberstar Infocom Pvt. Ltd
Phone: +91-99725 80117
Email: saurabh.gupta@ cyberstarindia.com
Web sites:
www.hitachigst.com
www.cyberstarindia.com
Price for 5K500: Rs. 7,800
Price for 5K500.B: Rs. 7,500

5K500/500.B

Specifications
Interface: SATA 3 Gb/s, **Capacity:** 500 GB
Data disks: 3/2
Data heads (physical): 6/4
Data Buffer: 8 MB
Dimensions (H x W x D):
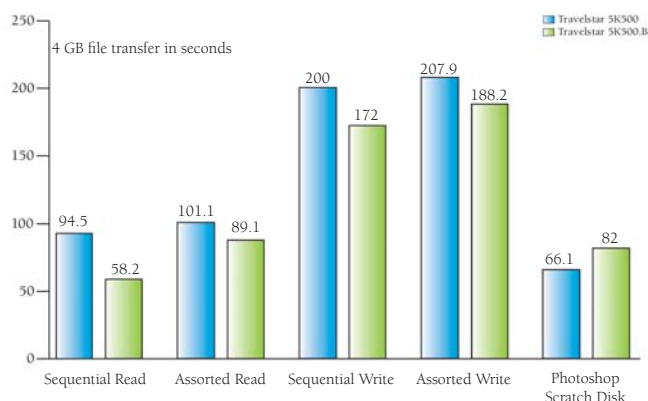12.5 x 70 x 100 mm/9.5 x 70 x 100 mm
Weight: 148 grams

RATINGS 5K500/500.B
Features 8/8
Performance 7/8
Build Quality 7.5/8
Value for money 7/7.5
Overall 7/7.5

4 GB file transfer in seconds

	Travelstar 5K500	Travelstar 5K500.B
Sequential Read	94.5	58.2
Assorted Read	101.1	89.1
Sequential Write	200	172
Assorted Write	207.9	188.2
Photoshop Scratch Disk	66.1	82

	Travelstar 5K500	Travelstar 5K500.B
HD Tach (32 MB Zone)		
Random Access Time	18.2 ms	18.1 ms
CPU Utilization	3 %	4 %
Average Read	54.8 MB/s	67.7 MB/s
Average Write	52.8 MB/s	65 MB/s
Burst Speed	184.6 MB/s	246.5 MB/s

Bazaar

BenQ keeps fighting
BenQ announced that they are trying to get back into the mobile market by introducing new smartphones based on the Android OS. They also plan to use the Android platform for their netbook range.

Vevo
A new online music video service is going to be launched by Sony Music Entertainment and is called Vevo. They foresee this service best being used by newly launched products such as the PSPGo and Sony NWZ OLED Walkman.

ASUS EAH4890

Just another RV790

ASUS has followed the reference cooling and design provided by AMD and has put forth its version of the 4890. The cooling and clock speeds of this card are the same as this is not the TOP version. This card comes with a Core clock of 850 MHz, Memory clock of 3900 MHz and 1 GB of DDR5 video memory.

This card comes with two Dual Link DVI connectors and a single S-Video connector located between the two DVI connectors. With the package, ASUS has provided a DVI to HDMI converter and a DVI to D-Sub converter. A leather mousepad with the ASUS logo on it has also been provided with this card; something to remind people of ASUS' presence.

The card was tested using an Intel QX9650 @ 3 GHz and 4 GB of DDR2 memory at 1066 MHz. We have compared the results of this card to that of the XFX 4890 that we had previously tested.

From the performance tests, the ASUS version of the 4890 did not perform as well as the XFX version of the card. The ASUS EAH4890 is priced at Rs. 19,500, while the XFX 4890 is priced somewhere around Rs. 19,000, so if you definitely want to buy a 4890, we would suggest you opt for XFX.

Contact
ASUS Technology Pvt. Ltd
Phone: +91-22-6766 8800, 1-800-209 0365
Email: media_india@asus.com
Web site: www.asus.in
Price: Rs. 19,500

Specifications
Engine Clock: 850 MHz
Memory Clock: 3900 MHz
Memory Interface: 256-bit
Video Memory: DDR5 1G

RATINGS

Features 8
Performance 7
Build Quality 8
Value for money......8
Overall 7.5

Benchmarks	ASUS EAH4890	XFX Radeon HD 4890
3D Mark Vantage (Performance 3D Marks) (Overall / GPU)	9732 / 9084	10668 / 10220
PC Mark 05 (PC Marks) (Overall / Graphics)	8945 / 15286	9597 / 17018
Doom 3 (fps) (1600 x 1200, Ultra)	194	216.1
Company of Heroes (fps) (1600x1200/1920x1200 - 4xAA 4xAF)	177.9 / 139.6	137.3 / 117.5
F.E.A.R. (fps) (1600x1200/1920x1440-4xAA 4xAF)	139 / 105	138 / 100
Crysis (fps) (1600 x 1200 – 4xAA, 4xAF)	20	20

Photographs: Manas Parekh

Kingston SSDNow M 80 GB

The smaller the faster

Kingston has recently launched three different series of SSDs that go under the name of SSDNow.

Kingston SSDNow M series uses Intel's X25-M SSD and has put a slight twist on it. Kingston has given the drive a thick external plastic covering along the edges that makes this drive even more rugged. Either way, in the absence of moving parts, SSDs have an advantage over HDDs as far as durability is concerned.

We compared the performance of the Kingston SSDNow M with a WD Velociraptor 300 GB and found that the SSDNow is definitely fast in terms of read scores, but not able to beat the WD in terms of write scores during the synthetic benchmarks such as HD Tach RW and SiSoft Sandra.

The results of our real world file transfer tests show that the Kingston SSDNow is slower than the WD Velociraptor when it comes to write speed, but is faster during read cycles.

We feel that SSDs just cost too much and you should wait till they become main stream and cheaper before going for them.

Benchmarks	Kingston SSDNow M 80 GB	WD Velociraptor 300 GB
File Write 4 GB Single File (sec)	61.5	46.1
File Write Test Assorted 4 GB File (sec)	65.7	54.7
Internal File Read Test Single 4 GB File (sec)	73.3	94.9
Internal File Read Test Assorted 4 GB File (sec)	82.2	106.6
Photoshop CS2 Image Load (1 GB file) (sec)	37.1	42.1

Contact
Kingston Technology Company Inc.
Phone: +91-22-2659 2927
Email: vishal.parekh@kingston.com
Web site: www.kingston.com/india
Price: Rs. 32,999

Specifications
Form Factor: 2.5 inch
Dimensions: 69.85mm x 100mm x 9.5mm
Weight: 86 gram

RATINGS

Features 8
Performance 9
Build Quality 8.5
Value for money......6.5
Overall 8

I see 3-D
Nvidia has brought their GeForce 3D Vision kit to the Indian Shore. The kit contains a pair of wireless battery powered glasses and an infrared emitter. But remember you need a 120 Hz display for the 3D feature to work

Dual-core galore
New 45 nm dual-core AMD processors, codenamed Callisto soon to arrive. The processors to arrive are the Phenom II X2 550 and 545 as well as a Athlon X2 250.

Bazaar

MSI 770-C35

Red is in

With all the craze of new processors being released, MSI is one of the few to introduce a mid-ranged AMD board based on the AMD 770 and SB710 chipset and is named the MSI 770-C35.

This board has the length of an ATX form factor motherboard but is not as wide as a standard ATX board, which will cause a full length high-end graphics card to stick out even further than it would with a standard ATX form factor. The northbridge and southbridge heatsinks are dark red in colour. The southbridge heatsink is small and gets heated up quite a bit. Now MSI has done something really interesting, not only is this motherboard AM3 ready, but this motherboard also supports DDR3 memory. But at the same time, it was equally strange to see a COM port at the I/O side of this motherboard.

When it comes to expansion, this motherboard has one PCIe x16 slot, two PCIe x1 slots and three PCI slots. The MSI 770-C35 comes with an interesting overclocking feature, which is controlled by two switches. According to the different positions you place the switches in, you can boost the FSB by up to 20 per cent. The DIMM slots are pretty close to the CPU socket, but even after we used a Cooler Master Hyper TX2, we could fit the a memory stick into the first slot, so it isn't much of a concern.

We used the AMD Phenom II 955 BE to test the performance of this motherboard along with 4 GB of DDR3 memory and an ASUS ENGTX285 TOP.

Specifications
Hyper Transport Bus: Upto 5200MT/s
Chipset: AMD 770+SB710
Max memory: 16 GB
DDR3 support: 800/1066/1333/1600*(OC)

RATINGS
Features 7.5
Performance 8
Build Quality 7
Value for money......7
Overall 7.5

We got some great scores in benchmarks such as 3D Mark 06 (16361), PC Mark 05 (11875), Cinebench (10465) and even with games such as Doom 3 and Prey.

DDR3 memory prices are already slowly on the decline. This motherboard would make for a decent upgrade and not a high end gaming rig.

ASUS VK266H

26-inch wonder

If you thought your 22-inch LCD monitor was enough, think again, owning a 26-inch LCD for your PC is something to brag about and that's just what the VK266H from ASUS is all about.

The ASUS VK266H has good looks, the panel around the screen is glossy black, except for the silver line at the bottom that holds the buttons of this display towards the right. This display holds a whole bunch of connectivity options – VGA port, DVI port and even an HDMI out. This display also comes along with speakers and an integrated web cam. There is also audio connectivity through 6 ports for a home theatre setup or through 3.5-mm ports for PC connectivity.

We calibrated the display using Display Mate and Datacolor Syper3Elite calibration tool. The buttons were quite bad, more over there is no grip as such while constantly adjusting the brightness and contrast using the monitor's controls. When it comes to colours, this LCD barely passed the 16 shade colour intensity shade, as all the primary colours just about made it through without merging of the last few colours.

The VK266H uses a TN panel and in conjuction with the large size (and therefore wider viewing angles) is not very suitable for multimedia content and definitely not for imaging professionals.

After the Spyder3Elite calibration, the difference in the before and after profiles were very visible, and we actually found the default colours to be on the cooler side, not reproducing reds, and to some extent even greens, properly. Also the contrast ratio was found to be 527:1 instead of 20,000:1; mentioned on the LCD.

This LCD display is great, though it needs some calibration, and if you are looking for a rig that you can comfortably watch full HD movies on, then this is a definite recommendation from us.

Specifications
Panel Size: 25.5 inch Wide Screen, **True Resolution:** 1920x1200, Contrast **Ratio (Max.):** 20000 :1 (ASCR), **Response Time:** 2 ms (Gray-to-Gray)

RATINGS
Features 8.5
Performance 6.5
Build Quality 7.5
Value for money......7.5
Overall 8

released new Solid State Drives called the SSDNow V Series and are available in 64 GB and 128 GB capacities

Not a netbook
Intel's new processor, Pentium SU2700 and a new Intel G40 chipset were launched at Computex 2009 in Taipei. This processor and chipset combo is aimed towards slim and light laptops not classified as a netbook.

Price Cuts
Apple fans who were waiting for a cheaper MacBook can now rejoice as price cuts in the MacBook and MacBook Pro series have been announced. Even the prices for the MacBook Air have been reduced.

Kingston Media Reader

Jack of all cards

The Kingston Media Reader is a memory card reader that supports 19 memory card formats.

It is grey in colour and has rounded edges. The base of the device has two rubber strips that acts as a grip. The USB cable is attached to the reader and is tucked away at the rear. To access the memory card slots, Kingston has used a slide mechanism, where you need to push the Kingston logo and slide the ports to the front. This logo also lights up in red when a memory card is inserted into one of the slots. The slider mechanism isn't that strong and would have made better sense, if there was a dust cover of some sort. The USB wire attached to the device is rather short, but an extension has been provided with the pack.

The performance of the Kingston Media Reader was tested by comparing it to the Memory Card reader present in the Samsung R610 laptop. We transferred 1 GB of sequential and assorted data using a Kingston 32 GB SDHC card. The write times of the Media Reader and the laptop card reader were about the same, but the read times is where the Media Reader overtook the inbuilt card reader.

This product is great as it gives good performance and and also supports 19 different types of memory cards. This is a great buy at Rs. 1,099 and will benefit anybody who uses memory cards for data as well as photography enthusiasts who need to transfer data frequently.

Contact
Kingston Media Reader
Phone: +91-22-2659 2927
Email: vishal.parekh@kingston.com
Web site: www.kingston.com/india
Price: Rs. 1,099

Specifications
Cards supported: Compact Flash type I and II, MicroDrive, SD, SDHC, miniSD, miniSDHC, microSD, microSDHC, MMC, MMCplus, RS-MMC, MMCmobile, MMCmicro, Memory Stick, M2, MS PRO, MS PRO Duo, MS Duo.

RATINGS	
Features	8
Performance	8.5
Build Quality	8
Value for money	7
Overall	8

AMD Athlon X2 7850 Black Edition

Unlock the potential

AMD has introduced a new line of Athlon X2 7000 series dual-core processors christened KUMA. This line could be considered the low end of their processors, now with the Phenom II processors. We received the AMD Athlon X2 7850 Black Edition to test, which is the most powerful among the 7000 series.

The Athlon X2 7850 BE is compatible with the AM2+ CPU socket, backward compatible with the AM2 socket but make note that this this CPU is not compatible with the AM3 socket. The KUMA architecture is based on the previous generation Phenom X4 processors, and is manufactured with 65-nm process technology with a TDP of 95 W. The specifications of the 7000 series is the same as that of the quad-core processors which means that these CPUs are actually quad cores with two cores disabled.

This processor comes with a clock speed of 2.8 GHz, 512 KB per core of L2 cache and 2 MB of shared L3 cache.

This CPU is a good performer for its price and makes great value for money. Being a Black Edition processor, its multiplier is unlocked, which makes it a good product for gamers and overclockers.

Contact
AMD India
Phone: 1-800-425 6664
Email: fusion.india@amd.com
Web site: www.amd.com
Price: Rs. 3,700

Specifications
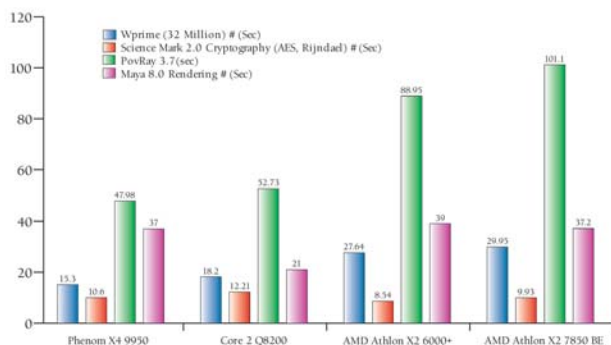**Core Clock:** 2.8 GHz
L2 cache: 1 MB, **L3 cache:** 2 MB,
CPU socket: AM2+
TDP: 95 W
Bus speed: 200 MHz.

RATINGS	
Features	7.5
Performance	7.5
Build Quality	8.5
Value for money	8.5
Overall	8

Nintendo likes to colour
A black Nintendo Wii gaming console is scheduled for an August 1st launch in Japan. Along with that a Red Nintendo DSi is due to be released on July 11th.

In with the new
At Computex 2009 in Taipei, AMD revealed the world's first DirectX 11 GPU and is supposed to be available to consumers by the end of 2009.

Bazaar

ASUS Rampage II Extreme

An overclockers delight

The Rampage II Extreme is a full ATX form factor motherboard, unlike the Rampage II GENE which is an X58 motherboard with a micro-ATX form factor, also a part of the ROG series. One of the first things that will catch your eye when you look at this board is the inclusion of a full line of tweaking features and backlit buttons located next to the DIMM slots. The power and reset buttons are also among these buttons. Next you will also notice the large passive cooling heatsinks that ASUS has used. One thing missing from this cooling system is the inclusion of water cooling support.

The overclocking buttons that we mentioned earlier have been labeled TweakIt. This feature allows you to use the LCD poster device provided with the motherboard and use it to overclock while your OS (Windows) is running. There is also a line of solder points called Probelt where you can measure the voltage of the RAM, CPU, Chipset and PCIe by connecting a multimeter.

Benchmarks	Results
PC Mark 05 (PC Marks) (Overall)	12419
3D Mark 06 (3D Marks) (Overall)	19672
Cinebench	15956
100 MB DivX file conversion (sec)	46.5
4GB File Transfe!r (sec)	145.9
Doom 3 (fps) (640x480, low / 1600x1200, 4xAA)	350.8 / 213
Prey (fps) (640x480, low / 1680 x 1050, 4xAA 4xAF)	202.1 / 400.9
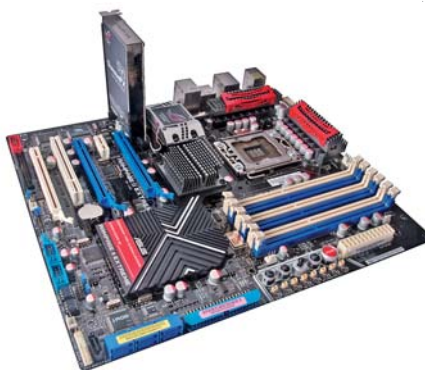
We used the following setup to test this board: An Intel Core i7 965 @ 3.2 GHz, 3 GB of Kingston HyperX DDR3 memory and an ASUS GeForce GTX 285 TOP.

The ASUS II Extreme definitely has some great performance and some great features that make it an outstanding product. But these features don't cater to everybody and ASUS has made that pretty clear by adding this to the ROG line. If you are building a high end rig around the Core i7 then this is definitely the board you want, but if you are on a budget, but are still going to go the i7 way, then it would be wiser to opt for something with less features like the ASUS P6T Deluxe or the Intel DX58SO

Contact
Phone: +91-22-6766 8800 / 1-800-209 0365
Email: media_india@asus.com
Web site: www.asus.in
Price: Rs. 25,800

Specifications
Chipset: Intel X58 / ICH1OR, **System Bus:** Up to 6400 MT/s with QuickPath Interconnection, **Audio:** SupremeFX X-Fi Audio Card, External LCD Poster

RATINGS	
Features	9
Performance	8.5
Build Quality	8.5
Value for money	7
Overall	8

HP LaserJet P2035

Fast in black and white

Laser printers are quickly moving towards home and home office users for their fast print speeds and good quality prints. The LaserJet P2035 is a monochrome laser printer from HP aimed for home or SoHo use.

The HP LaserJet P2035 is white with a simple design and suits most environments. The quality of the buttons are really bad, though they do serve the purpose of what they have to. There is no display on this printer, but instead there are simple indicative lights in case of any problem such as paper jams, no paper, etc.

There are two paper trays in this printer. The first one is a multipurpose tray which has to be unfolded by opening the centre area of the printer. This tray can hold upto 50 sheets of paper. The second paper tray holds upto 250 sheets and is located at the bottom. This tray can be pulled out. One thing that is out of place is that this tray is left open at the rear of the printer.

This printer is really great when it comes to printing and speed. The LaserJet P2035 shot out the first print in 8.9 seconds. We tested the printer in two modes – economy and standard. The economy mode was set with 600 dpi and the EconoMode checked, whereas standard was tested at 600 dpi alone. The time taken with both these modes is more or less around 7 seconds, but there was a definite difference between the quality of the prints. Compared to standard, the economy mode prints were less saturated and also had rough edges. The standard prints were much better and had smoother edges. We also printed our combi. pdf test document, which contains images, but found a lot of noise in these images and they were unclear and pixelated. 20 pages took a under a minute at 45.4 seconds which makes it really fast.

If you use a printer for occasional printing, then this is not for you.

Contact
HP LaserJet P2035
Hewlett Packard India Sales Pvt. Ltd.
Phone: 3030 4499
Email: hplaserjet.india@hp.com
Web site: www.hp.com/in/laserjet
Price: Rs. 18,499
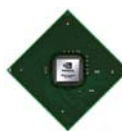
Specifications
Print Quality: Up to 600 x 600 dpi
Standard Memory: 16 MB
Input Capacity: Upto 300 Sheets
Dimensions (W x D x H): 365 x 368 x 268 mm

RATINGS	
Features	7
Performance	8.5
Build Quality	7.5
Value for money	6.5
Overall	7.5

NVIDIA announces the 200M series of laptop GPUs

Delta launches a compact series UPS ranged between 1kVA and 3kVA

XFX GeForce GTX 275

The green lightning

Contact
Rashi Peripherals Pvt. Ltd
Phone: +91-22-6709 0828
Email: email:response@rptechindia.com
Web site: www.rptechindia.com
Price: Rs: 17,500

Specifications
GPU Clock: 633 MHz
Memory bus: 448, Memory
Size: 896 MB
Memory Speed: 2268 MHz

RATINGS	
Features	8
Performance	7.5
Build Quality	8
Value for money	7
Overall	7.5

Benchmarks	Results
3D Mark Vantage (Performance 3D Marks) (Overall / GPU)	P13333 / 10940
PC Mark 05 (PC Marks) (Overall / Graphics)	9975 / 19032
Crysis (fps) (1600x1200/ 1920x1200, 4xAA 4xAF)	22 / 19
Unreal Tournament III (fps) (1600x1200/1920x1200, 4xAA 4xAF)	142 / 133
Doom 3 (fps) (1600x1200, 4x AA)	175.3

The GeForce GTX 275 is a high-end graphics card from NVIDIA and this time around we received the XFX version of this card.

XFX has used NVidia's reference cooling solution and there are two Dual DVI connectors located on this card. For HDMI, an adapter has been provided. The card has two 6-pin power connectors and does take up two slots, which is the case of most high-end graphic cards. The sticker that XFX has used on this card looks great; it has the words 'GTX' on it with electrifying green lightning all around.

This card from XFX comes with the standard clock speeds; GPU clock of 633 MHz and Memory speed of 2268 MHz.

To test the performance of this card we used the following: ASUS P5Q Deluxe motherboard, Intel QX9650 @ 3.0 GHz processor and 4 GB of DDR3 memory running at 1066 MHz.

This card has is a great performer, but with this much of performance, you would have to shell out Rs. 17,500 for this card. If you are on a tight budget and still want a great performing card, then we would suggest you opt for the GTX 260.

Cooler Master Hyper N520

Screw down to cool

Contact
Cooler Master Co.Ltd.
Phone: +91-98338 70302 / +91-94225 01592
Email: Tanmay_L@Coolermaster.com
Web site: www.coolermaster.com
Price: Rs. 2,950

Specifications
CPU Socket: Intel Socket (LGA1366 / LGA775), Socket (LGA 771 Skulltrail only), AMD Socket (AM2+ / AM2 / 940 / 939 / 754), **Dimensions (L x W x H):** 122.35 x 102.5 x 141 mm
Weight: 688 g

RATINGS	
Features	8
Performance	9
Build Quality	8
Value for money	8
Overall	8.5

Cooler Master has just brought forth a new dual fan design CPU cooler with the Hyper N520 which sports two 92-mm fans, one pulls air, while the other pushes it.
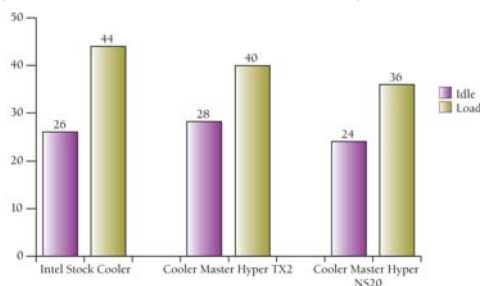
The Hyper N520 is big, one concern is that it might not fit all cabinets, so make sure

To connect the fans to the motherboard, there are two separate 3-pin adapters attached. The drawback here is that these are just too short. We were only able to attach one of the adapters to the CPU fan header on the motherboard, that too with a struggle, while the other was attached to an extension connected to a 4-pin MOLEX.

Mounting brackets were provided for Intel and AMD CPU sockets including AM2+ and LGA 1366.

We put this CPU cooler up against the Intel Stock Cooler and a Cooler Master Hyper TX2. We used the Cooler Master Thermal Fusion 400 as the thermal paste. The CPU selected for this: Intel QX9650. We recorded the temperature of the CPU under Idle and Load using Speedfan. To get the CPU to 100% load we ran Cinebench R10 in a loop.

The winner here was indeed the Cooler Master Hyper N520 with a maximum CPU temperature of 36 degrees Celsius.

The Cooler Master Hyper N520 does make a good buy, especially for those enthusiast overclockers and even for those who want to keep their system cool. But in all reality, the cooler you keep your CPU, the longer it will last.

