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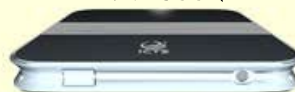
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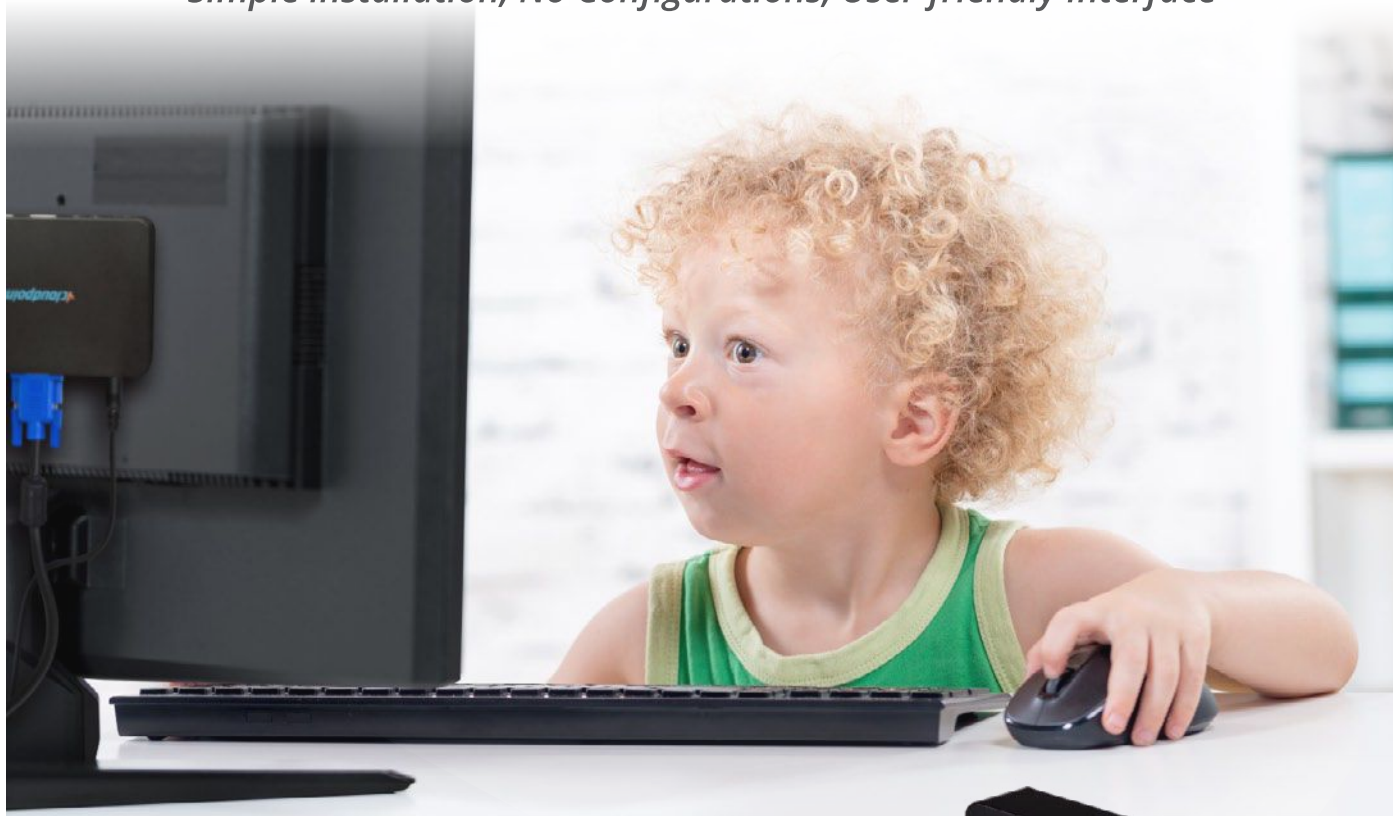
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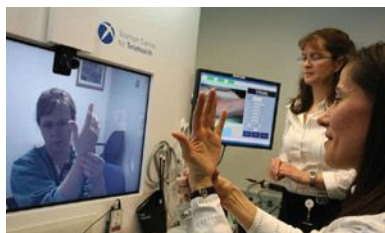
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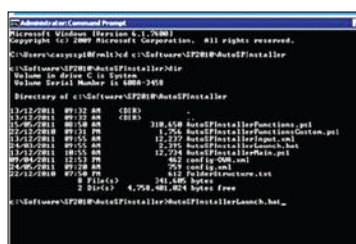
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Adeesh Sharma, Executive Editor
adeeshs@cybermedia.co.in

Digital India Needs Some Serious Catching Up

“
Not only does going digital makes the whole process transparent but is also meant to speed up service delivery to the common man.”

Going paperless in government to citizen services is the norm everywhere in the world and India has taken enough strides over the last 15 years to show its intentions. Not only does going digital makes the whole process transparent but is also meant to speed up service delivery to the common man. So, no matter how elementary the service requirement, it does not come as a surprise when you find even your neighbourhood local government office going digital in offering services. It was with this belief that I began one such digital journey for obtaining a certificate from the local SDM office in my neighbourhood. The Government of Delhi launched an eDistrict portal more than a year back encouraging citizens to apply for basic services, which in the past required a visit to the local SDM office and some greasy palms.

The journey begins by creating an account on the portal alongwith relevant document uploads. Now once you open up an application form to apply for a service, the promise of digital nirvana ends and the ordeal begins. After filling up all the text boxes, you are informed about the requirement to upload a certain type of document, an affidavit in my case. You cannot proceed further unless you have a scan of that document ready with you. And BTW there's no provision to save the work already done. So there you go, to get the document prepared from a Notary. When you come back and repeat the previous process, you are enlightened with the need to limit the scan size of any document to 100 KB. So there you go again, try grayscale, a scan with barely legible words, whatever. But the bigger challenge is that the 100 KB restriction applies even when there are two pages to upload. And BTW those two pages have to be combined to make one file. You can't upload two separate two. If you are able to get through all this, you still need to take the printout of the acknowledgement and get your documents verified at the office but go there only if you've not missed a bit anywhere during the upload process. In case you did, there's no offline support at hand. Go back and do not come back till you have sorted all pieces!

Seeing no immediate respite, I requested to submit an application in paper. 'Sorry sir, you can't do it unless your online application is first rejected,' pat came the reply. And no the clerk sitting at the window does not have the power to do so. So, bide your time till you receive a message announcing the rejection of your application. Once you do, you have two options: either apply online again or go there and apply on paper with all supporting docs in place. I followed the latter and am relieved, as at least it works in India much better! Here's raising a toast for Digital India of the future!

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THE SMARTPHONE IS THE 'DEMAT' TO ACHIEVE DIGITAL INDIA

We spoke to Aiyappan Pillai, Vice Chair – IEEE Bombay Section & Founder, ICT Consultant - Congruent Services to understand the upcoming trends in the personal technology domain. Here are the excerpts

– Adeesh Sharma

Q. In the consumer products to be launched in the coming future, how do tech companies balance out the demand for convenience and time savings alongwith affordability for masses?

Convenience and time savings do not necessarily preclude affordability where solutions satisfy basic/primary needs across the social spectrum. In this case, to drive volumes, the Tech companies have to ratchet up the technology baseline for entry-level products. For example, an essential home-appliance that is pro-actively monitored to pre-empt break-downs is a time-saver for all. To state a cliché, it ultimately depends on the perceived value. Multiple levels of services may be offered to achieve differentiated pricing. However, attractive pricing could also drive the adoption of seemingly secondary/trivial "needs" such as refrigerators monitoring daily essentials and giving timely reminders or placing orders. So it is a continuous push and pull combination between tech companies and consumers to enhance the value proposition of a product from its utility as "trivial need" to that of "essential", thus addressing the affordability aspect.

Q. What new features can be expected in smartphones to improve access to social schemes such as those in education, finance and healthcare?

The mobile-phone is the key to our digital life that is essentially a "demat" form of a citizen's civic, identity, financial, educational, professional records and their inter-linkages. Aadhaar is fast emerging as a critical component in the above scheme. It is also being used to address the core issue of inclusion of the under-served population. Any feature that significantly lowers the barrier to usage and allows easier user adoption merits incorporation in the product. This is important considering the literacy and numeracy levels of the under-served population. Bio-metric, fingerprint, handwriting NFC and signature recognition capabilities are essential to enable secure, equitable and targeted access in the key areas of education, finance and healthcare services, even in entry-level

models. Good resolution cameras with appropriate scanning apps allow digitization of records needed for the above services. Besides, user-interface with multi-lingual voice-recognition apps with learning capabilities would help bridge the literacy gap. The above needs to be combined with intuitive icon and picture-based prompts for user transactions. In addition data optimization apps can help use available bandwidth optimally. In order to improve the overall experience, it is essential for apps to



be designed with a “no-frills” option in a bandwidth and memory constrained scenario

Q. What role are new technologies such as Biometric Identification, VR, Wireless Charging, Touch- based inputs, Multilingual processing etc going to play in making lives more secure and aware?

These technologies enhance the dependability of the authentication method and hence the security. Bio-metric identification capabilities, touch-based inputs, voice recognition etc. are expected to be a standard feature of devices irrespective of where they are used. While the digital life brings along with it security and privacy challenges, the solution lies in adoption of appropriate security technologies, a few of which were mentioned earlier. As these devices are used to enrich our experience in different domains, be it education, entertainment, financial planning, shopping, leisure or business

Wireless and human activity-based charging will enable the use of devices practically everywhere.

Q. What shall be the challenges in terms of cost escalation, privacy, security concerns, etc?

Digital technologies today offer humanity a golden opportunity to include every human being in the global economy. Reliable security and privacy mechanisms must be available by default, similar to safety or pollution control requirements applicable to vehicles. The typical reaction is to increase the cost based on security enhancements. However, one must take a holistic view beyond the individual device. It is a question of the success of extending the digital eco-system to every citizen and how that itself will propel volumes. Privacy issues will arise, for technically, there is nowhere to hide once you embrace the digital world. This needs to be addressed by standards, adoption of right practices, suitable legislation and law enforcement in order to foster confidence in the new Digital world. While the challenge is real, the benefits are very compelling. Hence standards, legal frameworks, technologies and social constructs need to evolve continuously.

Q. What are the key technologies/products expected to be released in the Smart living, Personal Entertainment and Personal Healthcare spaces?

I look at the key technologies from two angles- technologies for enabling the specific need and ways to power the enablers. I expect to see the following technologies/products in each of the spaces:

SMART living: The principal goals of SMART living is effectiveness and efficiency while ensuring convenience. Intelligent Home Appliance management system that address hygiene, energy and health aspects of our daily lives will gain traction. Here IoT, Data Analytics, Cloud technologies and machine-learning are major enablers. A key shift is to a holistic approach from an open loop “guesstimate” based decision to a closed loop system afforded by physical evidence-based analytics and action. Hence energy management will encompass all appliance and possible energy generating systems in the household. Hygiene management will encompass sensing the cleanliness of the environment and initiating automatic cleaning or disinfecting actions.

Personal Entertainment: VR and AR based products will provide immersive experiences, be it gaming or movies.

Personal Healthcare: Products and apps centered around the smartphone that help monitor vital body functions, exercise regimens and diet. The trio of IoT, Data Analytics and Cloud will drive the physical measurement and analytics based guidance for healthy practices.

Powering solutions: These shall range from activity based charging to super-efficient compact batteries made with new combination of electrodes. □



THE DANGEROUS TREND OF UNWANTED DOWNLOADS

Who's not allured by free software? However, this unhealthy and dangerous practice has led to newer kinds of security threats

– Tushar Mehta

Have you recently downloaded a smart software that was too good to be free? The silicon legend says that the crack to which you just leased some space on your computer could potentially cost you more than you thought it saved you. And cost you, not just financially, but also compromise your valuable and private data. Most of these download bundles come with inherent perils such as adware, backdoors as well as infostealers and even ransomware.

The threats are not limited to your computers. A recent study endorsed by McAfee **"Towards Automated App Collusion Detection"** reads that nearly 85% of all the apps on the Google Play Store interact with each other when installed on an Android phone, either through explicit (11.3 percent) or implicit (73.1 percent). This intercommunication between apps exposes Android devices to threats, in a collaborative fashion, and in future will lead to plenty of such colluding sets. In June 2016, Trend Micro discovered a malware called "Godless" which was capable of infecting up to 90 percent of devices.

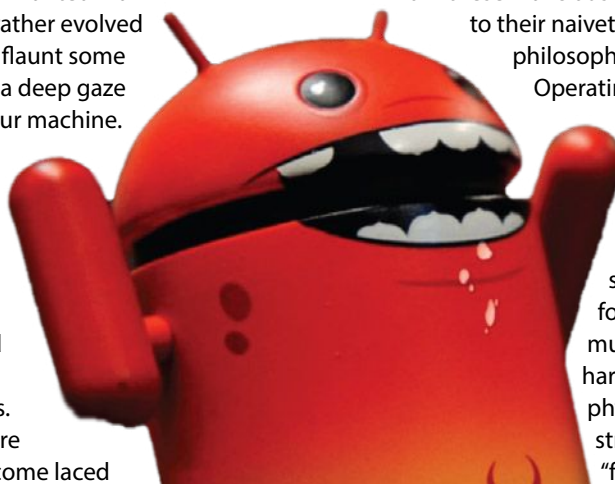
Most of the times, the threats come with capabilities to inject ads which deviate your attention while the infectious crawlers wrap up their business. Interestingly, adware which was believed to just display annoying ads has become a scapegoat for much more severe threats. These aggressively pitched ads, which were earlier believed to have just held the mast for unwanted marketing, have come up as, or rather evolved into, software that don't just flaunt some unwanted ads, but also take a deep gaze into everything stored on your machine. As the web is the most consumed host of media these days, *hijacking adware* do not shy away from tapping into your data lines.

These adware make use of users' ignorance and blind faith in companies such as anti-virus makers themselves. A startling number of off-store anti-virus patches or cracks come laced

with these adware – capable of even remotely hawking or controlling your system. Browser plugins such as those for Mozilla or Chrome are most of the exploitative batch. Once injected, these tend to modify the codes of sites visited by users to pitch in undesired advertisement and secretly tracking your data, and even suggesting you to install fake anti-malware software. Consequences? Most of those who are not technologically conscious end up trading their private data for beans.

These malicious injectors will continue to track data on every webpage which runs in a browser, local or online files, on HTTP or even HTTPS – you're virtually insecure everywhere and it's (mostly) inevitable. These further expose your private data to other hackers, with their fishing hooks down the online streams. Since there is No Encryption at play, stealing private data of users from these illicit repositories makes it immensely easy for hackers. Further, they store your data and its location on your network or machine for a long duration, such that exploitation of data is only a sleight of hand. These storages of exfiltrated information are often used in collusion by huge masses of hackers.

We have arrived in 2017, over 20 years since the first noted malware infected PCs and still have limited resolutions, especially in the area consumer technology. Mobile devices and IoT are significantly rising and face threat from these malicious programs, especially attributed to their naivety in terms of security. While one philosophy calls for using alternative, safe Operating Systems such as the Free-for-all Linux or the Paid-for-all Macintosh (iOS in mobile devices), Windows has deep penetrated our personal computing because of the wide range of software available for free. In a foully infected digital space, we must either spend extensively on hardware protection systems like physical firewalls or bring about stringent changes in our idea of "free" computing. □





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FREE APPS TO REPLACE EXPENSIVE WEARABLES

Smart wearables are increasingly trickling down the tech space, but the niche manifests a stage which can easily be entitled to as blossoming, yet naïve

– Tushar Mehta

“**W**here we are with wearables is about where we were with the Internet in 1993,” says Amanda Parkes, MIT Visiting Scientist and Chief Fashion Technologist at Manufactureny. We have technologies ranging from the popular Google Smart Glass to wearable ECG devices and smart socks for kids, but a fine line separates these discrete smart objects from being a part of a smart ecosystem. Devices perform in-bred functions, track stats of human body, present notifications but fail to account for an integrated environment. Thus, a higher number of devices intrude your vicinity, with the potential to invade privacy and sometimes creep you out (unwantedly). Sketchy prototypes are floating the markets, branded as products.

Wearables Remain to be a Costly Affair for Indians:

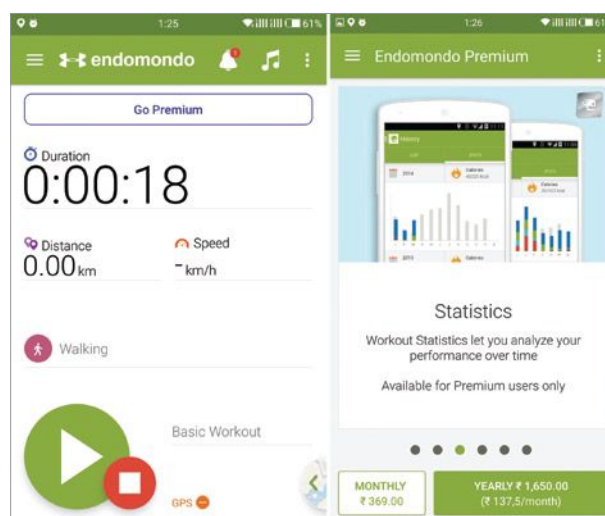
Premium segment of mobile phones (> Rs. 50,000) accounts for only 0.6 percent smartphone users in India. A 2016 study published by **CyberMedia Research** asserts that the Average Selling Point (ASP) of smartphones in India is ₹10,700. Most of the wearables, fabricated as a result of intricate engineering, repudiate this price boundary.

