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YOUR HANDY GUIDE TO
TECHNOLOGY TERMS

VOL IV

ENCYCLOPEDIA
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Introduction

Someone with a lot more philosophical experience than us mere mortals once said that “real knowledge is to know the extent of one’s ignorance.” That someone is none other than Confucius, our favourite philosopher who also happens to be the patron saint of tech-related knowledge – hah, we just made that fact up! While we don’t claim to change your perspective on life in this book, we are however, trying to improve your awareness on things that matter in the world of technology. A world which is vast and increasingly all encompassing. Welcome to the fourth edition of the long awaited Encyclopedia Technica series of booklets, where we continue to go beyond the expanse of mainstream encyclopedias to give you knowledge and information in a single book that you’d be hard-pressed to find anywhere else.

Thanks to all you Digit readers who kept tirelessly writing to us requesting – nay, demanding – the next installment of the Encyclopedia Technica, and here we are. It reaffirms our belief that encyclopedias are still a preferred format of information and knowledge consumption, and having them as a series of book volumes still appeals to a lot of you out there than we expected. Our attempt with this booklet (and others in the series) is not to replace Wikipedia, for instance, which is perhaps the largest encyclopedia out there, and a fantastic collection of curated crowd-sourced knowledge on any topic available on the Web. Instead, what we’re trying to do here is to curate and collect technology-related information that matters, not all the information that’s out there, so you end up reading the bare minimum that you should know to be able to hold your own in a technology enabled world.

We had a lot of fun packaging this latest edition of Encyclopedia Technica for all our readers. Be prepared to encounter and better understand new terms, jargon, and technology buzzwords you thought you knew or didn’t know well enough.

Don’t forget to drop us a line at editor@thinkdigit.com and tell us your thoughts about this book, and what you would like more of in the next edition of the Encyclopedia Technica. 

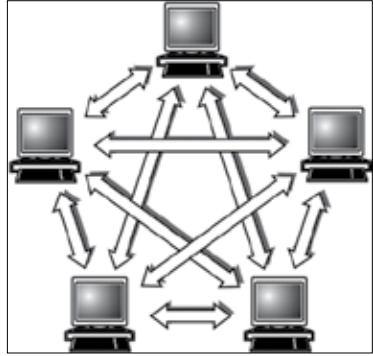


P



P2P

'P2P', short for 'Peer-to-Peer' is a type of network architecture where each computer (called a 'peer' or a 'node') acts both, as a server as well as a client. In simpler terms, each peer is capable of sending *and* receiving data, thus decentralising the network. In a traditional client-server model, the client computer (which could be a PC or a smartphone) requests data from a server (which could be a web server, file server or email server). If the server goes down for



More peers on the network means you can download that GoT episode faster!

some reason, all the connected clients are affected and the exchange of data stops. Peer-to-peer, on the other hand is more resilient, as each node is acting both, as a server and as a client. The resulting network is redundant – if a single node goes down, the others will be unaffected.

The most well-known example of P2P is the BitTorrent protocol, where files are shared across multiple computers. Peers acting as servers are called 'seeders', and those acting as clients are called 'leechers'. Similarly, Bitcoin, a crypto-currency and Spotify, a music streaming app leverage P2P-based networks to share the computing/streaming load.

Packet

When data is transmitted across a network, it can either be sent as a continuous stream of bits (high and low electrical impulses) or can be grouped into entities called 'packets'. A packet is the smallest unit of data that can be trans-

Header	Sender's IP address Receiver's IP address Protocol Packet number	96 bits
Payload	Data	896 bits
Trailer	Data to show end of packet Error correction	32 bits

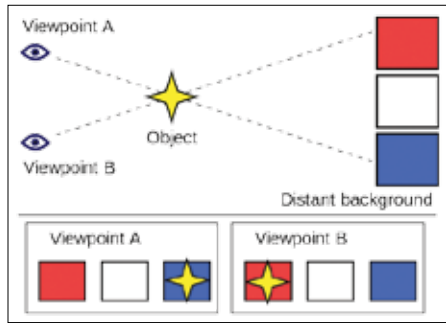
Data flows in packets. Whenever there are packet drops on a network, the information flow is disrupted.

mitted over a network. If the data to be transmitted is over this limit, it must be split into multiple packets.

The best example of a packet-switched network is the Internet. Data sent across the internet is encoded within packets, and usually consists of two parts: the header section, which specifies metadata – such as the source, destination, type of packet and error-checking data – and the actual data (also called a ‘payload’) to be delivered. The kind of protocol (E.g. HTTP, UDP or FTP) will determine the type of included headers, which tell the destination address how exactly the data in the payload is to be processed. Error-checking algorithms store data in the header, which informs the recipient of any loss of integrity in the payload.

Parallax

‘Parallax’ is the difference in the apparent position of an object when viewed from two different positions. Objects closer to the eye have a greater parallax or an apparent shift in their position than objects far away. This property is often used to measure the distance between two objects, particularly heavenly



Differences in viewpoints can cause different differences in image position

bodies. Closer home, an image seen by an individual human eye suffers from the same kind of parallax, but when the lines of sight from both eyes are combined (i.e. when both eyes are open), they lend a sense of depth, giving rise to 3D vision or stereopsis.

Older cameras with twin-lens reflex lenses had an unusual defect: images would often result in the subject’s head being cropped out. This was caused by the parallax error in viewing the object through two lenses. Single lens reflex (SLR) cameras have since corrected this flaw. An unusual application of parallax can be found in Apple’s iOS 7 devices. The icons on the home screen appear to be raised above the surface of the wallpaper in a simulated parallax effect made possible by the internal gyroscope and accelerometer in the device.

Parallel Port

A ‘Parallel Port’ is a type of connector commonly used for connecting

peripheral devices such as printers to a PC. It was originally designed by IBM in the '70s as a means of transmitting data in parallel (i.e. Transmitting multiple bits at the same time) as opposed to the existing serial port (that could transmit only one bit at a time). The earliest parallel port connectors were 'half-



If you still have one of these on your PC, it's high time you got an upgrade

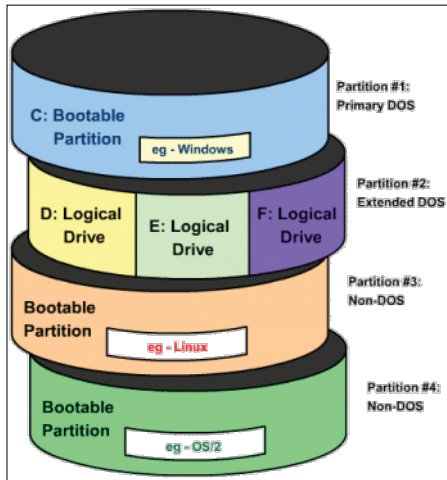
duplex', meaning each pin in the 25-pin connector could either send or receive data, but not both. Future iterations of the port made the connectors full duplex (capable of bi-directional communication) and raised the data transfer rate to upto 2Mbps. The DB-25 parallel port was the de facto standard connector for printers, before other devices such as scanners and Zip storage drives also began to adopt the standard.

The parallel port is mostly a vestigial port these days, as many devices (including printers) now communicate over the far more versatile USB (Universal Serial Bus) interface.

Partition

A disk 'partition' is a way of dividing a hard drive (or any other storage medium) into smaller, logical storage units, where each partition acts as if it were a separate, independent disk. An easy way to see the partitions on your Windows PC is to go into My Computer - here, each letter viz C:, D:, E:, etc denotes a separate partition.

Partitions are a necessary step in installing an



Partitioning a hard drive will let you install multiple operating systems on it

operating system on your computer as files stored in a partition are organised into a file system, which the OS interacts with. A region of your hard disk which is not a part of any partition is typically not visible to the OS (and hence, to the user) and cannot be used for storing data. Partitions are also useful for maintaining data integrity as data present on one partition cannot interact with the data on other partitions. In case your operating system crashes or needs to be formatted, the data on all other partitions will be safe from harm.

Paul Otellini

Paul Otellini is the now retired fifth CEO of Intel. Having left the company in 2013, he spent almost four decades with Intel and eight years as its CEO. No other CEO before him had raked in as much revenue for the 46-year-old company. Under his leadership, it generated \$107 billion in cash from operations, made \$23.5 billion in dividend payments and saw an increase in quarterly dividend from \$0.08 to \$0.225 (181 per cent!).



Paul Otellini transformed Intel's fortunes

Under Otellini's leadership, Intel also saw some of its greatest developments. Paul helped expand its presence in Security, Software and Mobile Communications. We witnessed breakthrough innovations, including High-K/Metal gate and now 3-D Tri-gate transistors, and a dramatic improvement in the energy efficiency of Intel processors. Then, there was the reinvention of the PC with Ultrabook devices and the first smartphones and tablets for sale with Intel inside. Of all his decisions made while spearheading Intel, Paul most regrets turning down the chance to supply Apple with chips for its first iPhone.

PC

The 'Personal Computer' (PC) is a general purpose 'computer'. The term could be applied to a desktop, a laptop, a netbook, a tablet or even a smartphone. If it can compute and is good enough for you, it's a PC.

Now, 'good enough' is obviously a subjective term. While most "grown ups" are more than happy with a computer that will let them access Facebook and their email and skype with their kids, the same computer might not be suitable for someone more 'youthful.'

Traditionally, the term PC has been used in reference to computers running DOS or Windows which were aimed at home or office users since computers operating the Mac OS were favoured by people working in design and page making.

While the lines that define what exactly makes a computer personal seem to be increasingly blurring, as long as human wants don't keep going up, those lines aren't getting any sharper.



PC = Monitor + Cabinet + Keyboard + Mouse

PCB

A 'PCB', or 'Printed Circuit Board' is a sheet of conducting material (usually copper) that contains several electronic components like capacitors, resistors and transistors which are welded on. It is a compact and sturdy way of building electronic circuits – from the very basic to the extremely complicated ones found in smartphones and laptops.

Before PCBs, circuits were wired by literally passing a length of wire between each of the electrical components to be connected. Not only was



It's the slice of fabricated sheet that makes up the building blocks of all electronic devices

this more laborious and messy, but also prone to errors due to faulty or loose wiring. This was remedied by the PCB, which allows the entire process from layout to manufacturing to be completely automated – lowering costs and increasing reliability.

Once the electrical components (capacitors, resistors and transistors) are welded on, a non-conducting mask is applied over the sheet, exposing only the paths that join these components. These exposed paths are conducting in nature (due to the absence of the mask) and act as a connection between the components.

PDF

A ‘Portable Document Format’ better known as ‘PDF’ is a type of document format created by Adobe Systems that preserves all the elements of a printed document as an electronic image. To view a PDF file, you must download a PDF reader such as Adobe Acrobat or an Acrobat plug-in for web browsers. The format is highly portable across computer platforms and is, in fact, why it was created. It was developed as an easy way to share documents



containing text formatting, in-line images, graphs, hyperlinks and other features that needed to be maintained while sharing them across systems that may not have the same operating system, software or fonts that would have allowed the user to view the file in its original form. These files are also great for printing since they contain color-accurate information. PDF became freely available in 1993, and was officially released as an open standard on July 1, 2008. There was a time when PDF files, with their relatively larger size (compared to plain text) requiring longer download times over slower modems, was seen as a necessary inconvenience. Now, it's the preferred format in the world of business thanks to its high quality and compactness.

Pete Cashmore

Pete Cashmore founded Mashable, the up-to-the-minute technology news site, in 2005 when he was just 19 years old while still living at home with his parents in Aberdeen, Scotland. What was then just a blog that he started as the only hobby his recuperation from an appendectomy al-



Cashmore is the first wave of independent bloggers who went on to become big on the Internet

lowed is today the go to site for social media news that attracts more than 25 million unique visitors per month. His parents only found out about the success of his bedside blog when a reporter from the *Daily Mail* came knocking at their home to know more about the creator of this hugely popular digital magazine.

Pete has been described as the “Sage of Media”, is considered one of the most influential voices of his generation, was featured on Forbes’ 30 under 30 list and has a net worth of \$95 million, according to the Sunday Times UK Rich List.

Phishing

‘Phishing’ includes common scam tactics for online identity theft and virus spreading. The term originated in 1996 as an alternative spelling of “fishing,” as in “to fish for information” by offering bait to the unwary. Hackers will approach you via, say, an email message impersonating a legiti-



Phishers throw bait to victims to lure them in

mate source such as a financial institution urging you to provide financial or other confidential information, failing which you'll suffer irreversible consequences. When you click on this message, you'll be taken to a counterfeit website that appears in every aspect to be like the real website. This is where phishers record the info victims enter into web pages or pop-up windows. Since most people are usually wary about handing over their personal information even to legitimate sources, hackers resort to 'social engineering', a psychological manipulation of people into forging normal security procedures to gather information, commit fraud or gain system access. Besides stealing data, phishers can infect computers with viruses and convince people to unintentionally participate in money laundering. While phishers generally use email to distribute phishing lures, some favour instant messages, SMS messages, chat rooms, banner ads, message boards, mailing lists, job search sites and job offers, and browser toolbars.

Pierre Omidyar

While some say that the idea of starting auction website eBay came over dinner, others say it was just an experiment that worked really well. Either way, French-Iranian-American Chairman of eBay, Pierre Omidyar walked all the way to the bank with a big smile on his face.



In one fell swoop, Omidyar's eBay changed the way people bought stuff online

Coding genius, Omidyar was born to Iranian parents pursuing higher education in France. His dad was a doctor and his mother was a well known linguist, so naturally it's no surprise that he wrote his first computer code at the age of 14.

The first item sold on eBay was a broken laser pointer and the first employee hired was Chris Agarpao to handle the large volume of cheques that began coming in with the number of users steadily rising.

Beyond heading the chair at eBay, Pierre and his wife Pamela are well known philanthropists who are major contributors to Bill Gates and Warren Buffet's 'Giving Pledge' and have donated over \$115 million in the last four years to their own project, 'Humanity United' – which aims to end slavery – and have pledged another \$50 million by 2016.

Piracy

What was initially used to denote robberies and hijacking of ships and naval vessels has evolved with the times. The term 'piracy' now implies illegally obtaining copyrighted digital content without paying for it. If you've ever downloaded a song, movie, TV show or game off the internet without paying for it, you've probably been accomplice to the act of digital piracy.