Bar chart — Idle / Load temperatures: Intel Stock Cooler 26/44, Cooler Master Hyper TX2 28/40, Cooler Master Hyper NS20 24/36

Winzip
The most widely used file compression software is owned by Corel.

Take it easy
Be it any software or tool, initial preparation is vital when attempting sketching or drawing. Start with fine lines, and get bolder as you proceed.

Bazaar

Corel Painter 11

Different Strokes

Corel's Painter is meant for 2D artists who normally use a canvas and painting and drawing tools to create artwork. The interface hasn't changed a lot from previous versions. One of the nice features of Painter is the mixer window that lets you add and mix colours like they would in a real palette. Painter even lets you use different kinds of canvas and there are some brushes like the watercolours that won't work on regular canvas.

Thankfully, layers are present so you can separate bits and pieces of a painting. The watercolour and spray paints spread on paper like they would in real life. So, there is very good attention to detail and at the same time, it makes Painter good fun to use.

There is no shortage of of brushes and there are plenty of presets for each kind of brush. The application is really simple to get used to and layout is more or less like any other image editor. There is basic provision for creating animations as well. Although, painters don't usually use effects tools, there are the basic effects such as blur and color tone changing tools in Painter .

The improvements and additions to this version are basically a few brushes. There is a noticeable improvement in performance. We tried on different systems including a Pentium 4 with a gigabyte of RAM and it ran perfectly fine. We also had the Wacom Intuos 4 tablet with us for review and it worked well with Painter.

Painter 11 is excellent for anyone deeply interested in painting and sketching. There are a few alternatives but Painter is probably the most matured one of the lot. A slightly simpler and open interface would be nice. The price of Rs. 25,000 is steep but despite it, this software is a must-have for anyone in the 2D art industry or a lot of interest in the art form.

Requirements
Windows XP or Vista, 700MHz processor or higher, 1 GB RAM, 500 MB disk space.

Contact
Corel Corporation
Contact: Sathish Venugopal
Phone: +91-99450 12340
Email: sathish.venugopal @corel.com
Web site: www.corel.com
Price: Rs. 25,000

RATINGS
Features 8
Performance 8
Ease of use 6.5
Value for money......5.5
Overall 7

Wacom Intuos 4

Different strokes

The Intuos 4 has a set of controls on the left and a fine display next to the controls. It also has a touch-sensitive pad that lets you zoom in and out or rotate the canvas. More functions can be accessed by pressing the centre button. The controls of the Intuos are perfectly designed so that you don't have to use your keyboard while using the tablet. The shortcuts are handy while panning or changing settings for your brushes in applications such as Adobe Photoshop and Corel Painter.

The performance is impressive if you haven't used a tablet before. The strokes don't feel very smooth and there might be some skipping while putting long quick strokes. Sometimes, you have to slow down for the tablet to perfectly capture your inputs. The precision button allows slightly slower, but more accurate tracking.

The Wacom Intuos 4 supports 2048 levels of pressure so you while drawing you can actually press down on the pen more to get a darker stroke like you would with a real pen and paper. To keep things very realistic, there are nibs with different feels and pressure sensitivity provided with the package. It's the 2D artists which include those who sketch, paint or do some kind of touch up work who will find tablets such as this most useful. Artists who've been using brushes and pens on paper won't feel right at home. Slight adjustments to styles and techniques along with some time getting used to will be needed before you can be comfortable

with it. The advantages of using any software and the flexibility that this gives makes it well worth the effort.

Overall, it's a great tool to have. Anyone with an inclination towards 2D art will find it amazing to use. The medium sized Intuos 4 is priced at Rs. 21,280 and the small one is priced at Rs. 14,000. Although a little expensive for someone learning painting, it's a good long-term investment for professionals and everyone into painting and touch up work should use one.

Contact
Contact: Unicon Infosolutions Private Limited
Phone: +91-11-2669 1748
Email: rajeev.nagar@wacom.co.in
Web site: www.wacom.co.in
Price: Rs. 21,280 (Medium)

Specifications
Pressure level: 2048
Tilt sensitivity: 60 degrees
Dimensions (Medium):
370 x 254 x 12 mm
Usable area:
223.5 x 139.7 mm
Weight: 1 kg

RATINGS
Features 7.5
Performance 7
Build Quality 7
Value for money......6
Overall 7

Change we need

Kshitij Sobti
kshitij.sobti@thinkdigit.com

Change is the only thing that is constant, yet it is the thing for which we are least prepared. In some ways we measure progress by how many changes we make in completing something.

Human error is unavoidable, and in today's computing world, we have become used to undoing and redoing our changes. We have now come to rely on such measures to the extent that otherwise risky steps becomes trivial. Yet the scope of such systems is often limited to the application we use. There is no easy cure for a file deleted weeks ago, correcting a mistake you have been building upon for a long time is no easy task.

Such problems are common in the programming world, where a large number of people modify a single code base towards a single common goal. How can changes be tracked? How can we ensure two people don't change the same lines of code simultaneously? There are numerous methods to track and maintain changes made to the source code. Let us see how you can use these technologies for purposes other than coding.

The need for revision control

If you've ever worked on a complicated project, you will surely understand the benefits of saving multiple copies of your work in progress. Imagine working on your history project for weeks, only to realise that the original introduction would fit in better. Without backups at multiple stages – you're helpless.

Often we accomplish this by repeatedly saving the file with a different name, hopefully with some kind of patter such as "HistoryProject-v1.doc", "HistoryProject-v2.doc" or "HistoryProject-20090615.doc". However, over time this will surely create a mess.

The problems complicate even further when you have multiple people working on the same project. How do you reconcile the barrage of changes that a team can inflict?

It may seem simple to have the file hosted on a shared server where everyone can access and modify it. However, if everyone were to save files affixed with their name and timestamps, you would soon end up with an unmanageable mess

of files of which only a few will ever be of any use, and many changes will be lost as people will use outdated revisions of the file and build on those.

Wouldn't it be great if your file system itself could store each change separately? Such that it would be invisible until needed? Many such file systems indeed exist (ext3cow, wayback, tux3 etc). However a simpler solution, which doesn't involve shifting to *NIX and messing around with kernel modules is to use revision control software.

We can categorise revision control systems based on how the system manages its repository of data, and how it manages to avoid conflicts.

Two approaches to resolving conflicts as multiple people try to modify the same file at the same time are the lock-modify-unlock model, and the copy-modify-merge model.

Lock-Modify-Unlock

This system is remarkably simple. Whenever one member of a team needs to modify a particular file, it is locked, so that no one else can make changes to it until it is unlocked again.

Think of it as setting a file as read only for everyone else while you modify it to your pleasure; once you are done, you can "unlock" the file again and other people can begin their work.

The disadvantages here are quite evident. Firstly, you are at the mercy of the first person who locked the file, even though in most cases the changes you might make would not conflict with
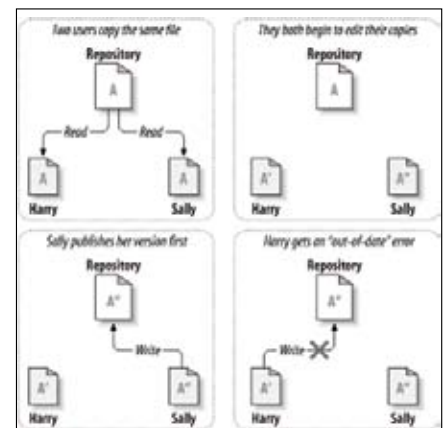

An example of Lock-Modify-Unlock

what they are doing. This is clearly a loss of productivity, especially if that file is essential to your work.

Then again, if a person locks a file and forgets to unlock before going on a vacation / quitting his job / or even going to sleep, you are at a deadlock until an administrator frees the shackles.

Finally, it doesn't even really solve the problem completely since changes in one file may still conflict with the changes being made in another.

Copy-Modify-Merge

A more elegant solution for managing simultaneous access, is to simply give it. Each user can create their own copy of the
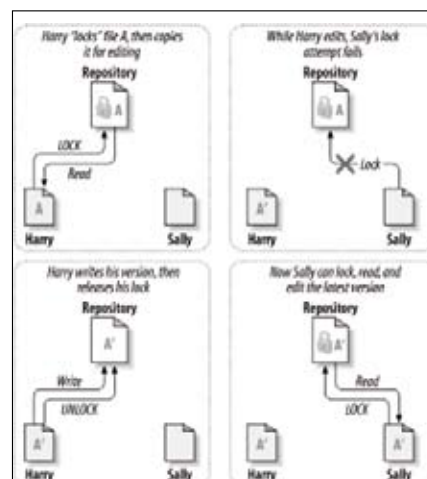

In the Modify-Merge scheme, users independently modify the documents
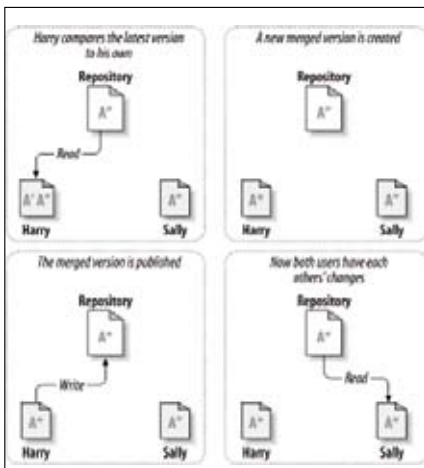
file which they then proceed to modify as if no one is watching.

Finally, they can "merge" back their changes. By this, we mean that the revision system itself determines if there is any conflict in the changes made in the file contents. In most cases, different people will modify different parts of the file and the system will work quite well. However, in the rare case of a conflict that cannot be solved by the software itself, users can be informed of the problem and can make the decision themselves.

To see how this would work, let us take revision 1 of a document, which two people AlphaGeek and BetaDood copy simultaneously. AlphaGeek, alpha as he is, manages to complete his changes first and merges the changes into the main document bringing it up to par with his copy.

After modifications are made, the changes can be merged

When BetaDood tries to update his copy, he will be told that his copy is out of date, since his updates were made to revision 1, while the current revision is 2.

BetaDood will now have to first merge the changes in revision 2 into his local copy. This will be a simple process, as changes will usually be made in different parts of the document and will not conflict. His latest copy, now based on revision 2 can now be merged into the main file, giving us revision 3.

This may seem like a tedious process but there is rather little effort involved in most common scenarios, and this ends up being a much more efficient and element solution.

Change again is the most important factor here and that is what drives any revision control software.

Quantifying change
A variety of systems exist for maintaining revisions. However, there is one thing they all have in common. They include a mechanism to detect the changes made to files.

Using revision control you have access to every change ever made that was submitted or committed to the repository. Like a time machine that can stop at any and every revision ever made in any file!

It may seem like storing each and every version of each and every file will take a rather large amount of space, however, usually, revision control programs are very optimised for changes in files, since that it their primary metric anyway.

Revision control softwares use smart algorithms to store the minimal amount of data needed to differentiate each revision from the previous one. Only the changes made in each revision are actually stored.

If a copy of the repository contents is made either for release (tagging)

or for starting an offshoot / spin-off of the project (branching) or experimenting with a new feature (branching), the system usually creates only an internal reference to the revision it is associated with, instead of an actual physical copy.

When working with files in a revision controlled system, you will often come across trunks and branches, tags and tips – it's time for a biology lesson.

Of trunks and branches
In the programming world, branching and tagging are concepts that pop up frequently. For any software project, the "trunk" of the code is that which contains the latest revision of the code made to date. It is the one shooting upwards towards the next version. Branches in a code occur when a developer decides to take a different approach to the code thereby "branching" out in a different direction; maybe a different UI, or a different feature, or an experimental approach to a problem. These changes are often merged back into the original trunk when they are considered stable enough.
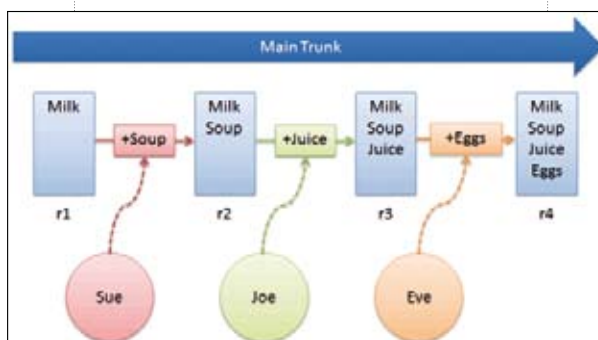
Take for example an evolving work of art done in Paint, a silly concept, but humour us. As you make each significant change, you save and "commit" it to the trunk. At one point though we decide that the background is too dull, and decide to try a different colour, and here, we make a new branch. When you have a piece that you think stands on its own, or something that is otherwise special, you can tag it.

For storing your files in a revision control system, branches and trunks may not seem as useful, but still it is nice to know they are always there to lend support.

How and where a revision control system manages its content is also an important factor, and based on this concept we have centralised and distributed revision control systems.

Models of Revision
While the centralised system is based on the old client-server model, decentralised revision control systems are built on the increasingly popular P2P model.

Decentralised version control systems have only recently started to become popular, and some of the best known decentralised solutions are just a couple of years old.

Centralised Revisioning
In the client-server model, the code is stored and maintained in a central repository. People send changes directly to this server, and the server alone maintains the histories and change logs of the files.

This concept is quite easy to grasp, as it is one we are quite familiar with already. If you take revisioning out of the equation it is basically like having an FTP server.

In a centralised system, the repository is hosted on a server, which all the team members access in order to access the latest revision of the code, or to submit changes.

It is clear to see where such a system would be advantageous. As all the files are stored in one convenient location, it is easier to control and moderate. It is easier to track changes

The centralised system

Tool box   Open source

Free hosting
Many online services such as BitBucket and
Google Code, provide free hosting for open
source projects

and establish a time line. Access restrictions are also easier to establish, as the server is in control of a single entity.

However, this is also akin to putting all your eggs in to one basket, as all the content and its revision history is maintained at one single place.

One of the most popular examples of this is Subversion or SVN.

Decentralised revisioning

In the essence of P2P, distributed revision control systems give people equal power. It is in essence a true democracy. These are much more recent; however, they are seeing rapid adoption in the development community.

In the distributed system, as the name suggests, there is no need for a central repository, although one may be present. Instead, individuals maintain their own copy of the repository where they can make changes without the need for a network connection.

Distributed push and pull

Each person is in charge of their own repositories which they maintain. However, you may wonder, how does work get done in a group if each person works independently.

Collaboration in Google Wave

Google Wave is a powerful service indeed, and being open source and free, it has the potential to change the way the internet works. It is powerful enough to replace current email and IM systems and perhaps change a lot more.

Google Wave is a powerful collaboration tool, where teamwork and versioning form an integral part of the service. Every step of the conversation is recorded, and every change in the structure of the posts is recorded, so that it can be played back at any given point.

Teamwork is the very concept Google Wave is based on. Being primarily a communication tool, it quite obviously requires the participation of many people. Whether it is in holding a conversation, or editing an online document, or even playing a game of chess.

With decentra-lisation, changes can not only be made to and loaded from a repository, but also between repositories. Using the "push" operation, the changes made in one repository (which could consist of multiple commits) can be transmitted to another repository, and using the "pull" operation, changes can similarly be merged with your own repository.

This may seem like a nightmare if you imagine even a small group of 10 people pushing and pulling each other and committing, syncing, merging and branching. With such a cacophony of actions it seems more like a soap opera than a team programming effort!

To simplify this you can of course have a central repository for storing the final work of the team, pretty much the same as a central system.

GIT is a distributed revision control system designed by Linus Torvalds, the creator of Linux, which is used for maintaining the Linux kernel. Another popular example of a distributed system is Mercurial, now used for Mozilla projects.

Evidently, distributed systems are perfect for single user scenarios. You can easily set up such a system and use it to maintain, for example, your documents folder.

Conclusion

As you begin work on your next masterpiece keep in mind, how revision control software can play a vital role. These systems are usually associated only with large software projects, but you can clearly see how they can be useful even to the most casual computer users.

Even without being able to employ it to the fullest, and with little need for branching and tagging in a casual or individual work environment, the **advantages are enough to justify the** learning curve. Don't dismiss these systems as something that can only be of advantage to developers, find your own usage scenarios. Think of it as a supercharged backup solution (although it is not to be taken as a replacement for one!). May your future come in multiple revisions.
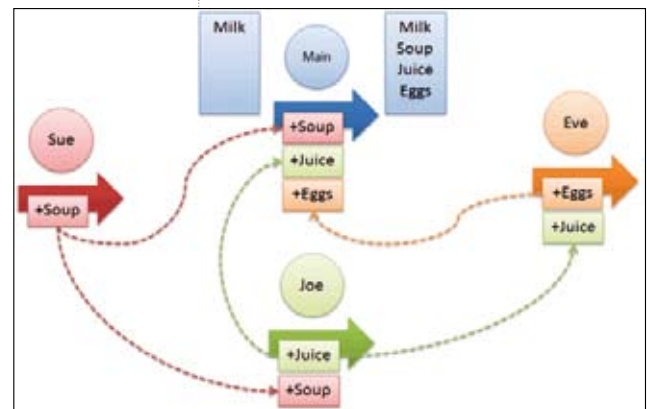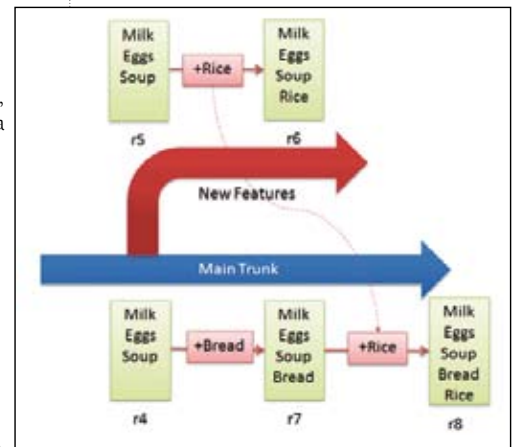

The distributed system
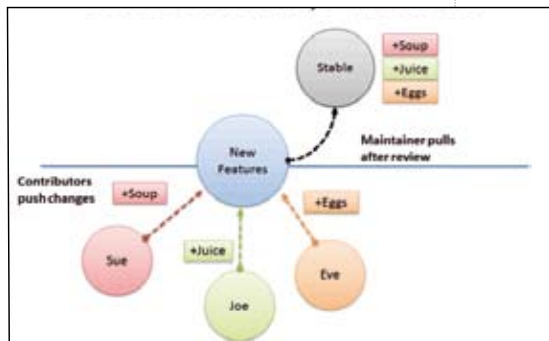
Merging changes

Mercurial

Mercurial is a decentralised system, despite the apparent complexity, it is a much simpler and faster system to set up and use.

The simplest way to use Mercurial, and one which will appease GUI buffs as well, is by using the TortoiseHG tool. This software not only installs the Mercurial sytem, but also installs extensions to Windows Explorer. As a result, it makes it much simpler to perform the most common tasks. Using TortoiseHG you can manage your repositories easily from explorer

After installing TortoiseHG, all you need to do to enable revision control is to simply right click in a folder and under the TortoiseHG menu click on "Create Repository Here". That's it! After a repository is created in a folder, you can instruct it to add the files to the repository using the Commit command.

Mercurial comes out as a much simpler solution for single people maintaining a project, however as you bring in multiple people, each with their own version of the repository, SVN may seem worth the whole effort of setting up a server. **d**

Old versions
If for any reason, you prefer older versions of software, head over to www.oldversion.com

Bullet-point engineering
The process of looking at competitor's feature list and incorporating them in the developer's own feature list

Feature

Aditya Madanapalle
aditya.madanapalle@thinkdigit.com

Bloatware is a dirty word bandied about below the noses of commercial software development companies, mostly by users who prefer modularity over comprehensiveness. To understand what exactly bloatware is, it is necessary to peek into the production process of software. Software is a lot of code compiled together, and run as an application. The code itself is often written by many people, over a code skeleton. This process is known as development. Software, in active development, has a release timeline, a list of improvements, bug fixes and new features. The consecutive releases of the software are called versions. As the versions increase, the amount of aggregated code in the software also increases along with the file size. Consider the popular video player – VLC 0.8.2: the first version to be released to the public, started as a 1.7 MB download. The latest installation, VLC 0.9.8 is 15.8 MB!

Why software bloats

Every modern commercial software, has a bunch of mainstay elements. Even for free software such as Adobe Reader, there are just too many features being included in subsequent releases. Winamp and VLC, are both commonly used media playback software, and have advanced features that is not of use to everyone. Feature bloat is just one kind of bloatware. Games, and professional multimedia processing software include code for handling copy protection, and ensuring that the software is licensed and authenticated. Adobe Photoshop and Premiere both struggle on even on the best rigs available in the market.

Then there is process bloat. For example, the latest version of Winamp runs both an agent as well as the player itself. These are two processes for essentially the same task. Printers, soundcards, and routers often come with CDs that install software on the computer, that are not really necessary. These software perform essentially the same task as the OS, but with little added functionality, and a better looking user interface. Another kind of bloat is almost opposite to that of feature bloat. There are multiple software installed in a system, for essentially the same, or similar tasks.

Quicktime and RealPlayer are players for their native formats, and both the media players suffer from feature bloat as well. Often users have to install multiple browsers on their operating systems, even if they need and use just one. This happens for two reasons – firstly; until Windows 7, it was not possible to uninstall Internet Explorer. Secondly, not all web sites could be viewed on all browsers. A user will typically have a download manager, a P2P client and a torrent client, when a single

BLOATWARE
Replacements

Get rid of all the resource hogging software that you use, and replace them with streamlined applications that use system resources only when you need them to.

Illustration: Chaitanya Surpur

Feature

HTML bloat
Most web pages that you visit, have long unwanted code. This increases the time needed to load the web page

80-20 rule
The 80-20 rule applies to software as well, statisticians claim. 80% of the users, use 20% of the features

application can do all these jobs. More than one messenger client also does not really make sense, but many people have installed the default messenger clients of MSN, Yahoo! and Google.

Free and open source software are generally perceived as being less bloated than their commercial counterparts. One of the most important reason for this is the lack of competition. These software are written for multiple platforms, and often follow the UNIX software design philosophy, which is to write a software for one particular purpose only, and make it streamlined for that purpose. Those who compile the programs they use have the option of leaving out features they deem unnecessary. In the commercial software arena, the rules of the game are entirely different.

A DVD burner with the ability to transcode data is perceived as being better than a DVD burner that does not. This may seem like a minor addition on the surface, but adds significantly to the system's software footprint. There are a number of video and audio formats to choose from, and a host of codecs for each of those formats. Every added feature significantly bloats up the software.

Why bloatware should bother you

Bloatware may eat up essential system resources from the task at hand. Alternatives are more streamlined for your purposes, run faster, and give you better results. If all you do with software such as Photoshop is a little cropping, adding captions and colour correction, Paint.net will do the job using less than half the resources, and never running out of scratch disk space. On a desktop this may seem unimportant, but on laptops and netbooks with limited processing power and hard disk space, this becomes absolutely vital.

Another important aspect is privacy and bandwidth usage. Windows Media Player from Microsoft, and the CS3 suite by Adobe, are both known to have sent discreet packets of data over the net, with details on usage. While the license agreements state that personal information is not collected in this usage, and that it is done solely to improve the software itself, they are taking up a small portion of your bandwidth. Software from lesser companies have been called spyware for doing exactly the same.

Automated updates often take up a considerable share of the bandwidth. Weekly definition updates of most antivirus software is somewhere in the range of 20 MB. For careful users, who are smart about their external drives and web habits, this is just a waste of space and bandwidth.

Dangers of using alternatives

Bloatware is also a relative term. Expert users and professionals often use obscure features that the lay user may not need. A certain alternative to the bloatware in question may not work as well as the bloatware for some applications. For example, Foxit Reader, a widely touted replacement for the bloated Adobe Acrobat Reader, cannot handle embedded forms as well as Acrobat Reader can.

While bloatware alternatives may not collect usage data, have no licensing process involved, and carry a minimum file size, they are more difficult to use than the commercial or bloated alternatives. Paint.net and Gimp, both alternatives to Photoshop, depend heavily on plug-ins for added functionality. You can do everything you can on Photoshop, but only if you hunt down the plug-ins for the purpose and install it. This increases the footprint of the software, but you get to customise it the way you want, with the features you want. Most new users of either of these software are either unaware of the existence of these plug-ins, or unwilling to take the trouble to find and install the ones they need. There is no correct approach to this problem, and it depends heavily on the individual users.