Here is, thus, a list of five apps which can be handy alternatives to purchasing these expensive accessories:

Endomondo

Available on all notable platforms including Android, iOS, Windows Phone and Blackberry, Endomondo is ripe with features for tracking a vast array of physical activities such as running, walking, sports, weight training, aerobics, etc. (aggregate 58 regimes) letting you track stats with high-accuracy GPS usage.

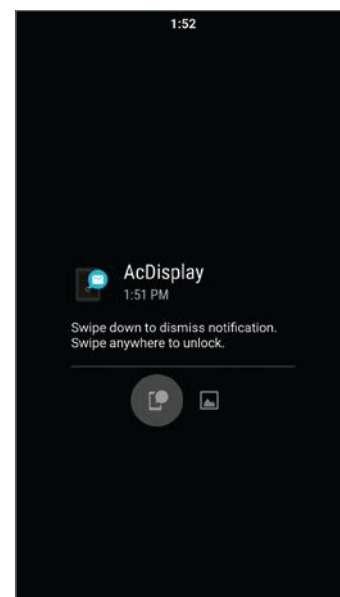
The interface is intuitive and live display logs and presents your pace, duration, calories burnt and altitude, as well as distance traversed using GPS. Interestingly, it doesn't prevent audio applications from playing while it is live, so can groove to your favourite



music or podcast while indulging those bulges. Premium features include Training Plans, detailed stats lie Heart rate zones.

AcDisplay

In a webbed world, notifications derive most of our glances towards our smartphones. Wearables and smartwatches significantly ease this by presenting those notifications on a smaller, more convenient screen. However, paying a hefty price to buzz your wrist, even for feckless notifications may not appease many. Inspired somewhat by Motorola's LiveDisplay (and Nokia N8's Glance Screen) AcDisplay displays previews to notifications from a



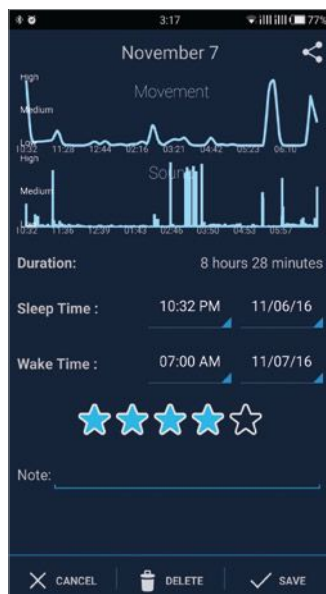
dimly lit screen, emulating AMOLED display without actually waking up the screen.

It is currently only available on Android, for free. One can also enable an active mode which senses motion of the device to wake it. Users can also wave over the proximity sensor to resuscitate their device. Additionally, one can prioritize or toggle notifications off from unwanted apps by adding them to the blacklist.

Sleepbot

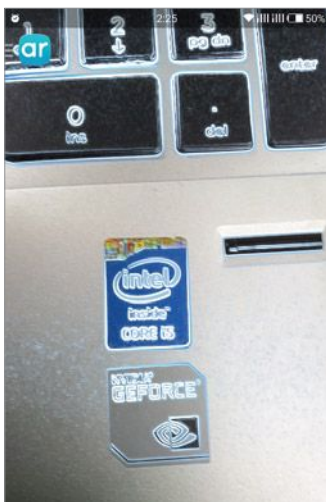
With the advent of Fitness trackers, predication of sleep has received the attention it deserves. Sleepbot is an app that emulates the functions of a sleep tracker band and paints a vivid picture of your sleep activity through the night, duration of sleep, any movement (tracked via accelerometer), and even recording any sound that you make (or made in the room) while you're fast asleep.

Sleepbot is available on both Android and iOS. You can easily take cognizance of your sleep through the minimal graphical representation, or add notes wherever necessary. Additionally, Sleepbot provides resourceful information about food and exercise habits to encourage a healthier sleep, or to empower you to stay awake.



Layar

Augmented reality displays overlaying information associated with physical reality. But not everyone likes the \$1500 GlassHole, or even other \$100-200 alternative devices. The idea of the Google Glass may have originated from Google Goggles which furnishes users with the power of searching anything by clicking a picture picture.



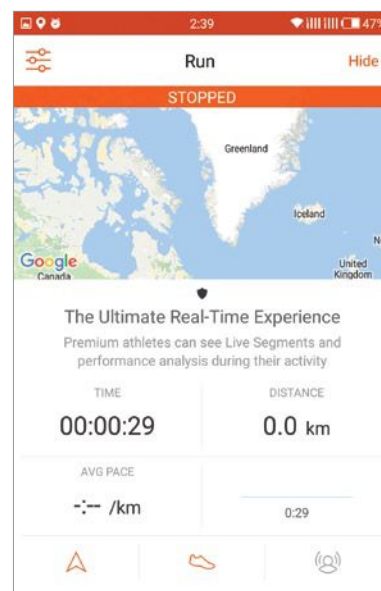
It then reads through the picture and suggests results based on its perception.

Layar app lunges a step forward by leveraging user-generated search result and suggestions. It also supports a Geo Layers feature for discovering or navigating to the nearby places like monuments or restaurants. Layar provides a unique platform for advertising and sets the stage for the future of collaborative augmented reality. It is available on both Android and iOS.

Strava

Available for free, for both iOS and Android's user segment, Strava is a community-based app which allows users to compete against other fitness zealots. What makes the competition fiercer is that it rewards you with money for outstepping peers in the same neighborhood. It records time, distance traveled, and split time between you and another user. Further, you can add friends Facebook or our Contacts and compete with them.

Strava makes use of GPS to track accurate locations of users and give them a comprehensive picture of their competition nearby. This sense of competition greatly adds to the turned up heat. Users can also strive to beat records set by themselves. Premium features allow personalized coaching and advanced metrics of your performance.



Wearable in Beta Phase, Growth at 13.5% CAGR from 2015 through 2025:

Technology of wearables is still in its beta phase with impending convincing results. Moreover, the price tags are often too heavy to bear with. While you can't use apps on your phone to gauge levels of anxiety or track temperature trends on your kids' bodies, these are attributes you are not likely to use for another five to ten years, despite the backing by Moore's Law. Meanwhile, you can save those hard earned bucks by using some of the apps listed above, making your way into a healthier and conscious aware lifestyle. □

WEARABLE ECG AND OTHER SMART MEDICAL ACCESSORIES

We discuss the various wearable medical devices that are helping patients worldwide track their vitals without much invasion

– Tushar Mehta



“Monitoring” has been imperative for medical procedures but patients subjected to this observation were clueless about the trite lingo. But, with the boom of technology, information comes handy and, people are more receptive as well as curious to learn about new technologies. Wearables allow users to be cognizant of their vital stats, transmit the same data to their physicians and slay down the number of visits to the clinic. Despite the opportunity

of application, hesitation towards wearable accessories continues to prevail.

Smart Health Monitors increasingly penetrating healthcare market:

We speculate wearables mostly as devices with which technology zealots boast about their fitness, but a universe of devices is helping patients keep a close tab on their tender health. Compact and mobile, these wearable devices are being shoved with more and more sensors

which record information for a wide gamut of human activities related to fitness, sleep and underlying medical conditions. While the cost of these health accessories is a big concern, clinical trials in first world countries are enabling physiologists to remotely access and analyze patient data.

Market is flouted by numerous prototypes:

“Smart” wristbands, eyewear, jewelry and even apparels have been used for reliable health tracking. Of the plenty of devices which have emerged, a lot of uncommon ones have gained confidence of the medical community. **Monica AN24**, which comes with built-in ECG and EMG sensors, monitors condition of the fetus without stressing the mother, while the \$99 **Somaxis Myolink** acts as a wearable EMG electrode and sends data across to specific destinations on cloud or network for analysis. **OMBra** is a \$149 sports brassiere capable of recording vital data – especially Heart Rate – and is made of antimicrobial material to sway odour as it hooks up with iPhone over Bluetooth.

Biopharma firms not prepared for large volumes of data, but growth foreseen at 65% CAGR:

At the same time, experts raise concern over insufficient capability of Biopharma firms and medical institutions towards compiling, processing and analyzing the data arising from thousands or probably millions of such devices. ROI (Return on Investment) is a diminishing concern for investors in pharmatech, as the growing space of wearable is still an inexact science. Despite this, Soreon Research claims the market for wearable medical devices is foreseen to grow at a CAGR of 65%, valued at \$41 billion in 2020.

Tele-monitoring gaining momentum in clinical trials as patients need to visit physicians less often:

While in a recent article, I talked how smartphones can almost be used for everything a smart wearable does, there are certain smart devices that were simply designed to keep users awe-struck. **Planexta** has developed a monitor which utilizes heart rate variability (HRV) to determine over 60 emotions, while keeping an eye on events which may trigger changes in these feelings. This can be utilized to mitigate the effects of mental ailments which otherwise have heart-wrenching impact on the patients and their kin. While coloured indicators in **smart diapers** can help you and your pediatrician assess the health of your child based on their urine and stools; Zoll Lifevest can be used as a wearable cardiac tracker and defibrillator. Rewalk Personal 6.0 aids in physical rehabilitation of



Rewalk Personal 6.0 for rehabilitation of patients suffering lower limb injuries

humans who have suffered lower limb injuries, whereas **mySmartCane** is a white cane reinvented which helps the visually impaired assess their environment.

Implementation is a bigger concern than security of patient data:



Telehealth consultation

Wearable tech is evolving, but needs a strong backing in terms of handling Big Data in order to integrate it as a part of Internet of Things around us. From stethoscopes that can be worn by patients to smart collars for dogs, the technologies require a conviction for a higher form of ROI than just financial returns – improved engagement with patients and satisfaction. This will pave a sturdy path for telehealth sensing. Meanwhile, most of these devices are not commercially viable, as they prevail strongly in the prototype arena, and are yet to invade Walmart. 2017 can witness a promising growth in these technologies, but India is likely to be advantaged only if we first educate ourselves to leave way for ambulances on the road. □

WILL 2017 MARK THE AGE OF KILLER ROBOTS?

While a lot of us will fail our New Year's Resolutions, robots with artificial intelligence will be diligently learning – preparing to take over the world; how soon is food for thought

– Tushar Mehta



The term “Robot” was popularized by Czech writer Karel Čapek through his play **Rossum’s Universal Robots** in which robots – principally humans with synthetic bodies – who are first deployed to manufacture low-cost goods, end up wiping the human race. Science fiction and Hollywood have endured the idea of robots trickling out of control to cause havoc onto the human race through franchises such as the Terminator and Transformers. Subsequently, hyperboles about these fears related to robots taking over the world have affected the approach towards the development of Artificially Intelligent robots, inciting severe criticism and extensive discussion in forerunner countries.

Even Before Bots could Dominate the World, Sci-fi Sparks Fears of Coup

Following three years of unofficial small talk,



representatives from various countries participating in the UN Disarmament Conference on 16th December 2016 agreed to hold serious talks about imposing a ban on autonomous lethal weaponry. While 88 countries will be attending these two-weeks-long talks at the 2017 UN Convention at Geneva, 19 countries already speak against bots in war. Autonomous Weapons are predominantly robots deployed in war with the capacity of deciding their friends from foes. Toby Walsh of the University of New South Wales in Australia is the committed mind behind



The Artificial Intelligent studies are mostly theoretical in nature, and the machines highly premature. Powerful yet premature.

the idea as he pursues the ban on autonomous killing machines besides weapons in biological and chemical warfare at the conference, anticipating the “terrible and terrifying” prospect of intelligent killers taking over.

Scientific Innovation Luminaries such as Steven Hawkins, Elon Musk Detest the Idea

Influencers such as Steven Hawkins believe that the evolution of technology into self-aware beings will spell perils on the human race. Hawkins, almost totally paralyzed due his motor neuron syndrome, communicates using a computer himself and says

that artificially intelligent machines have proved to be surprisingly useful with their present caliber but future advances can be treacherous.

Artificial Intelligent has been a magnet of controversies, lately. Man-made machines with intellectual capabilities of humans can be seen as a near resurgence of the thought process we follow. Robots, like any computer can process any fed information and perform desired actions as per their programmed algorithms. A thinking robot will be able to prioritize actions, develop an ability to learn any skill and even develop own thoughts.

Bots being Involved in Intuitive, Sensible Conversations

As the society transgresses the art of communication, robots like Kismet from MIT’s Artificial Intelligence Labs are learning how to make engaging conversations. It also recognizes body language in humans and responds to facial expressions with its own. But building an AI to work seamlessly critically depends on understanding human intelligence and how the brain functions tasks related to reasoning, more than aptitude.

Ideas of a Robot-run World are Mostly Theoretical, Machines Premature

Director of Microsoft Research in Cambridge, Chris Bishop doesn’t, however, subscribe to the same idea as Steven Hawkins and Toby Walsh. Mostly because, the Artificial Intelligent studies are mostly theoretical in nature, and the machines highly premature. Powerful yet premature. A machine with human-like intelligence is far from realization, save those built by alien intervention. These machines, although potentially powerful, aren’t capable of bringing a terminator-style havoc (yet). The most dangerous aspects of their development could, however, be that these machines pick up biases in the process of learning – like the expressions reading bot Sofia who erringly confessed to her desire of wiping the human race during a CNN interview.

Increasingly useful in Industry But unlikely to Take Over the Earth Soon

While, Robot are excelling as factory workers, becoming useful aides and even sufficing fetishes, they are not likely to take over the world, as Micheal Bay wants you to believe it. Not at least in 2017! While a lot of us will fail our New Year’s Resolutions, robots with artificial intelligence will be diligently learning – preparing to take over humans, but in a longer run. New age Autonomous weapons are still controlled by humans. So, we can clearly say that humans are currently nastier than robots. □

THE UPCOMING SMARTPHONE LAUNCHES IN 2017

January to March is usually the period, where we witness maximum new launches as most MNCs start introducing their flagship models in India – post their Christmas sell

– Sanjeev Bhatia, Co-Founder, Onlymobiles.com

It is very difficult to predict all the anticipated models for the entire year but Q1 of 2017 is looking very promising as of now. So, let me take thru with most anticipated mobile phones across various price bands.

Less than Rs. 3000

Jio Smart Feature Phone – this is one phone, which can launch as early as last week of January. This phone

is rumored to work exclusively on 4G network and can provide plain voice calling facility. This one is masterstroke from Jio to get more customers on board riding on their free voice plan and cheaper data plans.

Rs.3000 to Rs.8000

This is going to be the hottest segment going forward. We are going to see many frequent new launches mainly from Samsung & other small companies.



Samsung J1(4G) – Samsung have already announced this model and it will attract lot of traction as it is one of the cheapest offering from Samsung for lower price segment.

LYF Wind & Water Series – LYF is already seen aggressively pushing their wind series in this segment and now the 2GB RAM with 5-Inch models are already priced at just around 5k price point. I am anticipating few more launches in this segment.

Tecno Mobiles – After successful launch of iTel mobiles, the very same group is gearing up right now for Tecno brand launch in India. The company is expected to roll out with 1 Year Replacement Guarantee on all their smart phones. TecnoCamon C5, Camon C7, Camon C8 and Camon C9 are expected to make big impact with their aggressive prices and 1 year replacement offer.

Rs.8000 to Rs.15000

OPPO A39 & A57 – Oppo is about to announce the

launch of Oppo A39 & Oppo A57 as their replacement of one of their top selling model – Oppo A37. Currently there is vacuum and Oppo don't have any presence in this segment as they have already stopped pushing their Neo 7 & A37 actively.

Vivo Y66L & Y66 – Vivo have already introduced Y66 in global markets and they may launch Y66 or slightly trimmed version Y66L in India to accommodate offering in this price bracket.

Vivo V5 Lite – Vivo V5 Lite is trimmed version of Vivo V5 Plus and company is expected to make announcement in next few weeks time.

Lenovo K6 Note which is already launched and met with good success. Both variants – 3GB RAM & 4GB RAM have found good acceptance among consumers because of the great build quality at this price segment.

Nokia Models – Though they will not be available commercially till early April, but we are expecting at least 2-3 models from Nokia to be in this price segment. And company may announce them in more details during MWC 2017 – in February.

Samsung J Series (2017) these new phones have already hit the FCC certifications and Samsung can announce them as early as January last week – as the company have slowed down the supply of their popular model J2 in the market.

Samsung Galaxy J2 Ace – the launch of the model is just around the corner and going to be priced at Rs.8,490 – this is Samsung's efforts to regain the market share in value segment.

Rs.15,000 to Rs.25,000

Honor 6X – highly anticipated global model – which officially unveiled during this CES and quickly getting launched in India. The model is going to get launch in 2 variants and 3 colors – 3GB RAM + 32GB Memory & 4GB RAM + 64GB Memory. The model will be available in the last week of January.