Digital piracy via illegal downloads on the internet is a practice that deprives artists and creative producers of millions of dollars in potential revenue each year, and organisations such as the MPAA and RIAA are actively trying to defend the rights of content producers. Piracy on the internet, however, has shown no signs of abating, with file sharing net-

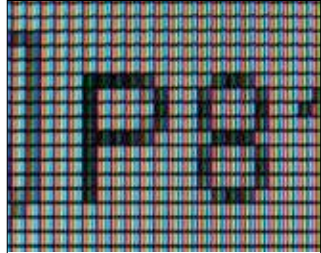


We don't condone piracy, but we've got to admit – that's a pretty cool logo!

works like BitTorrent and Usenet, and even organisations like The Pirate Bay (and the late Megaupload) providing a convenient and fast way to consume digital content without having to pay for it.

Pixel

A 'pixel' (short for PICTURE ELEMENT) is the smallest unit of a digital image. Digital devices such as PC monitors and smartphone screens display images by dividing the image into a grid of rows and columns; each unit in the grid is a pixel. Each pixel on the display is capable of displaying one colour at a time, and by piecing together millions of such pixels, a coherent, realistic looking image is obtained.



"Clearly" not in Retina territory

When digital cameras quote the image size as being a certain number of megapixels, it means that a picture taken with the camera will have that many million pixels in total. E.g. An 8-megapixel camera will take images that have 8 million pixels. Similarly, when you're watching a movie on a full HDTV, the TV is typically displaying a total of 1080 pixels along the vertical axis. Modern advances in mobile displays (such as Apple's Retina Displays) have made it possible to cram an astounding number of pixels together, packing the pixels so densely together that it's nearly impossible to tell them apart – giving the effect of a natural-looking image.

Platform

A 'Platform', in the computing sense, can mean a host of different software and hardware configurations that enable a program to run. E.g. Operating systems such as Windows, Linux and Mac OS X are written for the Intel x86 hardware platform – which has a set of specifications that dictate how a processor and its associated devices should execute instructions.



Android and iOS are examples of software platforms that allow developers to build apps on top of them

Similarly, Android apps and iOS apps are tailored for the Android and iOS platforms, respectively. These software platforms provide a host of features such as access to the phone's hardware, libraries for simplifying common activities (like connecting to the internet or sharing files over Bluetooth), as well as an easy way of distributing your software via an app store. In recent times, the concept of 'Platform As A Service' (PaaS) has emerged. The service allows developers to access a full suite of software tools and libraries that are remotely hosted. Developers connect to the remote server that hosts the tools and pay a fee to access the complete development environment.

Playstation

The 'PlayStation' brand, first introduced on December 3, 1994 in Japan, includes a series of video game consoles developed by Sony Computer Entertainment. It was the brainchild of Sony executive, Ken Kutaragi and was originally intended to be an add-on for the Super Nintendo (SNES), Nintendo's second cartridge-based console. Fortunately, the Sony-Nintendo deal fell through and Sony decided to continue developing the gaming system employing a new kind of CD-ROM called 'CD-ROM/XA' that it had created alongside Philips Electronics. Its success went on to spawn an assortment of handheld devices, the PlayStation Portable (PSP), PlayStation Vita and the PlayStation Network, an online gaming



PlayStation. Just this one word alone is enough to throw gamers into throes of ecstasy!

service and virtual market. In 2006, Sony stopped manufacturing the original PlayStation, ending its 12-year lifetime as the first console to sell a hundred million units.

The US Air Force Research Laboratory took note of the inherent power of the system (IBM processor-powered and cost saving – costing only about \$2 million to build, in contrast to \$20-40 million if built from regular computer parts), and built a supercomputer using 1,760 older model PlayStation 3 consoles. They called it the ‘Condor Cluster’. Its applications include pattern recognition, radar enhancement, AI research and image processing.

Podcast

What do you get when you mix the most recognised portable personal media player with the dissemination of information among the masses? You get a portmanteau.

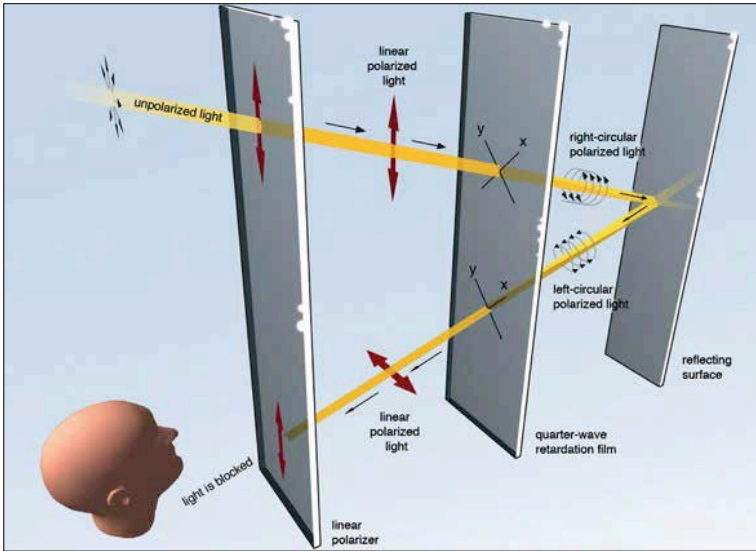
The word ‘podcast’ was first used in *The Guardian* by Ben Hammersley while discussing the new medium of communication. It was soon followed by an iTunes update that introduced a Podcatcher, an application used to collect or download podcasts.



With the world’s connectivity steadily growing, the consumption of information off the internet is growing by leaps and bounds. While traditional models of broadcast are still strong, digital counterparts are certainly giving them a run for their money. After all, 59.5 million downloads over the course of three years is in no way a small number. *The Adam Carolla Show*, hosted by American comedian, Adam Carolla holds the current Guinness record for being the most downloaded podcast beating *The Ricky Gervais Show*. Interestingly, podcasts, though popularly in the audio format, can also be video podcasts, ePub files and other text formats.

Polarisation

Electromagnetic waves (such as those in light) consist of electric and magnetic fields that are mutually perpendicular and are perpendicular to the direction that the wave is travelling in. Thus, the electric and mag-



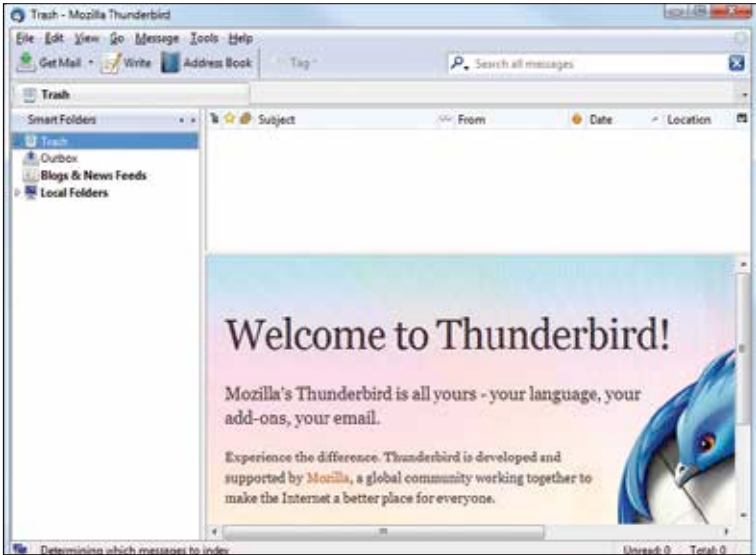
Nokia's polarised ClearBlack AMOLED display ensures better visibility in direct sunlight

netic fields that make up the wave are free to rotate in a plane perpendicular to the direction of propagation of light. The act of polarisation refers to confining the direction of polarisation of one of these fields (usually the electric field) to a single direction – the direction of the polarising crystal.

While a seemingly abstract concept, it does have applications in many fields, including photography and LED displays. Polarising filters can adjust the colour temperature of the light entering the camera, making it warmer or cooler. They can also suppress the glare from reflective surfaces such as water. Light that's directly reflected towards the camera's lens can also be cut out. This helps provide a more even lighting for the camera, but requires longer exposure times as the lens is letting in less light. More recently, Nokia used a series of polarising filters in its AMOLED displays for Lumia phones, that reduces the reflections from sunlight, thereby greatly improving readability outdoors.

POP3

Ever wondered how exactly Email works? It's so ubiquitous, antiquated even, that most dismiss it as an ancient technology that's on its way out. The main reason why email has been around forever lies in its simplicity



Mozilla's Thunderbird uses POP3 to retrieve email from a server

– and POP3 (Post Office Protocol): one of the oldest and simplest ways of retrieving email from an email server.

A POP3 server contains one text file for each user account on the system. When a new email message arrives, it simply appends the contents of that email to the user's text file. When a user connects to the email server via an email client, the server verifies the user's identity and retrieves the corresponding text file for the user. Once the email message has been downloaded to the user's machine, the message is deleted from the server (unless explicitly asked not to do so). Once new email has been fetched from the server, the client typically disconnects from the server, and will reconnect periodically to check for new messages. Because of this behaviour, POP3 doesn't provide real-time 'push' notifications like its more mature counterpart, IMAP. It is, however, the protocol of choice for those who like having a local copy of their email on their computers, either for archival purpose or for offline access.

PowerPoint

'PowerPoint' is a slideshow presentation program currently bundled with Microsoft's Office suite. It was developed in 1984 in its original



Slideshow presentations delivered in every boardroom all over the world thanks to Powerpoint

avatar as 'Presentation' by Dennis Austin, Thomas Rudkin and Robert Gaskins for US company, Forethought. In 1987, it was renamed to PowerPoint due to trademark issues. In August that same year, Microsoft bought Forethought for \$14 million and officially launched the application on May 22, 1990 as a part of the Microsoft Office suite. PowerPoint was originally developed only for Apple Macintosh since the Windows system was unable to support the software in its then current state. The version for Windows was released later. Today, the software giant claims that the tool, originally targeted for use by salesmen, captures 95 per cent share of the presentation software market. Most of the TED Talks presenters on the free DVD that comes with Digit use the different designs and features offered by PowerPoint to emphasise their points and create a visual imagery that will stay with the audience long after they've left the building.

Power User

There are two types of people who use computers. One is the regular user who logs on to his computer to check email, draft documents and spreadsheets and access the internet, to name a few tasks. Then, there are 'power users'.

Power users are split into two groups. While one group of power users want everything bigger, better and faster, and are the high school jocks in this universe (since they run programmes and applications you've never even heard of), they're also hipsters of the same universe. This group's

machine is purpose built (or bought) and users include designers, animators, editors (audio, video and photo) and professional gamers (that's the life), among others.

The other type of power user is more suited to an office space. These guys have advanced knowledge of software or hardware. Remember seeing that one guy at



Powerrrrrrrrr!!!

work whose fingers danced across the keyboard as he opened command line consoles and fixed whatever error was the bane of your existence at that point of time? Chances are, he's a power user. (Or a Digit reader)

In short, if it seems like either your skills or your machine are being blown out of the water, chances are, the person doing the blowing is a power user.

Processor

If computers were human, the 'processor' would probably be the brain. Arguably the most important part of any computer system, the microprocessor was invented by the venerable Intel back in 1971 in the form of the Intel 4004 – an 8-bit microprocessor clocked at an almighty 740kHz (cue snide laughter). We have, of course, come a long way since then, with multiple CPU architectures tailored towards different devices, instructions growing in length and complexity from 8 bits to 64 and even 128 bits, and clock speeds growing by orders of magnitude into the GigaHertz range.



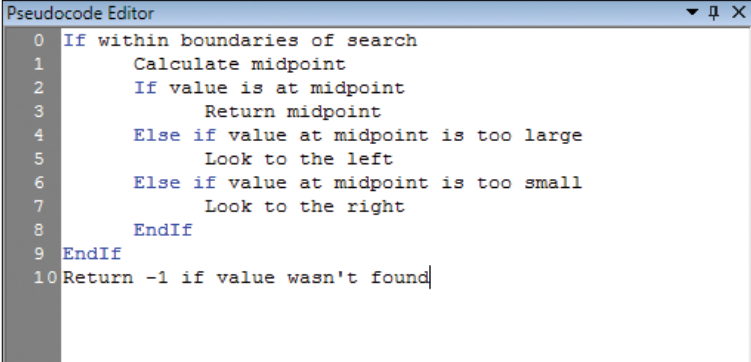
Modern day processors, such as Intel's Core i7 series, can perform trillions of calculations per second. Process that!

A processor is responsible for performing most, if not all the computations done by a computer, and it does this by executing instructions synchronised with an internal clock. The speed of this internal clock is the

quoted 'clock speed' that you've probably heard about – a CPU clocked at 2.5GHz goes through 2.5 billion clock cycles in one second. Instructions are passed to the CPU by means of an interface called the 'data bus' in the form of a string of 1's and 0's. The size of this data bus decides the architecture of the CPU – so a CPU with a 32-bit data bus is said to use a 32-bit architecture, while one with a 64-bit data bus will use a 64-bit architecture. The larger the data bus, the larger the numbers on which it can operate, and correspondingly the larger the amount of memory it can access.

Pseudocode

If it looks like code, reads like code and smells like code, but does absolutely nothing at all, it's probably 'pseudocode'. (Either that, or the code was very badly written). Simply put, a pseudocode is a high-level description of what the code is supposed to do, without going into specifics of implementation. It usually uses human language descriptions of events and is language (and thus, syntax) agnostic. As such, pseudocode doesn't have a uniform syntax, but enjoys widespread readability thanks to its use of natural language and mathematical symbols to describe the implementation of the program or algorithm.



```

Pseudocode Editor
0  If within boundaries of search
1      Calculate midpoint
2      If value is at midpoint
3          Return midpoint
4      Else if value at midpoint is too large
5          Look to the left
6      Else if value at midpoint is too small
7          Look to the right
8      EndIf
9  EndIf
10 Return -1 if value wasn't found
  
```

Pseudo code tells you what it's doing but doesn't actually do anything. Bad code, on the other hand, does neither

Since it doesn't obey any language-specific rules, pseudocode can't actually be compiled or executed, but is useful when explaining programming and implementation concepts to others.

Python

What do Reddit, YouTube and Quora have in common? Apart from being huge timesinks at the workplace, they were all written using a programming language called 'Python'. Invented way back in 1991, Python has seen a huge surge in popularity in recent years, thanks chiefly to its ease of use, readability and high-level nature that allows programmers to express themselves in fewer lines of code than traditional languages such as C or Java. Its ease of use makes it an ideal language for first-time programmers, and has hence been adopted in introductory courses at a number of universities.

Unlike C, C++ or Java, Python is an interpreted language. What this means is that a program called a Python interpreter reads through each line of code and executes it separately. This allows for more rapid development, though Python programs may be slower than their C or Java counterparts. Randall Munroe, creator of XKCD is a big fan of the language – one of his comics has been integrated into the language as an easter egg!