The direction that the development of the software takes, may not be the same as the direction the alternatives take. For example, although Photoshop CS4 allows users to work with 3D models, it's unlikely that Paint.net or Gimp will ever add such functionality to their releases. The formats used by bloatware, are also not always supported by the alternatives.

Some software have "lite" versions, with reduced features. Some installation procedures allow for undesirable processes to be removed, including an option to send in usage data. Often, as in the case of VLC or Winamp, the previous versions of the software are less bloated and preferable to the newer versions. All these aspects have to be considered before choosing the software you want; this is a guide to choose the best one for your usage.

Media players

Most users prefer to use a different software for viewing music and video. The default for both in modern windows systems is Windows Media Player. Windows Media Player takes unusually long to open files, is slow to respond, buggy when handling large files and can handle a very limited number of codecs to start with. VLC, one installed, would be godsend to many, simply because users were able to play videos encoded using obscure codecs. K-lite mega codec

pack, along with Windows Media Player classic should do the trick now. Media Player Classic handles QuickTime and real player formats. The latter better than the latest version of VLC. It is fast, simple, and minimalist, a design philosophy that VLC seems to have drifted away from. The older version of VLC, 0.7.0, can still handle most videos, and is a 5 MB install.

Audio players are more complicated. Winamp has become the *de facto* due to the wide range of skins available, and for being around for such a long time. However, the latest version of the player forces a lot of features on you. The media library, for example, is a constant irritant. There is no way to get rid of it, unless you choose the classic skin. The newer skins are also heavy on resources. Feature bloat was a problem ever since version 5.0 came out, which was a long time after 3.0, and skipping everything 4.x, because that is how much Winamp had changed. Not everyone welcomed the change, and a lot of tech enthusiasts prefer the older version of Winamp. Typically, they use whatever 2.x series is available to them. 2.95 is the last version in the 2.x series, but an interesting release was the 2.666 version, which enthusiasts prefer merely for the connotations in the version number. 3.0 was another release, the only one in the short lived 3.x series. A lot of users swear by the 3.0 version also, a suitable compromise between the simplicity of the earlier versions, and the feature set in the later versions. However, finding skins for 3.0 is a difficult thing now, and it does not support 2x skins.

An alternative to Winamp, and another media player which has its own fan following among techies is Foobar2000. This software is small, functional, and the tweaker's dream as it can be customised in a hundred different ways. Foobar2000 is one of the few software that has struck the right balance between default features and plug-ins. There are many plug-ins available, but these are not overwhelming in number and are for highly specific features.

Download managers

The default download managers for most browsers, are not aggressive in the sense of consuming bandwidth. Even without any other internet activity, these browsers typically download using just a single connection with the server. Multi-threaded download managers connect multiple times to the same server, and download data faster. This was the reason download managers such as FileZilla, Free Download Manager and Orbit Downloader showed up in the first place. However, modern download managers require some added features beyond mere

Yagni
The Yagni Principle: The You Ain't Gonna Need It principle encourages coders to not put in functionality unless the software absolutely needs it.

KISS principle
Most Linux distros and programs
follow the KISS principle — Keep It
Short and Simple

Scope Creep
Scope Creep is the steadily increasing
scope of a single software. Adobe
Photoshop is a good example of this

Feature

multi-threaded downloading. These features ensure that there is no need to install additional programs for downloading data. A download manager should ideally be able to download flash videos from a number of web sites. If the download manager can handle torrents, even better, the need for a torrent client is removed. Free Download Manager has these features packed in, but retains a small size despite this. The application is very utilitarian, and users will discover that they eventually end up using most of the features Free Download Manager has to offer. We would be interested if a download manager could additionally connect to P2P servers, as well as capture streaming audio. This is one of those cases where additional features actually reduces by feature bloat, by limiting the number of software needed for the task at hand.

Internet software

Microsoft Outlook is slow to start up, heavy on the system resources, and has nervous ticks if it is alive for long durations of time. A great alternative is Eudora, which manages most of the functions of Outlook quite well. Mozilla Thunderbird is another great application, but suffers from having a few superfluous features. These however, include a calendar and a manager, which is something that quite a few find useful. Eudora is the choice for strictly mail related matters, Thunderbird is the way to go for a personal information manager (PIM) along with an email client.

Instead of Gtalk, MSN Messenger and Yahoo! Messenger, a great alternative IM client is Pidgin. Pidgin is easy to use, has a simple interface, and is portable, which gives it an advantage over the other free multi-network chat client, Miranda.

Document handling

Although MS Office is pretty bloated, the alternatives such as Open Office or Lotus Symphony are simply not as smooth, and easy to handle as MS Office. Moreover, Open Office suffers from feature bloat simply because it has to handle a whole range of competing formats, and does not handle all of these formats well enough. A simple to use, and low footprint word processor is Abiword. This is a no-nonsense word processor, built for a single purpose, and is not part of an office suite. Google Docs, with their spreadsheet and word program, are great alternatives to an installed office suite. The collaboration aspect greatly improves the appeal of Google Docs.

Adobe Acrobat Reader is notorious for being bloatware in the past few releases. While all it was expected to do was open a

particular kind of document, the file format itself started accommodating different kinds of data, which the reader grew to handle. Adobe Acrobat Reader is probably the best example there is, of a software that has been in active development for too long. Even the commentary on the documents carried back and forth can have embedded videos. Commentry itself is an obscure enough feature for most users, video commentary is going too far. Users can also web-conference while reading a document. A simpler and understandably, much smaller PDF reader is FoxIt reader.

Editing

Typically, users tend to have an image editor, an image batch processor, and a software for remote hosting. This is apart from the software that came with their cameras. This is accumulated bloat, and it is best to un-install all of them, then start over with the programs and features that you most require.

Picasa 3 should ideally solve all three needs. It has a basic range of image editing options available, handles batch resizing before uploading to the web, and is an image viewer with decent enough eye-candy. If adding a watermark, or bat-processing images in many ways is necessary, then IrfanView is a very small software, that nonetheless has a surprising number of features built in. IrfanView also allows for plug-ins for added functionality. For advanced image editing, both Gimp and Paint.Net are great alternatives to Photoshop. Gimp is a little difficult to figure out, and needs a lot of plug-ins before the functionality reaches anywhere close to Photoshop, but has a few tricks up its sleeve that even Photoshop does not. Paint.Net is very easy to figure out, has a familiar user interface, and the plug-ins are easy to install. Our suggestion for the amateur: Paint.Net.

Both Audacity and Wavepad are great when it comes to sound editing, but the functionality that Wavepad offers in comparison to the size of the download is unmatched. A 50 kb download, and you get to record, mix, and add a host of effects to your track.

A bloat-free future

The original vision for all software was a highly modular approach. The basic software would do very little, it was upto the user to find or code in the required

Bullet-point Engineering

The process of looking at competitor's feature list and incorporating them in the developer's own feature list is known as Bullet-point Engineering. An unfortunate tendency of opinion leaders (read tech journalism), involved tables of competing software, with points given to the most features. The size of the software, or the amount of memory it consumed, were not given enough weight as the number of features in the software. Naturally, the coders for the software tried to fit in as many features as possible into the software, to gain an edge over their competitors.

plugins and add-ons. Computers however, were used in far more ways than was thought possible when they were first introduced to the general public. In a mad scramble to appease the dumb consumption of software by a large mass of people who couldn't bother to train themselves to use computers intelligently, issues similar to software bloat appeared. Remember that users are actually paying for the bloated software. The cost of coding authentication algorithms, developing all the features you one does not use, and of the increasingly tough copy-protection, is all transferred to the person who purchases the software. Reducing bloat is something that both the developer's and the users want, but finding a commercially viable alternative is the problem.

A simple way to handle bloat in the future is to use remotely hosted applications, similar to Google apps. Such a setup would reduce bloat in a lot of ways. Consider a set-up like this: the end user has nothing but a screen and a high-bandwidth connection to a remote server. The server has all the hardware necessary to run the software, and a single instance of the software itself. Even if most users use only a few of the features, since the software is centrally located, there is little or no wastage. Of course, the interface for the software will be highly customised, so that the individual users don't waste the space on their screen with features they don't use. Next, as part of the development cycle, the software is updated in one place only, standardising the formats across all the users.

Till such systems come into place, regular users have little choice in choosing the features as well as the software they want to use. The problem with the assumption that users have a steadily increasing amount of hard disk space and memory to use, is that the users are forced to keep upgrading their system. Perfectly sound hardware for most purposes gets obsolete quickly for this reason. A computer purchased in the mid eighties lasted five years without any hardware upgrades. The same cannot be said for a computer purchased in the mid nineties. The kind of modularity envisioned for all operating systems, is true to an extent for the Linux OS, which is a great option for reviving and putting to good use an "obsolete" system. ◙

Watch when no one's watching

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In these days of rising crime rates, surveillance assures us of some safety. The sole purpose of this set up is to be able to monitor your home while you are away. We advise you to maintain restraint and use this set up only for ethical purposes.Whether you have young children at home, or whether you're on vacation wondering if your home is safe, this short guide should help you without burning a hole in your pocket.

Web cams are no longer luxury. Socialising by means of IMs, video-conferencing through clients such as Skype and the likes have made web cams a part of today's standard PC configurations. After completing this workshop, you should be able to view the latest image from your home in real time or view sequential images archived on a PC that could later serve as evidence in the unfortunate event of a crime.

Your set up largely depends on how far you can stretch your budget and the number of rooms you need to monitor. You could either use a single-cam or multi-cam configuration. You also have the option of implementing network web cams into your design. This way you don't need a PC powered on all the time.

Nevertheless, the cost of such a set up is atrocious. For a rough estimate, a basic IP web cam costs approximately Rs. 8,000; while you would get a decent web cam starting at Rs. 800. The downside

in this method, however, is that your PC would need to be powered on as long as you need surveillance.

In addition to the web cams, you would need web cam software to process the still images and direct the feed of the web cam to appropriate folders. There is a long list of software available online. One such software suitable for this appplication is Dorgem. At 400 KB, it's a relatively small executable that has some promising surveillance features.

You can download dorgem at **http://dorgem.sourceforge. net/download.html**. You can also find it on our DVD. The initial set up doesn't take too long and in seconds you should be able to view images from your web cam. The best feature of Dorgem is the ability to send your feeds either via HTTP, FTP, save them as files or even let an external program further modify them.

The Dorgem interface is basically divided into two sections. You have Camera options on the top, followed by Caption and Storage settings. First, select your web cam from
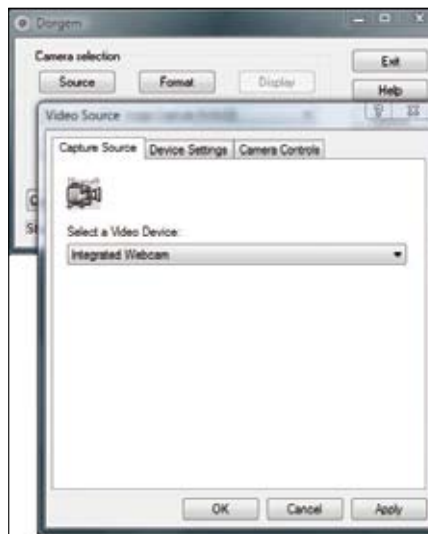
Configuring the camera just takes a minute

the drop down in the middle. For typical plug and play devices, select Microsoft WDM Image Capture (Win32). Click on the Source button.

Under the Capture Source tab, select your device. If you're using your laptop, select Integrated web cam, else select your camera by name. You can also set various parameters for the desired image. For example, if you are going to monitor a darker room or under low-light conditions, then increase the brightness levels and change the contrast levels accordingly. Also, if the entry/exit points are far from the position of the camera, adjust the zoom level. Check the visible feed during initial set up. If you need an archived record of all movements happening in your home, you can use the wildcard `%g` after the filename. This way, each image generated after the stipulated time is named

with the timestamp and saved on the location specified. You can set an appropriate capture interval as 5 sec.

Depending on the available bandwidth or speed of your system, you can select the frame size of the image. We recommend a frame size of 320x240. This way, the file size of each image is relatively small; as a result, the system response is quicker and files are dumped faster – be it on the PC or on a remote server. In order to view your files from a remote location, you simply need to configure an FTP server on the PC to which your web cams are connected.

For this, you need FileZilla FTP Server. The whole process can be further simplified if you have access to file hosting services. Simply enter the database username and password and set a location. The images would then be uploaded to your web site. This way you could monitor it from any PC that can connect to the internet. Alternatively, you can also view the image by remotely accessing the PC on which the images are saved. For this, type the command `ftp:// <username>: <password>@ <ip add or domain>`. Here, `username` and `password` are those set on the FileZilla server on the host PC. Depending on the speed of your connection (especially on slow systems and connections), adjust the image size and intervals to avoid conflicts. ▪
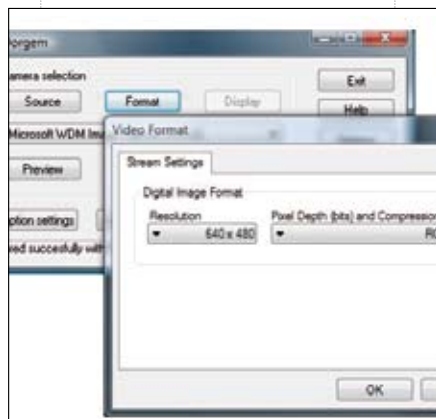
Adjust the image settings for optimum results, especially file size

Workshop:

Securing your PC

Whether you've assembled a new PC, bought one right off the assembly line or if the growing concern of security has finally dawned on you after countless crashes and system formats – you have now decided that your PC deserves a higher level of protection. How do you go about executing this mountain of a task, considering all the armies of viruses, trojans, worms, spyware and other monstrosities of the digital world just waiting to claw their way into your beloved computer as soon as you connect it to an internet line? This is quite true. In fact, some estimates say that it can take only about 20 minutes for an unpatched and unprotected computer to be attacked once connected to the internet.

Read on and find out the various steps you can take to help save your precious PC. While some of the steps are of a fire fighting nature, you'll find that most of them are preventive. Many are just safe computing practices that you need to follow to the tooth to avoid infection at all costs. When you get an infection, chances are that your installed security will be rendered useless so the key lies in not letting an infection occur in the first place. After all, as they say, prevention *is* better than cure. So let us begin. The first and fore most step is to install an antivirus.

Install antivirus

An antivirus is the first layer of protection that you can install on your PC. There are literally hundreds of antivirus solutions available out there. Some of the biggest names are obviously paid solutions such as Norton, Symantec, Kaspersky and McAfee. However, in the free realm there are solutions available too. Free solutions include packages such as Avira AntiVir Personal, AVG and Avast. When choosing antivirus software, you need to ask yourself these questions:

• Does the antivirus solution have internet updates?

Most antivirus solutions worth their while have a virus definition database that is constantly updated. The anitvirus software then connects to this database and downloads the latest virus definitions and signatures. This way, it is prepped and ready with information on how to fight the newest baddies of the virus world.

• Is it easy on system resources?

Antivirus software has to be in an 'always on' state to provide you with constant and continuous protection. Any AV application ads itself to the list of processes that are constantly running in the background.

This consumes resources reducing the overall system resources available to you to run other applications. You wouldn't want an antivirus that slows down your PC to a snails pace. Some applications such as the Norton AV, although popular and effective, are notorious for being heavy on the system.

• Is the detection rate satisfactory?

An antivirus is after all only as good as the number of viruses it is able to detect. There are independent third party organisations that test the detection rate of AV products. According to leading authorities on the subject, your antivirus must have a detection rate that

is as high as possible. In fact, in a report by AV-Comparatives, Avira Premium has the highest overall detection rate of 99.6 per cent. Since no AV offers total (100 per cent) protection, this brings the question of whether one should bother having an AV at all? The answer is quite simple – Yes! The premise is to do your best. Implement other security procedures and tools that will help in cases where malware makes it past your anti-virus defences. We'll talk about these fire fighting measures later on in the workshop.

Most antivirus solutions are single-click applications that are self configured in the best possible way. This means they are easy to use for average users. What you should know is that if you use multiple AV solutions it may not offer you the proportionate increase in protection. In fact, it is likely to cause conflicts. Also, remember to keep your virus database up-to-date.

Some antivirus providers, even the free ones will often include another class of security application such as anti-spyware, or rootkit checker. These may also prove to be advantageous, but remember to disable them if you are using standalone solutions for each of those purposes.

Install firewall

A software firewall is like a filter that allows certain packets of information to pass based on some rules and parameters. It disallows applications to freely communicate over a network. Therefore, most firewalls will raise a pop-up dialog whenever an application tries to communicates over the internet. When such a case happens the firewall asks the user to allow or deny the application communication rights. If the user allows then the application is placed under the exceptions list of the firewall. These exception programs are allowed to communicate outward, but if a worm or malicious program tries to send information outwards it will be blocked.

Windows too has a built in firewall but one can install a
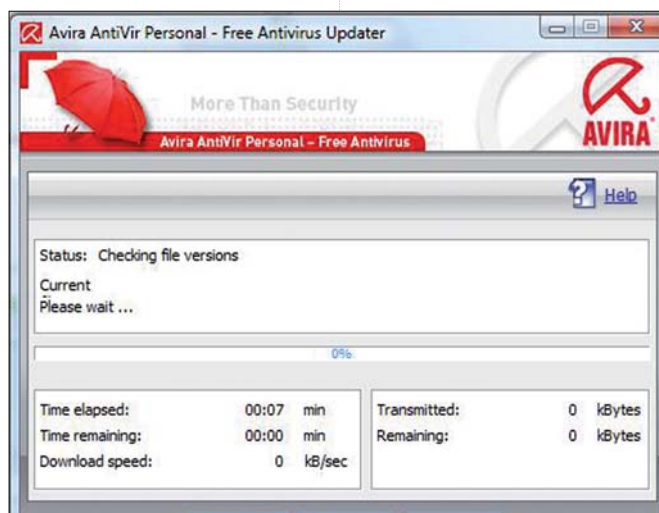
Avira Updater

third party firewall for added protection. There are several third party firewalls available out there. Some of the best free ones include Online Armor, Comodo and Zone Alarm. All of these are easy to configure and pretty much single click in operation. You can customise and tinker with the settings, but they're designed to be 'install and forget' type of products.

However, the fact remains that a Hardware firewall – one that is built into your router – offers the best form of protection. In fact a few research papers on securityfocus.com have even gone on to expose ways in which software firewalls can be made vulnerable and even bypassed by malware. In this regard, the report goes on to say software firewalls are akin to being made of straw. So, as with antivirus programs, the question arises – should you then have a firewall at all? The answer is yes. Especially if you have a portable PC (notebook) which will definitely be used outside of the protection offered by your router. Also if you are one to install applications like keygens or cracks, then comodo for example allows you to define an application that you most definitely don't want connecting to the net. Comodo seems to be the preferred choice amongst the available free firewalls. If you zero in on Comodo, use the proactive security mode for aggressive protection, alternatively you can use the firewall only setting.

Install anti-spyware

Spyware as we all know is a program that is installed on a PC without the users consent or knowledge and is intended at collecting personal / sensitive information about a user or the computer. An anti spyware is a program that blocks malicious programs from fulfilling their motive. Telltale signs that a computer is infected by spyware include a flood of popups, browers opening web sites you didn't specify, appearance of bookmarks or new toolbars, etc. The threat of spyware is so great that the US Federal Trade Commission has defined guidelines to deal with the problem. Among the guidelines is the obvious mechanism of installing anti-spyware. There are several anti-spyware suits available. The best among the free ones are Spyware Blaster, Lavasoft's Ad-Aware SE Personal Edition and Spybot Search & Destroy. S&D has functions such as SDHelper and TeaTimer that are quite useful. The paid software offer higher detection rates. There is also the option of installing Windows Defender which is included with all versions of Windows Vista and is available to download free for genuine copies of Windows XP SP2 or later. Many people use anti-spyware in combination so as to add multiple layers of security. But should a conflict occur, it is recommended to use only one solution at a time.

Run rootkit checker

A rootkit is a method by which a piece of malware hides itself from antimalware utilities such as antivirus and antispyware programs. There are various kinds of rootkits such as persistent, user-mode and kernel rootkits that hide themselves from process lists and even registry entries. RootkitRevealer from Sysinternals is a powerful detection tool that successfully detects many persistent rootkits including AFX, Vanquish and HackerDefender. The way it works its that it shows discrepancies in registry hive entries and the files accessed by the Windows API. To scan a system, launch Rootkit Revealer on the system and press the Scan button. RootkitRevealer scans the system reporting its actions in a status area at the bottom of its window and noting discrepancies in the output list. Once a rootkit is revealed it's best to format the system or follow removal procedures for specific rootkits that can be found on the Sysinternals forums. Since this is a post infection measure, it's is a firefighting technique. However, since this is an advanced level configuration, proceed only if you're sure of what you're doing.

Follow safe computing and security best practices

Any old hand in the field of security will tell you that the best prevention measures come from the users side. If you are a careful user you can prevent most malware from entering your system. More than antivirus software, your common sense should be the first line of defence against malware. Don't get what we mean? It's quite simple, if you follow these best practices norms:

Keep software up to date

Having up-to-date software means that the latest vulnerabilities that the developers have detected have been patched up. This makes software more stable and less susceptible to attacks. You should make sure that popular products such as Opera, Firefox, Flash plugins and media players are definitely updated, since malware coders are constantly on the lookout for exploiting them. Most applications have auto updates but if for some reason they don't work or have been disabled then you would have to check manually for each and every application installed on your system. A better way to check version status is with Secunia OSI – Online Software Inspector (**http://secunia.com/vulnerability_scanning/online/**). It will scan your system and give you details of problem areas and suggestions about which applications need to be updated. There is also the Personal Software Inspector (PSI) application which is
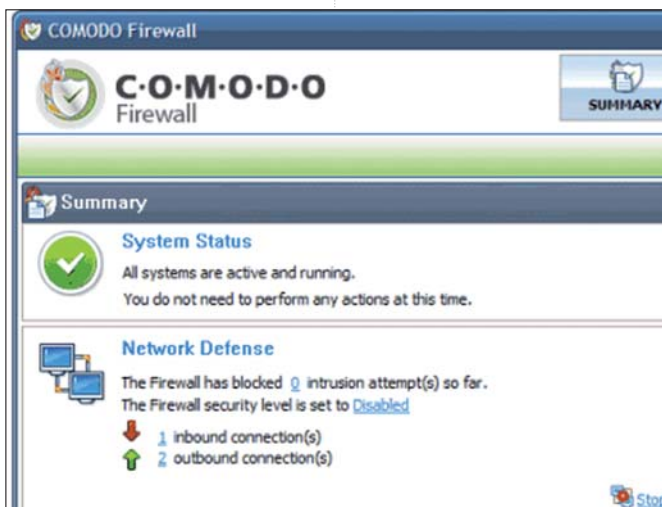
Comodo firewall

Secunia PSI at work

available for download. The app can do a more thorough inspection and gives you direct links to update old and programs that are potentially not secure.

Avoid shady web sites:

You should avoid web sites that offer serial numbers, key generators, cracks and other below-the-line content. These websites are crawling with malware just waiting to infect your system. In general, as a thumb rule be careful where you surf. In order to make sure that you accidentally don't end up stumbling on to such a web site, you should install plug-ins/addons such as LinkExtend and McAfee Site Advisor. These plug-ins give you a security rating of any link in searches. Use an ad blocking plugin such as Adblock Plus or a site filter list (urlfilter.ini for Opera). Download free software only from sites you know and trust. Attractive looking free software downloads frequently bundle other software, including spyware, adware, trojans and other junk. Besides this, here are a few DONTs:
• Don't click on links inside pop-ups.
• Don't click on links in spam or popups that claim to offer anti-spyware software; you may unintentionally be installing spyware. And please don't fall for web pages that open small dialog boxes designed to look like system messages.

Switch to non standard applications:

Non standard applications are generally more secure and less prone to attacks. Part of the reason is that malware makers don't think it's worthwhile to make attack codes for them as against popular software. You could try using Firefox as against IE, or Foxit instead of Adobe reader. Besides, non standard applications are quite light on resources.

Use signature scanning services:

As a rule, one should only install applications that have

come from a trusted source. If you come across an application that you're not quite sure of, you can verify its signature from online services such as http://virusscan.jotti.org/en or **http://www.virustotal.com/**

Run high risk programs in a virtual machine:

If you absolutely must run an application that could be potentially dangerous, try running it in a virtual machine. This is a form of virtualisation wherein a virtual hardware platform is created on top of a software layer that keeps it separated from your underlying OS. This way if a virus infects your VM, your underlying OS remains safe. Vmware and Virtual Box are popular virtualisation solutions.