Vivo V5 Plus – Apparently, going to be India's first smartphone with dual front camera and going to be priced around 20k.

Oppo R9 – Since Oppo is phasing out F1 Plus – they will introduce Oppo R9s or R9 Plus or R9 – which have met with great success in south east countries.

Samsung C5 Pro – Apart from Samsung C5 Pro – company is also expected to launch C7 Pro & C9 Pro in Indian market before February end.

Camera & Battery proposition is what going to drive almost all launches during Q1-2017. Apart from the above models – there are also going to be many launches from other brands like Asus & Gionee. Seems, customers are going to get spoiled with never before choices. □



DSLR CAMERA VS MIRRORLESS: FIVE KEY DIFFERENCES

We look at the five key reasons why DSLR cameras still reign supreme for professional photographers even as mirrorless cameras gain in popularity

– Adeesh Sharma



Serious photography needs serious solutions and therefore, DSLR cameras have remained a popular choice for years. However, the last few years have seen the advent of smaller, more compact cameras for people who are not really professionals but want quality pictures through a handy device. It's keeping this very audience in mind that some of the popular camera vendors have come up with compact variants of professional cameras that are based on a mirrorless design. For the uninitiated, a DSLR camera works on a mirror reflex mechanism where the image first falls on a mirror and from thereon it is reflected to the optical viewfinder and once the photographer presses the click button, the same mirror moves up for the image to be finally captured by the sensor. However, this mirror mechanism is space consuming and this is precisely what mirrorless cameras seek to eliminate. In a mirrorless camera, the light passes through the lens and falls straight onto the sensor.

So, are mirrorless cameras really an alternative to DSLR photography? Apart from the fundamental difference in

their construction, there are certain other key differences that you need to be aware of before going for one.

For one, you need to take into account the size of the complete package—the body plus the lens that you're going to be using. If the body is sleek but the lens is bulky then it defeats the very purpose of using a mirrorless camera.

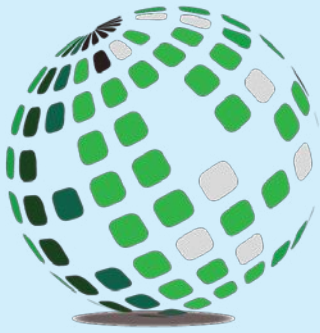
Second, you need to check the choice of lenses available, especially if you plan to use it for professional photography, and this is where mirrorless cameras currently lack.

Third, DSLRs offer complete manual control over all the features they offer, such as the control over aperture size, focusing, as well as the file format. However, mirrorless cameras do not offer that level of manual control.

Fourth, the DSLRs offer optical viewfinders that help the most in low light conditions, however, mirrorless cameras have to sacrifice this functionality to save on space.

Fifth, the grip and feel offered by DSLRs is still superior to a compact mirrorless camera, which to many photographers would feel little too small to hold and to shoot. □

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CASHLESS = INSECURE?

India lacks laws to protect consumers if they lose money during digital transactions while its cyber security stands on shaky grounds

– Sidharth Shekhar

Prime Minister Narendra Modi's latest war on black money by going cashless is in full swing while we still find ourselves miserably underequipped to tackle a looming threat to India's cyber security with the rise of a digital economy.

India lacks laws to protect consumers if they lose money during digital transactions while its cyber security stands on shaky grounds.

Post demonetization, India has witnessed an unprecedented increase in digital transactions but measures to ensure the underlying cyber security parameters for digital payments are still kept largely under the ambit of the Information Technology (IT) Act. This is a major cause of concern as we don't have any dedicated laws on digital payments and it's very important to remove doubts and clarifications pertaining to legal efficacies and legal validity of digital payments if we really want the nation to move towards a stable and secure digital economy.

Digital wallets fall under the category of non-banking financial corporation's (NBFCs). This excludes them from the ambit of any of RBI's governing laws. For fin-tech companies in India today, security compliance falls under Section 43 A of the IT Act.

There's a heightened urgency to legally fortify digital transactions in India to ensure the safety of consumer money but also for the safety of the e-wallet service providers.

According to FireEye, a US-based cyber security firm, "Encryption is the best way to minimize cyber security risks. Encrypting the card data and keeping it encrypted



to the maximum extent throughout its life within the system can ensure that consumer's data is safe. Point to Point Encryption (P2PE) could be used to address the issue of encrypting data in memory."

Many ATMs studied by Kaspersky are still running on Windows XP, which is no longer supported by Microsoft. This means their security isn't up to date and malicious malware can be installed without too much effort.

While maintaining security standards for fin-tech companies falls under the data protection law of the IT Act, the lack of an enforcement mechanism hinders any good this can do.

According to Anand Ramamoorthy, Managing Director, South Asia, Intel Security, "In a mobile first economy like India, a rapid upsurge in e-commerce and the increasing acceptance of e-wallet gateways will make security of paramount importance for both end-users and mobile-wallet payment firms. On the policy and investment front, it is becoming imperative to have an efficient data security infrastructure, as well as work towards expansion of cybersecurity laws to include mobile wallet payment systems. Hence, along with strengthening the data security infrastructure, mobile-wallet firms need to work in tandem with the industry to educate end consumers."

According to Intel Security's "Digital Detox: Unplugging on Vacation" report, Indians (36 per cent) led their global counterparts in willingly sharing personal information such as credit card number or login name/password, even when they realize that this will make them vulnerable. Now combine this with the growing impetus on digitization and we will see the cyber security threat landscape grow tremendously, as more devices and endpoints are connected to the internet.

Thanks to demonetization, the government may now be able to tax more than what it has been taxing till now. According to a research by the Bengaluru-based think tank, Centre for Internet and Society (CIS), some of India's largest technology companies still do not comply with Section 43 A.

There are provisions under Section 43 A that allow a sector to form a consortium that agrees to set security standards. It is mandatory for all the players to follow this, which is also valid in a court of law during dispute resolution. This is the best time for all the fin-tech firms to come together and think of foolproof security standards to safeguard consumer's interest.

Until then, be safe while transacting online! □



HOW LACK OF SECURITY IN MOBILE WALLET CAN DERAIL THE GREAT INDIAN CASHLESS EXPRESS

The mobile payment transaction is risky because several parties are involved in performing the payment service jointly. This may lead to a potential security breach if one unregulated party with no oversight has a carefree approach towards standard security protocols

- Sidharth Shekhar

The rapid deployment of mobile telecommunications infrastructure and the emergence of the budget smartphone market has fuelled the mobile-led economic development in India. The country's mobile phone subscriber base has already surpassed one billion and people are interacting with the digital world on a day-to-day basis through a wide variety of apps. We are shopping through apps, transactions are happening and a lot more. But, are we completely secure? Can we really expect from all the firms behind those apps to deploy the best security layers and end to end protection to safeguard our interests? Interests which can further be classified into our private, financial, and social interests.

We are paranoid about the safety of our data which is filtered and stored. Data is the new oil and brands are doing everything to capture their respective market by deploying these harvested data sets. The entire market revolves around the data we generate and these big firms should ensure that they are secured with zero backdoors. With the rise of the digital economy in India, we have seen a solid growth in mobile wallets sector.

The growing usage of retail apps provides an insight into the future of app economy. According to App Annie survey report, downloads of the top 20 retail apps as of Q1 2016 have grown tremendously over the past two years as new players and apps rapidly surfaced, but growth has slowed as key players started to establish themselves and the ecosystem has started to mature.

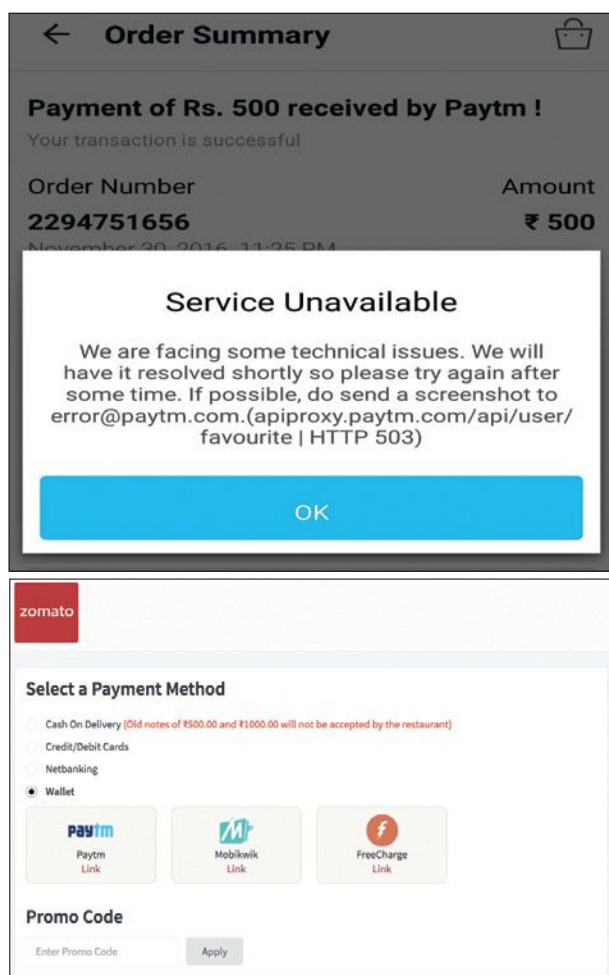
The digital retail market is divided between brands which are available on multiple platforms catering to an entire marketplace or a chunk of it. Mobile wallet has been around us for quite some time. India witnessed a sharp increase in the overall online business and mobile wallet adoption post demonetization. Tormented by cash crunch we moved towards mobile wallets or card-based transaction. Mobile payment platform Paytm has seen a rise in transaction to the tune of Rs 120 crores a day, following the demonetization.

Top Retail Apps by Downloads, India
iOS App Store and Google Play Combined, Q1 2016

Rank	App	Company	Business Model	Product Category	Company HQ
1	Amazon	Amazon	Managed Marketplace	General Merchandise	United States
2	Flipkart	Flipkart	Managed Marketplace	General Merchandise	India
3	Snapdeal	Snapdeal	Managed Marketplace	General Merchandise	India
4	Paytm	One97	Managed Marketplace	General Merchandise	India
5	Myntra	Flipkart	Managed Marketplace	Apparel	India
6	Voonik	Voonik	Social Marketplace	Apparel	India
7	ShopClues	ShopClues	Managed Marketplace	General Merchandise	India
8	Jabong	Jabong	Managed Marketplace	Apparel	India
9	LimeRoad	LimeRoad	Social Marketplace	Apparel	India
10	Wish	ContextLogic	Social Marketplace	Apparel	United States

New apps in the top 10 vs. Q1 2015

Companies like Ola saw a 15-fold increase in the number of wallet recharges, with small towns with high cash usage seeing 30 times jump. Food delivery players like Zomato and Swiggy temporarily stopped accepting payment by cash, but tied up with multiple platforms to enable the digital transaction.



I strongly believe that cashless societies can turn into a reality in the future, however, our laws need to be re-structured and a certain degree of transparency is needed to win the confidence and trust of the consumers.

So it's imperative we resolve security concerns involving new payment technologies. Hackers are persistent and can adapt their techniques to breach payment technologies.

Are mobile wallets really secure?

Mobile payment and security threat are like neighbors staying in a chaotic environment and all it takes is one backdoor for the pesky neighbor to trespass into our home with new types of risk. The mobile payment transaction is risky because several parties are involved in performing the payment service jointly. This may lead to a potential security breach if one unregulated party with no oversight has a carefree approach towards standard security protocols.

This multiparty transaction environment is constantly under the watchful eyes of hackers and cyber criminals looking to exploit the platform. If the appropriate protection mechanisms, and accountability controls are not established throughout the mobile payment ecosystem, it's the consumers who'll be facing the heat.

Last year, Paytm rolled back its in-app PoS (point of sale)

feature as customer data privacy and security issues were raised by payment network majors Mastercard and Visa. Paytm's in-app PoS was intended to let merchants accept payments from consumers by putting in their card details onto the vendor's smartphone, but the firm did not carry out necessary certifications necessary for maintaining data privacy. The digital payments firm has been one of the biggest beneficiaries after demonetization but it has failed the people on many fronts. Many users have complained about the payment failure and delay in the transaction while using Paytm.

Similarly, State Bank of India (SBI) has stopped supporting PayTM, Mobikwik, FreeCharge, Oxigen and others on its platform since last June. ICICI Bank has stopped supporting Flipkart's PhonePe UPI application this month. Last year in September, nearly 100 customers of e-wallet FreeCharge lost Rs 8,000- Rs 10,000 across the country in cities like Chennai, Mumbai, Hyderabad, Delhi only to be restored later as the e-wallet's system met with a phishing attack. The attacks happened between June and August 2016.

Multiple stakeholders on one platform

Perhaps the time is ripe for all the stakeholders, including the government and the private players to come together and make security an intrinsic element of all mobile payment systems.

The financial, payment and network service providers (FSPs, PSPs, NSPs) should focus on implementing appropriate safeguards and privacy and security governance programs. We do know that law regarding digital payments is not clearly defined, but the lack of clear regulation should not be used as an excuse by the private players for not being proactive. Each organization involved in the chain of the transaction data should maintain a tight control on it to protect such data while in its custody.

Digital metamorphosis

We are living in a world that is witnessing a rise in mobile services based on smartphone technology. The mobile payments market is going through a transformation and it holds a very promising future for both consumers and providers alike. Collaborative and competitive models for mobile payment services are being created, and the day is not far when we will find these businesses interacting and working across all the platforms in different countries.

For mobile payments to gain traction they require adaptations of existing business, security, and assurance models as well as revised or new interoperability standards and regulations.

To encourage widespread consumer adoption of mobile wallets, fin-tech firms should focus on the development of, and adherence to, best business practices within the mobile payments ecosystem with standard security protocols. Adoption of key innovations like NFC followed by multi-layered security and clean interface can keep the consumers in the loop in the long run.

In the current scenario, the future is promising and tempting, but uncertain. □

10 HANDY TIPS FOR FIRST TIME ONLINE TRANSACTION USERS

From securing passwords, to understanding the whole paradigm on which digital payments infrastructure works, here are some useful tips that first time e-banking users should keep in mind while indulging in online transactions

- Amit Nath, Head of Asia Pacific (Corporate Business) – F-Secure

With the sudden announcement of ban on Rs.500 and Rs.1000, the general public started to panic and hence a huge growth can be seen of public opting for e-wallets and online transactions to deal with the daily amenities. E-Wallet giants like Paytm reported a whopping 1000% growth in money added to its wallet, and 400% growth in transaction values of offline payments. Hence with large amount of people opting for online transactions there are also chances of cyber Security Hacks. Here we go:

Protect your Passwords:

People use common passwords for a number of transactions (including net banking). Here are some of basic password protection tips:

- Choose a strong password filled with numbers, symbols, and lowercase/uppercase letters.
- Change your passwords every 3 to 6 months. The more often, the better.
- Don't allow your system to store the passwords for shopping and banking sites.





Always Shop on SSL Protected Websites:

- Look for the lock, you should never ever purchase anything online using your credit card from a site that doesn't have a pre-installed SSL (Secure Socket Layer) encryption at the very least. You need to ensure whether a particular site has SSL or not. You'll know if the site has SSL just by looking at the URL of the site that must start with HTTPS:// (instead of just HTTP://).
- Shop at a trusted site rather than shopping with a search engine (especially when you drift past the first few pages of links).



Smartphone Specific Safety:

Since majority of India's population deal in Internet via, the smartphone software too needs to be updated to avoid exploitation of security loopholes. Here are some other tips:

- Use a pin, password or pattern to lock your phone and download apps only from trusted stores.
- Download your bank's verified application on the mobile device instead of using the browser. If your bank's app is not available and you have to use a browser, remember to clear your cache after visiting your net banking account to make sure that no one else views the confidential information.
- Banking applications should ask for a login password each time you log in. If you find any unusual behaviour, report it to your bank immediately.
- Always opt for OTP since an OTP is more secure than a static password, especially a user-created password

Install latest security software

- The best way to protect your device from the plethora of malware, spam and spyware on the internet is to use good antivirus software.