Python - The only time playing with one won't get you killed



Q



Q Code

Abbreviated messages were in existence long before the era of instant messaging. Created by the British government in 1909, 'Q Code' was one of the earliest forms of abbreviated instant message systems. It gets its name from the fact that all the codes start with the letter Q – a trend that's observed internationally across all radiotelegraphic systems. Initially, the code was used exclusively for communication be-

Amateur Radio Q Codes

QRV	Are you ready? I am ready.	QSC
QRW	Shall I inform ___ that you are calling on ___ kHz (MHz)? Please inform ___ that I am calling on ___ kHz (MHz).	QSF
QRX	When will you call me again? I will call you again at ___ hours (on ___ kHz (MHz)).	QSI
QRY	What is my turn? Your turn is numbered ___.	QSL
QRZ	Who is calling me? You are being called by ___ (on ___ kHz (MHz)).	QSN
QSA	What is the strength of my signals (or those of ___)? The strength of your signals (or those of ___) is ___ (1. scarcely perceptible; 2. weak; 3. fairly good; 4. good; 5. very good).	QSO
QSB	Are my signals fading? Your signal is fading.	QST
QSD	Is my keying defective? Your keying is defective.	QSU
QSG	Shall I send ___ messages at a time? Send ___ messages at a time.	QSV
QSK	Can you hear me between your signals and if so can I break in on your transmission? I can hear you between my signals; break in on my transmission.	QSW
QSL	Can you acknowledge receipt? I am acknowledging receipt.	QTX
QSM	Shall I repeat the last message which I sent you, or some previous message? Repeat the last message which you sent me (or message(s) number(s) ___).	QTI
QSN	Did you hear me (or ___) on ___ kHz (MHz)? I did hear you (or ___) on ___ kHz (MHz).	QTL
		QTM

Instant messaging began all the way back in the early 20th century with Q Codes. True story.

tween maritime radio operators, who traded from all the corners of the world. Q Code was a standardised messaging system made up of three-letter combinations that transcended different languages and systems, just as emoticons do today. Initially, there were only 45 Q Code messages but with the proliferation of the system across Aeronautical, Radio, Military, Meteorology and other services, over a hundred different codes have come to be developed. Today, Q Codes no longer form the primary medium of communication for these operators, but they remain an integral part of military Morse code traffic networks and are also used by some geeky amateur radio operators.

Q Continuum

The 'Q Continuum' from the Star Trek universe is perhaps one of the most relevant icons of technological evolution. The 'Q' – as they like to be known – are portrayed in Star Trek lore as inhabitants of the Q Continuum, an extra-dimensional place which can't be conceived by human perception. The Q are essentially a race of almost omniscient

beings that have existed for eons and now function outside of linear time. Having been around forever has granted them the privilege of being at the pinnacle of evolution where they can manipulate time, matter and energy with a simple snap of their fingers. In addition to their Sci-Fi origins, the Q are a cautionary tale of where the quest for perfect evolution can take humanity – a state of existence where every conversation has been carried out, every place been visited, every experience indulged and everything knowable known – in essence, boredom. A lesson worth always remembering.

QDOS

The history of Microsoft's success has been retold many times, especially how the creation of a 16-bit computer operating system called 'Microsoft Disk Operating System' or 'MS-DOS 1.0'

86-DOS™

Disk Operating System for the 8086

This changed everything. Quite literally.

led to every subsequent success the company ever had. Except the Zune – that was a major boo boo. But before the launch of this 1981 deal with IBM, which launched MS-DOS, there were murmurings of an OS coming out of Seattle with the name, Tim Paterson attached. Not many would find that name familiar today. However, a more well known name and figure, Bill Gates noticed what Tim Paterson was doing with a software called the 'Quick and Dirty Operating System' on the prototype Intel 8086 computer systems and knew it was something important. So, as any shrewd businessman would do, Bill Gates bought the Quick and Dirty Operating System or 'QDOS' from Tim Paterson for just \$50,000 and repackaged it as MS-DOS for his deal with IBM. This deal would go on to be called "The Deal of the Century".

Qik

At some point in 2007, a trio of Indian and Russian tech entrepreneurs thought, "Wouldn't it be great if we could share mobile-based live video using the internet?" They decided to attempt to do this. So Ramu Sunkara, Bhaskar Roy and Nikolay Abkairov set up base in Silicon Valley and launched 'Qik'. Their venture went

qik

A true innovation...

thinkdigit.com

into public beta mid-2008 and quickly went on to gain compatibility with over 140 mobile phone devices and connected users through major social media websites such as Facebook, Twitter, YouTube, WordPress and many more. Sensing the burgeoning appeal of this service and the advanced state of its backend programming, numerous major corporations came sniffing at their offices in Redwood City, California. But with an unbelievable offer of \$150 million from Skype – the reigning video service on the internet – the trio cashed out. The deal was announced at CES 2011 and Qik officially went offline on 30th April, 2014. But despite its disappearance, Qik still exists as it continues to power Skype services and holds a special place in our heart for the two Indians who made it happen. And the other fellow.

Qimonda

Qimonda Aktiengesellschaft (or AG – German for Public Limited Company) was one the most significant contributors to memory technology in the last



decade. At one point, 'Qimonda' was the second largest Dynamic-RAM (DRAM) company in the world with over 13,500 employees, including 1,800 pure research and development personnel who kept pushing the boundaries of RAM technology. In 2006, Qimonda started manufacturing 300mm (millimeter, really.) chips and reached the 46nm (nanometer) manufacturing process in under three years. More cutting edge than its revolutionary advancements in DRAM development was its breakthrough in the development of GDDR5 RAM technology. It first demonstrated its GDDR5 sample in 2007 and was already producing 512 Mbit GDDR5 modules in mid-2008. Unfortunately, the company underwent restructuring and ceased its R&D and manufacturing operations and now only deals with patent licensing. But with the integration of Qimonda GDDR5 technology in the AMD Radeon HD video card series, you can still see its influence in the PlayStation 4's AMD-powered APUs.

Qmail

'Qmail' isn't Gmail's estranged cousin, but is in fact one of the earliest email software to surface on the internet. A Unix-based "mail transfer agent" or MTA, Qmail touts itself as "the internet's MTA of choice"

and with good reason. The program was written in late 1995 by Daniel J. Bernstein, during a time when the Sendmail program was a popular contender for the spot of best MTA. Sendmail, however, was plagued with security issues, which motivated the creation of Qmail. Bernstein's commitment towards security was indubitable. He offered cash rewards - beginning with \$500 and since been upped to \$1,000 - to anyone who could publish a verifiable security hole in his system. No holes have yet been found, with the most recent update being over a decade old. Qmail is also well respected for being an early entrant into the world of Open Source free software.



Email with the perfect security system

QQ and Q-Coin

'QQ' or 'Tencent QQ' (it's not cheating!) is an amalgamated service that incorporated a variety of features, primarily its flagship instant messaging software service as well as online social games, group chat, voice chat, micro-blogging and much much more. The product of a Chinese company, the QQ software has gained massive popularity in many parts of the world with



One app to rule them all, yes?

nearly 800 million active accounts and up to 170 million simultaneously active users. The software runs across PC, Mac and mobile devices, and on various operating systems. It is funded mainly by its in-service advertising. Another essential feature of the QQ software was the 'Q-coin', which is operable as virtual money and can be used to purchase items within the service such as avatar customisations or blog features. Controversially, the Q-coin has broken the barrier of

the virtual world and entered the real world, being frequently used to trade real world goods, proving how powerful its appeal has become.

QR Code

‘QR Codes’ or ‘Quick Response Codes’ are a brand of barcodes originally designed by the Japanese for the automobile industry. Similar to the familiar vertical-lined barcodes, these two-dimensional barcodes can store up to four standardised modes of information – numeric, alphanumeric, binary and kanji (the Japanese language script). Even though it was invented in 1994, the QR Code technology



QR codes are beautiful, admit it!

only gained fame with the proliferation of mobile devices. The use of QR Codes in advertising has boomed in the last decade with print advertisements using these barcodes to direct consumers towards their online portals for deals, information and anything else, which would be considered a “call to action”. Its application has moved on from just the automobile industry and today is an integral part of process management, supply chain management and government documentation – even India’s Universal ID, the Aadhaar card has a QR code.

Quad Band

The cell phone in your pocket or the data card plugged into your devices would be useless without the ‘Quad Band’ system of telecommunications. A quad band device is able to access the four major GSM



Telecommunications is reliable because of Quad bands.

(Global System for Mobile Communications) frequency bands and provide service all across the globe. The four frequency bands that make

up the Quad Band system are 850MHz, 900MHz, 1800MHz and 1900MHz – globally used frequency bands for mobile communications. In India, the 900MHz and 1800MHz are used; whereas the US uses 850MHz and 1900MHz, but thanks to devices with Quad Band compatibility, a phone manufactured by the US is compatible in India.

Quadcopter

We geek out at the mere mention of the quadcopter, but who wouldn't? A 'quadcopter', also known as a quadrotor helicopter, is a miniature helicopter that uses four rotors to achieve flight. Just imagine a smaller version of the helicarrier from Avengers and Winter Soldier, except that you can fly it around with a remote control without destroying a city. Even though the first prototypes of the quadcopter were created in the 1920s, it has only been in the last decade with drone warfare and the availability of the right materials and technology that true-to-life miniature quadcopters have found feasible performance results. And as developments in Unmanned Aerial Vehicle (UAV) technology have taken off, the programming that can make quadcopters reactive, dynamic and intelligent has already reached near perfection, in the



A super-sophisticated engineering toy or a remote controlled drone in the air? Or both?

works of Vijay Kumar at Penn State and Raffaello D'Andrea of Kiva Systems. Check out their TED Talks.

Quake

Let's face it, this entire section could've been dedicated to 'Quake' but we'll keep it civil and only go on for a few thousand words. Just kidding. But seriously, this first-person shooter video game franchise by id Software came out in 1996 and has touched many lives. From hours of violent fun shooting away



This is the stuff that legends is made of

at monsters when you were a kid to bouncing around custom death match maps in its multiplayer mode when you were a teenager and on to attempting record setting speedruns when you were a middle-aged man - Quake has had a major impact on the lives of its players. Unlike Doom that preceded it, Quake was available in real-time full 3D and the visual experience it provided was unlike anything ever seen before. The quick addition of multiplayer mode and death matches made it an addictive pastime for gamers across the world. So far as to inspire user designed mods such as Team Fortress and Capture the Flag that made the gaming experience even more engaging. And even though the story and plot of the game series never followed a conscious thought in its conceptualisation, the gameplay itself made the experience worth the price of admission - which, for many, was on an hourly basis in a cyber cafe near their house. The original Quake and its three official sequels made many contributions to the world of multiplayer gaming and first-person shooters but there's nothing more original than the most badass weapon ever to be conceived - the BFG, a weapon so powerful we can't even print its full name for fear of the authorities.

Qualcomm

'Qualcomm Incorporated' is one of the world's largest semiconductor companies that makes wireless communication products for most hardware manufacturers. With its headquarters in San Diego, Califor-

nia, the company has a reach across 157 different locations around the globe and over \$24 billion of revenue in 2013. And although the company's operations include satellite phone networks, email software, tracking systems, push-to-talk programs and more, it's best known for



Arguably, the Intel of the mobile chipset world

its prodigious manufacturing of semiconductor chips that make mobile devices possible. For the last 20 years, Qualcomm has manufactured billions of chips that allow for mobile communication, going so far as to pioneer the CDMA standard which led the way for 3G data services in most parts of the world and is now leading the way for 4G technology patents. Qualcomm was, in fact, a critical partner in Reliance Communication's nationwide launch of its CDMA handsets.

Quantum Computer Services a.k.a AOL

In 1985, Jim Kimsey started a company from the ashes of the Control Video Corporation and named it 'Quantum Computer Services', which would provide online services. Four years later, the company would be on its way to become one of the biggest players in the emerging world of the Internet in America, so it naturally changed its name to 'America Online' or 'AOL'. The first product of Quantum Computer Services was an online service called 'Quantum Link' or 'Q-Link' that helped Commodore 64 and 128 console players connect with each other. But soon, the company moved beyond the niche market of online gaming towards tackling the bigger challenge of making the internet less scary for hundreds of millions of Americans. It went on to launch the first GUI for



AOL - Oh boy, this brings back memories!

users connecting online and members connecting to its AOL service. Quantum Computer Services, or AOL rather, has seen its highs and lows. At one point, it was merged with the Time Warner group as AOL Time Warner in the entertainment sector, but since 2009 has become a brand company with ownership of TechCrunch, The Huffington Post and numerous other online-related services and websites.

Quantum Computer

In the sweltering heat of August 2009, Aaron D. O'Connell, while working under Andrew N. Cleland and John M. Martinis at the University of California, was close to achieving something that had never been done before – creating a quantum machine. Until this point, even defining a quantum machine was difficult. After years of working on his PhD

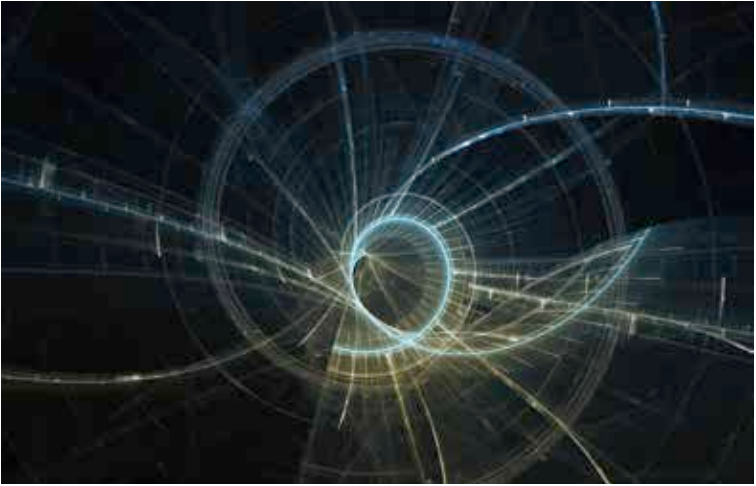


The future of all computing...

thesis, O'Connell and his colleagues were able to make a mechanical resonator vibrate a little and a lot simultaneously (impossible in classical physics) using a 'qubit' (a device capable of being in two quantum states at the same time) – thus making history. The creation of a machine that obeyed the laws of quantum mechanics was heralded as the "Breakthrough of the Year" in 2010 by Science magazine and was the first step towards fabricating a functional 'quantum computer'. So far, experiments in quantum computing have resulted in very small numbers of qubits, which function like transistors in traditional computers. Not only will the creation of fully functional quantum computers make most encryption systems redundant, but also more importantly create computers so powerful that we can scarcely imagine them today.