Internal tweaking

Enabling or disabling certain Windows features can also strengthen the security of your PC. Here are some common techniques.

Use a limited user account

Example of a spurious spam mail with a suspicious link

Most viruses that get installed under an admin account have access to enable/disable many internal configuration settings. For example, if you accidentally download a virus while you are logged in through the admin account (that has full rights enabled), the virus can disable AV and firewall on its own. To avoid this kind of a complication, you should do your day to day work from a limited user account. This type of a user account has limited privileges,
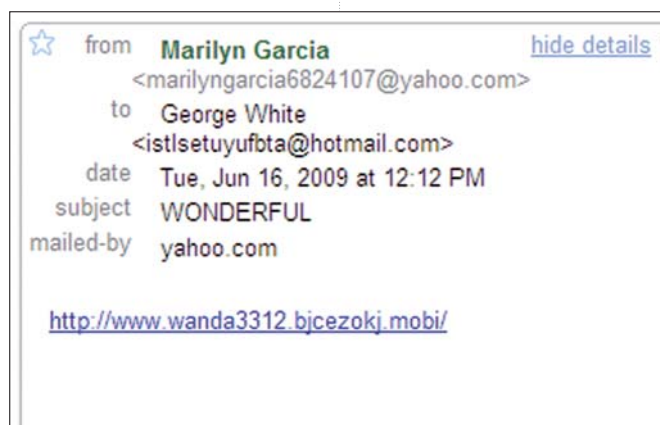

Vista running in virtual box

and therefore, restricts even what malware can do. However, the downside is that it is slightly inconvenient to use. To set up a limited user account go the Control Panel, select User Accounts and create a new user account as a limited user.

Disable file sharing

If you're using Windows XP SP 2, click `Start > Control Panel`. Click `Security Center > Windows Firewall`. Click the Exceptions tab. Under `Programs and Services`, uncheck the box next to `File and Printer Sharing`. Click `OK`. This will disable your files from being shared over any network.

Use common sense

Differentiate between icons. For instance a new folder and New Folder.exe. Some viruses make an EXE file with the name of the most frequently clicked folder on a USB drive.

HOSTS file tweaking

A HOST file contains the IP addresses to hosts on the internet. By redirecting them back to your own home IP (127.0.0.1) you can effectively block out ad servers, cookies, and bugs. The names of most known offenders are known. Fortunately you don't have to know the name of each and every one since ready made hosts files are available online. All you need to do is download such a HOSTS file and replace it with you existing one. The default location for the hosts file is as follows. Be sure to save a copy of the original if you wish to revert back:
Windows Vista = C:\WINDOWS\SYSTEM32\DRIVERS\ETC
Windows XP = C:\WINDOWS\SYSTEM32\DRIVERS\ETC

You should be able to spot such a file on account of the extension.
Avoid clicking links in emails that look suspicious or on the internet

Online virus scans

Trend Micro Housecall (http://housecall.trendmicro.com)
Bitdefender Online Scanner (http://www.bitdefender.com/scanner/online/free.html)
Kaspersky Online Scanner (http://www.kaspersky.com/virusscanner)
ESET Online Scanner (http://www.eset.com/onlinescan/)

File hamster

There are lots of backup applications available out there. However, at times you don't want a back up but a previous version of a file. File Hamster is not only a backup application, but it also allows you to make retrievable copies of your files as saved versions, on the fly. This version tracking application provides real-time backup and archiving of your files while you work. Sure, you have Shadow Copy bundled with Vista, but this applications does the job much better and is free; besides you can even install it even on XP. The application allows you to monitor specific files on your hard drive and automatically create incremental backups whenever those files are modified. The best part about it is that it lets you make notes for each version about the changes that have been made, allowing you to quickly locate a specific revision or provide a detailed account of the work you've done on a file.

Getting started

One you install the application it will automatically run a wizard that lets you specify the location of the Library where all your revisions to files will be saved. Specify a location and click next. Once you are on the main interface go to `View > Revision List`. This will bring up the revision list pane at the bottom of the screen. So now the interface is divided into the Watch Tree and the Revision List.

Create a Directory watch

Right click your library and select Add Directory watch... This will basically let you specify which folder(s) FileHamster should keep track of. Once you specify the location of the folder it will ask you the manner in which you want to track it. The options include watching for all files or specific file types. If you wish to track only documents, select the 'Watch this type or pattern' radio button and enter `*.doc` in the text field. On clicking OK, you will have to select which files the application should

make an initial revision copy for. It's best to select all files.

### Defining the maximum size and number of older versions

Right-clicking on a file or main library will bring up a number of options in the right click menu. Click on Options to set various behaviour options for that file or library. Under the core options tab enter desired value in the Max Revisions/ Size table value. Entering zero (0) will disable the option. Click OK when done.

Installing Plugins

FileHamster has support for installing add-ons and plugins. There are a number of plugins available on the developer's site but only two of them are free – the MOG Plugin and the Log Window plug-in. Go to mogware.com/ filehamster to download the plug-ins. Some of the plug-ins were free until recently and are quite useful but cost under a dollar. The plug-in will be downloaded as an executable so all you need to do is double click, specify path and say next.

Changing the behaviour of the popup bubble

When you edit files which are from a watched folder each time you hit save a pop up bubble will appear with options such as Comment, Protect, and
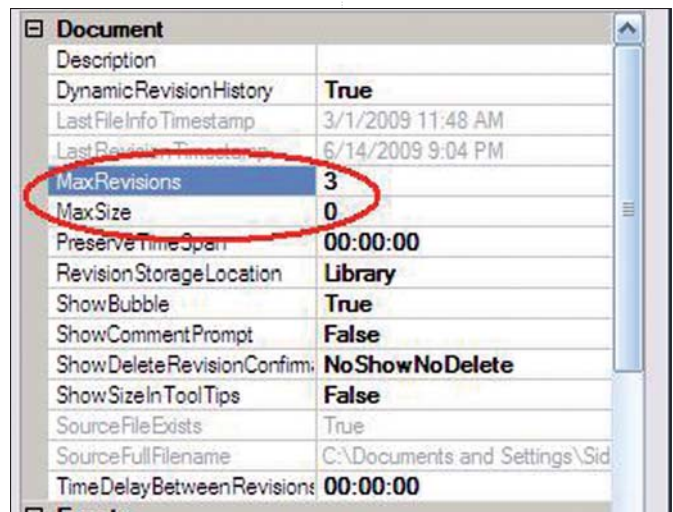
Specifing number of revisions

ignore file/file type. By default, the bubble appears for a painfully small amount of time and therefore doesn't give you enough time to click on it. To change this click on `Options > Preferences > Bubbles Button`. Here you can change certain attributes of the pop up bubble with respect to appearance interval, the time it will stay, and position where it will appear. Even the size and type of animation it uses can be changed. The default Stay Time is 2000 ms. Change it to at least 10,000 ms.

Trigger delayed revision

This option is available in the File Menu. What it does it that it will save a revised copy of any files using the delayed revision timer. To set a delayed

revision timer select a file and hit `[Ctrl]+[P]`. In the event options that appear you can set the time for delay. The default is set for one second. The time can be fed in the Hours:Minutes:Seconds format. Setting this time will specify the minimum delay time before a new revision is created. Usually the revision is created upon saving a file.

Protecting files

Files that are backed up can be protected using FileHamster. Even a particular revision that you feel is important can be protected from being deleted or overwritten. If protect is chosen on a revision it will protect only that revision from being deleted or expiring. If protect is chosen on a file, folder or library in the watch tree it will protect all revisions contained in it at that moment. To activate protect on a file right click on it and select 'Protect'. Alternatively, you can even hit `[Ctrl] + [T]`. This will overlay a lock icon on the file.

Benubird PDF

Benubird is a document management program that helps users store and manage all sorts of documents in an effective manner from a centralised interface. The application allows you to slice and dice documents using several options such as

Creating a new watch

filters, tags, meta data search etc. so that no document is more that a couple of clicks away. A great organisation tool, Benubird can find uses in both an office and home environment. Anyone who has to organise, categorise and manage documents will appreciate the features it has to offer. It uses the Microsoft Fluent interface which allows for greater ease of use and an intuitive layout. Like many media management applications out there, an application help manage documents is a great idea.

Adding files
You can either add single files or entire folders to Benubird. To add files simply click on `Home > From File`. But it's always better to add more than one file. So, to add entire folders to the document manager click on `Home > From Folder`. This will import files into the application. These file may range from several document formats to presentations, spreadsheets to even videos and images. You can specify the path of the folder and even which types of files you want the application to pick up. Select a collection to add the files to and click OK All files from the specified folder will be added to the Benubird library. In this process, the program actually copies files to the default location `C:\Users\username\AppData\Roaming\Benubird\Library`.

Changing library location
To change the default location of file library or workspace location click on the Benubird Button at the top left corner of the screen. Click on the options button and go to the File Library tab. Here you can specify an alternate location. The workspace is the location where files are temporarily stored when opened from Benubird for editing.

Filter files
You can find files quickly by filtering files as per

parameters such as Author, Subject, Category, File type, Date added and more. To filter files check the Navigator button under Show/Hide panel of the Home menu ribbon. In the navigator that will appear in the main screen area you can select one or more properties and the file list below will reflect the files that fit the criteria instantly. On the left pane you will find a single criteria (file type) filter. Browsing files this way is definitely quicker than going through folders in windows explorer.

Use tags for quick retrieval by multiple parameters
To be able to use tags to find files you will first have to tag files. Simply select a file or group of files, right click and move the mouse over Add Tag in the right click context menu. Here you will find twenty or so predefined tags. Tags can be applied even while importing files in bulk. Remember multiple tags can be applied to each file. For example a file can be tagged both 'personal' as well as 'career'. To filter files using tags click on Tabs in the Show/Hide menu of the ribbon. The tags will be displayed in the left column. Click on any of them and the file list will automatically change to show those files. Hold down CRTL and select multiple tags. Click on the radio button below to show
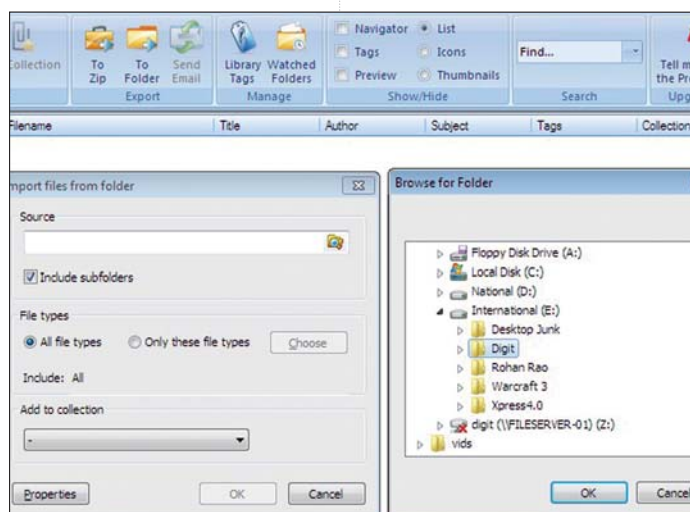
Adding folders and files to benubird

files that match any/all of the tabs selected.

Define more tags
Benubird by default has a set of predefined Tags. But at many times the need to create your own tags may arise. To define more tags click on the Library Tags button in the Ribbon. Click Add for adding a single tag to the list or click Add Multiple for adding more than one tag. For multiple tags, define each tag on a separate line and click OK.

Batch process metadata to files
Many times we find that the metadata attached to files such as Title, Author Name, Subject, Category etc. is incomplete. Benubird helps you add this

missing data easily and in bulk. This can be done in two ways. The first way is to add metadata to files while importing them into Benubird. To do this simply follow the normal adding procedure and click on the properties button in the Add folder dialog box. Give relevant details and click OK to import. The other way is to select a bunch of files withing Benubird and click on properties.

Zip entire collections
Collections are essentially virtual folders. So if you've added a bunch of files to say a collection called "holidays", comprising files such as documents (travelogues) and pictures of all your holidays, you can export them to a zip file. This will help you easily distribute it amongst friends and family. To add collections to a zip archive, right-click and then go to `Export To > Zip Archive`. In the dropdown menu you can choose which type of files you want included in the ZIP archive such as only DOC or .xls etc. If you want to encrypt the package with a password, simply check the appropriate box and set a password.

Make a Smart Collection
This is one of the best features of this nifty management tool. Sadly enough it is only available in the Pro version of the software (which is yet to be released). Smart Collections
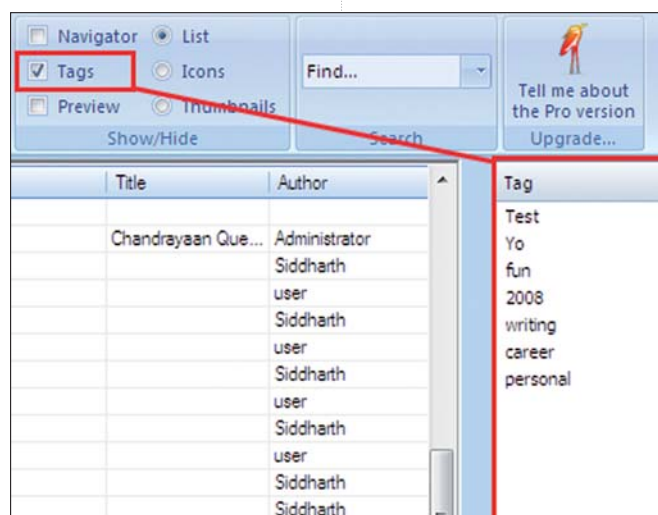
Filtering by Tags

provides a way to create a rule-based method of automatically creating and updating collections. To create a Smart Collection, select the Smart Collections button from the Create panel, which will open the Smart Collections dialog, where you can specify your rules. For example you could give a rule in such a way that Author IS "Digit Team" AND Subject CONTAINS "July Issue" AND File Type is ".doc". Yet the same functionality can be achieved by using the Navigator. Once the files are filtered according to parameters just select all and add to a new collection.

Create watched folders
A watched folder is a folder that a user can specify from where files will automatically be added to the Benubird Library. You can even specify the frequency with which these watched folders will be scanned for new files. The program will add a new process to tasks which will run in the background. As with a regular import you can even specify meta data properties to be added, such as author, subject etc. as well as specify which file types to add and which collection to append files to. To create a watched folder click on the Watched Folders button in the Manage panel of the Ribbon.

Exporting file or collections to folder
Exporting to a folder is essentially like exporting to a zip file. This function comes in handy when you wish to filter out certain file types into folders for sorting. To do this right click on a file or collection and go to Export To>Folder. Next be sure to select type from drop down menu. Specify output location and click OK
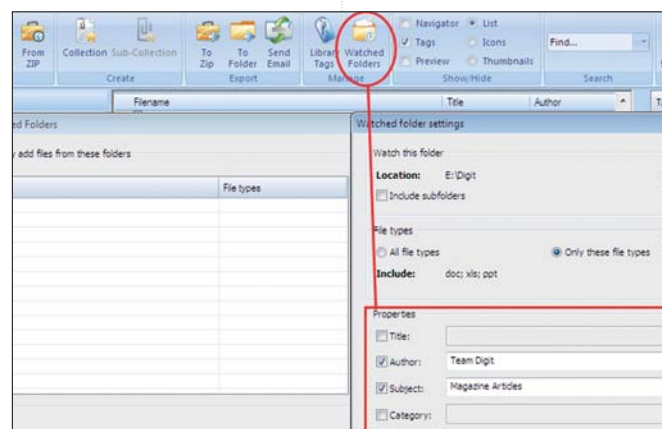
Adding incomplete properties
It is best to add incomplete properties to files right at the time of importing them into
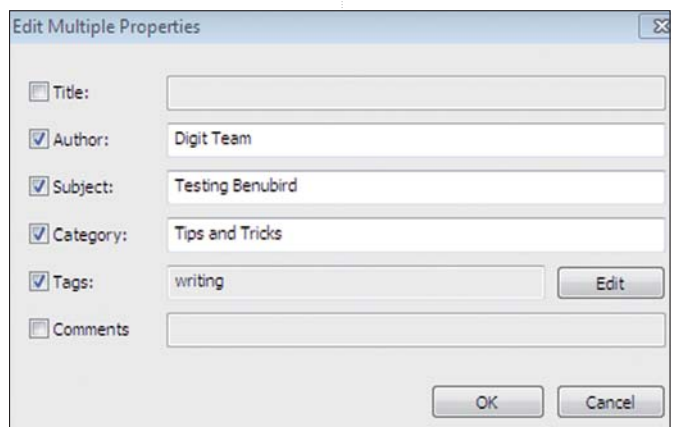
benubird. This way you have better efficiency in filtering and searching for files when you need them. Benubird adds all such files with incomplete properties to the Incomplete Properties smart collection. You can enter properties for each file or select a bunch of files and right click and click on properties. A smart way to add incomplete properties is to let the application automatically generate the required fields. To generate tags and the subject field based on certain parameters go to Benubird Button> Benubird Options>Import. Check the boxes for Automatically generating Tags based on folder hierarchy and generating subject based on containing folder name. This should work because most often we tend to name folders based on these two parameters.

Set keyboard shortcuts
Benubird uses the Fluent interface which allows the added functionality of being able to use keyboard shortcuts. Hovering over any button in the interface will show you the keyboard shortcut for that command. For instance the shortcut for importing files from a folder is [CTRL + L] and attaching files to mails is [CTRL + M]. To change these default shortcuts click on the dropdown button next to the Quick Access Toolbar. Click on More Commands>Keyboard Shortcuts Customise. Select various categories of commands and hit the keyboard for new shortcuts.

Edit file meta data properties

There is a button to reset all if you wish to revert to defaults.

Add buttons to the Quick Access Bar
Adding buttons to the Quick Access Toolbar helps in navigating around in Benubird. To do this click on the dropdown button next to the Quick Access Toolbar>More Commands. Select the required commands and click on the add button to move then to the right column. This will add

Adding buttons to the Quick Access Toolbar

the buttons to the toolbar. Be sure to add the Benubird Options button since it will be used quite frequently. Alternatively, right clicking on any button in Benubird will bring up the option of adding that command to the toolbar.

Change required properties
You can change which file properties are needed for a file to appear in the incomplete properties collection. To do this
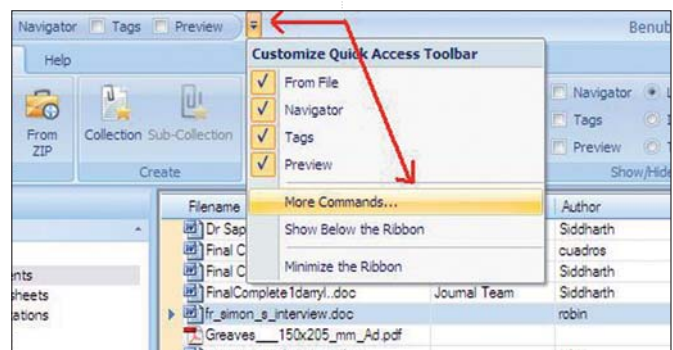
go to Benubird Button> Benubird Options>Incomplete Properties. Here you can check or uncheck any of the metadata properties such as Author, Title, Subject, Tags etc. This any new files imported into Benubird will be scanned for missing properties and it will prompt you to enter the missing data.

Activate preview
Having a preview of the files is quite helpful, especially when it comes to image files. Benubird allows for previews to appear

Creating watched folders

in the right panel when any file is selected. But by default this option is not turned on. To turn it check the Preview button in the Quick Access Toolbar. Alternatively you can even hit the keyboard shortcut [ALT + 4]

Change interface colour

Fluent provides for a standard blue colour which frankly can get quite boring in the long term. To tinker around with the interface colour click on `Benubird Button > Benubird Options > Interface`. Here you will find three options in the dropdown menu – Blue (default), Black and Silver. Hopefully more options will be added in further updates to the software.

SmoothDraw 3.1.3

Digital freehand drawing software

SmoothDraw is a basic and simple digital drawing software which can be used to either create images or retouch photos if needed. SmoothDraw is not as complicated and does not have as many features as Adobe Photoshop, but has its own set of features that we are going to tell you about.

Creating and resizing the canvas

Stating up SmoothDraw will give you a canvas with width and height of 800 x 600 pixels by default. To change this according to what you want to set it at, click on Canvas on the menu bar and select Resize. Either use the arrow keys or type in the width and height for the canvas size. By default, width is directly proportional to height, so if you input the value of width as 1024, you will get the height as 768. To create a canvas with custom values uncheck the option 'Keep Width/Height Ratio'.

Change the size of the canvas

To increase the size of the canvas and at the same time move the image position on the canvas, first increase the size of the canvas. Make sure the option 'Resize canvas but keep image size' is selected. Below that there is a nine cell block, which represents the position of where the image will remain on the canvas after resizing. Click on the appropriate cell where you want the image and click on 'OK'.

To resize the image so that it fits on the canvas, first put in the values for width and height. Next, select 'Resize image' instead of 'Resize canvas but keep image size'. This will either stretch or shrink your image directly to the canvas size you have created.

Layers

The Layers window is located as the last section on the Left Panel. By default, when you open an image, the background layer is
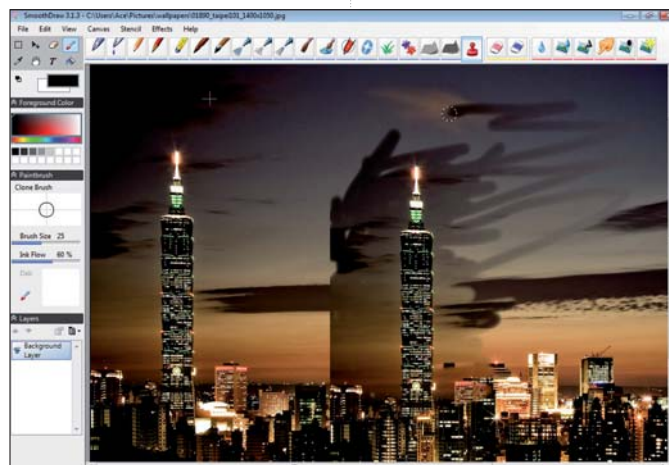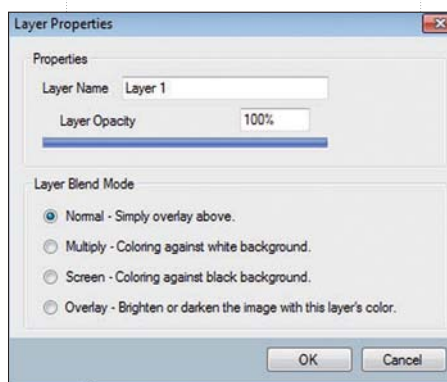

Using the Clone Tool in SmoothDraw

displayed in the layer window. To create a new layer click on the 'Commands' button in the layer window and then select 'Add New Layer'. A new layer will be created above the background layer.

To hide this layer, or the background layer, click on the

Create new layers and adjust their properties

'Eye' symbol next to the name of the layer.

To move the layer order up or down, first select the layer in the layers window and then click on the up or down arrow.

There are basic blending options that you can add to the layers which include – Normal, Multiply, Screen and Overlay. To change the layer blending options, first click on the Layer Properties button, located next to the Commands button. In the layer property window, you can select the blending mode. A one line description of

the blending modes is also present alongside.

Changing the opacity of the layer is also possible through the layer properties window. Either adjust the slider or put in a value for the Layer Opacity.

Adding a name to the layer is also possible, just type the name in the box next to Layer Name, in the Layer Properties Window.

Brushes and Presets

SmoothDraw has a set of preset brushes, which include Pen, Leaky Pen, Digital Pencil, 2B Pencil, Dry Media, Felt Pen, Saturated Writing Brush, Digital Airbrush, Fine Spray Airbrush, Graffiti, Bristle Brush, Kind of Water Colour, Cartoon Fill, Light Hash Brush, Dark Hash Brush and Clone Brush. There are also shape presets which include Star, Grass and butterfly. There is a row of these brushes and shapes located below the menu bar.

To use the Clone Brush, first select it from the row of brushes. Next hold down the Ctrl key and select a point on the image that you want to start cloning from. Release the Ctrl key. Each brush stroke that you take will now have that point as the starting point.