Avoid Using Public Computers and Wifis to Do Transactions

- Data leakage is a glaring reality and no system is completely impenetrable. Whenever shopping through public computers, opt for the cash on delivery option, if you cannot avoid it in the first place. □

FINGERPRINT AND THE SMART PHONE

The lines on your fingers can now change your fortune, as fingerprints are increasingly becoming a gateway for techie thieves

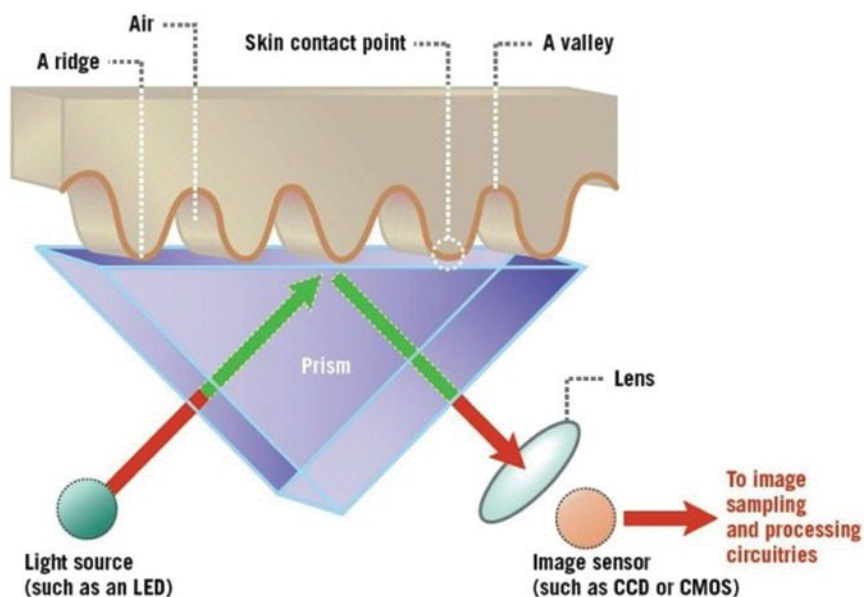
- Tushar Mehta



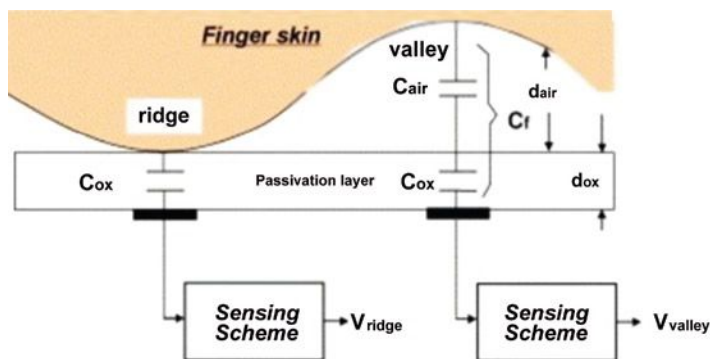
Fingerprint is the easiest way of securing your phone. No PINs required, no passwords or patterns to be remembered. It's just the unique (not even identical twins share same fingerprints) structure of lines on your thumb or fingers that keeps your identity and data concealed. If you are also one of those who diligently worship the fingerprint, it is time think again.

Fingerprints are as Insecure as Unique

Nearly 40 percent of the phones in use today have a fingerprint scanner as their primary lock and authentication unit. Apple's renowned TouchID has set the foundation for fingerprint-based transactions, thanks to its Apple Pay technology. The question remains "are fingerprints really as secure as we thought they were?" The obvious answer is "No" and we delve further into why's and how's of it.



This is how optical fingerprint sensors work



This is how capacitive fingerprint scanners work

Traditional Fingerprint technologies

There are typically two most popular types of fingerprint scanners – Optical and Capacitive. Optical scanners, as we traditionally see being used for staff attendance in the office, use a two-dimensional image of the thumb to analyse the print of the finger. The sensor at the bottom captures a detailed and high-contrast picture of ridges (fingerprint lines) on the finger to match with its database.

On the other hand, capacitive fingerprint scanners deploy a series of tiny capacitors to generate an electronic image of your finger. Human skin, being a conductor of electricity, conducts only through the ridges while the space between them can be treated as air, thus forming a thorough image of the finger.

While these technologies are (mostly) adept in the art of recording, indexing identifying the thumb, tricking them has become a piece of almost every techie's cake. Vkansee, at CES Las Vegas for successive years now, has been smashing the faith in fingerprint security. Russell Bandom reported for the Verge that this year at CES 2017, it was a dental mold with some play dough and decent amount trial and error. Another such attempt we see is a 3D printed finger made by Centre for Identification Technology Research (CITER), Clarkson University, New York. This 3D printer impression can be worn over any finger and be used as a fingerprint.

Selfies may leave you peace-less

A recent incident emerged where Japan's National Institute of Informatics (NII) warned users to not upload selfies with "peace" symbol, the most preferred selfie hand gesture, as this could lead to theft of fingerprints. Thieves can easily replicate your fingerprints if the picture is well-focused and brightly lit, and researchers at NII demoed the same as well.



Android, the infected bot

The risk is further aggravated in the case of Android, owing to its open-platform. Android allows users to get snazzy with their looks, themes, icons and in this effort sabotages

the security of Android phones. Paul K. of PhoneArena calls Android a "double-edged sword" for this reason. Apple devices, on the other hand, are capable of being turned into "paperweights" on being stolen. As soon as the user reports the loss of their device via "Find My iPhone (or iPad)" app, the stolen iDevice gets locked and literally unusable for the unsolicited buyer. Thanks to the iCloud Account Security. On the contrary, Android users can only wipe their phones using the Android counterpart of Find My iPhone app – Android Device Manager – letting thieves use stolen phones even afterward. This makes Android a lesser favourite among the technologically conscious.

Dominican immigrant trumped by fingerprints

Fingerprint breaches aren't anything new. The New York Justice Department uses Criminal Justice Information System-Offender Based Tracking System (CJIS-OBTS) to keep a log of all convicts, and deletes information about those found not guilty. "Can Prints Lie?" published by NY Times journalist Benjamin Weiser on May 31, 2004 reported how records of one person were swapped with another's. The misplaced fingerprints of Leo Rosario, a drug-dealer resulted in the deportation of Rene Sanchez, an auto-body shop worker, without even slightest of physical resemblance.

This incident was deemed *inadvertent* by the Connecticut Law Enforcement officials, but rising smoke leads to suspense and mistrust. This was a specific case among a series of incorrect convictions between 1998 and 2002 by the Connecticut Law Department.

Payrol Mayday

A July 2015 statement by Office of Personnel Management in the USA reported theft of over 5.6 of total 21.5 million fingerprints and the associated employment history, Social security numbers, and addresses of federal employees. Fingerprint being unique, but same for every security lock, make for the most favorable piece for hijackers. Unlike PINs and Password, you cannot change your thumb impression.

Fingerprint theft - a serious identity crisis

Fingerprints are intrinsically windows to personal identity and can lead techie thieves to dupe you of nearly everything protected by fingerprint. While molds of your fingerprint may not be as valuable, fingerprint molds of imminent leaders such as Barack Obama or Narendra Modi can be a treasure for many scavengers. At the same time, we see Aadhar and fingerprint-based UID emerging as a recognition of our identity. Fingerprints can be easily stolen as we leave them almost everywhere – they are still the heroes of our forensic investigations.

While protecting our fingerprints from being stolen is another face of the coin, innovators in the world are ardent on fool-proofing the security of these fingerprint scanners. Find out how these new innovations function, in the next story. □

FINGERPRINT: FOOL-PROOFING THE RULE OF THUMB



Fingerprints are in focus with Aadhaar-enabled biometric sensors being used with payment gateways to enable cashless transactions. Here we dwell on the security issues surrounding them

- Tushar Mehta

Fingerprint scanners are in vogue, now available even in entry-level phones. If you're vigilant about your privacy and unwanted peaks into your screen set turmoil in your heart, you must already be using a fingerprint or a similar biometric sensor for unlocking your phone or laptop. Thanks to Apple's Touch ID introduced with the iPhone 5s in 2013 which fueled the momentum of trends shifting in favour of fingerprint sensors.

Biometric sensors have witnessed a major riot of opportunities in 2016 itself. Based on a report by Acuity Market Intelligence, the number of smartphone models with biometric sensors saw a growth of over 100% since January through December 2016. These biometric sensors include the traditional fingerprint sensor, Iris scanners, and blood vein scanners such as a heart-rate monitor. Nearly 40% of the smartphones available globally deploy fingerprint on-board.

As the prices of fingerprint-enabled phones are declining and cheaper alternatives flouting the trade, the concern over the security of fingerprint has soared like hot smoke. Fingerprint is becoming the key to our security and privacy, and innovators are exploring the area of fool-proof fingerprint scanning, with due attention to the resistance against threats or data forgery. Below are some technologies that can replace the traditional capacitive fingerprint scanner in 2017.

Synaptics FS9100 – Optic-based & Button-free Fingerprint Scanner

While optic-based fingerprint scanners have been hot in trends, Synaptics is the first company to exhibit a ready-for-procurement batch of optical sensors, titled FS9100. This optical fingerprint sensor is capable of reading fingerprint through a sheath of 1mm thick glass. Protected under scratch-proof glass, it will be readily water-resistant and will not require a separate cutout.



Synaptics FS9100 has engraved face recognition and optical fingerprint scanning functionality in smartphones, one of these was demoed at CES 2017

Further, in collaboration with facial recognition firm called KeyLemon, Synaptics displayed at CES 2017 a smart engine for incorporating facial recognition with the fingerprint, making it convenient and firmly secure for the user. Samsung has a history of sourcing its fingerprint sensors from Synaptics and we can anticipate an optical fingerprint sensor being featured on the Galaxy S8, set for launch this year; the use of facial recognition may lag behind. Innovation is crucial for Samsung after the Note 7 debacle last year.

SecuGen UN20 and Hamster Pro 45 – Cross-platform and FBI-certified

SecuGen, a manufacturer of optical fingerprint technology showcased UN20 which is an optical serial fingerprint scanner capable of being used with various devices such as mobile phones, access control units, industrial applica-

tions and financial solutions (ATMs and PoS). It comes with Unity BDP (Biometric Development Program) which allows OEMs to integrate SecuGen fingerprint in a nearly endless number of devices. The UN20 Bluetooth is a cross-platform fingerprint scanner which, as suggested by the name, is Bluetooth-enabled and doesn't require wires for connection with the native device.

Hamster Pro 45 from SecuGen is a badass dedicated to forensic research and law enforcement. Made especially for the FBI, Hamster Pro 45 boasts a two-finger scanner instead of just one. This increases the accuracy of fingerprint reading. We may soon experience such a solution on commercial devices citing increasing attacks on consumer technology.



Apple Ready to Counter Samsung

Apple has, as per some reputed sources, filed a patent request for "a capacitive fingerprint sensor with an electrostatic lens." This will allow Apple to rid away with the Home button which is being carried along as emotional baggage, as well as let Apple compete its bezel-less iPhone 8 against likes of the Xiaomi Mi Max.



The rumoured iPhone 8

The present range of capacitive fingerprint scanners cannot identify any change in the magnetic field of users' fingers based on the distance between the two surfaces. The electrostatic lens will remediate this by identifying the electric field of the user's finger and adjusting the parameters in play while reading fingerprints – resulting in increased accuracy and security.

Chinese Brands such as Xiaomi and Huawei Catching Up

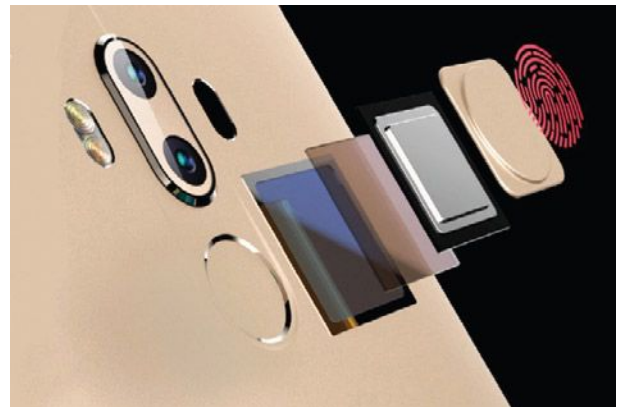
Huawei's latest upcoming devices – Honor Magic, Mate 9 Pro, and Mate 9 Porche will boast FPC1268, an under-glass fingerprint scanner. Xiaomi is a repeat customer of FPC, a fingerprint manufacturer, and is likely to utilize the latest model FPC1268 on its flagships in 2017. This will catalyze the transcendence of glass-based fingerprints into affordable smartphones.

Backing from SoC Manufacturers

Qualcomm is geared up to revamp security with the launch

of its latest SoC, Snapdragon 835. At least flagships will enjoy benefits of 2-step verification, involving more than one biometric sensor. Iris scanner or Voice Print can be used as secondary authentication, in tandem with the fingerprint scanner. Your fingerprint can also be your key to authentication during online transaction.

What the Best Innovator at CES 2017 Offers



Goodix Technology was revered as the Best Innovator of embedded technology at the CES 2017 after it unveiled Live Fingerprint Detection Sensor. Goodix analyzed that present class of capacitive fingerprints is not very reliable, and its fingerprint solution uses Infrared and a heart-rate monitor to easily detect fake and cloned fingerprints. After being convinced that it is a "live" finger, the scanner recognizes a "friendly" finger based on its conductivity. It is likely to feature on phones such as Gionee M2017 and Meizu PRO6 Plus.

The use of fingerprint has seemingly evolved into a market trend, with cheaper solutions being leveraged with almost every affordable smartphone. Fingerprint scanners are a cardinal essence of a majority of flagships. Capacitive fingerprints gave birth to security issues when some 3D printing artists managed to manipulate templates of users' fingerprints, now calling for more advanced and secure technologies.

As the popularity of fingerprint grows, we will have more users as well as intruders, thus calling for more advanced and nearly sci-fi tech, available for a wide range of devices including biometric smart cards. Simultaneously, other biometrics such as Iris scanners may strive to increase the security of our data. Recently, a boy used his sleeping mother's fingerprint to fetch \$250 worth of Pokémon toys via Amazon app. This makes us feel, multi-step authentication is really important to keep rebellion and mischief at bay. □



3D-printed finger impression

BROWSER EXTENSIONS - THE ESPIONAGE AGENTS

Extensions in browsers such as Chrome loot users of data and, thus, compromise privacy and security

– Tushar Mehta

Do you find yourself ransacking web pages in order to escape the circle of unwanted chrome alerts or add-ons which you do not remember installing? It is vehemently the most annoying aspect of web browsing. Chrome extension, basically small (optional) programs help users customize, and enhance their experience while web browsing. Chrome, which has become synonymous with the internet and enjoys the largest league of followers, also hosts, or supports, an alarming number of extensions that pose threat to your personal data.

We are not endorsing any other browser such as Microsoft Edge/Internet Explorer or Mozilla Firefox, as each may be equally vulnerable to threats from extensions. But Chrome being the most popular web browser is our focus.

Extension hawk on your browsing data

When users install a browser extension, it is intrinsically installing a piece of

code which runs inside the browser. It is also capable of updating at a later stage and turning into an adware or malware without users' knowledge. Traditionally Chrome, unlike other browsers left behind, asks users for permissions to access your data on all websites and sometimes even system storage. We often overlook the security aspect while allowing Chrome Extensions to tap into our personal data and web usage habits. This makes Chrome extensions a tasty soup for hackers to intrusively push adware and malware into your system.

Chrome Extensions require permissions such as "access your tab and browsing history" for functioning properly, and while a significant bunch of helpful ones dutifully make your Chrome experience shinier (pun intended), this allows Chrome extensions to read the background scripts, access critical information like passwords, and





inject nasty ads. Mozilla will not even bother to warn you that these extensions (or plug-ins in Mozilla lingo) have access to each of your interaction with the internet.

Capturing data anonymously

These malicious Chrome extensions capture statistics of usage, discretely hidden under “anonymous usage statistics” and sell this data to big corporations. These then track how often you have accessed social media, secretly peak through transactions involving credit card details and what you search on google. Based on this, they create a tentative picture of what are your preference and profile you based on your internet activity. These trackers may not know how you look, but know a lot about your shopping weaknesses and your covert biases.

Google, the necessary evil

These extensions then use your browsing patterns to pitch in the most bizarre and absurd ads. (By bizarre and absurd I mean unfinished and ugly). These malicious advertisements termed Malvertisements, turn sticky pop-ups which populate and defecate anywhere on your web pages. The black trade prevails under Google’s nose because the regulations set by the “advertising” giant are hazy and “allow” users’ data to be tracked by the malvertising extensions. On a cynical note, Google may possibly be minting some revenue from these data miners, too. Balance sheets of Alphabet, Google’s parent company, clocked \$21.5 billion in Q2 of 2016 just from advertising – a figure which was \$74 million in the respective quarter of the previous year, 2015.

Chrome Extensions that steal data

One such mischievous Chrome extension is HoverZoom, which lets users expand thumbnails into life-size images – just to save time, basically. They use the following description under the reverence of permissions to be

able to access your data. HoverZoom claims that it earns through affiliate advertising, thus allowing them to inject ads into each and every website you visit. At the same time, it tracks user searches and the firm was caught tracking and selling data of whatever users typed while using Chrome. Does aforementioned “anonymous usage statistics” ring a bell now?

Easy money, easy bait

Extension developers receive floods of communications for selling their Chrome extensions, reports power user guide HowToGeek and an anonymous blog reported that the developer of Feedly Reader Extension was offered a four-figure sum (in USD) to sell his creation. These Chrome extensions sold off-counter are then reprogrammed to be infectious malware.

Developers are being appeased with easy money and an average user may not ever know how they are being tracked. Users aren’t notified when an extension has been updated, nor can you keep a period check on all extensions. Usually, the credibility of the extension on the Chrome store can be judged by user ratings and brand prominence. For example, you must download the Grammarly extension only uploaded by the official service provider, instead of a third-party upload. Google’s official extensions are usually more secure, but I take due caution in catching any sneaky, unwanted and out of place advertisement, and advice you to do the same. Some may even cause slowing down of your PC, so reasons must be looked into seriously.