Quantum Theory

It's unlikely a brief paragraph can convey the true expanse of 'Quantum Theory'; simply put though, quantum theory deals with the science of phenomena that take place at nanoscopic levels of existence. Quantum physics and the theory it relates to operate on sub-atomic levels and observe the nature of particles to surprising results, the



Quantum phenomena deals with that which can't be seen with the naked eye

most popular of which is the dual state of light or photons as being both, particle-like and wave-like. Quantum theory also helps us gain an understanding of how elements interact and bond on a molecular level. It is this understanding that has resulted in the creation of new materials. But beyond the physical and tangible realm, quantum theory points out the probabilistic nature of the universe, where the fundamental units of matter are held together as a result of chance, rather than pure determinism. Quantum theory has numerous spin-offs and applications such as quantum mechanics, quantum electrodynamics, quantum chromodynamics, quantum optics, quantum chemistry and many more. All of these disciplines employ the nanoscopic view of existence to solve the problems we face in technology and the sciences.

Quarantine

Just like organic beings, even machines malfunction, usually due to innocuous reasons such as overheating or faulty units, but in some cases it could be due to a malicious reason such as an infection. In the world of technology, infections don't just happen but are designed and deployed to disrupt the primary functions of a system. To prevent further damage, the infected files need to be isolated. This place in which the files are secluded and the process are called 'quarantine'. This method

of resolving infections is used by most anti-virus software when a problem is detected. Normally, the program would repair, heal or delete the infected file but in case it can't execute its default protocols, it moves the infected file to quarantine. This method allows users to manually determine whether a file is genuinely malicious or just appears that way – most PC gamers who use cracked files appreciate this feature.



You know your antivirus is doing its work when it's in quarantine mode

QuarkXPress

'QuarkXPress' is one of the world's leading software applications used for creating and editing complex page layouts in a WYSIWYG (What You See Is What You Get) en-



Quark®

Publishing industry swears by this software suite

vironment. Since its launch in 1987, it has undergone numerous upgrades and is currently available in 37 languages as QuarkXPress 10. The QuarkXPress desktop publishing application is used at nearly every level of experience by everyone, right from individual users to major publication agencies. And has gone on to achieve a market share of nearly 95 per cent in its history. It's very likely that the proliferation of self-publishing and e-books wouldn't have been possible without the use of QuarkXPress. It inspired other applications in the market as well. Today, Quark faces stiff competition from Adobe's InDesign program, but continues to be a foundational software application for designers of page layout to business-oriented publishers.

Quark Particle

A 'quark' belongs to the class of elementary particles, which form the

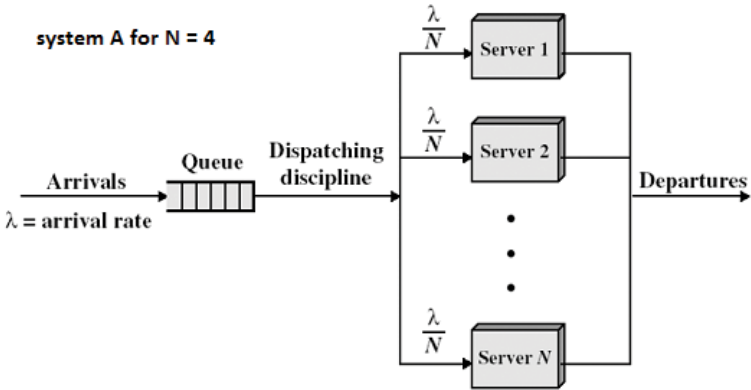
fundamental units of matter that was conceptualised in 1964 by Physicist Murray Gell-Mann and George Zweig, and proved to be real four years later by experiments at the Stanford Linear Accelerator Center. Quarks are even smaller than atoms, protons, neutrons and electrons. In fact, quarks combine to form hadrons, the stablest types of which are known as protons and neutrons. Quarks can't ever be observed in nature on their own and are only found within hadron type particles such as baryons and mesons. It's important to note that everything known about quarks is determined from the behaviours of the hadrons that they make since they've never been directly observed. Not all quarks are created the same and are available in six flavours (yes, that's an actual technical term) which are up, down, strange, charm, bottom and top (discovered only in 1995). The other terms used for bottom and top were "beauty" and "truth", respectively, and even though those names didn't stick, particle accelerator complexes that produce bottom quarks are known as "beauty factories".

Query

In regular English, a 'query' is just another word for a question but in computational processes, a query is the method of retrieving information from a system. A common query that even the most technically unsavvy person among us uses all the time is a 'search query' when looking for something on a search engine. A query made to a computer system is processed by a program that has been written to answer with a response. In computer databases, information is organised in a structured manner using languages such as SQL (Structured Query Language) which is specifically done to make information retrieval fast and efficient. And even though we may not actively be using query inputs on databases or be aware of the mechanics of search engines, almost every website uses query systems when we visit them, as do many mobile apps and other software.

Queueing Theory

You'd be surprised to know just how important waiting in line is - not for you, but for the people who are servicing those in lines. For this purpose, mathematics uses 'Queueing Theory' to study and structure the systems of waiting lines or queues. The use of mathematical models to understand and create queueing systems is found all around us in



Prioritizing and sending information in a disciplined manner is what this is all about

telephone exchanges, traffic management and even computers. In fact, almost all of the operations on a computer system are built around queuing theory with the flow of power to the sequencing of concurrent and simultaneous operations. The way a computer system is designed incorporates queuing theory to make the flow of information, processing power and dedicated resources more streamlined for an efficient output.

QuickTime

Don't cringe - 'QuickTime', despite all its flaws, is invaluable. QuickTime started off as a multimedia framework made by Apple in 1991 and has since gone on to gain notorious admiration. The QuickTime architecture is composed of an environment for media authoring, a suite of applications (including QuickTime Player) and a movie file format. It is capable of handling numerous formats of digital footage, pictures, sounds and interactive features.



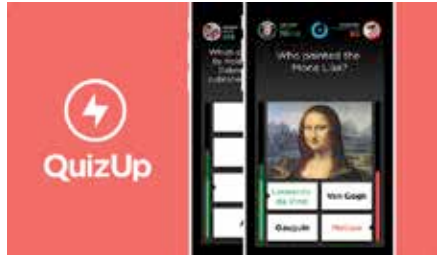
Apple's monopoly

Despite the divided opinions amongst its regular consumers, QuickTime is the backbone of Apple's multimedia editing applications such as Final Cut Pro, Logic Studio, Pro Tools and many more. The massive popularity of Apple's Final Cut Pro has made QuickTime the de facto format for amateur and professional editors

alike due to its wide range of customisable features. The next time you're bothered by a QuickTime update on your computer, take a deep breath and remember, The Dark Knight wouldn't have been possible without it.

QuizUp

QuizUp' is the first app that helps you show off your knowledge of trivia in comparison to strangers and friends. QuizUp is a massively popular mobile game that allows users to pit their trivia skills against another player, choosing from over 400 different subjects. With over 11 million users already playing the game since its launch in November 2013, the numbers are only rising, with nearly 40,000 users applying to become "content contributors" by volunteering questions to the game. It clearly deserves its reputation as the "World's Biggest Trivia Game".



It's all the rage among smartphone apps currently

Quora

'Quora' is a question and answer website where anyone can ask the community anything. Quora is one of the most recent additions to the fanatical world of social media but with a twist. The community of users create,



Where knowledge is upheld. Always.

edit and organise its ever-increasing archive of questions with new answers appearing every day for old posts. The website was started by two former Facebook employees - Adam D'Angelo and Charlie Cheever - in January 2010 and garnered over half a million users within a year. Since its initial release, the website has attracted nearly five million active users (according to Quora Answers) but it's hard to know for sure. The platform connects people in search of information with those who have the answers, and that has built a very strong commu-

nity of experts, influencers and even celebrities that address questions of all types. Funnily enough, over 40 per cent of users on Quora are from India – so it's true, we do have all the answers.



Probably the most popular keyboard layout in the world. Yes, we're sure of it.

QWERTY

In the emerging period of gesture-driven computer operations, the idea of a 'QWERTY' keyboard may seem dated but it's unlikely to ever go out of fashion. From cell phones to gesture screens, we still need to type and the QWERTY keyboard layout is the most popular format in existence today. Named after the first six letters of its first line of alphabets on the keyboard, this format has survived nearly 150 years since its creation in the 1870s. The QWERTY layout as we see it today was designed by E. Remington – maker of the finest typewriters – as a way of improving on the original design, which simply featured two rows of letters in alphabetical order. Remington needed to make the mechanical components elegant and easy to access, which required him to shift around the keys, eventually resulting in the QWERTY keyboard. Over the decades, spanning the era of typewriters leading up to touch-screen displays, many new formats have come and gone for keyboard layouts, but only QWERTY has endured the test of time. Maybe it has something to do with its catchy name.



R



RAID

'RAID' is short for Redundant Array of Independent Disks. This is a data storage technique that uses virtualisation technology. Instead of storing data on one single disk, RAID distributes it amongst disk drives that are called 'RAID levels'. This is done for data redundancy and performance improvement.



Hence there are many physical units that constitute one logical unit.

There are different types of architectures and ways in which the data can be arranged – the choice between which is determined by how you want to balance four factors: reliability, availability, performance and capacity. Based on this balance, these configurations are called 'RAID 0', 'RAID 1' and so on.

One reason behind storing data on different disks is that if one disk fails, data isn't lost. Also, data is easily and quickly accessible.

Almost every big time vendor – such as Dell, HP and EMC – uses RAID technology.

RAM

'RAM' or 'Random Access Memory' is the most common form of computer memory. It's called this because you can access its data directly without touching the preceding bytes of data.



There are two types of RAM:

Dynamic Random-Access Memory (DRAM) and Static Random-Access Memory (SRAM). SRAM is much faster, but also much more expensive, and so not used as frequently.

RAM is temporary memory or volatile memory which means it runs out as soon as the power is turned off. It's also referred to as the main memory of a computer.

Raspberry Pi

'Raspberry Pi' is a single board computer which is small enough to fit in the palm of your hand. It was developed in the UK by the Raspberry Pi Foundation with the intent of teaching Computer Science at schools. It can be plugged into a TV with an attached keyboard,



and be used to do many of the things that a desktop computer does like making spreadsheets, watching videos, playing games etc. Apart from these everyday tasks, it can also be used to make nifty electronics projects. Kids can use it to learn the basics of programming. The Raspberry Pi Foundation charity provides these powerful little devices at \$25 for 'Model A' and \$35 for 'Model B'.

Raspberry Pi comes with an installation kit called 'NOOBS' (New Out of the Box Software). This will allow you to install the Linux distribution of your choice even if you don't have much experience with it.

Reciprocal Link

'Reciprocal Links' are links that, directly or indirectly, connect two websites. Such linking is done as an agreement between two webmasters to attract more traffic to their respective sites. E.g. Klyde, a blogger places a link on his page leading to another blogger Dhruv's site; Dhruv reciprocates by doing the same for Klyde. The links could contain advertisements, spam or malicious websites.

Reciprocal links are used to inflate a website's popularity. Such links also increase the site's 'PageRank' (in the case of Google) – a search engine concept that denotes websites that are listed in the order of their usefulness.

Both, Google and Yahoo! in their guidelines warn against using Reciprocal Links. It affects the authenticity of a search and the reliability of the search engine.

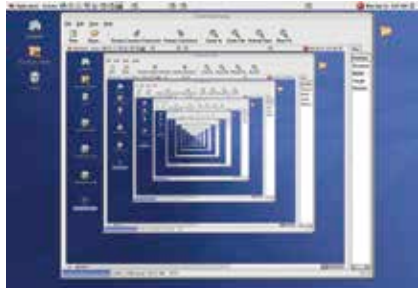
Recursion

'Recursion' is the process of applying a rule or procedure repeatedly.

It's an extremely powerful concept that allows you to write concise and elegant code. It allows you to define infinite objects in a finite statement.

Simply put, recursion is a procedure that calls itself while executing. When a task can be broken down into re-

petitive sub-tasks, recursion can be used. The routine will go on calling itself until a condition is met that no longer requires this to continue. This is when the procedure ends and the task is complete. The last sub-task i.e. the one that doesn't require the procedure to call itself is called a 'base case'. It's very important to have such a case, otherwise the recursive procedure will never end possibly causing your program to crash.



Reddit

Founded in June 2005, 'Reddit' is a news, entertainment and social networking site. Registered users can submit content in the form of posts or links making it essentially a community bulletin board system.

Founded by Alexis Ohanian and Steve Huffman, Reddit got its name from the combination of 'read' and 'edit'. People could go online, read articles and say they had 'read it' - Reddit. Only \$500 was spent on advertising for it. Initially, the creators set up fake profiles and posted content to make it seem like the site had a bigger user pool than it actually did.

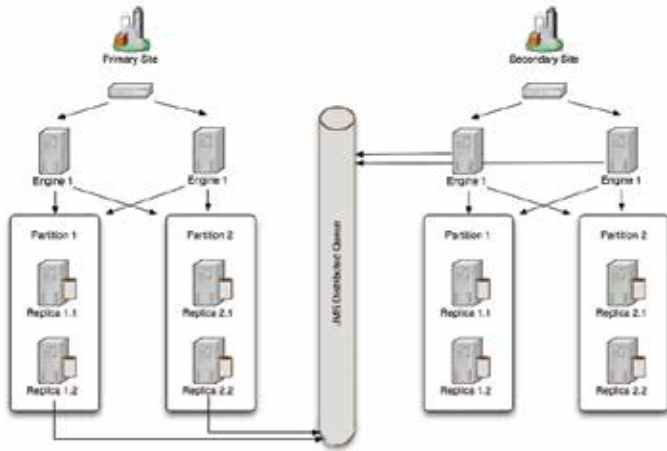
Reddit was acquired by Condé Nast Publications in 2006. It now operates independently while Condé Nast's parent company Advance Publications only holds major stakeholder rights.

Did you know: Reddit holds the record for the biggest ever Secret Santa operation in the world.



Redundancy

From a technical perspective, the term ‘redundancy’ is used to refer to duplicate devices that are used for back-up purposes. The primary goal of redundancy is to prevent the failure or – in the worst case – recover from the failure of a specific component or system.



The most common type of redundant device is a storage device. Another important redundant device is a power supply. It's good to have secondary power supply in case the primary supply fails. Uninterrupted power is very important so as not to lose data. Redundant data paths in local area networks (LANs) and Internet backbones are especially necessary to ensure uninterrupted data flow.

Reimage

‘Reimage’ is another word for reinstall and is the process of removing all the software from a computer’s hard drive and installing it again. It’s usually needed if your operating system becomes corrupted or damaged. Another reason for re-imaging your computer is if it’s bloated with unnecessary spyware.