To add images as shape presets, first select Image Hose from the line of presets. Next click on the image which will
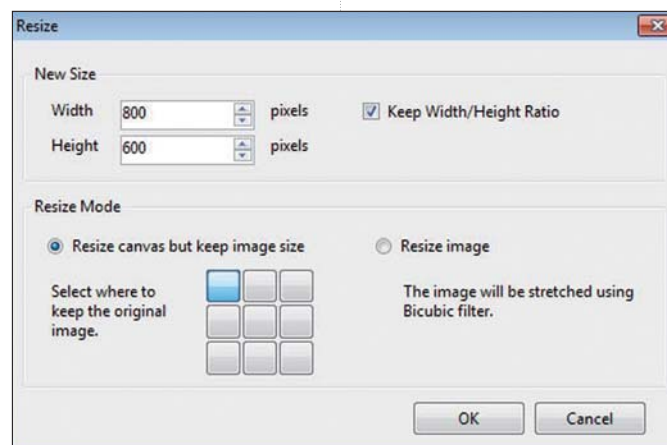
Resize the canvas in SmoothDraw

![Tips & Tricks header]

Tips & Tricks

be displayed on the Paintbrush section of the Left Panel. Select the desired image and next when you use that preset, the image will be displayed on the canvas.

Saving

To save the image that you have made or manipulated, either go to File on the menu bar and then click on 'Save As'. This will give you more options and formats to save your image. By pressing [Ctrl] + [S] or clicking on 'Save' from File in the menu bar, you get quick JPEG save options. The window that pops up displays JPEG options. There is a preview window on the right and Quality vertical slider on the left. Adjust the quality of the image by moving the slider from Bad to Superb. The quality that is selected will be displayed in the preview window.

If the images are going to be used for web sites, put a check next to Progressive as this will lower the size of the image.

Zoom Player Max 6.0

Although it appears simple, Zoom Player Max 6.0 is a media player that also supports DVD playback. It is packed with loads of features ranging from customising skins and even setting up advanced features like EVR. The Zoom Player has different modes to play different formats such as DVD Mode, Media Mode and even a separate Audio Mode.

## Customising Zoom player skins and colour schemes

The first thing you will notice about Zoom Player is its simplistic layout – only the video screen is seen along with the multimedia controls. There is no menu bar of any sort visible by default. Even if you try to press the [Alt] key to reveal the menu bar it won't show up. Zoom Player has a different sort of tool bar called the Top Bar.

To reveal this Top Bar, click on the circular icon (Show Top Bar) located on the right side of the multimedia controls. Once that is done, click on the first option – Skin Selector. Alternatively, you can enter the Skin Selector mode by right clicking on the Zoom Player screen and selecting the Skin Selector option from the contextual menu.

The window that is now open is where you can select and configure the theme of the Zoom Player. By default, you can select between two skins – Default and Fusion. More skins can be downloaded from http://www.inmatrix.com/skins.shtml. There are many tint presets that will change the basic colour scheme of the player. You can further customise these presets by adjusting the red, green and blue tint with drag controls.

Fixing missing formats

When you initially install Zoom Player, it scans your system for missing add-ons or plug-ins that are needed to support certain file formats. To find out which formats are missing, go to the Options menu by using the shortcut [Ctrl] + [O]. Click on the arrow next to System & Files and select Missing Formats. This window will show you two tabs: Important and All. In the Important tab, the formats that are used often and are missing from your system are displayed. Similarly, under the
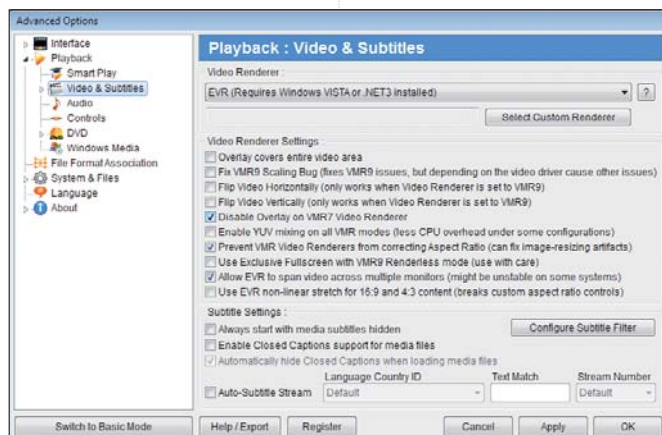
EVR Advanced options

All tab, all the formats that are missing from the system are displayed. A button will be present at the bottom of this screen that says 'Click here to run the Install Center and install missing components'. Once you click here, you will be asked permission to connect to the internet. Next the Install Center opens where the missing components are checked. This window also gives you information regarding total download size and also the licenses of the missing codecs and addons that you are about to download.

Setting up EVR

EVR is the acronym for Enhanced Video Renderer which basically allows you to play a single video spanning over several monitors. This is a useful feature especially if you have multiple monitors and want to setup a nice panoramic view to watch movies using Zoom Player. Unfortunately, this feature is limited to Windows Vista and not Windows XP.

Initialise Zoom Player and select Options from the top bar. If it is hidden, you need to click on the small circular icon (Show Top Bar) next to the multimedia controls on the player or use the shortcut – [Ctrl] + [O]. Make sure you are in the Advanced mode, or else click on the Switch to Advanced

Mode button. Click on the arrow next to Playback to expand that menu list and then click on Videos and Subtitles. Once here select EVR (Requires Windows Vista or .NET3 installed) option from the drop down menu. Also remember to check 'Allow EVR to span videos across multiple monitors' which falls under the Video Renderer Settings on the same Options screen and then click on Apply and then OK Now you would also need to get rid of the entire Zoom user interface so that you get only the video playing across your monitors. For this just press [F7] and you are set. If you want to restore the user interface press [F4].

For EVR to work properly with Zoom, you will also require to set the Zoom Player to play across all screens. To achieve this, a shortcut needs to be created on the desktop, so right-click on the desktop, go to New and then select Shortcut. Select zplayer. exe from the path which will be located in Program Files under Zoom Player by default. Right-click on the shortcut and select Properties. You will need to the add the X, Y, W and H, where X and Y set the top left position of the total video window and W and H are the total Width and Height of the monitors connected. The values will have to follow the Target in such a manner: "C:\Program Files\Zoom Player\zplayer.exe" /X:0 /Y:0 /W: 1920 /H: 1080.
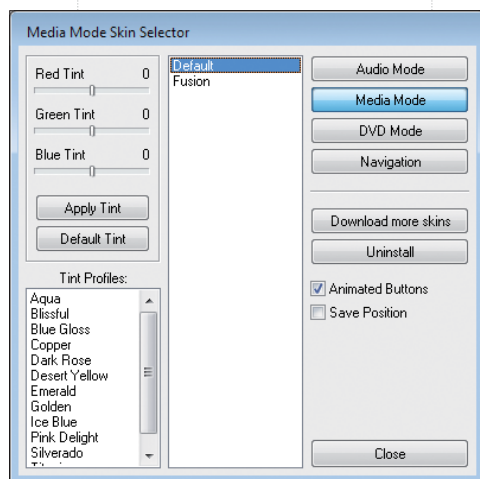
Skin options

Your Questions, Our Answers

All your computer niggles and nags are dealt with here!

Overheating processor

Whenever I play games such as *Gears of War, Crysis, GTA IV*, or *Quake 4*, my CPU temperature shoots to 90 degrees and my motherboard temperature also reaches 50 degrees. I'm not sure about the graphic card temperature, but I'm sure the CPU temperature is high.

Although these games work well, I'm worried about the hardware temperature. How can I fix this?

Applying thermal paste to the CPU

My system configuration is given below:
- Intel Core2 Duo E8400
- ASUS P5QE motherboard
- RAM - Transcend 2 GB x2 800Mhz DDR2
- Cooler Master Extreme Plus 460W PSU
- XFX 8800GT - 512MB
- Samsung SyncMaster 2243NW
- Seagate Barracuda 500GB HDD
- Sony DVD Writer
- Windows XP Professional

Jayesh

The CPU temperature of 90 degrees is extremely high and it's not advisable to run your PC at such high temperatures.

One of the major causes could be a wrongly fitted CPU heatsink. There might be no thermal paste between the heat sink and the processor. If the heatsink normally feels hot to touch, remove it and apply a thin, even layer of thermal paste on the processor and re-attach the heat sink. If the temperatures are still that high and the heat sink isn't getting very hot, it could be a bug with the thermal monitor. Check the updates for your motherboard's BIOS. If it's a known bug, you will have to flash your motherboard's BIOS.

Random blue screens

My computer configuration is: Intel Celeron 2.53 GHz Processor Asrock 775 i65GV Motherboard 80 GB Seagate HDD Supercomp 400W SMPS Windows XP Professional SP2 My problem is that when I click on a drive, it does not open. Can you tell me how to set `Open` as the default action. Can you also tell me more about the Windows Blue Screen of death? I have faced it two or three times so far. How do I get it on demand

Memtest86+ is a good utility to scan for memory errors

and how do I get rid of it?

Biswajit Tudu

The default drive action might have been modified by a worm or virus. To change this, you'll have to reset the setting for the drives. One of the simplest ways to fix it is to click on `Start > Run`. Type `regsvr32 /i shell32`.

Memtest86+ is a good utility to scan for memory errors.

Faulty hardware could be one of the causes for the blue screens. Bad memory, faulty hard drives, buggy drivers could also cause this. Run a program called Memtest86+ (**www.memtest.org**) to scan your memory for errors.

A few Macbook queries

I recently bought an Apple Macbook Pro 15 with a 2.66 GHz Processor, 4 GB DDR3 RAM, 320 GB 7200 RPM HDD and a NVIDIA GeForce 9600GT 512MB

DDR3 graphics chipset. I want to create a new partition to install Windows Vista Ultimate 64-bit, so can you please guide me? As you know that the track pad of this notebook doesn't have any click buttons so can you please tell me how to right-click on a folder or file in Windows Vista?

Shekhar Sinha

Partitioning of the drive can be done using Bootcamp. You can also resize existing partitions and make space for new partitions during the installation process itself.

DVD drive problems

My system consists of an AMD Athlon 1700+ and an ASUS motherboard. My operating system is Windows XP with Service Pack 2. I have a LG DVD RW drive on my system. It was working fine but two to three weeks back, I found that the drive wasn't able to write CDs.

Using Bootcamp to setup partitions and install operating systems

Q&A

Intel P55
Manufacturers show off
Intel's P55 chipset boards;
P57 expected soon

Wolfenstein
New Wolfenstein game
is expected to be
released this August

It isn't even detecting blank CDs now. It gives an error message - "Insert a disk into drive". Reading of DVDs and regular CDs works fine. It even reads and writes blank DVDs. Please help me solve this problem.
Pranab Shyam

It appears your drive is spoilt. If the drive is still in the warranty period, get it repair or replaced.

Printer doesn't print all characters
When I print an e-mail which is basically a scanned document, it misses some characters on the right. Please advise me on how to print a scanned document. Do you know of a software which can print the scanned document properly. I have HP 640C printer which can print A4 size.
Rajesh Kumar

One of the simplest ways is to setup the page in the printer properties properly. If some characters are being left out, set the printer to resize the page down to size before giving the print command. While scanning, make sure you scan the entire page instead of just a fixed area. Use the Page Preview to get an idea of how much of the page overflows.

µTorrent questions
I have an ASUS Eee PC with an Intel 1.6 GHz Atom processor and 2 GB of RAM. I have a

128 kbps broadband internet connection.
I have three questions
1. Every time a torrent finishes downloading, a message pops up saying that a download has been completed. Is there any way to disable this message?
2. I want to pause torrent downloads at 50%, I don't want to do this manually. Is there any way I can enter this value into uTorrent so that all torrents are paused at 50 per cent.
3. Is there any way to hide the uTorrent icon without uninstalling it?

I use uTorrent 1.80. I don't mind using other bit torrent downloading application if necessary.
**Ashish Mathew**

The download completion pop-up is just an alert that µTorrent gives. It can be turned off by clicking on `Options > Preferences`. Under the UI settings tab, uncheck Show balloon notifications in tray. This will stop the popups from showing up.

µTorrent has no way to stop downloads when they reach a certain point. You can set schedules for the time slots you want it to download or to limit download speeds. Click on the Scheduler tab to do this.

The boss key lets you quickly hide all signs of uTorrent

The boss key is one way to hide the µTorrent window. Click on `Options > Preferences`. Click on the
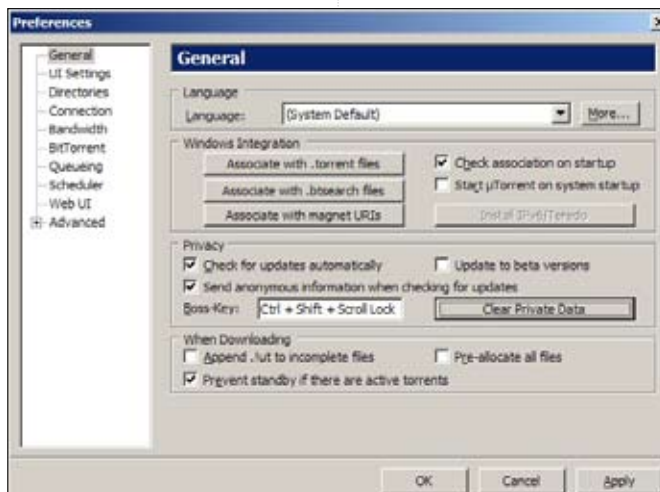
The boss key lets you quickly hide all signs of uTorrent

General tab and set a boss key. Preferably, use a combination of keys. Setting up uTorrent to run on another account using the Windows Task Scheduler is also possible.

MSN worm woes
I have got this weird worm on my MSN Live Messenger. Apparently, when any of my contacts comes online, they get spam messages from me. I don't see these message from my end, nor does it ever kick me off the messenger as if I'm being logged in somewhere else. I have run several different spyware scans but none of them have helped fix this. I have tried changing my password and secret question from a clean computer, and I have reinstalled updated versions of MSN Messenger several times. Nothing else

on my computer seems to be affected. I have scanned my PC with some scanners that were bundled with Digit last month. I also updated them but this worm doesn't seem to be affected. I have tried using MSN Cleaner but nothing works.

Please help me solving this menace. I had freshly formatted my system before I got this problem. I am facing this problem for first time.
danbabyface from Digit Forum
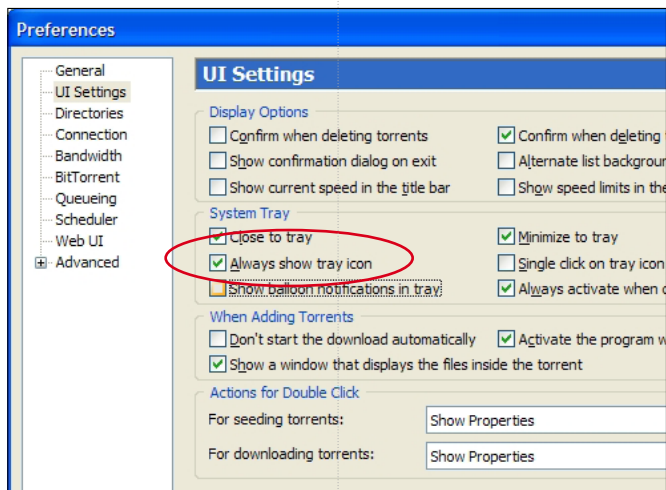
There is definitely some kind of worm on your system and the problem you are facing is common online. You should try some other anti-virus applications to try and fix the problem. A temporary fix would be to stop using MSN Messenger and use a third-party MSN messenger client. Miranda
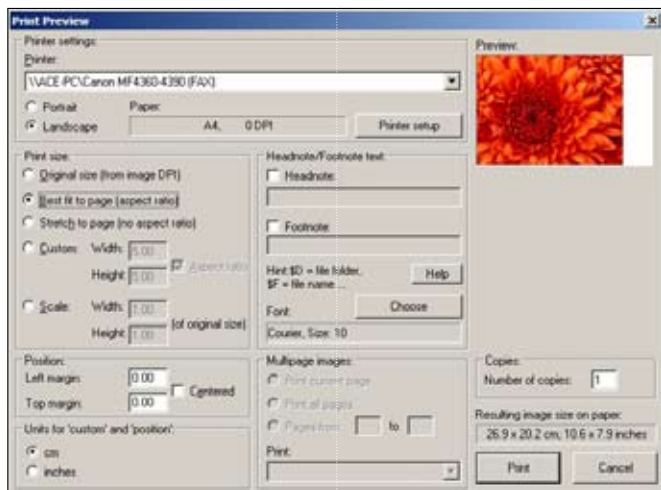
An example of the page preview function in Irfanview

Turning off balloon notifications in uTorrent

IM (www.miranda-im.org) and Pidgin (www.pidgin.im) are two free alternatives. In future, avoid clicking on suspicious links posted on instant messengers.

Password protection errors with flash drive

1. I have an 8 GB Kingston pen drive. One day I gave it to my friend and after I got it back I have been unable to copy any data, neither am I able to format it. Every time I try to copy data, it says write protected. Is there any way to remove the write protection or is it useless now?

2. I have a 512 MB MicroSD Kingston memory card. I locked it with a password. Now I have forgotten the password to my card so I am not able to use it with any other cell phone or on any card reader. Is there any way or any software to change or remove the password of my memory card?

3. I wanted to know if we can connect XP and Vista over the network.

Alok Aswal

Try using USB WriteProtector (www.gaijin.at/dlusbwp.php) to unlock the drive. With any flash drive or memory card, one of the simplest ways to remove the write protection is to delete the partition. Click on `Start > Control Panel > Administrative Tools > Computer Management`. Click on the flash drive, right click on the only partition and delete it. Remember that this will delete all the data on the drive. If nothing works, it might be worth trying to format the drive also.

If you are using a Nokia phone, use an application called FExplorer and access the memory card. The password

USB WriterProtector may help unlock flash drives

Miranda IM is an all-in-one messenger, is extremely light and very customisable

should be present in a text file in the root folder.

Windows XP and Vista will have no problems accessing each other over the network. Once on the network, you should be able to see shared folders through the Network link in Windows Explorer. Just make sure to share folders before you do by right clicking on a folder and clicking on Sharing.

People keeping shutting off my downloads!

Congrats on being the most efficient technology team in this country. I have a little problem with torrent downloading. Others using my computer turn off uTorrent. Using the boss key is not always possible so I'm always around the computer when the others turn on the computer. I want to know if there is any script that automatically turns on the boss key when uTorrent loads.

Divyatanu

If there are users turning off your uTorrent client, you should create a separate account for

yourself. When the other users need to use the computer, ask them to login through the other account. Set a password for your own account. If you're using Windows XP, go to the Control Panel. Click on User accounts and change the way users log on or off. Multiple user accounts can be logged in simultaneously this way and so your downloads will continue.

Downgrading to XP

My Lenovo 3000H Series PC configuration is an Intel Pentium Dual Core (1.86GHz), 160 GB HDD and 1 GB RAM. I use Vista Home Basic. Even though I have Quick Heal Anti virus Plus 2009 (SP1) installed with latest updates, Windows Security Centre shows me a message saying "Windows did not find an anti-virus software on this computer". How do I correct this?

I also wanted to ask you if I can install Windows XP (Professional or Home Edition) on this computer since it came pre-installed with Windows Vista Home Basic.

Rudrashish Bose

There might be some kind of interfacing glitch between the anti-virus and Windows. One way to get rid of the error is to manually set Windows to ignore the anti-virus alert. Go to the Security Center from the Windows Control Panel. Click on Check Settings for the anti-virus component and click on I have no anti virus that I'll monitor myself. Yes you can install Windows XP in a dual-boot configuration on top of your existing Vista Home Basic installation. You might need to prepare a partition for the installation though.

Problem deleting some files

Guys, help me out here. There are these three files on my hard drive – AcroIEHelper.dll, AcroPDF.dll and pdfshell.dll that refuse to delete. When I try to delete them, I get an error message - "Access is denied. Make sure the disk is not full or right protected."

When I format the partition, the files remain intact. I have tried file shredders but they fail to delete the files. They exist in this location and even in the partition where I have windows installed `C` and `D:\Program Files\ Common Files\Adobe\ Acrobat\ActiveX`.

If you know a way to delete these files, please let me know. I currently have Windows in the D partition.
wildr.slimshady from Digit Forum

After uninstalling certain applications, a few DLL files are left behind. These DLL files might have been left behind after you uninstalled some Adobe Product. I suggest letting them be there as some other application may be using them and moreover such files just takes kilobytes of space so why bother?

mrintech from Digit Forum

Email account being misused?

I have an email account. The password is only known by me and I don't think the account has been compromised. I have changed the password recently. Since the last few days, I have been receiving lots of mails; some of them saying remove me from mailing list. What are these emails? Is it some kind of a virus or a joke.

What do I do next? I have been receiving lots of these emails and I have been sending back mails asking them to remove me from the list.

My ISP uses a proxy server. I don't use any SMTP nor do I have a mail server or client installed on my computer. Is my computer being misused over the internet? I haven't been on any of the sites mentioned in the email. I use the latest version of NOD32 and the firewall doesn't show me any problems.
Saharika from Digit Forum

It's just spam. Use a spam filter or ignore the junk mail. Also, never reply to junk mail - this just confirms that your email address is genuine.
sakumar79 from Digit Forum

Platform Builder

Agent001
agent001@thinkdigit.com

Economic conditions not withstanding, many readers have written in over the past two months with queries relating to upgrading their ageing PCs. When building a PC, my advice is to look at exactly what you want and buy according to your needs and applications. Blindly opting for a quad-core CPU with 4 GB of RAM doesn't work for everybody.

There are no less than 40 processor models and well over 150 motherboards available today – a wide variety. Once your decision to upgrade (or buy a new machine) is made, ask yourself for what exactly will you use this configuration? This is the most important part of making a good decision. Are you a casual multimedia user or a gamer? Do you do a lot of encoding?

Most casual multimedia and basic home users will want to look at a budget dual-core processor. Keep aside a budget of around Rs. 4,000 for the processor. Both Intel and AMD have good offerings at similar price points. A couple of AMD entry-level tri-core Phenom CPUs sneak into this price range.

I recommend AMD's Athlon X2 5200+ (2.6 GHz) for those looking for a decent multimedia PC. It's priced at Rs. 2,950 and represents the rock bottom CPU from AMD; for something faster look at the X2 7750 (2.7 GHz) priced at Rs. 3,200. Gigabyte's MA78GM-US2H built around the 780G chipset is a good board for these CPUs. Priced at Rs. 4,750, this board is feature rich and powerful. Alternatively, ASUS has an offering based on the same chipset called the M3A78-EM but this board does not have an HDMI port. Invest in at least 2 GB of DDR2 RAM or 4 GB for Vista. DDR2 is dirt cheap and 4 GB from Kingston or Corsair will cost
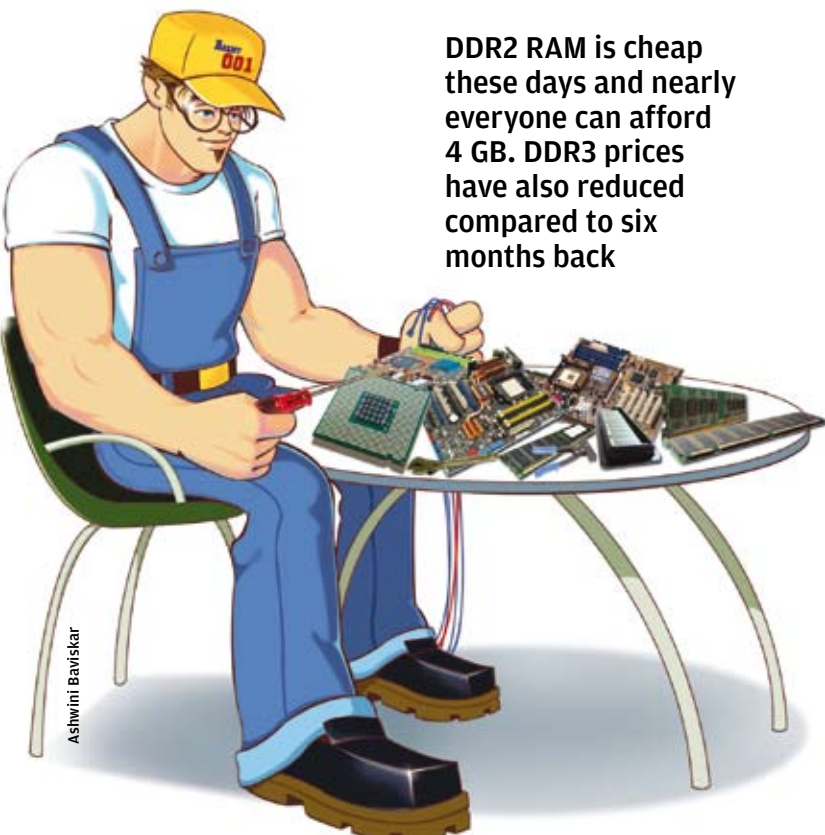
as little as Rs. 2,500.