Alertness, the secure way out

In no way, do we recommend against installing useful extensions. They are great tools which make life on the line easier and eventful. But, getting rid of the ones you do not use is utterly necessary as well. What’s even more important is staying alert in an erratic and uncertain connected web world. □

CYBERSECURITY IN AN EVER-EXPANDING CYBER-TECH AGE

You are at risk and no one can safeguard you except yourself; think a million times before making any move

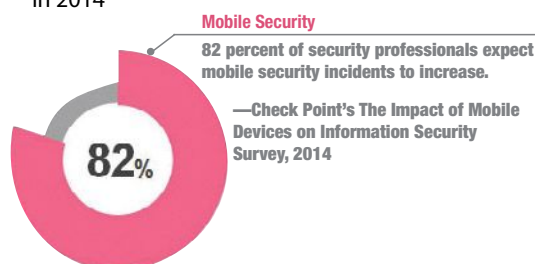
- Ashok Pandey

From students to professionals, from homemakers to public icons, everyone is their target. They never care to consider who you are. They only care about whether your data will help them to earn a billion or whether it would sell for some pennies. They believe in "Many drops make the ocean". It's all about stealing the contents stored on your phone, tablet or laptop and then sell them. Do you think you don't have any valuable info? Think again, because you have a significant information about yourself and your friends and family – contact numbers, photos, location and more.

If you are still in doubt about your viability as a target, take a closer look at the facts...

Check Point security report 2014

- 42% of all companies experienced a mobile data breach in 2014





- 82% of security professionals expect mobile security incidents to increase

Mobile technology has made the network security challenge much bigger and more diverse. Use of mobile devices and apps has introduced a wide range of new attack vectors and new data security challenges for IT.

Insecure devices are the norm

Employees are using a wide variety of personal devices, but only a few users realize the importance of preventing third parties from accessing their devices.

- 90% of employees have disabled locks on their laptops
- 75% of employees have disabled locks on their smartphones

Symantec Internet Security Threat Report

A New Zero-Day Vulnerability Discovered that each week attackers profit from attacks from flaws in browsers and website plugins

In 2015, the number of zero-day vulnerabilities was discovered to be more than doubled to 54, i.e., a 125 percent increase from the year before. Or put another way, a new zero-day vulnerability was found every week (on average) in 2015. Given the value of these vulnerabilities, it's not surprising that a market has evolved to meet the demand.

- Half a Billion Personal Records Stolen or Lost
- Companies aren't reporting the full extent of breaches

In 2015, we saw a record-setting total of nine mega-breaches and the reported number of exposed identities jumped to 429 million. But this number hides a bigger story. In 2015, more companies chose not to reveal the full extent of their data breaches. A conservative estimate of unreported breaches pushes the number of records lost to more than half a billion.

- Ransomware Increased 35%
- Cyber criminals are using encryption as a weapon

An extremely profitable type of attack, ransomware will continue to ensnare PC users and expand to any network-connected device that can be held hostage for a profit. In 2015, ransomware found new targets in smartphones, Mac and Linux systems. Symantec even demonstrated proof-of-concept attacks against smart watches and televisions in 2015.

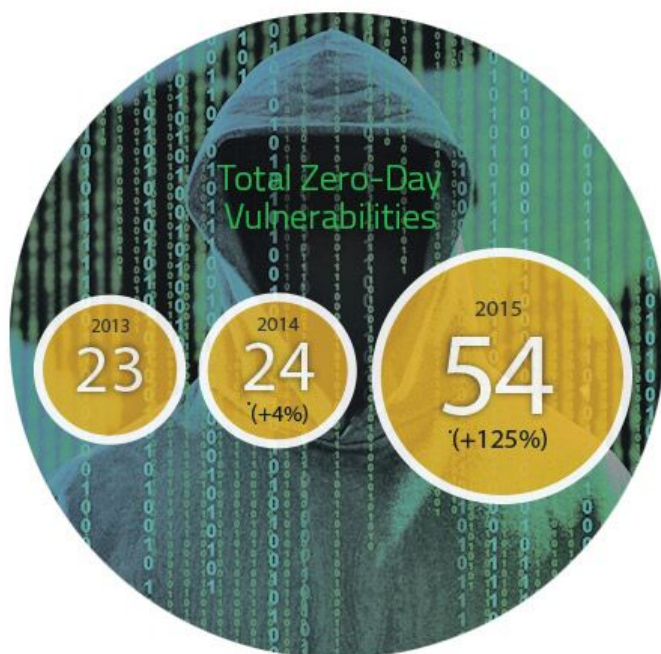
Chi Networks report

Taking on the security and vulnerabilities, Mr. Nitin Sachdev, VP-Technology, Chi Networks, explains how our devices are acting like an invitation to the hackers.

- 76% of identified vulnerabilities in the enterprise are at least two-plus years old in the official surgical template
- 60% of all targeted attacks strike small and medium businesses with weak or no security.
- 40% of organizations have 4 or more vendors in use
- In the past year, 70% of organizations were compromised by a successful cyber-attack.
- Directly or indirectly 1 in 3 organizations do not have a written information security policy

From politicians, businessmen, entertainers, journalists to common man; no one is immune or secure. From emails to social media platforms, hackers are targeting every possible entry. With the current surge in electronic transactions, the opportunities to compromise a network has also increased in the same proportion. Besides, these payment gateways, wallets, cloud platforms etc., are not secure enough to carry out the monetary transactions, while the number of devices using these networks have also increased.

The safety record of Indians using pirated Windows OS is ranked 3rd when using pirated software with 63% of the users using pirated systems which will allow cyber criminals to have an access to the various activities on the system. Similarly, the need of Internet security products which is on the rise but still not utilized completely by the users as markets/ internet is flooded with cheap pirated security software's.



In India, 17% people are smartphone users and this number is likely to increase, as also the number of people who are actively using various payment services. The USSD transactions from basic handsets have shot up by 100%. On 14 lakh active POS machines, the transaction have increased 3 folds. Similarly, e-commerce and mobile wallet usage has doubled. Banks are also witnessing 20 million transactions per day. For a common man's point of view, this is an open invitation to cyber criminals to tap on to an opportunity to get into these networks.

Its expected that global cyber security expenditure is to increase by 7.9% and will reach \$81.6 billion in 2016 and to \$101.6 billion by 2020, whereas the growth of cyber security in India will surpass the global rate and will be clocked at 10.6%, but the Indian share in the pie will be only \$1.24 billion by 2017.

Therefore, you will do well to protect yourself or add layers of security to your network and devices. For enterprises, it would cost a bit, but will secure a huge amount of precious data. Individuals won't be able to spend lots of money for their devices or network, but some easy tricks can help them to be more secure.

Tips and Trick to protect your devices

It's not a rocket science to do this. It can be easily managed, even by those who are not technically sound. Following are some measures you can adopt –

Keep the devices clean

People download different apps and some of them are used only once or twice in a year. Afterwards, you never use that app for a longer period of time. Travel apps, some download fashion or shopping apps during the festive season etc. are some examples. It's always a good practice to remove those

apps from your device. You should clean your tablets and PCs etc. It will benefit you in three ways –

- 1) You will be able to secure your device from various vulnerabilities,
- 2) Your device storage space will be free for different other things and lastly,
- 3) Your device will work faster as it doesn't have wasteful data that consume RAM.

Keep them up to date

Your machine must have update OS, software and applications. Microsoft, Apple, and Android all send updates to its devices. Many people ignore to update them, but it's always advisable to do so whenever you receive a notification for updates.

Updates don't only bring new features to your OS or app, it also updates, security patches to offer the best defence against viruses, malware and other online threats.

Must have strong password

I would strongly recommend you to have a strong password with all your devices, be it phone, tablet or PC. I have seen people not adding any PIN or passcode to their device, which harms them later when stolen and the thief can easily get all the data out of your device.

Another good practice to be safe online is having strong passwords for all your accounts, including email accounts, social networks etc. Try to keep longer passwords, make them alphanumeric and add some special character as well. One important fact I would like to tell you is that hackers try to crack your password by using your birth date, or name of your beloved ones. It's recommended to not use such things in your password.

Use security and privacy settings to safeguard

Your personal information is very valuable. If you don't find it important enough then think about it while putting your feet in the hackers' shoes. Hackers are always in the ambush to get one loophole and steal your data and in most of the cases, they prefer public networks where you are using Wi-Fi network or in a cyber cafe. It's advisable to check for security and privacy setting before using any public Wi-Fi or when in a cyber café, ensures to secure your browser before you log in your accounts.

Keep your wireless connections off

Bluetooth, Wi-Fi and other wireless connectivity features can also be dangerous for you if left on. Some thieves look for such pitfalls and then connect your device to track your movements. It's important to keep them off when not in use.

Fraud messages and emails

Don't ever respond to any fraud messages or mails. These could come with interesting offerings, such as you have won something and to claim it you need to provide some info. When it happens, please don't respond; rather contact legal authorities to take action against them, so that others could be safe. □

INTERNET OF (UNSAFE) THINGS

The diversity in IoT devices has kept technologists away from securing them, but it's time we woke up



- Tushar Mehta

Internet of Things is under threat from its ancestor – the world wide web (www or web as we know it). The market of IoT devices is flourishing on the banks along a river with riptides. These devices, however smart enough to capture useful data, leave a trail of vulnerability behind. This is because of an inadequate emphasis on the security of devices connected to IoT.

It's Time to Wake Up: In October 2016, Dyn, the service provider of tech cyclops such as Netflix, Facebook, Twitter and the Guardian, took a major blow down because of a poignant denial-of-service (DoS) attack. This ceased services offered by these websites over a major part of the US and Europe. Denting our notion of security, this incident acted as a wake-up call for a reformed approach towards the preservation of data.

Devices Cannot Fend Off Attacks: Smart devices are entering our personal network, joining our tiny Internet of Things. This is merely an addition of more computers on the network. More insecure computers – which are increasingly easy to attack. Imagine buying a Microwave Oven that reads instructions off your mobile phone and thinking about its safety. It just doesn't happen. We don't look at the aspect of safety of "smart" devices because we weren't initially trained to do so with our appliances.

Besides our technological unconsciousness, the world lacks standard guidelines on the security of IoT devices. This is largely due to the diversity in types of gadgets that create a smart ecosystem of devices, which can be controlled via our phones. It is the shimmer of convenience that has been able to let buyers overlook security. Even if you, as

a consumer, wish to gauge security standing of these smart devices, there is a lack of fortifying measures or ratings.

Some Feel it can also Kill You: Bruce Schneier, a well-known security intellectual and Harvard lecturer among other experts attest against catastrophic effect of these "smart" devices. As these are not equipped adequately to fend off targeting malware, he asserts that usage, for instance, inside hospital could turn a simple cyberattack into a fatal accident. It is, thus, best on the part of the government(s) to lay guidelines that ensure the safety of smart devices.

On the other hand, members of the U.S. Chamber of Commerce reserve the opinion that this framework may curb innovation. The Federal Trade Commission of the USA has taken an optimistic route by incentivizing the public to take charge of their devices' security. The best innovation of IoT Home Inspector Challenge gets rewarded with \$25,000 while three notable mentions will earn \$3,000 each for developing tools to address vulnerability issues in IoT devices and networks.

Safety Must be Built into Design: Professor Kevin Fu of the University of Michigan testifies for "survivability and destructibility" test for IoT devices, just like car crash tests. These will help us assess how to recover from such attacks. Smart devices are easily exposed to attacks and it is imperative to build security into design. While we cannot smother innovation in the name of fear, users reserve the right to safeguard their privacy. Each IoT device is similar to a window, which can be useful for delightful sunlight but it needs a security mechanism against night burglars. With each window, you need better locks and higher control. □

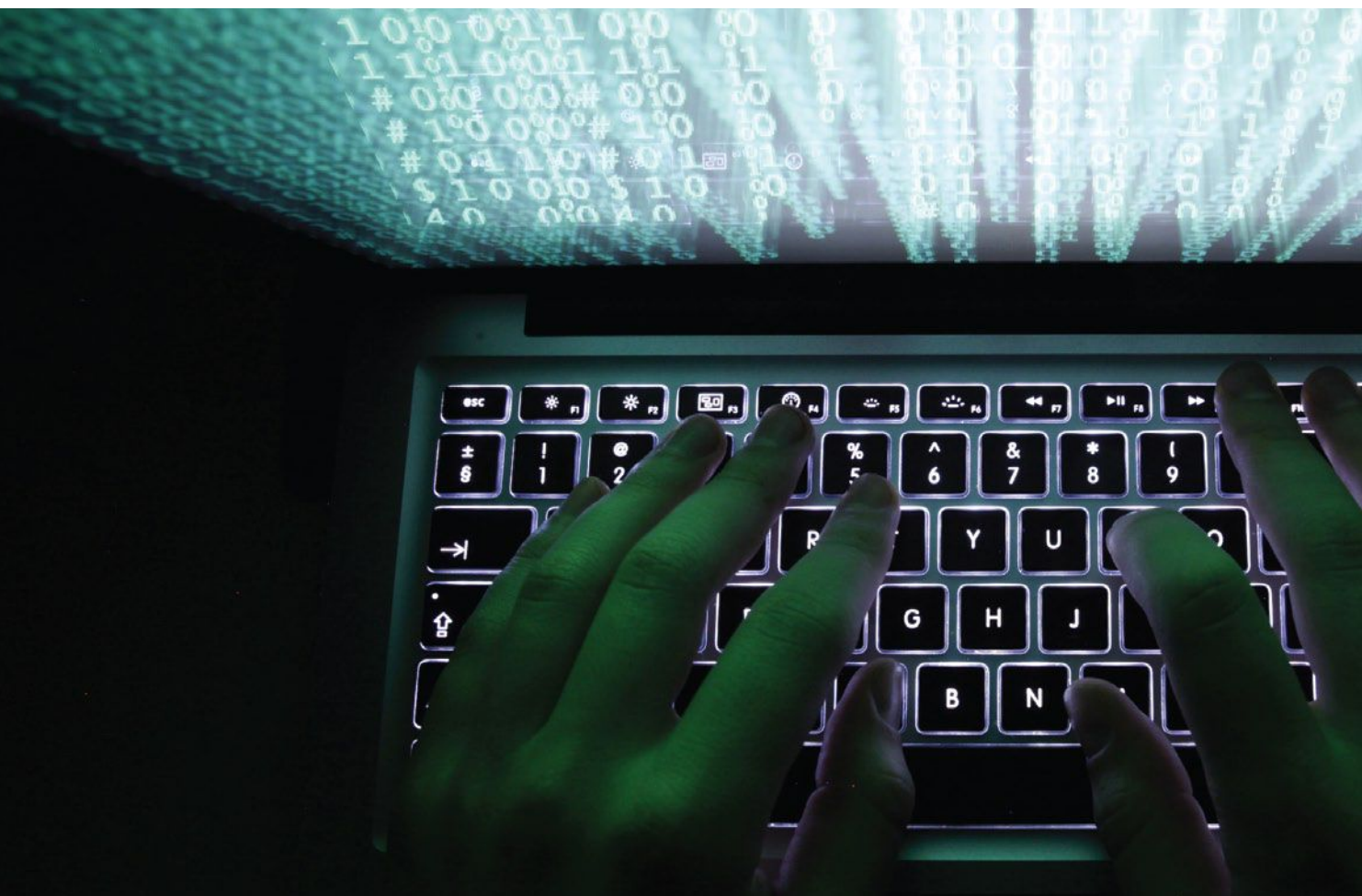
58% CONSUMERS FEAR AN ONLINE DATA BREACH

The findings of the 2016 Data Breaches and Customer Loyalty report, released by Gemalto reveal that consumers put responsibility for protecting their personal data firmly at the hands of the organizations holding their data

– Adeesh Sharma

According to the 9,000 consumers surveyed in Australia, Benelux, France, Germany, Russia, UAE, Saudi Arabia, India, Japan, United Kingdom, and United States, 70% of the responsibility for protecting and securing customer data lies with companies and only 30% of the responsibility with themselves. Yet, less than a third (29%) consumers

believe companies are taking protection of their personal data very seriously. This comes as consumers are becoming increasingly fearful of their data being stolen, with 58% believing it will happen to them in the future. More than 4.8 billion data records have been exposed since 2013 with identity theft being the leading type of data breach accounting for 64% of all data breaches.



Where consumers see most risk

Despite becoming more aware of the threats posed to them online, only one in ten (11%) believe there are no apps or websites out there that pose the greatest risk to them and consumers are not changing behaviour as a result:

- 80% use social media, despite 59% believing these networks pose a great risk
- 87% use online or mobile banking, with 34% believing they leave them vulnerable to cybercriminals
- Consumers are also more likely to shop online during busy commercial periods such as Black Friday and Christmas (2% increase online versus -2% decrease in store), despite 21% admitting the threat of cybercrime increases a lot during these periods

Consumer attitudes on data breaches

Nearly six in ten (58%) consumers believe they will be a victim of a breach at some point, and organizations need to be prepared for the loss of business such incidents may

cause. The majority of consumers who currently use the following, say they would stop using a retailer (60%), bank (58%) or social media site (56%) if it suffered a breach, while 66% say they would be unlikely to do business with an organization that experienced a breach where their financial and sensitive information was stolen.