You reimage your computer using a disk image. This image may be a recent back-up or a completely new image with none of the data saved. Usually to avoid complications, system administrators reimage computers using a standard disk image. This is also done to maintain

uniformity. Re-imaging is a one-step process. It doesn't require multiple installations.

Remote Desktop/Remote Access

'Remote Desktop' technology makes it possible to access and view another computer's desktop from your own and vice versa. Once you've obtained permission for doing this, you can open files, move folders and run programs. Usually, the operating system itself includes the Remote Desktop technology as part of the package.

Mac OS X provides something called 'screen sharing' – Apple's version of a remote desktop. It also has an advanced version called 'Apple Remote Desktop' (ARD) with better features. ARD allows you to control several computers at once.

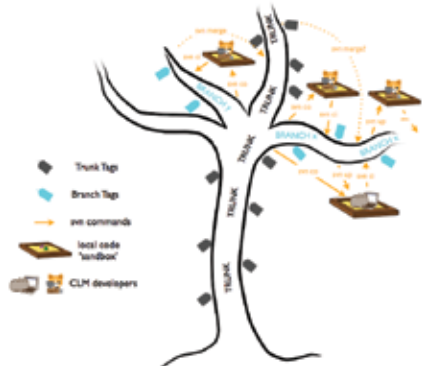
Remote Desktop is now extending to the mobile platform and you can remotely access your computer using your mobile as well.



Remote desktop has been a boon to all IT admins ever since it arrived

Repository

A 'Repository' is a central file storage location used by version control systems to store multiple versions of data files. Usually, a repository is stored on a server and can be accessed by multiple users. However, it can also be configured to a local machine for single users. A repository is made up of three elements: a trunk, branches and tags. The 'trunk' contains the most current version of the software project. The project consists of source code files



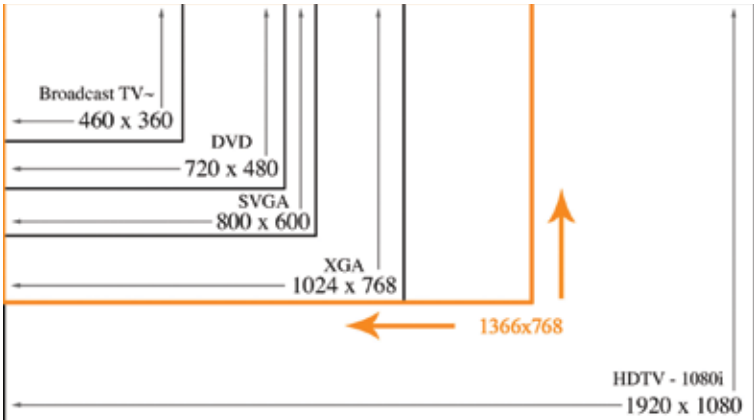
The mythical tree that holds all the code together and resources like images and xml data. New versions of the program are started by creating 'branches'. If a programmer wants to start making changes to the current version, but also keep the current version she can do so in a branch. When the changes are deemed permanent and relevant to the project, the branch can be merged with the trunk. 'Tags' are used to save the different versions of the project at different periods of completion.

A repository provides much needed structure to a software project. It's especially useful for large projects where multiple developers are working simultaneously. Project history is maintained and in case of bugs or revisions one can easily switch back to an earlier version of the project.

Resolution

'Resolution' is a term used to define the detail of an image. The higher the resolution the more detail it contains. Hence the higher the image resolution, the better the clarity of an image. Resolution is used to describe printers, screens, monitors and cameras.

In printers and scanners, the resolution measures how fine a printer can print. This is done in a unit called 'dpi' or dots per inch. The higher the dpi the better and probably more expensive the printer or scanner. Monitor resolutions are a width by height value. Common resolu-

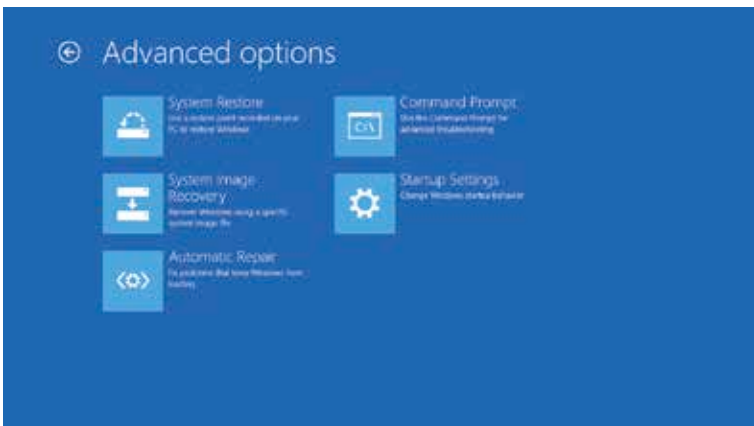


Screen resolutions are a dime a dozen. And they differ from one device to another.

tions are 640 x 480, 1024 x 768 and 800 x 600. The width tells you how many pixels are present horizontally and the height tells you how many pixels are present vertically.

Restore

A 'restore' is performed when you want to return something to its former condition. It's a process of returning a computer or other electronic device to one of its previous states. An example of a restore is when



So many faulty turns while driving Windows, and so many safe and successful restores. Ah!

you take a system back-up or restore your phone to its factory settings.

A restore is usually a last ditch attempt to fix a computer when the hard drive has been corrupted or infected by a virus. A restore always destroys any data that has been added since the previous state hence it's necessary to take a back-up. The back-up can be taken on an external hard disk or to the disk that isn't being restored. In the case of a phone, it has to be taken externally. Nowadays, the safest and easiest way to back up data is by uploading on the cloud.

Retina Display

'Retina Display' is a marketing term coined by Apple for its line of Liquid Crystal Displays (LCDs) with a resolution and pixel density that's so high that anyone would be unable to discern the individual pixels at normal viewing distance. This is because of the average of 300 pixels per inch.



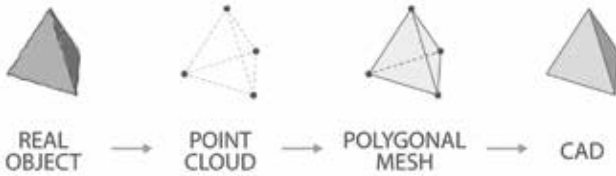
The first device to have a Retina Display was the iPhone 4S, which featured a resolution that was four times the normal screen resolution. Since then, all Apple products have incorporated the retina display. Apple has registered the word 'Retina' as a trademark with respect to computers and mobile devices. The displays themselves are not manufactured by Apple, but by Samsung, LG and a company called Japan Display Inc.

The quality of a device with a retina display is undoubtedly better than a device without one, but critics are sceptical about whether this justifies the hike in price.

Reverse Engineering

Simply put, 'reverse engineering' is taking apart something to see how it works. This is done mostly to replicate or enhance it. Reverse Engineering was originally an industrial term, but has now come to be used largely for computer software and hardware procedures. In software programming, this procedure is used to get the source code of the pro-

3D REVERSE ENGINEERING



Reverse engineering is also notoriously responsible for fake or dummy products all over

gram. This means deducing the code based on a series of 1's and 0's that make up the machine code. It's done to fix bugs, enhance performance or determine the cause of a virus that has infected the program. There are various tools used for reverse engineering such as a 'hexadecimal dumper', 'decompiler' and 'disassembler'.

In computer hardware, reverse engineering is done by taking apart the device or by obtaining 3D images of the product. This is most often done by companies to one-up the competition and is considered illegal in some countries.

RFID

'RFID' is short for radio frequency identification. It's a way to wirelessly transfer data using radio frequency electromagnetic fields. RFID tags - labels that contain electronically stored information - are used in many industries and can be attached to objects to identify them as well as track their location.



Who would've thought the radio waves could be used for unique identification?

RFID tags differ from

regular bar codes as they have read-write properties. RFID data can

be changed, updated and locked. Most industries have recognised that this is a better way to track stock for marketing and merchandising purposes.

An industry that uses RFID tags besides Retail is Transportation. RFID tags can calculate the toll and fare and electronically deduct the cost from the amount of money the user has filled the card with. These cards act like debit cards and reduce waiting time at booths.

This technology has been around since about 1970 but until recently had been considered too expensive for practical purposes. It has tremendous scope and can be used in virtually every industry to improve efficiency.

Richard Stallman

Richard Stallman is an American software freedom activist. He started the GNU Project and the Free Software Foundation, and developed the GNU Compiler Collection and GNU Emacs. He has also written the GNU General Public License.

Richard Stallman believes that when software is distributed to a user, he should have the right to freely study, copy, modify and distribute it. This kind of software is termed as 'free software' or 'freeware'.



Stallman's the messiah of the free software movement around the world

‘Copyleft’ is a concept coined by him which uses the copyright law principle to ensure that software remains freely available.

He is an alumnus of both, Harvard University and Massachusetts Institute of Technology and is more popularly known by his initials RMS (Richard Mathew Stallman). An interesting fact about Richard Stallman is that although he didn’t complete his Ph.D. he has been awarded not one but four honorary doctoral degrees.

Ripcording

‘Ripcording’ is the process of recording an audio from the web while simultaneously ripping an .mp3 file of it. The term is a combination of the two words ‘ripping’ and ‘recording’. Recording involves capturing the audio signal and saving it digitally to the hard drive of a computer, while ripping involves converting the audio file into an .mp3 file or another compressed audio format. Ripcording is a way to save online radio broadcasts or TV radio broadcasts. To do this, you need ripcording software.

Robert Kahn

Robert Kahn is an American electrical engineer and co-inventor of the Transmission Control Protocol (TCP) and Internet Protocol (IP). He, along with Vint Cerf – who he convinced to come work with him at Defense Advanced Research Projects Agency’s (DARPA) – was responsible for originating the basic communication language of the internet, viz TCP/IP.

The Internet as we know it today was birthed by the ARPANET technology that Robert demonstrated by connecting 20 computers. This made people realise that packet switching was a reality and could enable communication and data transfer between devices. For this reason, he’s known as one of the ‘Fathers of the Internet’.



Robert Kahn graduated from the City College of New York. He then went on to get his M.A. and Ph.D. from Princeton. He began working at AT&T Bell Laboratories and later became an assistant professor at MIT. He is a recipient of multiple national awards such as the U.S. National Medal of Technology, the Alan M. Turing Award (considered to be the technical equivalent of a Nobel Prize) and the Presidential Medal of Freedom.

Robert Noyce

Robert Noyce is the co-founder of Fairchild Semiconductor (1957) and Intel (1968). Nicknamed the ‘Mayor of Silicon Valley’, he helped invent the integrated circuit or microchip, which was responsible for the rise of the personal computer revolution, giving the Silicon Valley its name.

After receiving his Ph.D. from Massachusetts Institute of Technology (MIT), Noyce co-founded the Fairchild Semiconductor, which was the first successful silicon company. A number of companies stemmed from his inventions. At each company Noyce worked, he left his unique and unforgettable mark.



To celebrate his life and works, the Intel Museum in Santa Clara, California has a permanent exhibit called ‘Robert Noyce – a life celebrated’. To honor his legacy, in 1991, his family created The Noyce Foundation, which focuses on education in schools.

ROM

‘ROM’ is read-only memory. It is memory on a device that is more or less fixed. It can be modified, but with difficulty and very slowly. When a device is switched off, its ROM isn’t erased. This is an integrated circuit, which when manufactured is programmed with specific data that must not be removed. Hence, read-only memory is also called ‘non-

volatile memory' or 'firmware'. Critical programs like those that boot computers are stored in the ROM. It finds extensive application in small devices such as calculators and also in peripheral devices such as laser printers (to store font faces). There are five basic types of ROM – ROM, PROM, EPROM, EEPROM and Flash Memory.



Ron Rivest

Ron Rivest is a cryptographer and one of the inventors of the famous 'RSA Algorithm'. He also invented a series of encryption algorithms called RC2, RC4 and RC5, co-invented RC6 and authored MD2, MD4, MD5 and MD6 cryptographic hash functions. In addition to this, he invented the 'ThreeBallot Voting System' – a unique voting system that allows a voter to check if their vote has been accounted for while maintaining anonymity.

Ron Rivest was born in New York in 1947. He graduated from Yale University and went ahead and got his Ph.D. in Computer Science from Stanford University. He has also authored many books



and is a member of the M.I.T. Computer Science and Artificial Intelligence Laboratory.

Rootkit

A ‘rootkit’ is a software program developed to give administrator access to a user without letting him being detected. It’s a very serious type of malware as this unauthorised access is used only for malicious purposes.

With administrator privileges, a hacker can perform almost any type of operation, from installing harmful files to executing a denial of service attack on the network which the computer is on.

Most operating systems today are designed to prevent unauthorised access. But as modern systems get updated so do malicious ones. A good anti-virus keeps these vicious programs at bay.



Rosetta

‘Rosetta’ was developed by Apple in 2006 when the company switched from PowerPC processors to Intel processors. The shift in processors caused problems due to the platform dependence of some programs. To overcome this, the Mac OS X included the Rosetta software. On any Intel-based Mac, Rosetta immediately becomes active when a PowerPC-based program starts running. It translates the program to run on an Intel processor. Since the translation takes a bit of time, these applications may run slower on Intel-based computers, but Rosetta is extremely efficient and most users don’t notice the lag. The software doesn’t feature a GUI and is hence marketed by Apple as “the most amazing software you’ll never see”.

Router

A ‘router’ is a device or software that determines how packets in a



network should be forwarded to their next destination. A router is always connected to two networks. This meeting point of two networks is called a 'gateway'.

To decide where a data packet should go next, the router uses a tool called a 'Configuration Table'.

It processes a collection of information including which connections lead to which addresses, the addresses to be prioritised, and lastly rules for handling different kinds of traffic.

With all of this information loaded into the configuration table, routers have two jobs. One is to ensure that the data packets don't go where they aren't needed and cause an information leak or traffic overload. The other is to make sure that the packets reach their intended destination.

Ruby

'Ruby' is a programming language developed by Japanese coder Yukihiro Matsumoto in 1995. It's an object-oriented, dynamic, reflective, general purpose language. Matsumoto designed Ruby while looking in vain for an object-oriented, scripting language. He found both, Python and Perl to be too weak when it came



to merging those two concepts, so he designed his own language likening it to LISP at the core and deriving its object-oriented qualities from Smalltalk and Perl. Matsumoto chose the name 'Ruby' as it was the birthstone of one of his colleagues. The other alternative was 'Coral'. Ruby's main focus is to be simplistic and productivity enhancing. The syntax is natural to read and easy to understand making it very user friendly.