If you're looking for a gaming PC, remember that your processor is not as important as your graphics card and you should spend most of your money on a high-end card, as this is what really enables gaming at higher resolutions and at higher graphics settings. Most users believe a very fast CPU is important, but the CPU should be fast enough not to bottleneck your graphics card. Games are largely single-threaded with the exception of a few titles and while this will change in the future, a fast dual core is much better than a slower clocked quad core. Hardcore gamers should look at Intel's Core 2 Duo E8500 (3.16 GHz) or E8400 (3.0 GHz). These CPUs are priced at Rs. 9,500 and Rs. 8,400, respectively.

The choice of motherboard is more dependent on the choice of video solution. Those looking at multi-GPU setups will be forced to pick from a limited number of chipsets – NVIDIAs nForce 780i and 790i for SLI and Intel's X48 and X38 chipset-based boards for CrossFire. These boards can also get expensive. For an SLI setup, we recommend Zotac's GeForce 780i Supreme for Rs. 9,500. Unfortunately, X38 and X48 boards are costlier, in the price range of Rs. 14,000 or so. Another solution exists, but it's costly albeit a bit more flexible. Intel's Core i7 processors are based on its X58 platform and this solution has support for both SLI and CrossFire – useful for a long term rig where one might want to change GPU solutions. An i7-based system gets costly as the cheapest CPU (Core i7

920) is priced at Rs. 14,500. You must also invest in costly DDR3 memory as the X58 doesn't support DDR2. For a Core 2 Duo platform based on a single GPU solution, we recommend a motherboard based on Intel's P45 chipset. ASUS' P5Q-C is available for Rs. 10,200 and is a superb, feature-rich solution. Even cheaper is Gigabyte's EP45C-DS3R and is as good in terms of quality and features. You can pick it up for Rs. 7,900. Once again we recommend 2 x 2 GB of RAM.

Some power users will want a quad core processor for bragging rights. Others will demand more grunt for rendering and encoding, both of which are multi-threaded applications. If you must have a quad core, look at Intel's Q8200 (2.33 GHz, Rs. 8,400), it's a reasonably fast CPU and can also be used for gaming. The Intel Q9550 (2.83 GHz) is also available for power users and this CPU has a massive 12 MB L2 cache. It's costly though, at Rs. 14,400, but will satisfy almost any user. For a motherboard, the two P45 options from Gigabyte and ASUS remain unchanged. Once again, the fastest quad core is the Core i7, but the cost of a motherboard and DDR3 memory will be prohibitive for most. However, if you must go this way, opt for a Core i7 920 (2.66 GHz), Intel DX58-SO motherboard (Rs. 14,500) and at least 4 GB of DDR3 1,333 MHz memory from Kingston/Corsair/OCZ. Expect to pay at least Rs. 6,000 for a 3 GB, tri-channel kit, while faster kits with speeds of 1,600 MHz will cost close to Rs. 10,000. There are 6 GB kits also available, but we don't recommend these unless you are on a 64-bit operating system that can utilise more than 4 GB of RAM and you really need it.

DDR2 RAM is cheap these days and nearly everyone can afford 4 GB. DDR3 prices have also reduced compared to six months back

Ashwini Baviskar

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Consumer protection
We speak out on your behalf, protecting your rights as a consumer

New i7 steppings
Intel's i7 940 (2.93 GHz) is soon to be discontinued and replaced by the i7 950 (3.06 GHz)

Ionised!
NVIDIA's 9400M graphics solution adds much needed grunt to Intel's Atom processors, and together form the ION platform

Agent 001

Q I want to buy a new PC. My total budget is Rs. 70,000. I already have an LCD TV and speakers, and so I don't need these. Is Quad Core required or will Core 2 Duo be more than sufficient? Which series in Core 2 Duo is good? I want to be able to add performance in the future. Which motherboard do you recommend? Should I go in for a full tower cabinet or a compact one? I don't wish to compromise on performance unless it is very marginal. Do I need a 1000 W power supply or will something smaller do? Remember, I want SLI or Crossfire in the future. Also, which ISP should I choose? I wish to have good download speeds. My budget for this is Rs. 300 per month, not more.
Anand Krishnan

A Hi, regarding the ISP, you will have to check locally, since tariffs differ. I have found Reliance's WiMAX service to be good. BSNL is also convenient for most, but your budget needs to be extended. Regarding your PC, unless you can go for a Core i7, remember that both SLI and Crossfire will not be possible on the same motherboard. I recommend a Core 2 Quad-based PC based on DDR2 RAM. I don't recommend either SLI or Crossfire; stick with a single card.
My PC configuration is Intel Core 2 Quad Q9550 (Rs. 15,500), ASUS P5Q motherboard (Rs. 8,500), 2 x 2 GB DDR2 800 MHz (Corsair) (Rs. 3,600), ZOTAC GeForce GTX 285 (Rs. 25,000). Buy a Corsair HX 620 or TX 650 PSU (Rs. 6,500). The Coolermaster 690 chassis (Rs. 4,500) should be suitable for this rig. You will spend Rs. 63,600 on these components.

Q I live in Nepal and want to buy a laptop. My budget is Rs. 70,000. It should have about 2 GB RAM, 160 GB hard disk and I also want to use it for light gaming. If I have to buy it from India, what will be the shipping cost and price in Nepalese currency.
Anish Dhami

A I recommend the Dell Studio XPS 16 if size is not a constraint for you. Alternatively, if you want something compact the Studio XPS 13 is my suggestion. Both of these are available from Dell India, but I'm not sure about their availability in Nepal. You could try getting in touch with Dell's helplines in India. Both notebooks will fit within your budget and with shipping should come close to Rs. 70,000. Alternatively, try down New Road in Kathmandu.

Q I want to buy a good camera phone. I want something new and flashy looking. My budget is Rs. 10,000 to 13,000.
Vishal Singh

A I suggest Sony Ericsson's K850i, available for Rs. 14,000 on the street, although the MRP is much higher. It's got a great camera and is a good phone if you can live with the tiny keypad. It's also very compact. Else, Nokia's N73 Music Edition will be available for Rs. 12,000 or so, and while its camera is not as good, it's every

bit as good a phone and has good battery life.

Q Can you help me select a graphics card for mid-end gaming (FIFA'09 etc) within a budget of Rs. 5,000 to Rs. 7,000. Does it make any difference with respect to performance, compatibility and service between NVIDIA & ATI? Also, does it require a higher capacity power supply?
I've the following existing configuration:
Processor: Intel Core 2 Duo E6420 2.13GH, RAM: 2GB
Jinesh Gandhi

A I recommend an NVIDIA GeForce 9600GT-based graphics card. Brands such as EVGA, Zotac, ASUS and Gigabyte are the best. You could also look a Palit, which may be a bit cheaper. All of these brands should have offerings priced below the Rs. 7,000 mark.

Q After scoring good in my boards, my father wants to gift me a mobile, after reading two to three of your magazines I ended up on Samsung L700. It fits best in our budget with a street price of Rs. 6,800. Is there any other option? My basic requirements is 3G, a good camera (best one I can get) with great looks. My budget is Rs. 6,000 to Rs. 8,000.
Varun Dhiman

A Since you want good features, I suggest hunting around for some of the older models in the market. Sony Ericsson's K750i (non 3G) and Nokia's 6630 are two great models that have become very cheap because they are old. However, their capabilities have not diminished in any way. You could also check out the Sony Ericsson K660 that has a good camera. All of these should be priced below the Rs. 8,000 mark. Out of the three, the Nokia

6630 has the most basic camera.

Q I live in Andaman and I'm a student. I want to buy a digicam with at least 7 MP. My budget is Rs. 8,000.
Rahul Bairagi

A I recommend Canon's A480 or the A590IS, although the latter may be a bit overpriced. Please remember to check the street prices instead of purchasing it from some mall or showroom, since the prices will be much lower.

Q I plan to upgrade my old PC for some future proofing and decent computing experience. My motherboard does not support a graphic card slot, has 512 MB of RAM and an Intel Celeron 2.0 GHz CPU. It would

be very kind of you if you could suggest some serious upgrades for my antique piece. I require it for smooth game play, for being able to play a few of the latest games like Prince of Persia 4, COD4, DMC-4, Spiderman 3, although not at highest detail levels. I have a total budget of Rs. 8,000. You may extend it by Rs. 2,000.
Piyush Mishra

A I recommend AMD 740G based motherboard. Brands to look at are Gigabyte, MSI and ASUS. Expect to pay around Rs. 3,500 for the motherboard. A GeForce 9400GT graphics card will set you back by Rs. 3000 more. AMD's X2 5400+ should cost you around Rs 3,000. Finally pick up 2 GB of DDR2 RAM for Rs 1,500. If you could extend your budget further, spend an additional Rs. 3,000 on the graphics card and pick up the GeForce 9600 GT – a sweet deal that will play all these games with some of the eye candy enabled.

KILLER RIGS

everything you will ever need to build your own PC. whatever your budget.

- Basic rig = Rs. 19,950
- Multimedia-cum-gaming rig = Rs. 83,100
- Ultra high-end PC / Gaming rig = Rs. 1,61,400

MONITOR
- Acer 1916W / Rs. 6,800
- Dell E228WFP / Rs. 14,500
- Dell S2409W / Rs. 15,000

HARD DISK
- Seagate 250 GB 7200.11 / Rs. 1,900
- Seagate 1 TB 7200.11 / Rs. 6,500
- Western Digital Velociraptor 300 GB / Rs. 11,500 or Western Digital 1 TB Black Edition / Rs. 7,000

CABINET
- Zebronics Antibiotic / Rs. 2,100
- CoolerMaster 690 / Rs. 4,400
- CoolerMaster Sniper / Rs. 11,500

POWER
- VIP 350 Watts / Rs. 850
- Corsair TX 650 / Rs. 6,500
- CoolerMaster RealPower Pro 850W / Rs. 11,200

GRAPHICS CARD
- None
- Palit Radeon HD 4870 1 GB SONIC / Rs. 18,100
- ZOTAC GeForce GTX 295 / Rs. 35,000

MOTHERBOARD
- ASUS NVIDIA 7025 M2N68-AM / Rs. 2,250
- Abit IP35-E Rs. 5,300
- ASUS P5Q Deluxe / Rs. 14,000

SPEAKER
- None
- Altec Lansing MX 5021 / Rs. 6,500
- Logitech Z5500 / Rs. 15,500

MOUSE
- Logitech 3 button scroll / Rs. 300
- Logitech MX518 / Rs. 1,300
- Razer DeathAdder / Rs. 2,500

KEYBOARD
- Logitech Multimedia / Rs. 400
- Logitech G15 / Rs. 4,500
- Logitech G15 / Rs. 4,500

SOUND CARD
- None / NA
- ASUS Xonar DX / Rs. 3,700
- ASUS Xonar DX / Rs. 3,700

MOUSE
NLOGITECH 3 BUTTON SCROLL / RS. 300
NLOGITECH MX518 / RS. 1,300
NRAZER DEATHADDER / RS. 2,500

CPU
- AMD Athlon XP 6000+ / RS. 2,850
- Intel Core 2 Duo E8400 / RS. 8,200
- Intel Core 2 Quad Q9650 / RS. 23,000

RAM
- 2 x 2 GB DDR2 800 MHz (Kingston Value) / Rs. 1,350
- 2 x 2 GB x 2 DDR2 800 MHz (Corsair XMS2) / Rs. 3,600
- 2 x 2 GB DDR2 OCZ Platinum 1066 MHz / Rs. 7,000

Motherboards

Model	Market Price	Tested in	Socket	PCI-e x8/x16 slots	SATA Ports	No. of rear USB
ASUS M3N78-EH	Rs. 5,200	November 2008	AM2+	1	6	4
ASUS P5Q Deluxe	Rs. 12,600	June 2008	LGA775	2	6	6
ASUS P5Q-PRO	Rs. 6,900		LGA775	2	6	6
ASUS P6T Deluxe	Rs. 21,650	April 2009	LGA1366	3	6	8
Gigabyte GA-EX58-UD5	Rs. 17,500		LGA775	3	6	8
Intel DX58SO	Rs. 15,000		LGA1366	2	6	8
MSI X58 Eclipse	Rs. 19,500		LGA1366	3	10	8
XFX nForce 790i Ultra	Rs. 16,000		LGA775	3	6	6
Zotac 780i Supreme	Rs. 14,500		LGA775	3	6	6

Hard Drives

Model	Market Price	Tested in	Speed	Cache	Interface
Seagate 1.5TB	Rs. 7,700	March 2009	7200RPM	32	SATA 2
Seagate 1TB	Rs. 5,250	April 2009	7200 RPM	32	SATA 2
Seagate 7200.12 500 GB	Rs. 3,150	April 2009	7200 RPM	32	SATA 2
Western Digital Caviar Blue 1TB	Rs. 7,500		7200 RPM	16	SATA 2

Graphic Cards

Model	Market Price	Tested in	Core Speed	Type of memory	Memory
EVGA 9600GT Knock-out	Rs. 7,000	November 2008	700 MHz	GDDR3	512 MB
Palit Radeon HD 4850 SONIC	Rs. 9,550		685 MHz	GDDR5	512 MB
Palit Radeon HD 4870 SONIC	Rs. 12,000	October 2008	750 MHz	GDDR5	512 MB
XFX GeForce 8600 GT	Rs. 3,700		540 MHz	GDDR2	256 MB
ZOTAC GeForce GTX 285	Rs. 24,500	February 2009	648 MHz	GDDR3	1024 MB

Monitors

Model	Market Price	Tested in	Size	Resolution	Contrast Ratio	Response time
Acer AL2216	Rs. 9,800		22-inch	1680 x 1050	700 : 1	5 ms
BenQ T2200HD	Rs. 9,750		21.5-inch	1920 x 1080	1000 : 1	5 ms
Dell 1909W	Rs. 7,200		19-inch	1440 x 900	1000 : 1	5 ms
LG 177WSB	Rs. 6,400	May 2008	17-inch	1440 x 900	700 : 1	8 ms
LG W192W	Rs. 7,550		19-inch	1440 x 900	700 : 1	5 ms
Samsung 2033SW	Rs. 7,850		20-inch	1600 x 900	1000 : 1	5 ms
Samsung 943NWX	Rs. 7,500		19-inch	1280 x 1024	1000 : 1	5 ms
ViewSonic VX2255WMB	Rs. 12,500	May 2008	22-inch	1680 x 1050	1000 : 1	5 ms
ViewSonic VX2835WM	Rs. 28,000		28-inch	1920 x 1200	1000 : 1	3 ms

Digital Cameras

Model	Price	Tested in	Sensor	Optical Zoom	LCD Screen Size
Canon Powershot A470	Rs. 6,399	September 2008	7.1 MP	3.4x	2.5-inches
Canon SX10 IS	Rs. 24,500	June 2009	10 MP	20x	2.5-inches
Kodak C140	Rs. 5,499		8 MP	3x	2.4-inches
Nikon Coolpix L19	Rs. 7,200		8 MP	3.6x	4.7-inches
Olympus FE25	Rs. 6,990		10 MP	3x	2.4-inches
Sony DSC-H10	Rs. 15,660		8.1 MP	10x	3.0-inches

Consumer Protection

Obama for Consumer Protection
As part of Barack Obama's plans for revitalising the economy, the White House has announced plans for a new state sponsored agency called Consumer Protection Financial Agency which will deal with mortgages and credit cards among other things

Digit asks, HP responds...

Many readers have written to us complaining of repeated problems with HP laptops, particularly those with NVIDIA chips overheating. We first contacted HP about these problems at the end of March, and the company has recently responded, endeavouring to determine just what has been going on, and to help solve our readers' problems.

Edward Hennings
edward.henning@thinkdigit.com

It came to us as quite a surprise, after asking readers to write in with service problems to find that nearly half of those that arrived concerned HP laptops. As I wrote at the time, in our May issue: "So, is this a statistical cluster, or does HP really have a problem?" The answer seems to lie midway between the two. Statistically, we are likely to see a fair number of problems with HP simply because of the company's large market share and the sheer size of the operation. Problems are bound to occur.

In the top seven cities in India, according to HP's figures, the company's market share of laptops is 61-62 per cent, with a national average of 54 per cent. This means that the company is shipping between 65 and 70 thousand units per month. These are serviced through over 350 service points across the company. Things are bound to go wrong, and HP has told me that each month a handful do experience serious problems.

But not all problems are genuine, and clearly any company like HP will need to distinguish between genuine and invalid problems. I was told that it was not possible to formulate an unambiguous policy to cater for all instances and problems. For example, somebody in the channel might drop a unit, it then gets passed onto the customer, who tries to get a fix from HP. One user had the strap break on his laptop

case after just a few days over ownership, and the laptop crashed to the ground - should HP replace the laptop?

HP told me that checks and balances are in place, but sometimes these go overboard, and a user with a genuine problem finds it difficult to get a proper response. So, what if a user has a genuine problem, and does not get an appropriate response from HP? We have two readers whose motherboards have been replaced or repaired eight times - surely, once two or three repeat repairs have been done, a different approach should be taken?

HP told me of the "escalation channel" to use in such an instance. Looking at the huge HP web site, it is not clear what process is intended by this. HP

V3000 advisory

The advisory apparently mentioned by HP service staff to Manoj Nair, is called "HP Pavilion dv2000/dv6000 and Compaq Presario v3000/v6000 Series Notebook PCs - HP Limited Warranty Service Enhancement". This advisory certainly exists on the HP web site, but it is very difficult to find. I needed help - a direct link - from HP to access, and so how a user will come across it when they might not even know it exists, is beyond me. The advisory mentions the availability of extended warranty for these models, and also a BIOS upgrade, and describes problems such as failure of the WiFi adapter to work, lack of video display and failure of the laptop to start. But there is no mention of the overheating problem at all.

has told me that there are three ways in which a user can access this channel:

On the website, go to the page entitled "Register a Complaint" - this page is not easy to find. Searching on those words does not locate the page.

The cause of the problems?

Given that most of the problems our readers have reported entail repeated failure due to overheating, it is natural to consider the problems that arose a year or so back with NVIDIA chips, particularly the GeForce 8x and 9x series. These contained a manufacturing flaw that did cause overheating - reported in laptops from HP, Dell and Apple. However, this was some time ago, and according to NVIDIA, the problem was fixed "two generations [of chips] ago". Also, HP has assured me that none of these chips made their way into the Indian market, but were restricted to the north American market. Some may have been grey imports, of course, but the company has told me that all HP laptops for sale in India are made in China, and there were no shipments of the faulty NVIDIA chipsets there.

And yet our readers laptops are still overheating. What is going on? HP operates a process called "unit capture" when there is a persistent and repeating problem. A user is given a replacement machine, and their own laptop is sent over to HP in Cupertino, California, in order to diagnose what has been going wrong.

Of our two readers whose

motherboards have been repaired eight times, Manoj Nair's laptop has been repaired and returned to him. He has told me that his laptop is, for now, working fine. Mridhul Sanjeev has been given a replacement laptop, and his own one has been sent to Cupertino for analysis. Hopefully, we will have an answer soon.

Warranty

Of the cases that we had passed on from readers to HP, a few were in fact outside of warranty. The standard warranty is for one year. However, a user can purchase an HP "Care Pack" which effectively extends the warranty by up to three years. There are many different levels of service that you can pay for: whether you want a six-hour call out, or will next day do, whether you would need a replacement machine while yours is being fixed, etc.
We have mentioned the fact that checks and balances are in place to determine whether a complaint is genuine or not, and one aspect of this is whether the machine is still under warranty. HP explained that the end of warranty is very much an on/off type of thing; there is no good calling HP, or any other company for that matter, and pleading: "It's just one week after the end of warranty." That simply will not work.
So, make sure that all your paperwork is in order when you purchase a machine or other product, check the date on the bill, and fill in and post off any registration forms that are required, making a copy of them first, if possible.

President Patil for standards

Closer home, opening the ISO consumer plenery meeting, the president stressed on standards on products for building confidence in the market and putting an end to the recession

Fight the SMS spam

The Indian Consumer protection act allows you to complain against the service provider if you get unsolicitated messages

Consumer protection

Another reader who experienced repeated problems was Dr. Sanjay Tharoor, and he has also told me that at least for now, HP has fixed the problems with his laptop and it is working normally. HP considers that the problems have finally been resolved. Another reader with overheating problems with his Pavilion dv2701TX was Sumir Josan. HP tells me that his heatsink has been replaced, and that the laptop has been returned. We have not yet heard from Sumir.

However, some readers have told us that HP service engineers had told them that overheating is inevitable with these system, and one reader had been informed that there was an HP advisory on his model and that it was not suitable for sale in India. The advisory certainly exists - see the box for the details - but it does not suggest that the models are unsuitable for this country. But are they?

By chance, a colleague in our office has an HP Compaq Presario CQ50-106AU. When used in his home - not air-conditioned - even

Write in

If you have a genuine example of truly bad service, such as a product going wrong within warranty and the supplier refusing to fix or replace it, then please let us know at: servicewatch@thinkdigit.com. Make sure that you have proper documentation (receipt, etc.) to back up your complaint. We cannot promise even to reply to all the emails we will receive, but we will pick a selection and take them up with the relevant companies at the highest level.

uses it in a normal atmosphere; like, when, you know the temperatures in Delhi; OK, obviously you will tend to see temperatures like we have [here]; we can't avoid it. Even I find a difference when I use my notebook. In the office I don't feel any issue."

Perhaps these notebooks are not suitable for sale in India - at least, not suitable for use in India during the summer without air-conditioning! It is certainly the case that a hot and humid climate is not good for computer hardware, but surely, does it make sense to sell laptops with the same thermal

In the May and June issues of Digit, we reported a large number of complaits to Hewlett-Packard. This month, HP responded with their side of the story and have also replaced several readers' laptops.

characteristics in India as in, say, Europe? Is that what HP is doing?

NVIDIA in the US has told me that the configurations of laptops are very similar among different vendors, and each particular chassis has well defined and understood thermal characteristics. It

designs its chips to match the specified thermal characteristics in order to avoid overheating. The company had not heard of problems such as our readers have been reporting, and is going to look into this further and help us understand just what might be going on here.

Register your complaints on HP's web site at:
h20526.www2.hp.com/cchs/forms/submitcase_eu.asp?CaseType=Complaint&country=in#
Alternatively, send an email to: in.ced@hp.com or telephone: 080-2504 1020.

when running idle, it simply shuts down after about 15 minutes, apparently due to overheating. So, it was brought into our office, and placed in a properly air-conditioned room. It happily spent a couple of hours running a video - a compute-intensive application that would be likely to cause overheating, if anything would. A sample of one is not sufficient to draw conclusions, but what does HP say about this kind of experience?

Diptesh Ghosh, HP Category Manager for notebooks, talked to me of one of our readers who had been running a fairly CPU-intensive application. He said: "The issue here is when he

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Thank you for taking the time to record an issue with HP. Your issue is important to us. Please enter as much detail as possible in the form to ensure a speedy solution. Your concerns will be directed to the most appropriate area using an automatic system that is designed specifically for registering a complaint. You may experience a delay in reply if you use this form for making other enquiries.

» Complaint Form

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Give your site some Web 2.0-ness with jQuery

Fast track to PHP
For a better understanding of this subject, read the Fast track to PHP with the January 2009 issue of Digit

Get your site up and running with WordPress

Construction Complete

Nimish Chandiramani
readersletters@thinkdigit.com

Every business needs a place on the web, and the quicker you can get a functional web site up, the better. There are a number of great open source content management systems (CMSs) to help you start and run a web site, but you'll need time to figure them out – and while you do, your site's visitors must bear with the "under construction" sign on your home page. WordPress, meanwhile, stands out as one that's extremely flexible, easy to set up, and easy to customise.