How data breaches affect consumers

The study found that fraudulent use of financial information has affected 21% of consumers, with others experiencing fraudulent use of their personal details (15%) and identity theft (14%). More than a third (36%) of those who have been a victim of a breach attribute this to a fraudulent website. Clicking a bad link (34%) and phishing (33%) were the next highest methods consumers were caught by. In keeping with the theme of putting the blame at the organization's hands, over a quarter (27%) attributed the breach to a failure of the company's data security solutions.

Lack of security measures influence consumer confidence

The lack of consumer confidence could be due to the lack of strong security measures being implemented by businesses. Within online banking, passwords are still the most common authentication methods – used by 84% for online and 82% for mobile banking, and more advanced transaction security the next highest for both (50% and 48% respectively). Solutions like two-factor authentication (43% online and 42% mobile) and data encryption (31% online and 27% mobile) trail behind.

Similar results can be seen in both the retail space, with only 25% of respondents that use online retail accounts claiming two-factor authentication is used on all their apps and websites, and in social media, with only 21% using the authentication for all platforms. Only 16% of all respondents admitted to having a complete understanding of what data encryption is and does.

"Consumers have clearly made the decision that they are prepared to take risks when it comes to their security, but should anything go wrong they put the blame with the business," said Jason Hart, CTO, Data Protection at Gemalto. "The modern-day consumer is all about convenience and they expect businesses to provide this, while also keeping their data safe. With the impending threats of consumers taking legal action against companies, an education process is clearly needed to show consumers the steps they are taking to protect their data. Implementing and educating about advanced protocols like two-factor authentication and encryption solutions, should show consumers that the protection of their personal data is being taken very seriously." □



10 NET BANKING SECURITY TIPS

Here's a complete low down of all the steps you need to take to secure your netbanking experience

– Raj Kumar Maurya

After demonetization, people are now moving aggressively towards Internet banking. But there are a lot of people around still those hesitate from using the online services. The main reason for refraining from doing online payments are security risks, they don't know what kind of security measure they have to

follow to avoid any type of online fraud. Moreover, nowadays the fraudulent attempts become more professional and cybernetics, but with the right precautions and safety awareness all the fraudulent attacks can be avoided. Here are some Netbanking security tips to keep in mind for online banking transactions.



Safety Tips for Internet banking Users:

Change your password frequently

It is very important to change your Net banking password after some interval of time and does not use the same password associated with your email accounts or other Net banking online accounts. Make sure that your password is 8 or more characters and should be a good mixture of the letter (capital & small), number and other characters.

Don't share your personal details

Never share your date of birth or phone number associated with your Internet banking. Many fraudulent people, nowadays call the users on the name of their respective bank and ask for the date of birth, phone number, ATM Pin or other information related to their account. None of the banks will ask for your personal details or account number. Even if the person is trusted and reliable, do not share your account details.

Avoid public computers and networks

Refrain from accessing your internet banking account from public computers or WiFi network. These are fine for general purpose usage but not for online banking because you don't know what kind of malware is there or maybe somebody is watching you while doing transactions.

Using Mobile devices

Mobile device usage is now continuously increasing for performing online banking. Make sure you have enabled the screen lock or fingerprint sensor on the mobile device to keep your phone and information secure. If it is not possible to enable the screen lock then make sure that you have locked your banking app.

Lookout for attempted phishing attacks

Be ware of the phishing attacks claiming to be from the bank on your email, mobile phone, social networks or through phone calls as well. Also, limit your personal information on your social networking sites, the more information you post there, the easier becomes for a criminal to steal your identity, access your data or commit other crimes.

Do not click on login links in emails

The hijackers can deceive you by creating a spoof of original banking website with almost same domain name. And after creating the spoof, they will send the login request to the users by creating a lucrative email. Never click on the links in your emails in order to sign in to your account. Instead, type in the address of the service in the address bar and log in on your own to avail offers or to undertake other activities. Even on your social media account do not click on the links coming in the inbox. They may look like coming from friends but can sometimes be harmful or fraudulent.

Always log out

Every time you log in and get access to your bank account, always make it a factor in signing off. Don't close the tab or the window without logging out. This is the most common mistake people do.

Make use of effective and updated antivirus

Keep your computer system secure that you are using for net banking by installing the effective and updated Internet security antivirus. It not only saves your system from the virus but also a defense against phishing attacks, malware, fraudulent pages, and many more security threats. Also, your operating system should be updated both on Desktop and Mobile.

Unknown software

Don't open attachments or install free software from unknown sources it may expose your computer and the information to the unauthorized user.

Keep eye on your account frequently

Once in a week access your account and check your account balance and summary to find out the everything is in line. If you notice anything suspicious, contact your bank immediately.

Online Keyboard

If you are not using your online banking on your own PC then use the online keyboard for entering the user account ID and password. Performing this step will save your credentials from unknown key logger's softwares.

Using Net banking would not cause any more concerns to you if you follow these security measures in mind while using it. After all, money is one of the most important things of everybody's life whereas services like online banking are meant to make your life easier. Now it is in your hand how to use both. It is essential to adapt new services but with adequate safety measures in mind. □

HOW TO ENABLE GOOGLE AMP ON YOUR WORDPRESS SITE

Do you need to setup Google AMP on your WordPress web page? AMP is a way to make your internet site load quicker on mobile gadgets. In this text, we can show you the way to installation Google AMP in WordPress. In this article, we are going to show you, how to enable amp on your WordPress posts

– Raj Kumar Maurya

What is Google AMP?

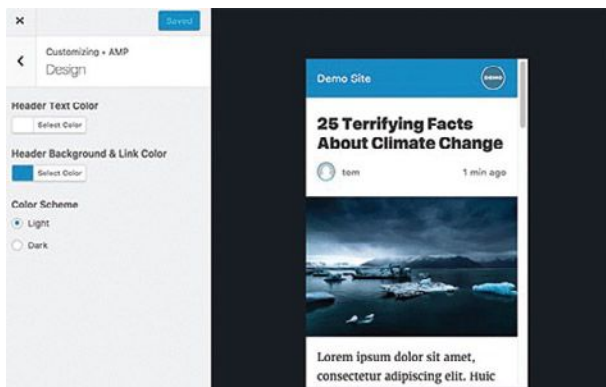
Google AMP stands for Accelerated Mobile Pages. it is an open source initiative supported by companies like Google and Twitter. The main target of this project is to create pages or posts that can load quicker for customers using mobile devices at low speed. Most content material rich pages take numerous seconds to load no matter all efforts taken by web site proprietors to speed up their website.

Setting up Accelerated Mobile Pages or AMP in WordPress

The first factor you need to do is set up and spark off the AMP plugin.



Upon install and activation, you may head over to appearance » AMP page to peer how your web page appears on Mobile phones the usage of AMP.



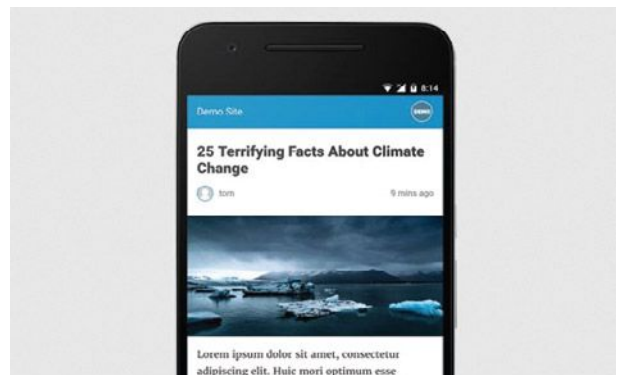
If you want to use the custom logo or header you can change them here. Also, the header background can be

changed. However, the plugin will automatically use the website logo or icon.

After activation, if you want to check the amp enable pages just go to your browser and add /amp/ at the end of the URL. Like this:

<http://example.com/2016/10/my-blog-post/amp/>

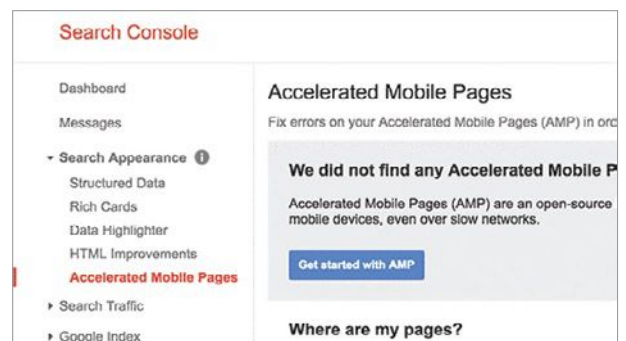
This will show you a stripped down AMP version of the same post.



Check Accelerated Mobile Pages crawled pages Google Search Console

After successful installation of an amp, you can check in Google Search console the amp crawled pages.

Log in to your Google Search Console dashboard and then click on Search Appearance » Accelerated Mobile Pages.

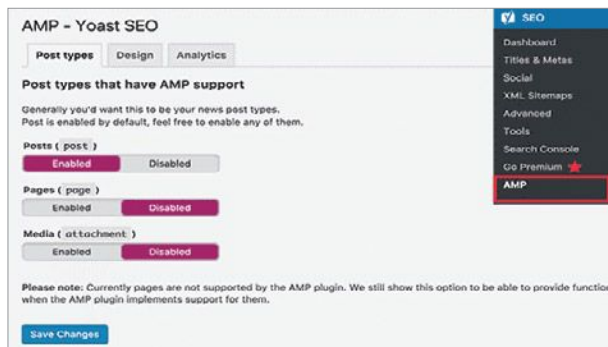


The indexing will take some time to reflect in Search Console.

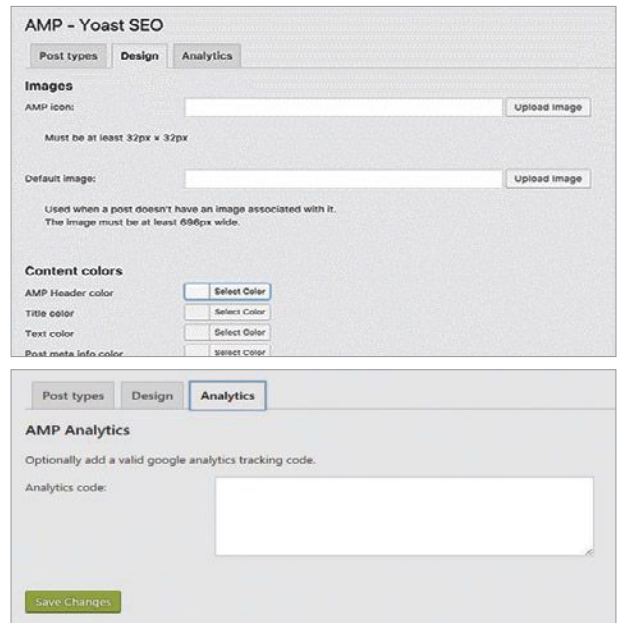
Yoast SEO support to AMP

The AMP plugin has some limitation for customizing the look and feel. If you are using the Yoast plugin, then you can get both SEO and customization benefits by using their plugin called Glue for Yoast SEO & AMP.

1. Go to Add plugins and install & activate the add-on Glue for Yoast SEO & AMP. After installation go to SEO » AMP page to configure plugin settings.
2. You can enable or disable the AMP support on the post, page, and Media. On the design tab, you can choose colors and design options.



3. You can also upload a logo and a default header image from here.
4. To track the amp page views just switch to the Analytics tab to add your Google Analytics ID and hit the save button. □







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FIVE OPENSOURCE FIREWALLS TO SECURE AN ENTERPRISE NETWORK

– Raj Kumar Maurya



1. Endian Firewall

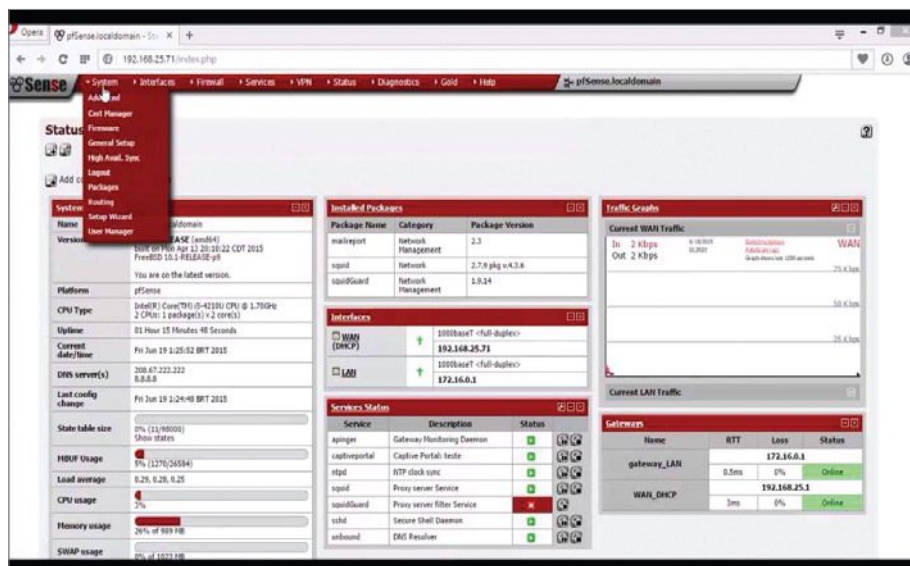
Endian Firewall Community (EFW) is a turn-key Linux based security software product designed for small organisations that can transform any unused hardware appliance into a full-featured Unified Threat Management (UTM) solution.

Endian Firewall Community (EFW) includes a basic suite of security features including a stateful packet firewall, basic web and email security, open-source antivirus and powerful VPN (IPsec and SSL).

2. PfSense

pfsense is a free and open source firewall and router that also features unified threat management, load balancing, multi WAN, and more. It is installed on a physical computer or a virtual machine to make a dedicated firewall/router for a network and has been noted for its reliability and is offering a range of features. It can be configured and upgraded through a web-based interface, and requires no knowledge of the underlying FreeBSD system to manage.

pfsense is commonly deployed as a perimeter firewall, router, wireless access point, DHCP server, DNS server, and as a VPN endpoint. pfsense supports installation of third-party packages like Snort or Squid through its Package Manager.





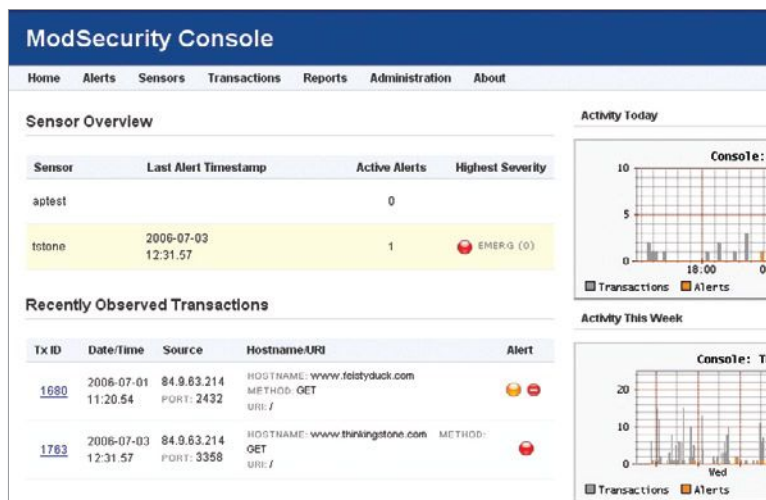
3. Untangle Gateway

Untangle's NG Firewall enables you to quickly and easily create the network policies that deliver the perfect balance between security and productivity. It is another excellent multi-function firewall, the Untangle Internet Gateway can handle a wide range of duties user authentication VPN, captive portal, Web filtering, anti-virus, anti-spam, intrusion prevention, ad blocker, reporting, and higher-end features such as WAN balancing and automatic failover.

4. Ipcop

A secure Linux distribution managed through a web-interface. It turns an old PC into a firewall and VPN gateway. Features an Intrusion Detection System. Ipcop comes with good network and system monitoring and performance graphs that let you quickly see any trouble spots. Ipcop doesn't try to pack in every conceivable bit of networking functionality; rather it sticks to firewall and Internet gateway duties.

ClearOS: ClearOS - is an operating system for your Server, Network, and Gateway systems. It is designed for home, small and medium businesses etc. It has a packet filtering, proxy, traffic shaping, VPN and secure remote access, user authentication, name services, and time server.