Ruby is completely free to use, copy, modify and distribute. Much of its current popularity is owed to a web framework developed from it called 'Ruby on Rails'.



rs



SaaS

When cloud computing gained popularity, so did another buzzword – ‘Software as a Service’ or ‘SaaS’ – and you may have come across it many times wondering what it meant. Well, wonder no more. Also referred to as ‘On-demand software’, SaaS is a software delivery method that gives an organisation remote access to software and its

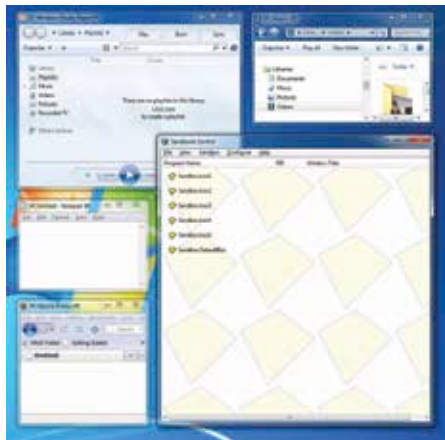


It means ‘software as a service,’ and makes up pretty much most of the cloud computing apps we use

functions. That is, the organisation need not expend any disk space or effort on the installation, setup and upkeep of software since all this is handled by its proprietors online, and the software only needs to be ‘rented’ or ‘borrowed’ when required. Since SaaS licenses are usually based on monthly fees, they allow organisations to access business functionalities at lesser costs than with licensed applications (which usually require a one-time payment).

Sandbox

A ‘sandbox’ or ‘sandpit’ in real life is a closed isolated square, covered in sand, where parents let their kids play. Similarly, in the software world a sandbox is an isolated computing environment used by software developers to test new programming codes – conforming to certain rules, usually for security reasons. The sandbox places restrictions on the



Useful for running isolated software instances

kind of system resources the program can request or access, compelling the programmer to essentially write code that “plays” only within the sandbox. Anti-virus software can be taken to be a kind of sandbox – it places restrictions on what programs can do, and upon doubt will ask for user permission to grant access for a particular program to run. Sandboxing technology is frequently used to test unverified programs that may contain viruses or the likes, without allowing the software to harm the host device.

SAP

SAP (Systems Applications and Products) is a company founded in 1972 by five ex-IBM employees focusing on an ERP (Enterprise Resource and Planning) system, also called SAP, that handles almost all departments of an organisation. SAP was originally implemented to provide customers with the ability to interact with a common database for a wide range of applications. Today, many corporations, including IBM and Microsoft, use SAP products to run their own businesses. SAP has special industry-specific solutions for almost all industries such as Manufacturing, Pharmaceuticals, Insurance, Treasury, Finance etc. Domains such as Finance (FI) and Human Resources (HR), that are relevant across all industries, are covered by the system, and a client can buy any of the modules needed depending on the organisation’s needs.

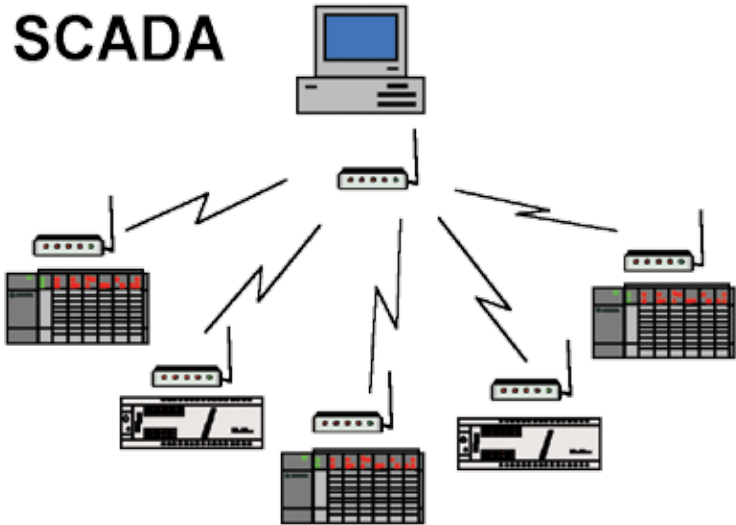


The holy grail of all company-wide software and services

SCADA

‘SCADA’ stands for Supervisory Control and Data Acquisition. It’s a computer-based application for gathering and analysing real-time data to monitor and control equipment from remote locations. Both, hardware and software components are included in this description. The hardware gathers and feeds the data into a computer that has SCADA installed, which then processes the data as required. A SCADA system gathers information, transfers it back to a central site and then carries out necessary analysis and control. For example, it can determine where a leak on a pipeline has occurred, alert the home

SCADA



Remote sensing and monitoring is what this system does best

station that the leak has occurred and determine whether the leak is critical or not, among other things. SCADA systems utilise Distribution Control Systems (DCS), Process Control Systems (PCS), Programmable Logic Controller (PLC) and Remote Terminal Units (RTU). Most companies have now adopted latest wireless communication technologies to replace certain sections of their SCADA system infrastructures with wireless equipment for improved remote sensing and reliability. SCADA systems are used in power plants as well as in telecommunications, transportation, oil and gas refining, and water and waste control.

Schrodinger's Cat

'Schrodinger's cat', a famous thought experiment cum paradox proposed by Erwin Schrodinger – a giant in Quantum Mechanics – is now become a staple in pop culture, and a favourite amongst geeky comedians and t-shirt makers the world over. The experiment goes like this: In a steel chamber, we place a living cat along with a device containing a vial of hydrocyanic acid. Though the amount of hydrocyanic acid is very small, it is a radioactive substance. If even a single atom of the substance decays during the test period, a relay mechanism will trip a hammer, which will, in turn, break the vial thus killing the cat.



A giant in quantum mechanics is now becoming the staple of pop culture

According to Schrodinger, the observer can't really know for sure whether the atom of the substance has decayed and consequently killed the cat. According to quantum law, at any point of time there is a superposition of states where the cat could be both, dead and alive at the same time. So, the question that arises is: when does a quantum system stop existing as a superposition of states and become one or the other? The Copenhagen interpretation – the most widely accepted one – states that a system stops being a superposition of states and becomes either of the two only when an observation takes place.

Scribd

Known as the “Netflix for books”, Scribd is a social publishing site where tens of millions of people share original writings and documents for other people to view. On

paying a monthly charge, subscribers gain access to an all-you-can-read buffet of books (ranging from major publishers to self-published volumes), brochures, catalogues etc. Scribd now has over 900 publishers with some big names already tied up, and the number is only increasing. Compatible with almost all devices, Scribd also lets you download its books for offline reading. Its evolution was set into motion when one of the founders, Trip Adler was at Harvard, and had a

The Netflix for books, in a way

conversation with his father about the difficulties of publishing academic papers. The digital library now boasts of more than 80 million readers per month from over 100 countries.

Sean Parker

Anyone who's seen *The Social Network* will remember Justin Timberlake's performance as a cocky opportunist who knows just the right



Sean Parker is the grand daddy of the technology celebrities, inspiring many modern ones

thing to do like “Drop the ‘The’ in ‘The Facebook’”. He was playing none other than Sean Parker, an American entrepreneur and tech industry darling. Sean had his first tryst with the big leagues when he and Shawn Fanning co-founded Napster – called by many as the fastest growing business of all time – and is credited with revolutionising the music industry as whole. Then, in 2002 he launched Plaxo, an online address book and social networking service, widely considered as one of the major influences behind companies like Zynga, LinkedIn and Facebook. Zuckerberg credits Parker for being “pivotal in helping Facebook transform from a college project into a real company”. He then went on to invest in Spotify and currently serves on its board of directors. To top it off, Parker is also closely associated with start-ups

such as 'Votizen', 'Airtime', 'Willcall' and 'Brigade Media'. With a net worth of \$2 billion, Sean Parker surely has the Midas touch.

Second Life

Few sites have gotten as much hype and attention as 'Second Life'. At the fundamental level, Second Life is an online environment in which users or 'residents' can create virtual representations of themselves called 'avatars' and can interact with other avatars, objects or



If you can't cut it in this life, try Second Life instead

places. But don't mistake it for just a fancy chat room – residents can do more than just talk to each other. They can contribute to the world around them by creating buildings, objects, animations etc. They can go to live concerts, press conferences and college classes and even buy land and clothes. In short, the environment lives up to its name and is indeed as good as a second – albeit virtual – life. Though it sounds like an MMORPG, Second Life's major distinguisher is the lack of pre-determined tasks or missions to accomplish, just like in the real world. There are barely any restrictions placed upon residents – probably explaining why this virtual world is for adults only, considering there's some pretty lewd user-generated content on display in the environment. Second Life also has implications in the real world with virtual assets being sold and traded with real money, and people even becoming real life millionaires thanks to their Second Life businesses. If there's still doubt about the scale of Second Life, it completed its tenth year anniversary in 2013, and over the last ten years, 36 million accounts have been created, \$3.6 billion was spent on virtual assets, and the equivalent total time spent "inworld" equals more than 220,000 years.

Selfie

Well... what can we say about one of the most abused trends of all time? It's a word – like it or not – that Oxford Dictionary thinks best sums

up the year 2013 for us. If you still don't know what a 'selfie' is – technically, it's a picture that the photographer takes of himself (usually evident because of a visible arm holding the camera) and then uploads it to Facebook, Twitter and the likes. The reasons for taking a selfie are still highly debated though –



Selfie. Even the rich and famous people indulge in it.

– ranging from narcissism to lack of friends who can take the photo for them to blindly following trends set by celebs. Most people, however, pretend to be highly turned off by the idea of a selfie – so much so that a hoax stating that the concept of a 'selfie' was a psychological disorder went absolutely viral across all social media platforms. This is ironic again considering that according to a survey, more than 91% of teenagers have taken a selfie and plenty of adults have also indulged in this cultural trend. No tweet has ever been retweeted more than the 'Oscar Selfie' posted by Ellen DeGeneres. Selfies have also laid the foundation for trends such as 'belfies' (back selfies), 'lelfies' (leg selfies) and even an 'Aftersex selfie'. So, whatever your take is on the whole concept, it doesn't really matter; we'll just need to sit back and take it all in – after all, even the world leaders seem to be in on it.

SEO & SEO Poisoning

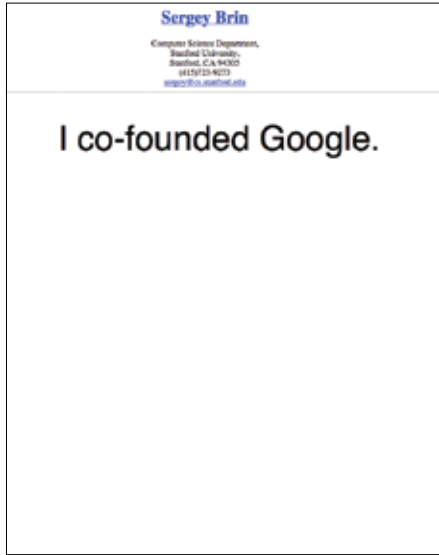
'SEO' or 'Search Engine Optimisation' is the process of affecting the visibility of a website or a web page to improve its ranking on a search engine's natural or unpaid search result listings. This usually results in more number of visitors to the particular website from that search engine. Therefore, SEO is basically an internet marketing strategy, and it targets different kinds of search including image search, video search, academic search etc. Optimising a website to improve its ranking involves editing its content so as to increase its relevance to specific keywords.

'SEO poisoning', or 'search poisoning' is a method of attack whereby SEO is done with malicious intent. Cyber criminals often use SEO

tactics to improve the ranking of malicious websites and attract prey to them. According to a study, about a quarter of the first page search results for trending topics is usually linked to malicious websites. The sites might feature content stolen from valid sites, but their main purpose is to infect visitors with malware.

Sergey Brin

We've seen some t-shirts doing the rounds that say "God doesn't have all the answers, try Google" – and that probably explains the level of importance Google has in our lives. We honestly wouldn't be half as productive or knowledgeable without Google. Sergey Brin is one half of the duo (the other half is Larry Page) who co-founded Google. He met Larry during their time at Stanford, and what started in their dorm quickly moved into a garage. After their initial



He co-founded Google. Doesn't get better than that.

funding by Sun Microsystems, Google started to pick up rapid pace and expanded into the behemoth it is now. Brin is an avid philanthropist, being among the top charitable donors in the world, supporting several causes such as Google.org and The Brin Wojcicki Foundation. Brin also invested \$4.5 million in space tourism through a company named 'Space Adventures'. One of the richest and most powerful men in the world, the alongside image best represents what Sergey Brin's resume might look like today.

SFX

'SFX' is an abbreviation for 'Special Effects' (pronounced FX!) and generally refers to the simulated events in a virtual story. These are usually orchestrated by optical or mechanical effects to give the viewer an



Where would modern cinema be if it weren't for special effects? All hail!

out of the ordinary experience. Actors or sets placed against varying backgrounds, mechanised props such as animatronics and pyrotechnics etc. are all forms of special effects. Most optical and mechanical effects though have been superseded by the more familiar computer generated imagery (CGI). CGI is safer, easier and more convincing. Almost all the movies and TV shows we watch now are loaded with examples of SFX. Try to imagine a Matrix without 'Bullet Time' (also known as frozen time) or Jurassic Park without the dinosaurs.

Silicon Valley

'Silicon Valley' is the nickname given to the South Bay portion of the San Francisco Bay Area. It is home to many of the world's largest technology corporations and thousands of start-ups. Its name is derived from the high concentration of Electronics and Computer companies that sprang



up there. Semiconductor chips – largely made of silicon – are the key product of high tech industries, and that’s where the place got its name. Silicon Valley is where many entrepreneurs oversaw the development of the PC revolution, and became overnight millionaires as a result. Even much before the PC revolution, companies such as HP, Eastman Kodak, GE and Lockheed Corp. can be credited for turning the area into America’s premier high technology manufacturing region. In tech culture, Silicon Valley is more than just a location – it’s an idea, a place built on raw capitalism where VCs drive luxury cars and young men and women pitch their ideas to go on to become millionaires.

Snapchat

‘Snapchat’ is a mobile app for your smartphone that can be used to chat with friends using photos, videos and captions. But its most distinctive feature is its ‘self-destruct’ feature that auto-deletes a photo a few seconds after the receiver views it. It’s been lapped up by teenagers, but safety concerns over its usage remain its biggest caveat. Even though the picture has been deleted from the phone,



there are still ways to capture a screenshot or recover the deleted images. Snapchat has faced plenty of flak over issues concerning bullying, sexting and privacy, and even though the app might seem perfect for sending across lewd pictures, CEO Evan Spiegel claims otherwise, and says that a majority of the traffic reduces after 11 PM. On the other hand, some claim that Snapchat allows teens to be themselves and post pictures without the fear of being bullied or dissed on a public forum. Either way, Snapchat has been extremely successful – already fending off two attempted Facebook takeovers, and then absolutely killing Facebook Poke – an app that does the same thing. Snapchat is currently one of the top 10 apps on the App Store, and with more than 350 million photos shared every day, it’s a phenomenon.