Need to know

Before you run off to start creating a WordPress-based site, there are a few things you need to remember. First, WordPress is best for a site that is regularly updated, so it's perfect if a business blog or newsfeed is part of your plan, but overkill if all you want is a few static pages.

Secondly, WordPress still is, at its core, a blogging engine. The default WordPress installation looks like a blog, so don't plan on using that for your website. The good news is that there are a number of WordPress themes tailored for all sorts small businesses, and if you have some skills with CSS layouts (which aren't hard to obtain), you can design a theme of your own in a day or two.

Thirdly, while WordPress's core features are impressive on their own, they aren't tailored for businesses. It doesn't have any ad management features, for instance, nor does it have any site statistics built in. Again, this is easily remedied—WordPress has a huge database of plugins that'll add these functions to your site, and installing them is embarrassingly easy.

Finally, before you begin setting up WordPress, you'll need to have some information handy:
- A MySQL username and password for your site (you can get this from your site's host)
- The ability to access your site's files via FTP
- The latest version of WordPress, from **wordpress. org/download**.

Setting it up

Several hosting providers provide you with cPanel or an equivalent – a simple control panel for you to administer your website – which will let you install WordPress without needing any configuration. Even if you don't have this feature, installing WordPress is simple enough.

Before beginning, create a new database in MySQL – this will hold all the content and information for your site. Unzip the WordPress archive that

WordPress Mobile Edition
A plugin that'll format your site for mobile phone browsers, so you can make your site accessible on the go

WordPress users
Famous sites that use WordPress:
Wall Street Journal Magazine,
Wired Blogs, TechCrunch, The New
Adventures of Mr. Stephen Fry

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You can customise WordPress to work for any kind of site

you downloaded, and you'll see all the files you need inside a folder called wordpress. Rename wp-config-sample.php to wp-config.php. Open the file in any text editor, and enter your database name, username and password under "MySQL Settings".

Now use an FTP client to upload the contents of the wordpress folder to your site (if you upload the folder itself, you'd have to access the site by going to **www.yoursite.com/ wordpress**). Once the upload is complete, visit your site to begin installing WordPress. All you have to do now is enter a name for the site and your email address, and WordPress will give you an admin password so you can begin using your site.

Once you've got your administrator password, you can log into your site's

Installing WordPress is a no-brainer

Dashboard, which gives you a quick overview of what's happening on the site.

How the content works
When talking about content in WordPress, we use four terms – posts, pages, categories, and tags.

Posts are the most basic units of your site: every time you add new content to the site, you do it as a post. To add a new post, go to `Posts > Add New` in your dashboard. You can also add excerpts to posts, which are summaries of the posts' content. On your site's main page, posts appear newest first.

Pages are similar to posts, but are for static content – an "About Us" page, for example. They fall outside the normal structure of your site, and unlike posts, don't follow the

newest-first order. You also can't put them in categories.

Categories are self-explanatory. WordPress lets you put posts in as many categories as you need, and can even put uncategorised posts in a default category you can select. To create and manage your categories, go to `Posts > Categories` in your dashboard. To change the default category for posts, go to `Settings > Writing` and change the Default Post Category.

And finally, you can add tags to posts, which are key terms that describe the posts. Search engines pick up these terms when they're crawling sites, so if you're starting a company blog, tagging your posts is always a good idea.

Without customising your theme, however, your content is still going to look like a blog.

Customising the site
As of this writing, the WordPress theme directory has 832 free themes, and counting. You can even get your hands on a premium theme for anywhere between $5 (Rs 250) and $100 (Rs 5,000).

Once you've found a theme you like, download and extract it to your hard disk, upload the theme folder to **wp-content/themes/** on your site, and go to Appearance in the dashboard to activate the theme. Most WordPress themes will give you one or more sidebars (which may or may not be on the sides), to which you can add widgets, such as a calendar, a list of categories, and so on. To add widgets to your sidebars, go to `Appearance > Widgets`,

Default WordPress site, with a single sample post

and drag the widgets you want into the sidebars you want them in.

And when your site looks like it should, you can add plugins to make it work like it should. Installing a new plugin is as easy as the theme—download and extract it, upload the folder to wp-content/ plugins/, and go to Plugins in the dashboard. To enable the plugin you just uploaded, click

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WordCamp
Keep an eye on india.wordcamp.org to find out when the next WordCamp—an event designed around WordPress—will be held

WordPress on the fly
WordPress applications for the iPhone (and soon, for the BlackBerry) let you update your site from wherever you are
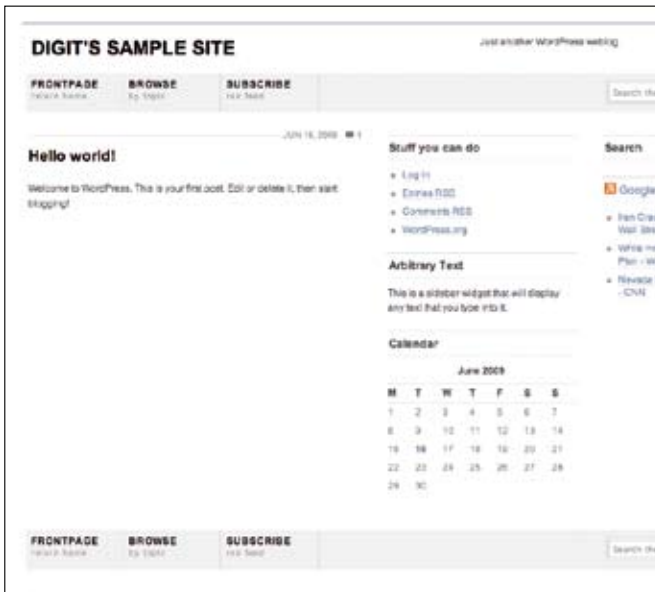
Gridfocus is a simple theme that gives you three sidebars to pollute with widgets

on the Activate link against it.

If the pre-made themes don't meet your needs, you can exploit the almighty WordPress Loop to create one of your own.

Getting Started With A Theme

There aren't enough pages for us to get into the nitty-gritties of theme design, but you need two files to get started: a style.css, that will contain all the CSS styles for your theme, and index.php, which will be the template that all your pages are based on. At the heart of it all

The Advertising Manager plugin lets you put an ad widget in your sidebar

is this bit of code, called the WordPress Loop:

```
<?php if ( have_
posts() ) : while
( have_posts() ) :
```

```
the_post(); ?>
    <!--this is where
you display content-->
    <?php endwhile;?>
```

This code gets your posts from the database, ten at a time, ready for you to display as you want it. For example, let's say you have a three-column layout, and the HTML looks something like this:

```
<div id="column-
1"></div>
    <div id="column-
2"></div>
    <div id="column-
3"></div>
```

Let's say that you want posts from the News category in column 1, the titles of all your posts in column 2, and a sidebar that you can stick

widgets into in column 3.

First, the news. Here, we'll use the `query_posts()` function, which lets you change the way that WordPress fetches posts from the database.

```
<!--start a loop in
column-1 for news-->
    <div id="column-1">
        <?php

query_posts('category_
name=News'); //
restrict only to the
News category
            //start
the loop
            if (
have_posts() ) : while
( have_posts() ) :
the_post();
        ?>
        <h1><?php the_
title();?></h1>
        <div
class="excerpt"><?php
the_excerpt();?></div>
        <a
href="<?php the_
permalink();?>">Read
More..</a>
        <?php
endwhile;?>
    </div>
```

As you can see, WordPress gives you functions that are quite self-explanatory: use `the_title()` to display the title, `the_excerpt()` to display the post's excerpt (or `the_content()` to show all the content), and so on.

Column 2 is much the same:

```
<!--start a loop
in column-2 for post
titles-->
    <div id="column-2">
        <?php
            //start
the loop
            if (
have_posts() ) : while
( have_posts() ) :
the_post();
        ?>
        <h3><a
href="<?php the_
permalink();?>"><?php
the_title();?></h3></
a>
        <?php
endwhile;?>
    </div>
```

As far as index.php is concerned, column 3 is simple:

```
    <div id="column-2">
```
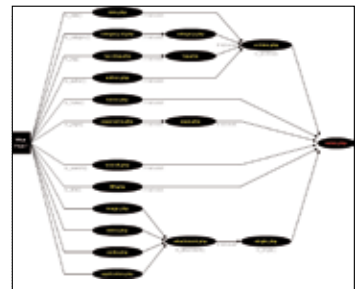

Template hierarchy shows which files it's expecting in your theme (From: WordPress Codex)

```
        <?php get_
sidebar();?>
    </div>
```

But this means your theme now needs two more files: sidebar.php and functions.php. Create a new file called sidebar.php and enter this:

```
    <ul id="sidebar">
    <?php if (!function_
exists('dynamic_
sidebar') || !dynamic_
sidebar()): ?>
     <li>
```

This sentence will appear if you haven't chosen any widgets.

```
     </li>
    <?php endif; ?>
    </ul>
```

This makes your sidebar dynamic, and hence capable of holding widgets. The second part of this activity is registering the sidebar. Create a new file called functions.php, and enter this bit of code:

```
    <?php
    if ( function_
exists('register_
sidebar') )
        register_
sidebar();
    ?>
```

That covers the most essential (and probably the most useful) aspects of writing a theme. Obviously, the job doesn't end here. You should create templates for categories, single posts, pages, and any type of content that you want to make specific designs for.

Developing your own theme gives you much tighter control over the way your posts – and ads – are displayed, and even if you're just modifying a theme you downloaded, it's worth your time to see what the Loop is capable of. For more, visit the exceptionally well-documented WordPress Codex at **codex.wordpress.org**.

Backed by the industry
J Query gas gained support from many
quarters: Nokia loves it, and Microsoft
is going to feature jQuery support in the
next Visual Studio

Forget ready () and Click ()
You can assign your own events to HTML
elements—just use bind ("eventname",
function(e){//code here});

Developer corner

JavaScript Done Right

Give your site some web 2.0-ness with jQuery

Nimish Chandiramani
readersletters@thinkdigit.com

We've all wished that our web pages would have some really cool animations, but we've all thrown those wishes out the window as soon as we discovered how tedious they are to do in JavaScript. It's clunky and cumbersome, and not designer-friendly at all. That's why a really smart egg named John Resig came up with jQuery, which is a "fast and concise JavaScript Library that simplifies HTML document traversing, event handling, animating, and AJAX interactions for rapid web development." Basically, Resig's done all the dirty work, and all you have to do is call the functions he's written.

To use jQuery, you need to know your way around CSS, and this tutorial will assume that you do. You'll also need some basic knowledge of JavaScript, but any experience with a C-like language will help you understand the code.

The First jQuery

To include the jQuery framework in HTML, download the latest file from **jquery.com**, or refer the online version:

```
<script type="text/javascript" src=" HYPERLINK
"http://jquery.com/src/jquery-latest.js" http://
jquery.com/src/jquery-latest.js"/>
```

This ensures you've always got the latest jQuery running, so you don't have to worry about upgrading. On the other hand, if the latest version decides to drop a function that you're using, things may go horribly wrong.

Once you've included the jQuery framework, you can start accessing its functions. Let's start with initialising stuff on the page:

```
$(document).ready(function () {
          //put your initialisation code
here
     });
```

The "$" is the "query" in jQuery - you use it to select elements in your document. You use the standard CSS selectors here: `$('div')`, for example, will select all divs in the document, `$('.someclass')` will select all elements of the class "someclass", and so on.

The next bit - `.ready( function () {//function code});` - attaches the function to the document's "ready" event. In plain English, when the document ready, the function will execute. Let's start with a simple example:

```
//whitespaces aren't bothersome, so you can "pretty-
print" code if you want
$(document).ready
     (
          function()
          {
               $('a.alert').click
               (
                    function()
                    {
                         alert('Hello!');
                    }
               );
          }
```

```
);
```

and here's what the HTML code looks like:

```
<a class="alert" href="#">Click here for a
```


The jQuery version of a "Hello World" script

```
message!</a>
```

and here's the result:

And now, we can move to bigger, better things—like messing about with design.

The jQuery Style

With jQuery, you can manipulate elements' CSS properties to no end—add classes, remove classes, alter styles, and so on. For example, let's say that you've got 30 divs—all of different classes—and you want one class to distinguish itself by turning bright yellow at the click of a button. That's when you use jQuery to change the CSS code:

```
$(document).ready(function() {
          $("#buttonID").click(function() {
//select the button by its ID
                    //select oldclass divs
and change the background
                    $("div.oldclass").
css({background-color});
               });
     });
```

As you can see, we've used the CSS-style selector "#buttonID" to select the button, and then attached a function to its "click" event. You can use these selectors to alter the layout of the document as well:

```
$(document).ready( function() {
          $('#mergeButton').click(
function() {
                    $('#blue').
appendTo('#green').parent().appendTo('#red');
               });
     });
```

The "appendTo()" function, true to its name, appends the blue div to the green. The "parent()" then selects the green div (which is now the parent of the blue), and finally, the green div gets appended to the red. The HTML code here goes from this:

```
<div id="red"></div>
<div id="green"></div>
<div id="blue"></div>
to this:
<div id="red">
     <div id="green">
          <div id="blue"></div>
     </div>
</div>
```

Developer corner

JQ GUI
To build "rich" web applications, use jQuery UI—a jQuery plugin that lets you create animations and interactions similar to desktop applications
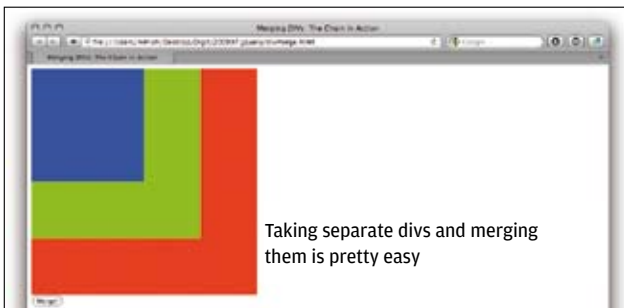
Get started
You can try one of the hundreds of plugins available for it at plugins.jquery.com

Modifying styles and layouts is powerful and fun, but not as much fun as watching that happen with animation.

The jQuery Effect

jQuery comes bundled with all sorts of special effects for your (and

Taking separate divs and merging them is pretty easy

your visitors') entertainment. It all starts with the simple "`show()`" and "`hide()`" functions:

```
$('#someID').show();
$('#someID').hide();
```

which can also be animated, if you like:

```
$('#someID').show('fast');
$('#someID').hide('slow');
```

You don't, however, want to check whether an element is visible or hidden to decide which function to use, so you use "`toggle()`" instead—as the name suggests, it'll hide a visible element, or show a hidden one. It, too, can be animated:

```
$('#someID').toggle('slow');
```

And when you're done playing with special effects, you can try your hand at some basic AJAX.

From The Beyond

This is the simplest form of AJAX—getting information from another page, without reloading your current one. Our external data, in this case, will be an XML file (it could be PHP or HTML, for that matter). Technically, since this doesn't involve the XMLHttpRequest object, it's only AJAX in the loosest sense of the term.

Here's the type of data we've got in the XML file:

```
<software>
        <Title>8 Kingdoms</Title>
        <Description>8 Kingdoms is a 3D turn-
based fantasy strategic game in which players
become kings, build their empires and conquer
enemy kingdoms.</Description>
        <License>Free</License>
        <Section>Gaming</Section>
        <Category>Free Games</Category>
        <Size>34.6 MB</Size>
        <Path>Gaming\Games\8Kingdoms-1.1.0.exe</
Path>
        <Month>June</Month>
        <Year>2008</Year>
        <Media>Freeware</Media>
</software>

And here's what our HTML looks like:

<div class="ajax stuff">
        <h1>AJAX!</h1>
        <input type="submit" value="Load Info"
id="ajaxgetter"/>
        <!--This div waits for the content-->
        <div id="ajaxinfo">
        </div>
</div>
```

And finally, this is the JavaScript that gets it all done :

```
$("#ajaxgetter").click( function() {
                        $("#ajaxinfo").
load("sample.xml");
                });
```

The result:

The "`load()`" function will bring up whatever you pass to it—you could even load entire websites in that little space. You can also submit forms using "`$.get()`" and "`$post()`" (for the GET and POST methods respectively), and show the results in your AJAX area.

```
.end();
```

If you've been wanting to try AJAX but were daunted by JavaScript, jQuery is your thing. If you've been using JavaScript for AJAX so far, you can leave that mess behind and make your code lighter with jQuery. Most important of all, though, jQuery brings simple JavaScript-ing to the hands of web designers, and that's something we've waited for for too long.

Geek culture : *Steampunk*

Steampunk is a somewhat nostalgic science fiction genre, that looks backwards towards time and draws up an alternate timeline of events – an advanced and progressed world without electricity. Think an advanced world with transportation and gadgets powered by steam and gears – like the worlds of Jules Verne or H.G. Wells. Recently, steampunk has grown from a marginal science fiction genre to an art and style movement. A number of steampunk modifications of modern gadgets exist on the market.

Movies

The League of Extraordinary Gentlemen

Set just before 1900, this film has a 6 wheeled car, a submarine, metallic armours with flamethrowers, and machine guns as edge of weapons technology.

Dark City

The film has one of the largest steampunk cities shown on cinema. Sequences of gigantic cityscape changing machines are a pleasure to watch.

Brazil

Undoubtedly the most critically acclaimed steampunk films, based on George Orwell's *1984*. A computer glitch brands an innocent man as a terrorist.

Books

20,000 leagues under the sea

A classic Jules Verne novel featuring captain Nemo and the Nautilus. It's refreshing to read about submarines, diving suits and oxygen pumps in an era when these were not yet around, and were science fiction.

The Difference Engine

One of the defining works of the genre, featuring clockwork computers as against microchip ones. There are even renegade "clackers" who use punch cards as the tools of their trade.

Warlord of the Air

Equal parts Sci-Fi, and equal parts fantasy, Michael Moorcocks works follow an alternate timeline where the British Empire still exists and the World Wars never happened. Look out for the Airship Armadas in this one.
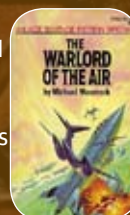
Gadgets

USB Drive

This just showed up in a Russian modding forum, a handcrafted, user made one of a kind piece. This is however, one of the many modded peripherals based on steampunk aesthetics. This piece is called Zdesya.

LCD Monitor

http://steampunkworkshop.com has detailed shots and instructions for a number of Steam Punk modifications, including this LCD Monitor. This was made to go with the maker's keyboard.

Gakutensoku

Look closely at the lenses, there are iris shutters for each eye that can be independently controlled by sliders to let the right amount of light in – and they look cool. Instructions and more images at http://bit.ly/PWaYz.

Digit Diary

The month of June was pretty crazy around the office with the Digit Carnival events going on in and out of the office. Along with that, Kumar and Siddharth took part in an ARG called *Supari* that took place over three weeks. Both of them were roaming in the office with some eye-raising objects (meant to be immunity) that included some Hindi magazines and even a copy of the Mumbai city guide. They both gloated about their kills and also about their deaths in this game as both died by the hands of two different women on separate occassions. At the end of it all, Kumar did not win anything. but since Siddharth escaped near death a couple of times he won the Slipper Supari award and received the prize of absolutely nothing.

Rossi made all kinds of excuses to stay idle at home, so Robert finally brought his guitar and amp to office. As of now, Rossi has been asked to stay away from it. But we did manage to catch him trying his hand at it when no one else was watching. Vijay keeps getting gifts, Ahmed gave him his 22-inch Viewsonic last month. This month, Robert gave him his printer and his 2.1 speaker set.

How we unwind

Movies
Heavy Metal: Animation that goes into the past and future, with songs by Nazareth, Black Sabbath and Blue Oyster Cult.

Music
Tabla Beat Science: A pleasant detour for the team, this month's issue closing had some fusion of Indian classical and electronica.

Game
Monster Hunter – Freedom: We've been on epic quests killing prehistoric abominations in this innovative PSP RPG.

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Community
Latest happenings in the Digit community

Phenom 2
AMDs Phenom 2 processors are powerful as well as cool running. We tested a 3.2 GHz part that registered only 36 degrees at the core

Escape

Recession throws spaceflight plans for a toss

In a major setback to the human spaceflight program, NASA representatives of the Human Spaceflight Review Committee meeting in Washington DC, announced that all plans for spaceflight beyond low earth orbit were temporarily on hold. The budget for the next five years, till 2014 is apparently on hold. This is a considerable setback for the Saturn V program, which is the rocket of choice for future space missions. Of course, this also puts back the plans for NASA's circa 2020s plans for another series of moon landings, with elaborate permanent habitation plans. All the space agencies are pooling resources for some time, to pull through, because of the already colossal costs of space travel.

tech art: pixel art

Image Credit: Helm

Pixel art is the process of drawing pixel by pixel. This is a painstaking and long process, and there are a number of approaches. Any form of digital painting that calculates pixels, or does not give absolute pixel-level control to the artist is not considered to be pixel art. The early versions of pixel art used software that allowed artists to hand draw individual pixels only. Pixel art is usually very small in terms of dimensions, but there are large and extremely detailed pixel art web sites around. For more, head over to **http://www.pixeljoint.com**.

The Pale Blue Dot

Almost everyone has seen the image known as the Blue Marble, which was one of the first images taken of earth from outer space. A lesser known picture, is the "Pale blue dot". Voyager 1, the man made object that has ventured most into space, turned around to look back just as it was leaving the outer limits of the Solar System. This was because Carl Sagan, the sci-Fi author of Contact, asked NASA to photograph the planet from 3.7 billion miles away. The purpose of this exercise was to show mankind's humble place in the universe, and the resulting photograph had a small blue dot basking in the rays of the sun. Technically, it was half a dot as the planet was so small from so far away that it registered only half a pixel on Voyager's sensor.

For those who came in late

Muddled by so many terms used in the mag? Here's your short guide to the tech lingo

TLD: Top Level Domains, such as .com, .net, .org etc, maintained and managed by the Internet Corporation for Assigned Names and Numbers.

Rootkit: Rootkits are processes in the system that hide the presence of trojans, worms, or other exploits from the user.

AES: The advanced encryption standard, a secure algorithm used for encrypting data worldwide.

E3: Electronic Entertainment Expo, an annual convention for the gaming industry.

Semantic Web: Ideally an intelligent web, that responds to our needs, practically a layer of information processing and packaging between the reader and the content.

Geek review

1 Million GB Pounds
The amount signed by former astronaut and Space Opera writer Alastair Reynolds for writing 10 Sci-Fi books

Flash Crowd
Larry Niven's novel predicted riots assembled using technology over three decades ago — *a-la* #IranElections

Geek Review:
The Gameworld Trilogy by Samit Basu

Aditya Madanapalle
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Samit Basu's Gameworld trilogy is marketed as India's first SFF work, which is Sci-Fi/Fantasy for the uninitiated. The three books in the trilogy are The Simoqin Prophecies, The Manticore's Secret and the Unwaba Revelations. The books read as if every fantasy, sci-fi and mythological work in history has been pounded together between the pages of three volumes. The allusions to other stories are many and varied, the opening line itself fits Alice in Wonderland and The Hobbit into the sentence "In a hole in the ground, there lived a rabbit". The story follows with a disparate ensemble of characters, where manticores and centaurs are spoken of in the same breath as rakshasas and dhabas.

The Simoqin Prophecies introduces the political and geographic landscape of the gameworld, which has one large vertical sea around it, and a bunch of states. The political centre of the world is a city called Kol (referred to as the "Big Mango"), where the main characters Kirin, Maya and Asvin live. The first few chapters of the book just mix and match too many themes from too many places, which starts getting frustrating as if the author is trying to do too many things at once. There is also a piece of really horrible poetry, which just adds to the stereotype that all Indian authors simply have to write poetry, and end up doing it wrong. The story builds up carefully on every fantasy stereotype in the book, and seems to go a little too far in many places. This includes a dramatic King Kong like sequence where a giant gorilla kidnaps a girl and goes to the top of a tower, the girl escapes on her own, and the monkey sets the city on fire. This strange bridge between a monster movie and Ramayan seems a bit misplaced. However, as the story progresses, you can't deny Basu's wordplay and sense of humour. Most of this is centred around a bar called Frags. There are also a whole range of interesting and complicated biological alternatives for modern technology. This includes giant

tubeworms used as trains, and an elaborate system of imps and "muwi leaves" that have to be smoked, for making movies. Just when it seems that the author had too much muwi, things suddenly get better. Every fantasy stereotype in the book is methodically demolished, the heroes, for a change, ends up taking the easy way out... and the Gameworld turns out to be a place where Luke Skywalker actually ascends to the dark lord's throne when Vader throws him the offer. Somewhere between the pages, there is a fleeting hint of a much larger picture, of a goddess throwing a pair of dice, true to Einstein's dictum that a *God* does not play with dice.