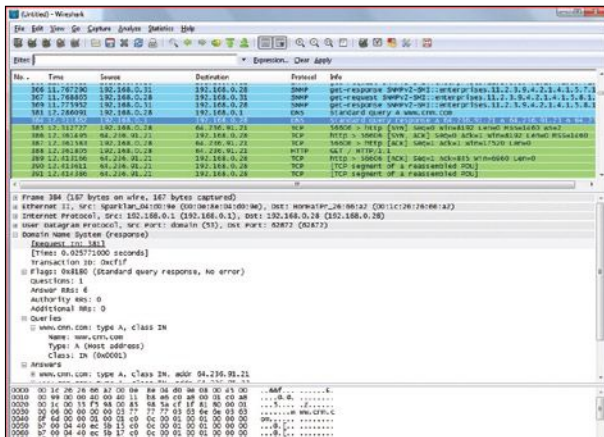


5. ModSecurity

ModSecurity is one of the oldest and widely used open source web application firewall which can detect application level threats on internet, and provides security against a range of security issues to web applications. □

15 ESSENTIAL OPEN SOURCE TOOLS FOR WINDOWS ADMINS

– Raj Kumar Maurya

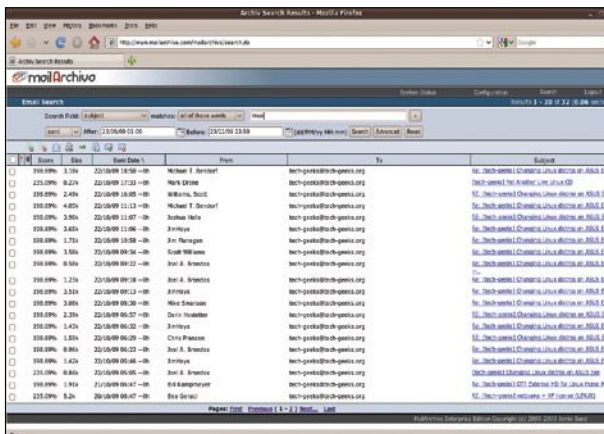
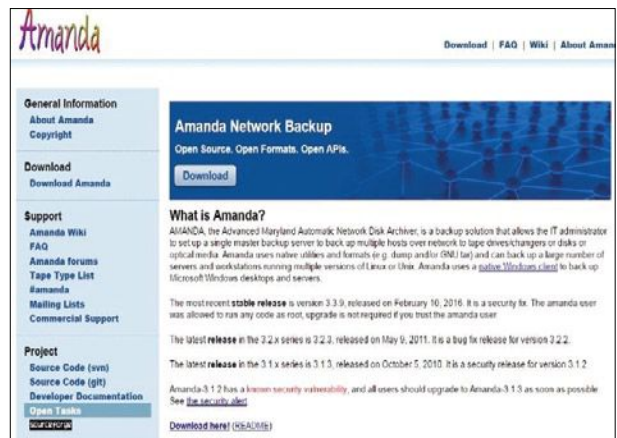


1: Wireshark

Wireshark is used for network troubleshooting, analysis, software and communications protocol development, and education. Wireshark is cross-platform, using the Qt widget toolkit in current releases to implement its user interface, and using pcap to capture packets, it runs on GNU/Linux, OS X, BSD, Solaris, some other Unix-like operating systems, and Microsoft Windows.

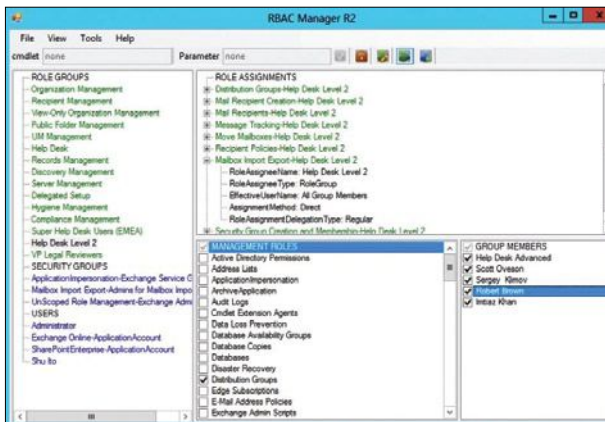
2: AMANDA

AMANDA, the Advanced Maryland Automatic Network Disk Archiver, is a backup solution that allows the IT administrator to set up a single master backup server to back up multiple hosts over network to tape drives/ changers or disks or optical media. Amanda uses native utilities and formats (e.g. dump and/or GNU tar) and can back up a large number of servers and workstations running multiple versions of Linux or Unix. Amanda is a fully integrated business system which contains everything from customer details, offer, order, production, logistics, project, economy, salary to market and personal planning.



3: MailArchiva

MailArchiva is a powerful, full featured email archiving and compliance solution for mail systems such as Microsoft Exchange. It stores all incoming, outgoing and internal emails for long term storage. MailArchiva is the development, to provide, dual license of e-mail archiving software free of the Open Source Edition and paid Enterprise Edition. Various OS, can respond to the mail server environment, because of the multi-lingual, have been used in various countries and regions.

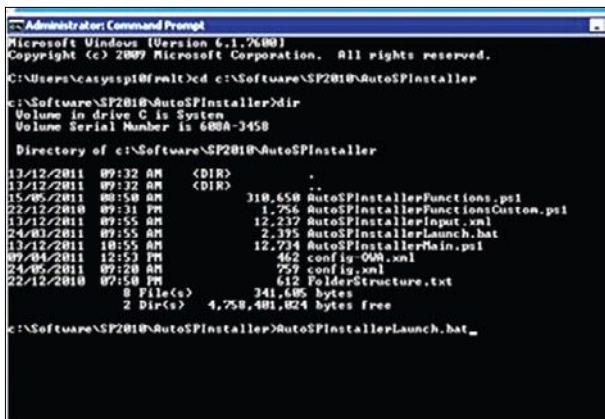
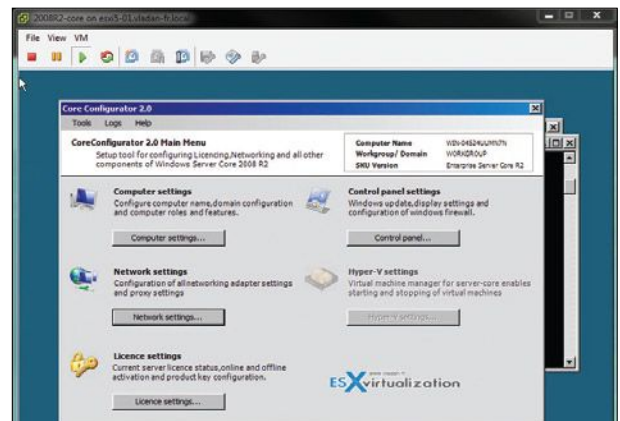


4: Exchange 2010 RBAC Manager

Exchange 2010 RBAC Manager is a tool for admins working with role-based access control and Exchange. RBAC Manager helps overcome the lack of a GUI tool to work with the new role-based administration side to Exchange, enabling admins to connect, whether or not you a PowerShell master. The tool is written in C# and uses PowerShell behind the scenes to allow you to create and manage roles in your Exchange 2010 environment.

5: Core Configurator 2.0

It is completely open source so it can be amended and change to fit your requirements, this version has been a year in the making and has been written in powershell with a reference to Winforms so that a GUI format is displayed. Core Configuration tasks include Product Licensing, Networking Features, DCPromo Tool.

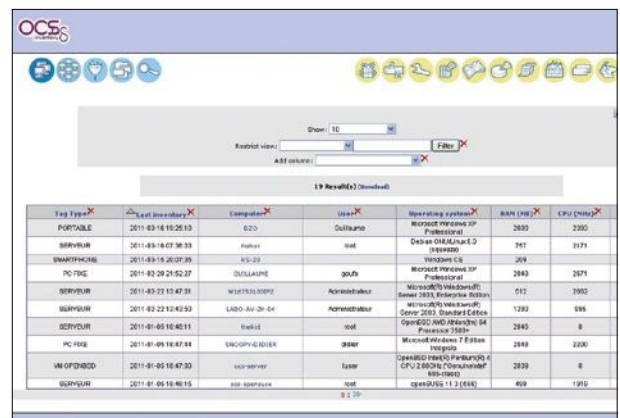


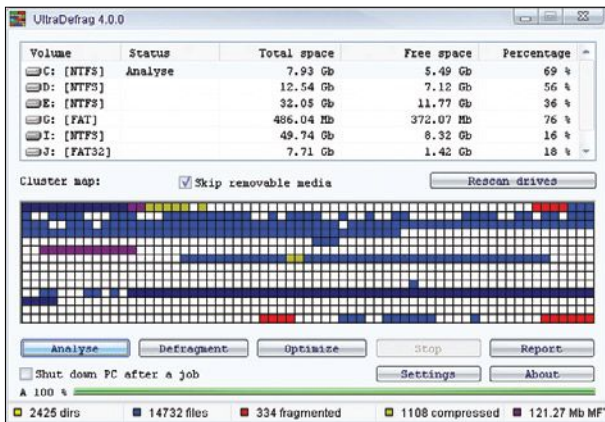
6: AutoSPInstaller for SharePoint 2010

AutoSPInstaller is an open source set of PowerShell scripts that installs and performs a base configuration of SharePoint Server 2010 or 2013. This project consists of PowerShell scripts, an XMLbininput file, and a standard windows batch file which together provide a quick and near-unattended installation and initial configuration (Service Apps, My Sites) of Microsoft SharePoint Server 2010/2013. It configures a single or multi-server SharePoint farm based on a predefined configuration XML file.

7: OCS Inventory

If you need a cool tool for locating all the devices connected to your network and what software and hardware you have installed on your systems, then OCS-NG is the one for you. It requires you install the OCS client inventory agent on your systems; you can then pull all that information into a repository that easy to visualize and search.



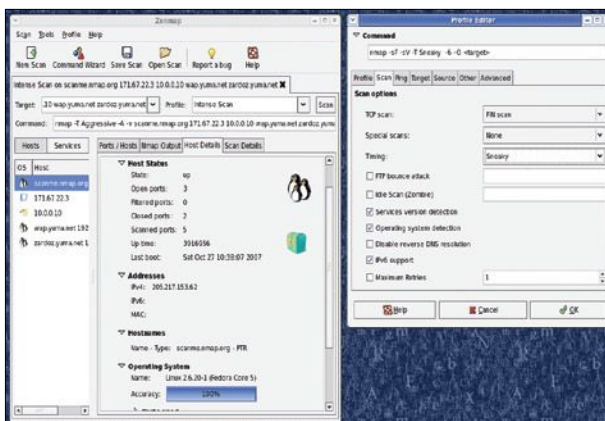
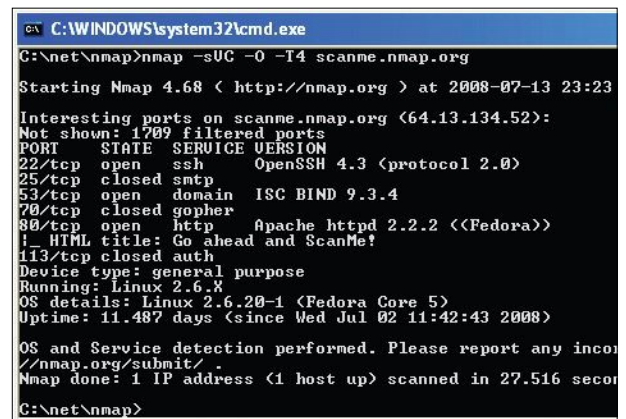


8: UltraDefrag

UltraDefrag is a tool for Windows that can defrag system files, registry hives, and the paging file. It continually updated to ensure improvements in performance. UltraDefrag is fully compatible with Windows NT 4.0, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7, and all of the 64-bit editions of Windows. It a valuable addition to any Windows environment.

9: Nmap for Windows

Originally a Unix-only tool, Nmap for Windows has been an important security resource for Windows. This security scanner and network mapper can also be used to perform network inventory, manage service upgrade schedules, and monitor host or service uptime. It supports Windows 7, Windows Server 2008 and 2003, Windows Vista, and Windows XP SP1 and later.

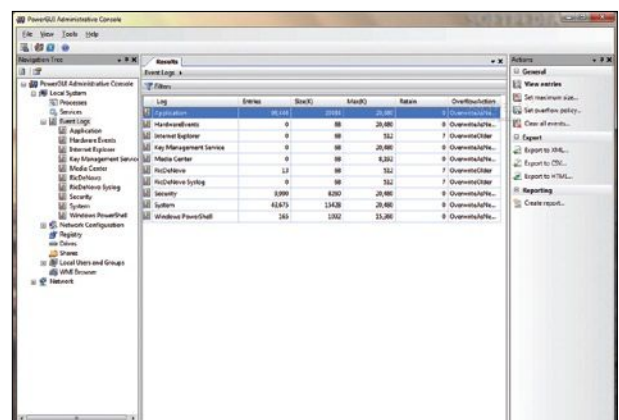


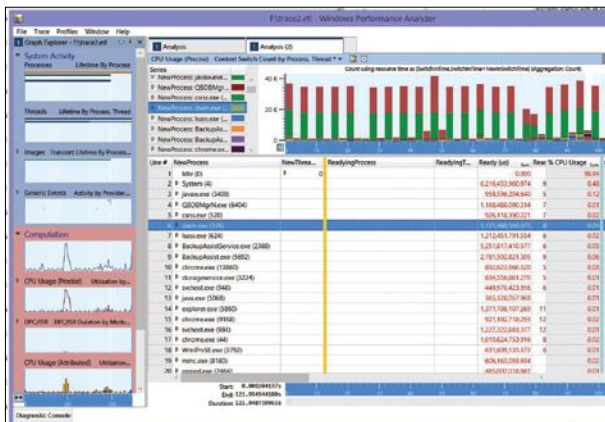
10: Zenmap

Zenmap is a cool tool for mapping a topology of devices connected to your network. This security scanner works off of Nmap, providing an interactive, animated visualization of hosts on a network, configured in rings. With Zenmap, information regarding potential vulnerabilities becomes that much easier to pinpoint, ensuring your firewalls and routers are working correctly.

11: PowerGUI

It is no secret that PowerShell is taking the Windows world by storm. It feels like a retro pleasure for many long-term admins who remember the command-line days. But for others, banging on the command line to administer systems can be a pain. Those looking for a more graphical means of tapping into PowerShell should check out PowerGUI, a free graphical user interface and script editor for PowerShell. More valuable perhaps is the community built around PowerGUI, with its vast store of contributed scripts and libraries for administering your fleet.



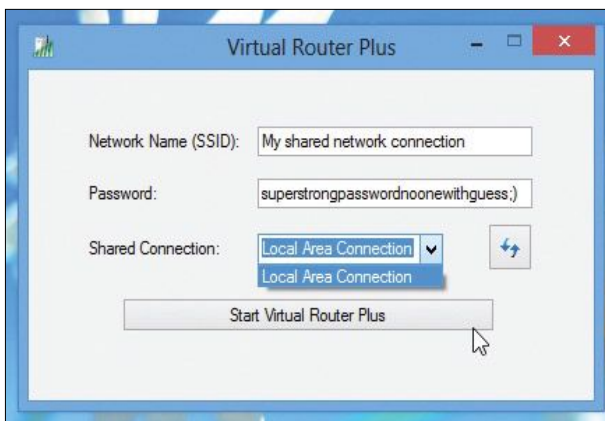


12: Performance Analysis of Logs (PAL) Tool

The PAL (Performance Analysis of Logs) tool is a powerful tool that reads in a performance monitor counter log and analyzes it using known thresholds. This open source tool helps read performance monitor counter logs and analyzes them, using built-in thresholds that relate to the majority of your Windows products, including Exchange, SharePoint, Active Directory, and more.

13: ClamWin Antivirus

This open source antivirus solution is a valuable tool for security-minded admins. ClamWin supports Windows. The tool includes a scanning scheduler that you can use to configure appropriate scan times but does not come with an on-access real-time scanner. It also has the ability to integrate into Windows Explorer and Outlook for easy scanning.



14: Virtual Router

Virtual Router is a nifty tool that turns any Windows R2 system into a Wi-Fi hotspot. Using Virtual Router, users can wirelessly share any Internet connection (Wi-Fi, LAN, cable modem, dial-up, cellular, and so on) with any Wi-Fi-enabled device. Laptops, smartphones, netbooks, wireless printers — all can connect to Virtual Router just as they would any other access point, and the connection is completely secured using WPA2, the most secure wireless encryption.

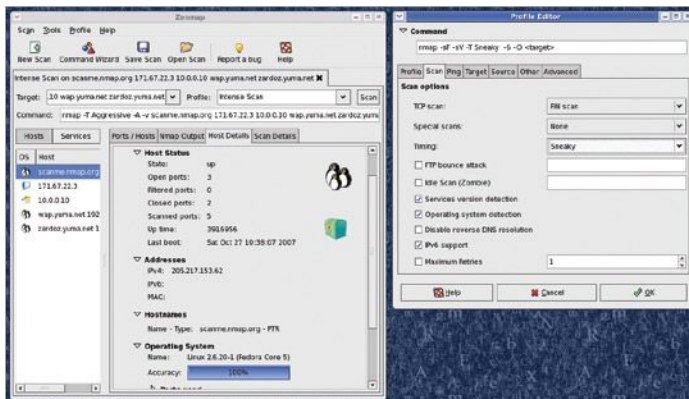
15: VirtualBox

VirtualBox is a must-have open source virtualization solution for any admin seeking to run guest OSes on Windows, Linux, Macintosh, or Solaris machines. Using VirtualBox, admins can run virtual instances of a wide array of operating systems, including Windows, Linux, OpenSolaris, OS/2, OpenBSD, and even DOS.