SOPA and PIPA

On the 18th of January, 2012 most homeworks, projects and team assignments were put on hold – Wikipedia decided to protest in the form of a blackout. What was it protesting? The terms SOPA and PIPA be-



SOPA and PIPA are two important chapters in the fight to ensure the freedom of the Internet

came household names thanks to it – but what exactly do they mean and imply? Well, the Stop Online Piracy Act (SOPA) and the Protect IP Act (PIPA) were two bills passed in the US aimed at foreign websites that infringed upon copyright material. One way of preventing such occurrences was to block infringing sites through ISPs, but it was a major concern and thus dropped. The other method would allow rights holders to seek court orders requiring payment providers, advertisers and search engines to stop doing business with an infringing site. This created all the fuss considering that an entire website would be affected because of a tiny portion of it that promoted the distribution of illegal material, with opponents claiming it would create an “internet blacklist”. SOPA and PIPA are commonly associated with media piracy, but also apply to counterfeit consumer goods and medication.

Source Code

‘Source Code’ (not to be confused with the movie) is a collection of computer instructions written using human-readable computer language. Basically, a source code comprises of program instructions written in their original form by a programmer in a particular programming language. To implement the code however, the program must be trans-

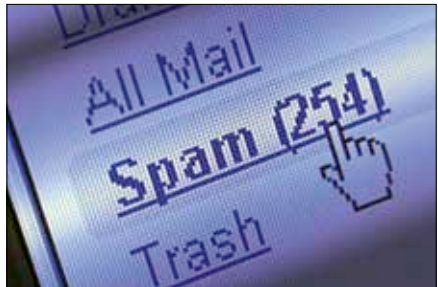
lated into machine language – usually done by a compiler. The compiler translates the source code into an ‘object code’. The object code contains a sequence of instructions that the processor can understand. You can consider these two concepts as the ‘before’ and ‘after’ versions of a computer program. Usually when you purchase proprietary software, the application doesn’t come with the source code because the developers don’t want you to improve upon their code. That’s where the whole Open Source movement comes into the picture where the source code is provided so that further improvements can be made.



It’s the DNA of a computer program, if you will

Spam

Can anything be more annoying than spam? ‘Spam’ can be defined as any advertisement or message in the form of an email or phone call that the receiver did not specifically request for. One harmless email is okay – we can just ignore it, but when there are thousands of them flooding your



Spam. Invading inboxes since the dawn of email.

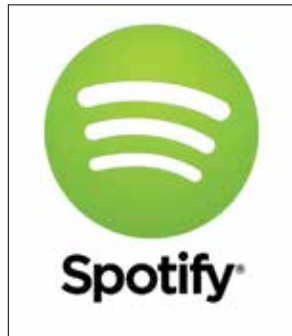
inbox, they just get to you. Spam, or spamming, is said to have either gotten its name from a Monty Python song of the same name or from a type of lunch meat called spam that exists in almost all lunches. Spamming is a widely used method of advertising since it’s economically extremely feasible and the senders can’t be held accountable for the mass mailings that follow their initial mail. In 2011 alone, it’s estimated that around 7 trillion spam messages were sent over the internet. Spamming is a common phenomenon across platforms such

as online gaming, instant messaging, social networks and even snail mail. Spam can also be dangerous since it could be the bearer of computer viruses or other malicious software. For ways to fight spam, we suggest checking out the article “Tips & Tricks to fighting spam” in Digit’s April 2014 issue.

Spotify

While you now know that Sean Parker played a major role in the blossoming of this site called ‘Spotify’, we forgot to mention one tiny detail – Spotify might just be the best thing that has ever happened to music lovers. We all remember iTunes, right? Now think of its replica...only free. You heard it right. Spotify lets you stream pretty much anything you can think of, for free. Sure, there are ads, but considering all that Spotify offers, the ads are barely noticeable. If they do though,

there’s a premium subscription that takes care of that. The moniker Spotify is a portmanteau of ‘spot’ and ‘identify’, and that’s exactly what the service lets you do – discover any song, anywhere. So wait, free music...how? Record labels tie up with Spotify thus allowing the latter to share their music, as long as they receive revenue from it. Spotify, on the other hand, gains most of its income from the advertisements it streams. If that doesn’t sound awesome enough, the digital music service also lets you organise all the music you listen to in one place – in the form of playlists or by your favourite artists, albums or songs. You have the option to share your music with a friend, and add apps to the client to further enhance your entire music experience. Available on all devices, Spotify is a definite must try for all music lovers.



SSD

Anyone who’s been shopping for a laptop or a computer might have had to make the choice between a HDD (a traditional hard disk drive) and an SSD (A Solid State Drive) for storage. For simplicity’s sake, an HDD can be said to use a mechanical arm that can read/write information from the right location above a spinning platter. The faster the

platter spins, the faster the HDD performs. The SSD, on the other hand, is similar to a USB stick or pen drive, in the sense that it doesn't rely on a mechanical arm and has a controller instead that performs the operations related to reading and writing data. This makes the SSD much faster – both, in terms of performance and boot time. There are no moving parts in an SSD and hence there's much lesser noise, vibration and heat produced in an SSD. Since there are no moving parts and no effect of magnetism to worry about, the chance of an SSD failing or going kaput is also much lower than that of an HDD. The average cost per GB of an SSD, however, is comparatively much higher, as a result of which HDDs are still the popular choice. This is a fading trend though, and as cheaper SSDs are released, it is but a matter of time before they take over the market.



Steam (Client)

If you're a PC gamer, there's a good chance you've heard about DOTA2 and as a result, of 'Steam'. Steam is a platform developed by Valve Corporation that used to distribute games and related media online. It's a digital rights management/game library that, via a marketplace, lets you play games of all kinds – from top releases to indie titles. So how do you play a game using Steam? It's pretty simple – you download them. Every title you buy on steam is downloaded right onto your hard disk – no boxes and shipping to pay or wait for. "So wait, what if I decide to delete the game from my hard disk to free up some space?" That isn't a problem either – the Steam library recognises all the games you've bought, and the ones you have currently installed, and lets you play only those.



Once you reinstall a previously bought game, you can continue to play it since the games you own are kept track of. Basically, once you buy a game through Steam, you have it for as long as you have an account there. Steam is also a great platform for multiplayer gaming and boasts of a great community where you can maintain friends, chat with them and see what other games people are playing.

Fun fact: Half Life 2 was the first ever game that required Steam installation.

Stephen Hawking



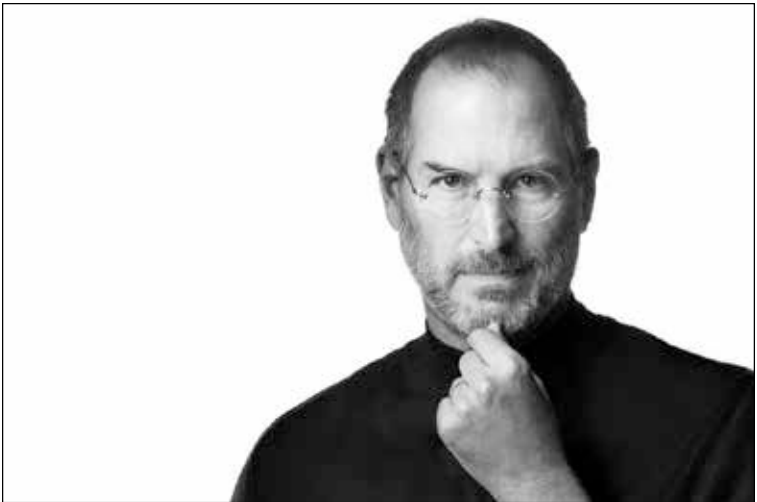
One of the most brilliant minds alive, enabling humanity to ask the important questions

Even if you aren't the greatest science fan, you've probably still heard of Stephen Hawking – that's how famous this modern day scientist is. Owing to a motor neuron disease related to Amyotrophic Lateral Sclerosis (ALS), Stephen is almost entirely paralysed. Despite having to speak with a speech generator and move around in a wheelchair, the theoretical physicist, author and cosmologist continues to have tremendous impact on the world of cosmology. His book 'A Brief History of Time' stayed on the British Sunday Times best-sellers list for

a record-breaking 237 weeks. His wit is showcased on shows like *The Simpsons* and *Star Trek* on which he's made guest appearances. A lesser known fact about Stephen is that he was on the rowing team at Oxford – a role that made him very popular, which according to him also hurt his study habits. Also a children's book author, Stephen Hawking is one of the few scientists to have openly expressed his belief in the possibility of alien life. As he puts it, "Primitive life is very common and intelligent life is very rare. Some would say it has yet to occur on earth".

Steve Jobs

Best known for being Apple's co-founder and the key figure behind its success, Steve Jobs will forever be remembered as a visionary and innovator beyond excellence. Jobs also co-founded and served as chief



One of the most enigmatic and influential figures in recent history, not just computing

executive of Pixar Animation Studios. In 2006, he went on to sit on the Board of Directors at the Walt Disney Company when Disney acquired Pixar. He passed away in 2011 leaving behind a legacy very few people can match.

Here, though, are some lesser-known facts about Jobs:

- Steve Jobs was given away for adoption shortly after being born be-

cause his mother's parents didn't approve of his parents' relationship. He was then raised by Paul and Clara Jobs.

- Jobs and Wozniak (co-founder) named the company Apple because they were huge Beatles fans.
- Steve Jobs was dyslexic.
- When the company required employees to be tagged for identification, he was so upset that Wozniak was employee number 1 and he was employee number 2 that he protested until he became employee number 0.

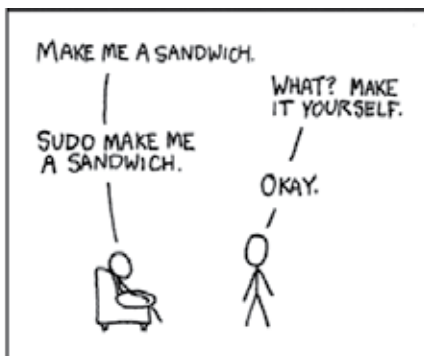
Sudo

'Sudo' is a concatenation of "super-user" and "do". It's a program for Unix and Linux based systems that allows users to run programs with the privileges of another user - usually the super-user (as is evident from the name) or the root level, which is the most powerful level of the system. Sudo allows a system admin to perform a set of actions that include:

- Controlling which commands a user can see on each host.
- Allowing users to run commands at the root level of an operation.
- Controlling the amount of time a user has to enter commands after being granted appropriate privileges.
- Checking user logs to see which user has used which command.

Unlike the 'su' command, the user must usually supply his own password to sudo rather than the root password. The all-conquering ability of the Sudo command is best detailed in the XKCD comic in the accompanying image.

Source: <http://xkcd.com/149/>



Sudo. That which enables you to do, take command.

Super Mario Bros.

The most famous character in video games history has to be our little



Italian plumber friend, Mario. So much so, you have to feel bad for his brother, Luigi – no one, we repeat, NO ONE wants to play as the poor green dude. Either way, the boost to his popularity can be attributed to one game only – the 1985 pseudo sequel to the 1983 game Mario Bros., ‘Super Mario Bros’. It was released on the NES, and became an instant hit. One of the most influential games of all time, Super Mario Bros. can take credit for almost single-handedly popularising the side scrolling genre of games. In 1985, the video game market was almost dead, but this game became a cultural phenomenon and sold millions of NES consoles, resurrecting the home gaming market. Ever since, Mario has appeared in more than 200 games, and was the first game character to be honoured with a wax figure in the Hollywood Wax Museum. Super Mario Bros. undoubtedly brings back fond childhood memories for millennials. It’s no wonder then that a poll conducted by IGN named it “The Greatest Game of All Time”.



T

T9

If you've owned a mobile phone in the late 'naughties' (that's 2000-2009) then chances are you know what 'T9' is. T9 or 'Text on 9' keys allow mobile users to simply tap the relevant keys required to spell out a word and the system would return a guess, which is usually a word that's most often used by the mobile owner. The only



T9 keyboard works on predictive text technology

problem with this predictive text technology is that you almost always typed in 'home' instead of 'good' and 'of' instead of 'me'. Interestingly, T9 now supports over 80 languages and is still in use in quite a few smartphones and powers over four billion devices around the world. But if speed is what you want while typing, try turning it off. Don't take our word for it, ask former world record holder James Trusler who typed out 'The razor-toothed piranhas of the genera *Serrasalmus* and *Pygocentrus* are the most ferocious freshwater fish in the world. In reality they seldom attack a human,' in just 67 seconds back in 2004 by turning the feature off.

Tablet

If it measures between three to six inches, it's all the same. Seven and beyond though, it's definitely a 'tablet'. Since the introduction of Apple's iPad, the world of personal computing has seen some drastic changes. Till about a few years ago, personal computing on the move involved lugging around a bulky laptop. The battery wouldn't last very long and soon you'd be stuck with a large paperweight. When netbooks came into the market, the battery backup was marginally better. With the tablet, on the other hand, you could access your mail and had enough juice at the end of the day to take a selfie for all your social media accounts. While Apple gets the credit for popularising tablets, the company itself didn't come up with the concept of the tablet computer. In 1989, GRiD Systems – a UK-based rugged laptop and computer

manufacturer – released the GRiDPad into the market. Unlike the tablets of today, these weren't intended to replace desktop computers. The device had everything you'd ever expect of a tablet – it came bundled with a stylus and two memory card slots, and the in-built MS-DOS would boot in under four seconds. The model that succeeded it came with a whopping 20MB hard drive and a backlight, and could have been yours for \$3,750! No wonder the US military was one of its biggest customers.