The second book is where the author really shines through. The story follows a great political game, with wit and satire. Some new characters are introduced, and old ones that seemed secondary are explored further. Prying beneath the layers of allusions, there is a very strong influence of Moorcock, another fantasy renegade author who defied all the established rules. This is most apparent in a scene where Kirin sees through the eyes of a dragon as it flies. The development of each of the civilisations on the gameworld, and 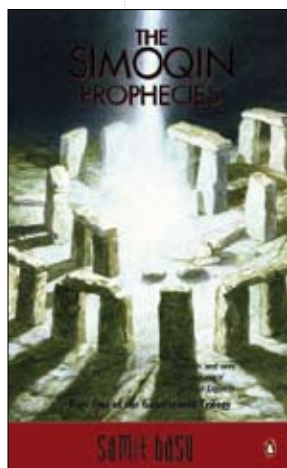of the many and varied characters themselves are a pleasure to read. There are shapeshifters with multiple personality disorders, underground civilisations that are paranoid of external influence and trades in information and knowledge, and the Ravians — a race of super intelligent star travellers. As the world prepares for a war that will eventually end the world, a totally different series of things is happening in the heavens. Enter the gods. As things turn out, the history of the planet is a bunch of gods playing a God game. In a world of intense politics, spying and mind-control, Basu draws a very strong worldview, a world made of grey hues where not everything is what it seems to be. At the end of the

second book, the world is on the threshold of a war.

The Unbawa revelations has one of the most imaginative descriptions of large scale war in fantasy. There are two great battles written in detail, and one of them uses an interesting device for introducing humour. The story follows two scribes, in the heat of the battle, describing the goings on in the war in a legendary manner, while Basu outlines the "reality" of the flesh and bones flying about. The fight is won by a bunch of oddly shaped air-ships, that fry entire armies. As the Ravians fight the humans and Rakshasas, Kirin and Maya are engaged in an endeavour of their own — to defeat the gods in their own game, and establish a world where mortals can live without the influence of the gods. They are helped in this effort by an unreliable little creature called the Unbawa, which calls itself "the oldest of the chameleons" and is in fact, one of the gods imprisoned in the Gameworld. Poetry makes a come back in the third book, and this time around, it is actually well crafted. There are "journals" written by the secondary characters, something that only Maya had in the first two books. The story is told from the point of view of all the races, above the ground, below the ground, in the heavens, and the unfortunate few in between these realms.

The climax of the third book, and the conclusion of the series seems a little contrived. This is because the solution seems to be too easy, and something that does not make sense. However, the series is worth a read for its sensibilities — and the sheer delight of following a bunch of feminist pirates in a slave auction rescuing a yeti from a life of servitude.

Aditya Madanapalle
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Alex Mercer, a virus infected shapeshifter is set loose in New York city, teeming with what look like zombies, helicopters, tanks, and a bunch of mutant beasts. Mercer jumps, runs and glides across the skyscrapers, seeking revenge on the scientists and military personnel who infected him. Mercer's body grows in strength and abilities throughout the game, which can be upgraded using Evolution Points (EP), which you can pick up on the many missions in the game. The player can transform the whole body, based on the DNA of

Mercer is a rogue beast, madly running through the city. The sandbox style encourages you to experiment, and the experimenting is fun. You can pick up and throw anything – hurl people across the street, throw cars into the sea from the top of the building, or lob a helicopter at an attacking helicopter. The moves and combos are spectacular, you can deliver a spinning kick to a helicopter in mid-air, surf down the road on the bodies of people you have just killed, and hammer the ground taking out a ring of enemies.

Unfortunately, there are missions, and a storyline to follow. These mess up the game terribly. The AI is horrible. The army will ignore you right under their noses, and attack you when you are

There is no scope for acting on the stealth, even if the mission demands it. There are certain delicate operations, involving consuming specific human targets, or neutralizing some detectors. When you approach them chances are, you will attack them, consume the wrong person, or end up a block away because of an unintentional jump, glide and wallrun. This is because the controls are not precise enough, and cool looking moves are executed half by the game itself. The controls overlap for a number of moves, and can be used only in very particular situations, which you discover at the cost of many retries. You can pick up weapons whenever you want to, but using them is a pain. You have to press the

Then there is the endless barrage of unnecessary and distracting information. Some of the people you consume can tell you their stories from inside you, in a mind-map called the web of intrigue, which is more difficult to navigate and keep track of than the city itself. The storyline requires you to run between the houses of Mercer's sister and girlfriend, who sit on computers and throw up leads, which could easily be obtained by any random soldier during a mission. There are hint-points and area exploration points, which are obtained in the form of glowing orbs scattered around the city, a la PoP. The storyline itself is not captivating at all, Mercer eventually discovers that he is the reason why the whole city
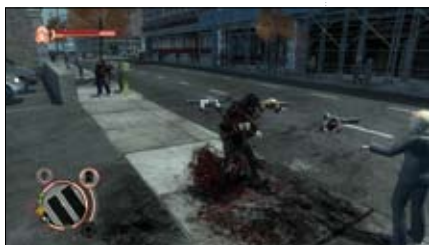
anyone Mercer "consumes", convert his limbs into weapons such as adding blades or claws, and the "Devastator" attacks which involve massive chunks of dangerous biomass blossom out of his body and the surrounding environment, in various shapes and sizes that can take out a whole bunch of enemies at the same time.

Make no mistake about it,

doing nothing but running down the road. The lack of AI is compensated by numbers. The city has an endless supply of tanks, helicopters and soldiers, who will keep coming at you if you keep taking them out. Eventually, you have to run and hide, to escape them.

Tab button before aiming at anything, and this is an unnecessary additional button to press while shooting. Moreover, the Tab locks on to the nearest enemy, so you will probably end up firing behind you while looking ahead of you.

is infected, and in fact, infected himself too.

The gameplay is not captivating enough to justify the torture of the storyline and the missions. The look and feel of the game is OK, with most of the city always being covering in an obscuring blue or brown mist. This was a release a lot of gamers were looking forward to, and has disappointed heavily. 🗗

RATINGS	
Consoles	PS3, XBOX 360, Windows
Publisher	Activision
Developer	Radical Entertainment
Score	5/10

Sameer Desai
readersletters@thinkdigit.com

inFAMOUS

Sandbox-style action games lately seem to be running out of ideas, with little innovation in them. Superhero games have been even more hopeless, with over 90 per cent of them ending up sucking. So you could be forgiven for not brimming with excitement at the prospect of a superhero sandbox title. And that's where inFamous surprises you; it is one of the better sandbox titles to have released in recent times, and it's one of the best superhero games ever made.

You play Cole McGrath, a bike messenger in fictional Empire City. A package Cole is carrying causes a massive explosion, wiping out half the city and setting off a plague. Soon after, the government blocks off all exits from Empire City to quell the spread of the epidemic and as the law and order situation deteriorates, gangs take over the city. Despite being at the epicentre, Cole somehow survives the blast, and on regaining consciousness weeks later, finds himself with special powers.

The blast gives Cole the ability to absorb, manipulate and channel electricity in many ways, allowing him to use it as a weapon, a defence mechanism or a healing tool. Besides these powers, Cole is now also stronger and more agile, allowing him to land from high drops without a scratch and effortlessly scale pretty much any manmade structure.

Cole starts out with three basic attacks; the ability to zap enemies, a shockwave attack that takes out all objects within its range, and an atomic drop, which can be performed while landing from jumps, sending a similar shockwave through the ground. All these attacks dish out minimum damage at the start, but as you earn experience points (XP), you can upgrade these attacks and even buy new ones.

Weapons in inFamous are basically variants of weapons you would find in any shooting game. But there are no guns here; just electricity. You have the shock grenades, which are sticky hand grenades, a precision attack that acts as Cole's sniper rifle, the Megawatt Hammer that is essentially a rocket launcher, and many more. You also have other unlockable powers that help to make life a lot easier. These include the grinding ability, which helps Cole travel fast along rail tracks and the many power cables connecting rooftops. Later on, you also unlock the static thrusters, which allow Cole to glide in mid-air.

The great thing is the game doesn't spoil you with all these powers and weapons from the get-go and you will unlock them gradually over the course of the game. XP is earned from completing missions across Empire City's three islands. You have story missions as well as optional side missions. While the main missions help you progress on your quest to find who caused the explosion that gave Cole his powers, side missions, besides giving you XP, help clearing enemies from a particular area. Clearing enemies makes it a lot easier to take your time in collecting blast shards and dead drops, which are collectibles strewn all around the city, usually on the top or sides of buildings.

The main missions have a fair amount of variety to them, and there is a lot of emphasis on vertical platforming, which the game does very well thanks to some wonderfully fluid animations. The enemies attack by the numbers and combat segments often get pretty intense, so you will need to strategise to come out alive.

While the powers and weapons are great, the real clincher in inFamous is the moral decisions you need to make throughout the game. Considering the superhuman powers Cole possesses, he could either use them for good or evil, and you can actually make Cole play the way you want him to. You will often be given moral choices, where you can either choose the selfless act, which could be harder, or go the easier route and possibly harm innocent citizens in the process.

A karma scale keeps track of your moral decisions. If you perform selfless, helpful acts, you earn good karma, and this is reflected in Cole's appearance and his electrical powers. While good Cole will be dressed immaculately and shoot blue electricity, bad Cole looks more evil with torn, dusty clothes and paler skin. He will also shoot red electricity. The nature of the weapons also changes according to your moral position. Good Cole's weapons are more precise, while bad Cole's are more geared towards maximum chaos, even if that means causing harm to innocent civilians. The citizens will also react differently to Cole based on his karmic standing. While they'll praise, applaud, and take pictures of good Cole, bad Cole is hated and feared.

Many of the game's main missions also require you to take moral decisions, and some of these will really make you think twice. They aren't superficial in nature either and the decisions you make will affect how the game plays out. Even though the game will eventually lead to a predetermined conclusion, developers Sucker Punch have done tremendously well to let the player feel like he is in complete control of Cole's fate. They've also done a remarkable job of portraying the self-doubt and dilemma that any superhero would go through given the overwhelming superpowers granted to him. With no multi-player component to this game, the morality system ensures that you will play inFamous at least twice; that's more than you get from most single-player campaigns.

While inFamous is far from the best looking game on the PS3, or even the best looking sandbox title, the art design is incredible. The portrayal of a city in ruins and the helplessness of its citizens is nailed down to perfection. While character models, shadows and textures may not be the best, draw distances are phenomenal and there are only occasional drops in frame rate. In the sound department, the game has some solid voice acting, backed up by a competent musical score that never seems out of place.

inFamous also manages to accomplish something most sandbox titles have failed to do, and that is to keep the game's story from getting lost in the cacophony of missions, side quests and collectibles. The story is always at the forefront, and combined with the brilliant morality system and Cole's addictive powers, it helps inFamous deliver a complete single-player experience few other games can match. **d**

RATINGS

Genre	Action/Adventure
Platforms	PS3
Publisher	Sony Computer Entertainment
Developer	Sucker Punch Productions
Score	8/10

digit

JUNE 2009

8th ANNIVERSARY CARNIVAL

A ROUNDUP!

digit contests

A wide range of activities were conducted during the June Carnival, 2009. Team Digit entertained and educated our readers in a number of ways.

Contest Date	Prizes Offered	Names of winners
2nd June 2009	Epson PM215 Printer	Vishal Sundriyal (Dehradun)
3rd June 2009	McAfee Total Protection	Vaibhav Jain (Delhi), Amit Kumar Khandelwal (Delhi), Amol Kale (Pune), Omkar Amrutanshu (Bhubaneswar), Ravi S. (Kochi)
4th June 2009	Iomega Multimedia Screenplay HD	Rajat Bhatnagar (Hyderabad)
5th June 2009	12th edition of the official guide for GMAT	Neha Lal Banerjee (Bangalore)
6th June 2009	Quick Heal Antivirus Plus	Tarun Goswami (Gurgaon)
7th June 2009	McAfee Total Protection	Aditya Chowdhury (Kolkata), Vismay Badiani (Rajkot), Ramdhan Bhardwaj (Bhatinda)
8th June 2009	12th edition of the official guide for GMAT	Navdeep Kaur (Delhi)
9th June 2009	McAfee Total Protection	Pranav Prashant (Lucknow), Shivendra Kumar (Baroda), V.R. Chaithanya (Bangalore)
10th June 2009	Quick Heal Antivirus Plus	Ashwin Nepal (Siliguri)
11th June 2009	McAfee Total Protection	Anupam (Ranchi), Ashitha Razzak (Kochi), Ashok D. Nichani (Chennai)
12th June 2009	Quick Heal Antivirus Plus	Sooraj Kumar M. (Chennai)
13th June 2009	McAfee Total Protection	Shikhar Angra (Dehradun), Sidharth Nanda (Bhubaneswar), N.R. Anil Kumar (Bangalore)
14th June 2009	Quick Heal Total Protection	Ankur Behl (Indore)
15-19th June 2009	NOKIA N97	Sandeep Sharma, Mir Tanwir *

*Winners of 2 Nokia N97 Mobile Phones

CONTEST

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WINNERS

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digit DEALS

40% off on GDATA Internet Security

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20% off on GearJuice - Mobile Pocket Power

June was a shopper's delight with discounts offering 20% - 50 % off on a variety of technology products.

TO STAY UPDATED ON DIGIT ONLY DISCOUNTS IN THE FUTURE , SMS JOIN DIGITINDIA TO 567678

25% off on an Iomega eGo Ruby Red Desktop Hard Drive

54% off on the Pansonic Lumix FS3 Digital Camera

35.5% off on a Nokia N96

Readers' Meets

Hyderabad

Delhi

A number of readers' meets were organised across the country. A few reader's meets have happened in the past, but never on this scale. Most of the readers plan to meet up regularly. Here are some photos and feedback letters from the reader's meets around the nation.

Bangalore

Bangalore

Readers' Meets were also held at Mumbai, Tirupur, Kanpur, Chennai, Nashik, Visakhapatnam, Kolkata, Moradabad & Bhubaneswar.

To host a **Digit Reader's meet** in **your city!!!**
sms **Digit VOLUNTEER** to **567678**

Hi,

Digit Reader's meet was conducted at Tirupur on 14th June 2009. We had a small number of participants (8 members). As expected it was a good start. This meet gave us an opportunity to meet new like minded friends. We had discussion about all tech magazines available and what are the valuable information Digit is offering us every month. Members expect Digit to have more sections on "Open Source" & "Security Solutions", which will be useful for all of us.

Participants were a couple of students, hardware engineers and business owners. We have decided to meet at regular intervals (like once in 3 months) and build-up relationship and technical forum in future. Also, we have planned to create more awareness among our readers and increase the number of participants in future meets.

Thanks to Digit,
With Kind Regards

K.Ravichandran
Tirupur

Hi,

I was excited by the very thought of meeting the people, with same interests and common goal, which was to drench the thirst of Tech knowledge. So, I reached inside the McDonald of Connaught Place, Delhi, at around 12 noon. There I met with the group, sitting around a table. Group had 8 people, not too large, but a good start for the first Reader's Meet ever.

We began giving our intros and tried to exchange our thoughts on mobile phones, gaming & technology in general. Soon we realized that this discussion could turn hours since it was so occupying, and so, we stepped on to the next phase.

Volunteers gave us all, a crossword prepared by them, which inherited the basic jargons of tech world. Everybody had fun solving that. They said this is for some surprise gift to be awarded later, of which I had no idea, till the end. Then volunteers offered us some snacks, we all enjoyed together. It was like a picnic, with a tech twist!

This meeting ended in 2 hours, but its memories, I believe, may never end.

Thanks for sharing my thoughts.

Vineet Kumar
Delhi

"I really appreciate the move by DIGIT as it gives us the opportunity to meet like minded people in our own city. Readers' Meet can bring tech lovers closer giving them chance to interact more informatively."

Abhineet Mittal
Moradabad

Newsletter

Digit has started a newsletter that offers its readers a weekly dose of tech news and content. Over time, this newsletter will grow to incorporate the latest videos, the hottest downloads, community interactions, and the coolest contests that your favourite Technology Navigator has to offer.
To subscribe, email us at subscribe-newsletter@thinkdigit.com or head over to
http://www.thinkdigit.com/newsletter.

WEBINARS

An excerpt from the chat for the Linux installation webinar

There were a number of webinars conducted this month, through the online conferencing service, DimDim. The participation for these webinars ranged from 8 to 45. Most webinars were open discussions around a topic, with attendees contributing enthusiastically as well.

Digital Photography: The webinar focussed on different aspects photography with a quick glance through the history of photography and then the advantages of using a digital camera. Everyone got a detailed idea of each of the controls and what they did. The photography webinars were constantly bubbling with activity with many questions being asked all throughout the session. Some experienced readers were also present to give their own feedback and opinions.

Secure your PC: Asking people to install antivirus and security suites is simple. Digit decided to take it a step further by explaining people how it's possible to reduce the chances of getting the PC infected by following a few rules. In case, your PC still gets infected, we also explained how to remove those pesty worms. Like other webinars, there wasn't any lack of appreciation.

Installing Linux: The webinar covered installing Linux from a Live CD, from an install CD/DVD, partitioning the hard drive, dual booting Linux installations, and running Linux on a virtual machine. Individual queries and doubts were addressed, where possible.

FOR A LIST OF SCHEDULED WEBINARS, VISIT
thinkdigit.com/webinar

Screenshot from the Nokia webinar

PLEASE VISIT THE **DIGIT FOLDER** IN THE **DVD** FOR IMAGES AND VIDEOS FROM THE BOOT CAMP, AND PHOTOS FROM THE READER'S MEETS.

BOOTCAMP – BUILD YOUR OWN PC

Location: DIGIT Mumbai office
Date: 30th May

The first meet planned was a bootcamp which took place right after the June issue was sent for print. The team was well rested and excited about the meet. The bootcamp was organised to get readers to be able to assemble PCs for themselves.

A specially invited group of 12 readers turned up at our office Saturday morning. Our brief chit-chat session was interrupted for a group photograph. A quick tour of the DIGIT Test Centre followed. Everybody moved downstairs to our meeting room where the pile of hardware was conveniently placed.

Michael explained each component in brief. At the end of each section, everyone got a chance to handle each component. After a short snack break, we continued with the rest of the components. With explanations of every components completed, we moved on to enjoy some pizza.

After that, it was time to get into practicals. Groups were split into two with Michael and Rossi leading each team. A demonstration of every step of the assembly was given and every attendee got a chance to try each step themselves. Demonstrations were given on both Intel and AMD systems.

Robert was giving advice on hardware. Kumar assisted, while Siddharth shot videos of the event. He was assigned the role of cameraman for the day. The bootcamp concluded with yet another group photo. This time in the open, but with more mischief and pranks being played by the DIGIT team. After spending an entire day at DIGIT, our guests weren't reluctant to join in!

digit events

When I first fell in love with Digit 6 years back, I thought this is the way for my knowledge and passion. But now I realize that techies like me is the way of knowledge and passion for Digit. Chennai is hot but this month it's going to be Digit Hot! Yes I am proud being Digit.
Jebarson Jebamony
Chennai

Such initiatives will bring convergence between us readers and Team Digit which finally will help us with Digit serving us better !
Omkar Amrutanshu
Bhubaneshwar

SMS **JOIN DIGITINDIA** TO **567678** TO GET FUTURE UPDATES ABOUT THE EVENTS.

For future event log on to
thinkdigit.com/calendar

GAMING WORKSHOP

What started out to be a small 30 minute session turned into a 2 hour discussion on computer hardware, the good brands to purchase keeping in mind after sales support and performance, what console is better (not telling you the answer) which are good games to play, over clocking your machine and LAN parties.

NOIDA	13-Jun-2009
MUMBAI	20-Jun-2009
BANGLORE	14-Jun-2009
CHENNAI	27-Jun-2009
NAGPUR	28-Jun-2009
GUWAHATI	13-Jun-2009

Enjoyed talking to new people and making new friends, whom he has kept in touch with... Would prefer if the workshops could be kept in the weekends... Would like prominent gamers from clans to interact with the participants... **Uday**

Found the workshop very good and useful... Liked meeting new people with a good computer background and knowledge about the latest games... Liked the location, since it was near his place... Found a gaming cafe near his place that he did not know about... **Arpit**

*SKOAR!

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DIGIT EZONE HOW TO WORKSHOP

Location: Ezone, Mumbai
Date: 14th June

Robert, Michael and Rossi were present with the subscription team at the Ezone in Powai, Mumbai on the 14th of June. Due to a cricket match, there was an average turnout at the event. The event started at around 3 PM with the team explaining how to buy laptops, TVs, digital cameras and mobile phones. Being in the centre of Ezone was great as people could get their hands on products to get the opinion from the experts and ask questions about the products. The reception was pretty good overall with a few readers waiting back till the entire length of the event asking questions and discussing their own requirements and problems. A lot of valuable feedback on the magazine was also given.

Unreliable communication

In the UK press, the early part of summer is often called the silly season. And there I was not realising this also applied in India. I had heard more than a couple of times people joke that Reliance Communications was named ironically, because the company's service is anything but reliable, but this did not stop me trying out the company's new offering – a USB broadband system, said to be capable of up to 3.1 Mbps. After all, my own local internet provider in Delhi – the entertainingly named "World Impulse Network" – is awful.

It goes off-line just about every day, often more than once, and sometimes for several hours. I often have to call them up perhaps 20 times in order to get them even to answer a phone, and when I get through, very often I get somebody apparently not able to hear me: "Hello ... hello ... hello..." Shouting very loud and angrily sometimes switches this into a slightly better form of communication. The internet magically starts again, and then it rains. Internet off again. So, I have a strong incentive to find a decent service provider for myself, and our readers might well be interested in this new Reliance system. After all, what could be worse than my local provider? You guessed it right...

I contacted Reliance and told them that not only did I want to investigate this and write it up for *Digit*, but that I might take it up myself and become a real customer.

A neat USB stick arrived, was installed in my desktop PC and then my laptop, and it worked for a couple of days – and then stopped. I tried calling a couple of contacts in Reliance a few times, I emailed the original contacts – all to no avail. It continued not to work. At one point I was told that the device would be replaced that afternoon, but this did not happen.

After about six weeks of zero service, I was telephoned by somebody in Reliance to ask how I was getting on with the system! I told him in no uncertain terms, and the response was that some people have good experiences and some have bad! And I thought P.R. was bad in the UK. What a good way to get a contract signed! Then, a few days later, when I was at our office one day, two people turned up at my flat to collect the device. My wife called me and passed the phone to these chaps. I asked if they wanted me "to tell all our readers that this service is total rubbish and simply does not work?" They left, apparently grinning broadly.

Apart from the breathtaking and boneheaded incompetence of these people, there is one serious point that arose when I looked into this system from Reliance – it involves a cap on the quantity of material that you can download. The most attractive scheme that I could find entailed a cap of 10 GBs per month. This ensured that I would never sign up to such a scheme, even if the system had worked perfectly all the time I was trying it out. I would not recommend anybody else to do so – apart from people who just want to do a little email from time to time. But why would they need a fast connection? For everybody else, 10 GB is very little – a joke.

This capping – and I am told that Reliance is not the only company trying such a scam – is an attempt at irresponsible profiteering. One question that I was unable to get answered with the Reliance system was how I would determine my usage at any point in time – when have I just gone over, say, nine GB, so that I know now to slow down? I have heard stories of people being shocked at the painful bills they receive having inadvertantly gone over their cap limits.

This policy misses the whole point of broadband systems. People that want broadband are likely to want to download more material, and anyway, this is not always voluntary. Many websites are increasingly using "rich content" and you can often find yourself on a page with a couple of videos playing, when you have just come to read a small news item. And those videos are eating away your cap allowance for the month. Does Reliance want to encourage internet use, or strangle it?

These caps have been tried in other countries, and when I first used a broadband system in the UK, it was capped. But the cap was never imposed and was later withdrawn – customers just would not put up with such a silly system. I hope people here resist it as much as possible.

Edward Henning, Editor-in-Chief

> "I often have to call them up perhaps 20 times in order to get them even to answer a phone, and when I get through, very often I get somebody apparently not able to hear me: "Hello... hello... hello...""

edward.henning@9dot9.in