Obsolete, yet ticks boxes

Tag

The word 'tag' has different meanings in the tech space. It could be a #tag (hash tag) like the ones used on Twitter, Google+, Facebook and Instagram to group similar posts together or it could be the kind of tag in which you affix the '@' symbol to a person's name to get their attention or identify them

Tag	Description
<html> ... </html>	Declares the Web page to be written in HTML
<head> ... </head>	Delimits the page's head
<title> ... </title>	Defines the title (not displayed on the page)
<body> ... </body>	Delimits the page's body
<h n ... </h n>	Delimits a level n heading
 ... 	Set ... in boldface
<i> ... </i>	Set ... in italics
<center> ... </center>	Center ... on the page horizontally
 ... 	Brackets an unordered (bulleted) list
 ... 	Brackets a numbered list
 ... 	Brackets an item in an ordered or numbered list
 	Forces a line break here
<p>	Starts a paragraph
<hr>	Inserts a horizontal rule
	Displays an image here
 ... 	Defines a hyperlink

Now you know

in a picture. There's another type of tag, which is the most important type and it's the one used in mark-up languages like HTML and XML. Here, the tag is an indicator of how the content on a webpage should be displayed. On a word processor, pressing down 'Ctrl'+ 'B' will make your text bold, whereas in HTML to achieve the same effect, you must type <bold> before the line you want to make bold and </bold> after the line. The best part about tags, be it #, @ or <>, is that they've been instrumental in shaping the way the world wide web looks today.

Tamagotchi

Ever wanted a pet, but your parents always said no? Do you still want

a pet and get the same response from your girlfriend/wife? This next entry on our list will ensure that you won't be forever alone. The 'Tamagotchi' is a digital pet that has been loving kids and adults alike across the globe since 1996. It's basically an egg-shaped computer



Tamagotchi - Your digital pet

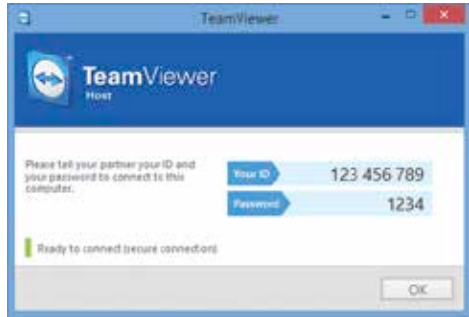
about the size of your palm minus the fingers, which is where your eating, sleeping, exercising and pooping friend lives. You're required to take care of it very much like a real pet and do the needful including medical treatment when it falls sick. Aimed at developing a sense of responsibility and nurturing a friend, over 79 million units have been sold worldwide, and what makes it so much cooler is that it's still available. The latest version, called 'Tamagotchi Friends' looks just like the gadget from the 90's with a tiny screen and old school graphics but what's new here is the fact that it comes with sensors that allow you to share gifts, go on play-dates and even get hitched! Also, if you live in the US or Canada, and prefer to further patronise your mobile phone, there's an app for that called 'Tamagotchi L.i.f.e.' available for iOS and Android.

An interesting fact: Tamagotchi is actually a portmanteau of Tama-go (Japanese for 'egg') and the English word 'watch' (try saying it like Hiro Nakamura from *Heroes* and you'll know what we mean.)

Team Viewer

'Team Viewer' is an online remote access software that allows you to control any PC in the world, provided both PCs have Team Viewer installed and you have the user ID and password of the PC you're connected to. Founded in Germany in 2005, Team Viewer is free to use and operates on Windows, OS X, Linux, iOS, Android, Windows RT and Windows Phone. With Team Viewer, you can transfer files both ways, hold meetings, presentations and conferences and do what Team Viewer is most famous for - control the remote PC from liter-

ally a million miles away. With over 2,000,000 users and a client list that includes the likes of Ford, Porsche, Harley Davidson and even a few Indian companies such as ITC and Dabur, Team Viewer is fast becoming the industry leader when it comes to remote access and remote presentation.



Team Viewer - Lets you remotely access computers

Terabyte

If you haven't heard of this word, it could only mean one of two things - either you're technically challenged or are actually from the past and got here via a time machine, in which case let's get rich! Simply put, a 'terabyte' is a unit of data. The smallest unit of data is a bit that's either on (1) or off (0). You might also recognise this as the basis of binary. Eight bits make up a byte which is also one character represented in binary. From here, every step above is at an increment of 2^{10} . Which means 1024 bytes would make up a kilobyte, 1024 kilobytes (KB) would make up a megabyte (MB), 1024 MB = 1 gigabyte (GB) and 1024 GB = 1 terabyte or TB.



Over the ages

Tetris

Vodka, interestingly, isn't the only thing that the commie hating Americans embraced with both hands and a foot. 'Tetris', the incredibly popular arcade game from the '80s, was also a product of Soviet ingenuity. Designed and programmed by Alexey Pajitnov, a program-

mer working for The Academy of Sciences at Moscow, 'Tetris' is a portmanteau with its roots in the Greek word 'tetra' - meaning four (all blocks are composed of four squares each), and 'Tennis', Pajitnov's



From Russia, with love

favourite sport. While Tetris took the entire world by storm, Pajitnov didn't receive any royalties as he had granted the game's rights to the academy's computer center for ten years. A noble gesture indeed.

A little-known fact: Tetris had a sequel called 'Welltris' which wasn't 'well' received. It involved Tetris being played from above, with the blocks falling down the four walls of a well.

Thread

Before social media came into being, if you had a question to ask, you'd visit a forum. A wide variety of topics are discussed in these forums and these topics are known as 'threads'. Any post in response to the topic is part of the thread and as more and more discussions take place, the thread becomes longer. The popularity of a thread is determined

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Threads in Forum : Wireless Networks

	Thread / Thread Starter	Rating	Last Post	Replies	Views
	Sticky: Wireless Security - dos and don'ts Greenhead		04-18-2008 11:18 PM by czezo	12	14,282
	Health issue concern javierd		Today 07:02 AM by czezo	1	54
	What a better setting? justalice		Yesterday 12:20 AM by justalice	0	44
	not connected Trigger		04-14-2008 04:53 PM by czezo	4	248
	Access point dropping clients for no reason RevTurk		04-14-2008 02:20 PM by RevTurk	1	101
	Wireless 955036		04-13-2008 11:22 PM by czezo	1	99
	Constant disconnects packrfans		04-12-2008 09:52 AM by czezo	1	117

Threads Yo!

by how many people are actively participating in the discussions. A thread with many replies may be given the title of 'Hot Thread' along with an icon. Normally, the thread with the most latest post is displayed at the top. This is where the concept of 'bumping' a post comes in. Typically, this is done by the creator of the thread and involves posting the word 'Bump' in order to move the thread to the top if it's not getting enough traction. But there's another way of keeping it at the top. Just the way Facebook allows you to have certain posts appear at the top of your News Feed, you can do the same with some threads. These threads are called 'sticky threads' and will stay at the top till the admins feel otherwise. If a thread hasn't seen any updates in a long time, it's called a 'dead thread'.

Thumb Drive

The story of this little wonder began at Toshiba, where the hard working engineers created Flash Memory in 1984. As is expected of all early tech, it was ridiculously expensive. In 1994, a few tech giants got together to develop the USB. But it wasn't until five years later that somebody decided to put the two together to create the 'USB Flash Drive',



A brain the size of a planet. Coming soon to an Android near you

also called a 'Thumb Drive'. While it was created by Amir Ban, Dov Moran and Oron Ogdan, who worked for the Israeli company M-Systems, the release of the USB Flash drive for commercial use is credited to a small tech company based out of Singapore called Trek Technology. The company is the patent owner of 'Thumb Drive', which was the new kid on the block back in 2000. With the Y2K problem resolving itself, a lot of good things were happening with computers. The Thumb Drive was available with an earth shattering 8MB of space and slowly phased out floppy disks, zip drives and CDs as a means of data

transfer. But following the grand scheme of things, cloud storage happened and is slowly phasing out thumb drives, but these hardy little guys are made of sterner stuff and seem to be taking on portable hard disks. Kingston released a revolutionary USB flash drive in 2013. It costs about \$980 on Amazon (including a savings of over \$1,300), has a capacity of 1 TB (which, if you remember is equal to 1024 GB), and is aptly named the 'Predator'.

Tim Berners Lee

Also known as the "Father of the World Wide Web", Tim Berners Lee came into prominence by providing the internet with the HTTP (Hypertext Transfer Protocol), a language that allows internet users like us to jump web pages or navigate the internet, to put it simply. Often confused with the Internet, the 'Web', as many prefer to call it, is actually a major component of it.

Sir Tim, as he is now referred to, was born to computer mathematicians in London in 1955 and had a keen knack of building computers from a very young age. In 1989, while he was working for CERN in Geneva, he invented the World Wide Web, which allowed regular people to use the internet with relevant ease.

Besides advocating the freedom of the World Wide Web, he prefers to live a simple life as an academic with his wife and two children in Boston. Even though he's credited with one of the greatest inventions of mankind, he relinquished all rights of his invention and didn't earn a single penny out of it.

If you've read the popular thriller *Angels and Demons* by Dan Brown, you may recount that Sir Tim's name was mentioned in the novel when the character Robert Langdon visits CERN. And despite all that, the humble scientist still states that



Tim Berners Lee, the father of the WWW

he has achieved nothing great in life and that there are brighter brains than him out there.

Tim Cook

His salary and email ID show up as top searches when you type in his name in Google. Why so, you may ask? Well, if you were the CEO of Apple, we'd search for you too! Tim Cook took over as the Chief Executive Officer of Apple Inc in August 2011. Prior to that, while Steve Jobs was on medical leave, battling cancer, Cook served as the acting CEO of the company. When Jobs asked him to join Apple in 1998,



The other Tim. At Apple.

the company was going through a tough phase. Michael Dell of Dell Computers has been quoted as saying that if it were up to him to fix Apple, he'd shut it down and give the shareholders their money back. But Cook bought about the much needed changes. With him managing Apple's sales and operations, its books went from recording losses of billions of dollars in 1997 to recording profits in 1998. His hard work make his \$378 million take home salary in 2007 seem justified.

Torrent

Also known as a Bittorrent files, 'torrents' are the world's preferred way of exchanging/distributing large quantities of data efficiently across the globe. The data is usually pirated so the MPAA (Motion

Picture Association of America) and RIAA (Recording Industry Association of America) don't exactly condone torrenting. The torrent file



that you download contains metadata which links you to all the people across the world that are willing to share or 'seed' the data. These good people of the internet are called 'peers', which is also why it's also called peer-to-peer trafficking. The problem with downloading data off a single server is that both parties need to be online throughout the entire process and the server from which you're downloading the data needs to have a large amount of outbound bandwidth. With torrents, the data is broken down into small 'pieces' that are sourced from different peers at the same time to optimise trading efficiency. Once all the pieces have been downloaded, the data is reassembled and the file is then free to use.

Trojan Horse

If you remember the movie *Troy*, the Greeks had presented the Trojans with a giant wooden horse. When the gift was accepted, Greek soldiers jumped out of the horse in the middle of the night and fought and defeated the Trojans. Similarly, if your PC suddenly starts going down-



Sneaky little program, invading PCs for ages installed was a cute little desktop kitty to keep you company, chances are you have a 'trojan horse' on board too. Trojans enter the PC masquerading as a programme that the user needs. They could range from PC clean-up tools to anti-virus programs. On the basis of function, trojans can be classified into:

- **Remote Access Trojans:** They give hackers complete control over the computer.
- **Data Sending Trojans:** They periodically send data ranging from passwords to credit card info to email IDs.
- **Destructive Trojans:** These guys like to indiscriminately delete files.
- **Proxy Trojans:** Illegal activities, like credit card fraud, take place through your IP address.
- **FTP Trojans:** This is how important data gets leaked.

- **Security software disabler Trojans:** They like to disable your firewalls and anti-viruses.
- **Denial-of-service attack (DoS) Trojans:** These guys cripple networks by flooding them with useless traffic.

Troll

Whether on Facebook or a forum, if you've ever participated in a discussion with strangers and have been left feeling hurt, chances are that you've just been trolled. 'Trolls' try their best to elicit a response from you by posting negative or hurtful opinions and remarks on public forums. It's commonly agreed that the best way to avoid being trolled is by ignoring them, hence the saying 'Do not feed the trolls'. While it isn't exactly clear, the origin of the word 'troll' is thought to have come from Scandinavian folklore which depicts trolls as mischievous creatures. Another theory suggests that it has its origins in trawling, the process of dragging a fishing net through water to catch fish. All said and done, trolls are known to have gone too far. In 2012, 16-year-old Jessica Laney committed suicide in 2012 as a result of constant bullying on the social networking site Ask.fm.



Troll face, representing Trolls everywhere

Tux

He's cute, chubby, looks like he ate a whole tub of herring and is about to drift off to someplace peaceful. He also happens to be the mascot for Linux. Drawn by U.S. computer programmer, Larry Ewing in 1996 with suggestions from Linus Torwalds, 'Tux' can be freely modified and used provided due credit is given to lewing@isc.tamu.edu and photo manipulation tool, The Gimp. Over the years, Tux has seen various avatars and been featured in commercials



Tux - Linux's mascot

and games too. Legend has it that a tiny little penguin nibbled on the author of the Linux kernel, Linus Torwalds' finger, following which he caught 'penguinitis' and began staying up all night thinking of the flightless water birds and feeling their love. The reason Tux is Linux's mascot and not logo is because it was supposed to be a formal entry to a Linux logo competition but never really won. Many people have argued that a mascot needs to be strong and powerful and Tux might not get people to take Linux seriously, but the folks at Linux feel that Tux is the perfect representation of what Linux is – not too corporate, but fun and happy to welcome anybody into its fold.

TWAIN

'TWAIN' is not an acronym. The word stems from a line in Rudyard Kipling's poem *The Ballad of East and West* – "...and never the twain shall meet". 'Twain', as you may know, is the archaic term for 'two', and in this case referred to imaging devices like scanners/cameras and personal computers. The line in the poem referred to the difficulty of connecting them. The company developed the interface standard that allowed such devices to communi-

cate with computers. This not-for profit organisation was established because there was no real standard when it came to getting imaging devices to work. Before TWAIN was established, any image that you scanned needed to be saved to the disk first using the proprietary software that came bundled with the scanner. Things like scanning the image into the software were unheard of. TWAIN set this universal public standard which helps communication between the hardware and the application.

Typeface

Also known as font family, a 'typeface' refers to a set of fonts that share the same design features. While typeface is the general term, it's often confused with font which refers to a specific style with its own width,



The global standard

slant and ornamentation. Which means that 'Arial Black 10-Point' and 'Arial Black 12-Point' are two different fonts. There are literally thousands of typefaces in existence with new ones being developed by designers all the time. 'Serif' and 'Sans Serif' are the

two broadest ways in which typefaces are split. While Sans Serif fonts like 'Helvetica' are composed of simple lines, Serif fonts like 'Times New Roman' are composed of tiny flourishes on the extremities making them look more stylish. Interestingly, Serif fonts originated from Latin inscriptional lettering wherein before being carved into stone, letters would be painted on first. The brushes would flare and leave flourishes which the stone carvers would follow.

Serif

vs.

Sans-serif

Now you know the difference

NOTES

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NOTES

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NOTES

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