11 OPEN SOURCE CYBER SECURITY TOOLS

– Raj Kumar Maurya

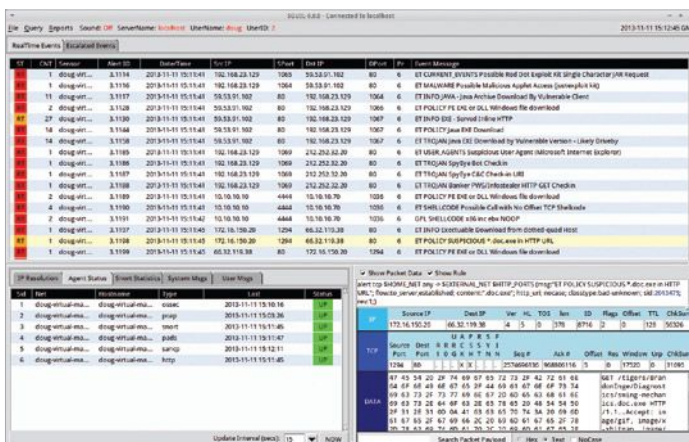
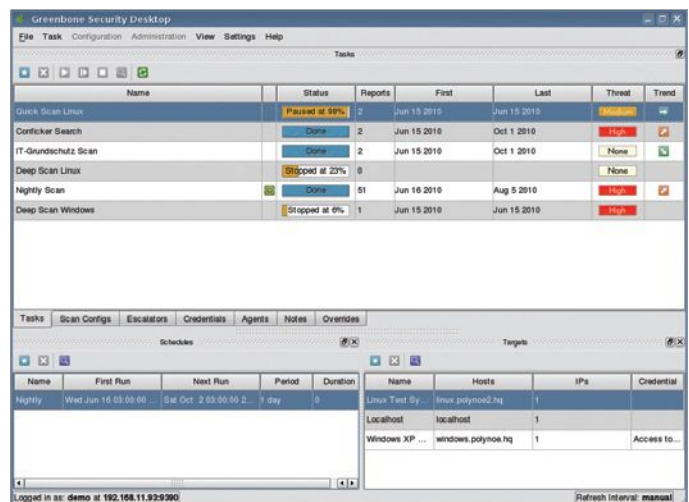


Nmap

Nmap allows you to perform network discovery and security auditing, including tasks such as network inventory, managing service upgrade schedules, and monitoring host or service uptime. It map your network and ports with the number one port scanning tool.

OpenVAS

OpenVAS is a open source vulnerability scanning suite that grew from a fork of the Nessus engine when it went commercial. Manage all aspects of a security vulnerability management system from web based dashboards. For a fast and easy external scan with OpenVAS try our online OpenVAS scanner.



Security Onion

A network security monitoring distribution that can replace expensive commercial grey boxes with blinking lights. Security Onion is easy to setup and configure. With minimal effort you will start to detect security related events on your network. Detect everything from brute force scanning kids to those nasty APTs.



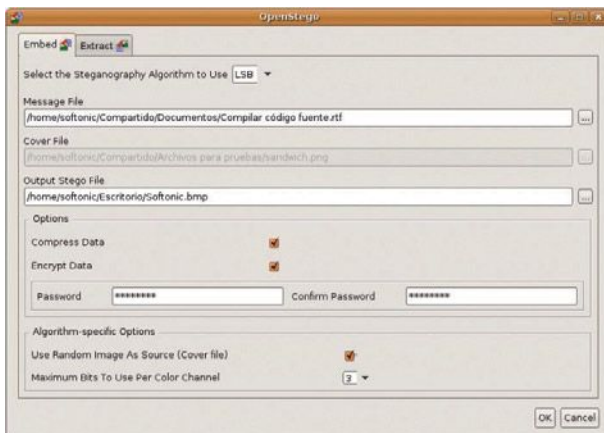
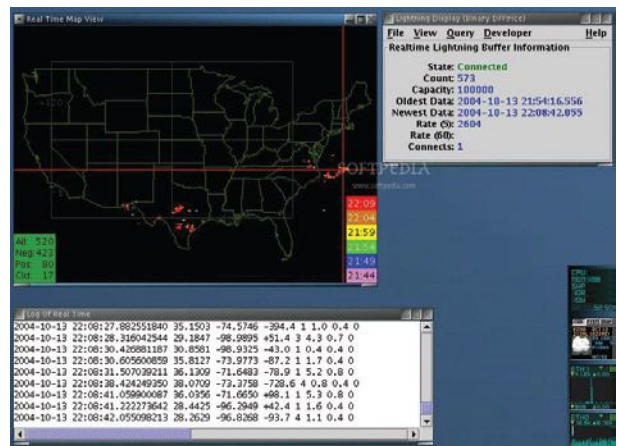


Password Safe

Password Safe allows you to create an encrypted database container for listing all your usernames and passwords, which can only be accessed by means of a “master password”. The encrypted database container file can be backed up and transferred between locations for convenience. When you load Password Safe for the first time, you’ll first need to create a new Password Safe Database and then enter a Safe Combination which will be used to encrypt the database.

Network Security Toolkit (NST)

Network Security Toolkit (NST) is a bootable live CD containing a wealth of open source network security tools that can be used by security professionals for network security analysis, validation, testing and monitoring. When you boot from the NST ISO file, you first choose whether you wish to launch the command-line version or the GUI version.

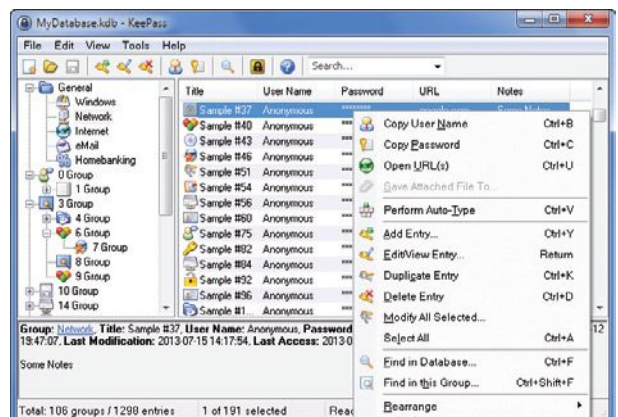


OpenStego

OpenStego is a basic easy-to-use steganography tool that takes any ‘secret’ message file as input and embeds it into a cover file to create a resulting image. You are given the option to compress and encrypt data and control the algorithm used in the steganography process.

KeePass

KeePass is a light-weight user-friendly password manager that allows you to store username and password combinations in a highly-encrypted database. Access to the database is secured using a master password or key file. When you first launch KeePass you’ll need to enter a “Master Key” which is used to prevent access to the password database.



10 TEST MANAGEMENT TOOLS

– Raj Kumar Maurya

1) qTest

qTest is a fast growing Test management tool that provides an easy to learn and seamless integration with JIRA, Rally or VersionOne. It helps to create, centralize, organize and manage test cases quickly and efficiently.



2) PractiTest

Manage your QA and Testing process, controlling your testing tasks while getting complete visibility into your results. It entirely SaaS end-to-end QA and Agile friendly Test management tool and provides complete integration with bug tracking tools and automation tools such as JIRA, Pivotal tracker, Bugzilla, Redmin, Selenium, Jenkins etc.



3) Zephyr

Zephyr is a real-time test management solutions. It offers seamless integrations and real-time visibility into the quality and status of software projects.



4) Test Collab

Test Collab offers a complete platform for your application's testing. It offers Integrations with some best of the defect management systems closes the loop between testers and developers. Apart from this, it offers time tracking, agile methodology, requirements management, test plans, and scheduling. It saves your test cases, executions, test plans, requirements and milestones in one place.



5) TestFLO for JIRA

TestFLO for HRA is an add-on to provide comprehensive test management system. It supports flexible configurations and integration with CI tools like Jenkins.



6) XQual

XQual is a test management that falls under light pricing. It supports 70+ automation frameworks such as Selenium, QTP/UFT, JMeter, Ranorex, TestComplete, JUnit, NUnit, TestPartner, Sahi, NeoLoad, QF-Test, RobotFramework, Sikuli, SoapUI, Squish, Testing, TestOptimal and much more.



7) TestCaseLab

TestCaseLab is a web-based case management tool to manage manual test cases. It has the full set of required features and supported integrations are JIRA, Redmine, Pivotal tracker.



8) QAComplete

QAComplete provides the most customizable Test Case Management tools and easy to use. It can integrate tightly with tools such as Jira, Bugzilla, Visual Studio and more.



9) QACoverage

QCoverage is test management solution with innovative workflow to manage Software Test Life Cycles more effectively and efficiently. It boosts test productivity and provides visibility to better handle and control your established QA process via comprehensive Requirements Management, Test Design, Test Execution, Defects Management, and Metrics & Reporting modules.



10) TestRail

It is a test case management tool to create test cases and test suites, track execution and report metrics. It is also a web-based test case management software to efficiently manage, track and organize your software testing efforts.



LG V20

Spectacular phone, interesting features, great audio quality!

— Ashok Pandey

Looking for a large screen phablet with excellent audio experience? LG V20 is just this with HD Audio Recorder, High AOP Mic, 32-bit Hi-Fi Quad DAC and manual controls over the camera (Hi-Fi Video Recording, 16MP and 8 MP Wide Angle camera). It has the latest hardware, software and a solid design with swappable battery.

Cutting edge design: The 5.7 inch screen sits under a sleek metal body and Si-PC material employed in each corner offering the durability for life drops. The top and bottom edges are curved, which offer excellent grip as well as allows the phone to fit comfortably while taking calls. The phone has been designed the way it can be disabled whenever a drop occurs, reducing the damage risk. Besides, after quite a long time, we are seeing a swappable battery phone, with SIM and a card slot beneath the back cover. So, if you were looking for such a phone, this is the one for you.

Though it has a metal body with a large screen, yet the overall weight of the phone is only 174g. The dimensions are fine. LG has tried to keep the body as small as possible, yet it won't fit in every hand. The smartphone is available in different colors including Titan, Silver and Pink. LG V20 review unit we received was in silver color which looked cool.

Large QHD screen: 5.7-inch QHD IPS Quantum (2560 x 1440p) display produces rich colors and images look very bright. The vibrant screen pops out every detail of video and images. It also has additional secondary IPS Quantum screen with 160 x 1040p resolutions. It could be very beneficial when you don't want to unlock the screen and want to know about the notifications, recent apps, contacts and more. It saves our time. On the other hand, sometimes it feels annoying when you don't want to be disturbed. Thankfully, LG lets you turn it off at the settings.

Dual lens, but not much impressive: If you thought of having a phone with dual lens to capture beautiful pictures, then LG won't disappoint you. At the same time you won't be very happy with the overall performance. The LG V20 includes two shooters at the back – 16 MP standard lens and an 8 MP wide-angle lens. The wide angle lens enables up to 135 degrees shot. You can shoot incredible images in both day and light, but it missed the much expected detail in the image. Especially, you will miss the details when you capture wide angle images.

The front 5 MP camera also has the capability to capture up to 120 degrees wide angle images. Even though it doesn't have flash in the front, yet for low light conditions, it turns the screen into flash, which can be beneficial for close ups, but not for wide angle selfies. For photography enthusiasts, LG offers great control with its camera app. Manual option offers amazing control over the image and you can also record 1080p or 4K videos.

Experience the music: B&O Play earphones come bundled with LG V20. Especially designed for the smartphone, they deliver amazing sound experience. B&O Play tuned the audio for a mesmerising experience for us. It's also equipped with the HD



Price: ₹54,999/-

SCORE

PRICE: 8/10
PERFORMANCE: 9/10
FEATURES: 10/10

Overall: 9/10

KEY SPECS: Qualcomm Snapdragon 820 Processor, 5.7-inch QHD IPS Quantum Display (2560 x 1440 / 513ppi), Secondary IPS Quantum Display (160 x 1040 / 513ppi), 4 GB LPDDR4 RAM, 64 GB Internal Memory, microSD up to 2TB, Front 5MP with F1.9 (Wide Angle), Rear Dual Real Camera 16MP and 8 MP Wide Angle with F1.8, 3200mAh removable battery, Android 7.0 Nougat OS.

PROS: Audio quality, B&O earphones, vibrant screen, overall performance, manual camera controls, battery

CONS: Quite big in size, missing details in wide-angle snaps

audio recorder & studio mode, enabling to capture studio quality audio on the go.

Spectacular performance: With no complaints, it's one of the best smartphone considering its performance. Whether you use it as phone, or for entertainment, its striking performance would steal your heart. No lag showed even when we played high graphics intensive games. The battery is also a plus. Even with 3200 mAh battery, it can last for more than a day with moderate usage. In our battery loop test, it lasted for more than 6 hours, playing video over Wi-Fi with full volume and brightness.

Bottomline: For the price, no doubt LG is offering a phone bundled with loads of features, specially B&O Play earphones, Hi-Fi Video Recording and HD Audio recorder, with dual lens in the rear. With spectacular performance it's among one of the best phone, but the camera misses details when capturing wide-angle snaps.

GROWING IN A DIGITAL INDIA

The Growth Market Initiative by PCQuest & CyberMedia helps businesses learn how to understand, choose, implement - ideas, innovation and technology to grow their businesses. The initiative goes beyond providing strategic advice and delves into “HOW TO” actually apply it.

Date: 15th February 2017

Venue: New Delhi

**Target Audience: 150+ Owners/CIOs/
IT decision makers of mid Enterprises**

Format: A full day event

HIGHLIGHTS OF AGENDA

- Keynote address -Growing in a Digital India.....
- Presenting Partner Slot
- Panel discussion: The need to digitally transform your business
- Big Data Analytics Session- Chalking Out the Right Analytics and Big Data Strategy
- Cloud Session- Why Adopting a Hybrid Cloud Strategy Makes More Sense
- Mobility Session-The Right Mobility Strategy for a Modern-Day Enterprise
- Digital Transformation
- Panel discussion: Securing Your IT Infrastructure Against New-Age Threats
- Demo: Using Open Source Tools in Cutting IT Infrastructure Costs
- Best Technology Awards
- Vote of thanks and networking over high tea



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For Sponsorship Opportunities: Contact: Avinash Kumar Maurya, Email: marketing@cybermedia.co.in

COOLPAD COOL 1

The most economical dual camera smartphone right now

— Adeesh Sharma

Dual camera smartphones are the next buzz in the smartphones landscape with Apple iPhone 7 and Honor 8 being two popular brands that come to mind straightaway with popular models already launched. Now, the Chinese smartphone manufacturer Coolpad has developed this finesse of launching feature-rich smartphones at price points that would make even the most discerning consumer blink.

Decent looks, nifty specs: The Cool1 has the same metallic finish as some of its predecessors but feels nice and solid in hands. The matte finish at the back adds to the grip and we did not find it slippery at all, even when used with greasy hands. The smartphone is powered with 1.8 GHz Octa-core processor and Adrena 510 graphics chip to run multiple applications with ease. The device comes with 4GB RAM and internal storage of 32GB. It has a 5.5" FHD IPS display and runs on Android 6.0. But the USP of Coolpad Cool1 is undoubtedly the dual 13-megapixel rear cameras with autofocus enabled alongwith dual tone LED flash.

The dual camera lenses not only let you capture better quality pictures in low light conditions but also provide a more pronounced effect to the subject in focus. This is a kind of reduced DSLR feature that vendors are trying to replicate in smartphones. During our tests we could get the appreciable results while we digitally changed the aperture setting for shots taken under differing light conditions. However, the quality is no way near what a professional camera shall provide, so be very modest in your expectations!

Impressive battery and performance: The Coolpad Cool1 also sports an 8-megapixel secondary front camera. The selfies taken in broad daylight were good while a little graininess was observed in night shots. The smartphone has an impressive 4000mAh battery that goes from 0 to 100% in 1 hour flat. This full charge lasted us for a good two days with regular usage of commonly used apps. However, playing games and watching videos reduced this to one day, still commendable for a smartphone.

The video quality is where we feel the optical image stabilisation (OIS) feature is sorely missing. There are visible shakes to be observed even while shooting daylight videos. We played all the latest games on it and found the 4G RAM proving its mettle. The experience was good and none of the games hanged in the middle. However, with a brushed aluminium body, do expect some heating to show up, especially when gaming for longer hours. Coming to the connectivity options, Cool1 offers 4G with VoLTE, 2G/3G, Wi-Fi 802.1111 ac/a/b/g/n (2.4/5 GHz), Bluetooth 4.1, GPS, FM Radio, 3.5mm Audio Jack and USB Type-C port.



Price: ₹13,999/-

SCORE

PRICE: 8/10

PERFORMANCE: 8/10

FEATURES: 7/10

Overall: **8/10**

KEY SPECS: 1.8 GHz Octa-core processor, Adrena 510 graphics chip, 4GB RAM, 32GB storage, 5.5" FHD IPS display, Android 6.0, dual 13 MP rear cameras, 8 MP front camera, 4G with VoLTE, 2G/3G, Wi-Fi 802.1111 ac/a/b/g/n (2.4/5 GHz), Bluetooth 4.1, GPS, FM Radio, 3.5mm Audio Jack and USB Type-C port.

PROS: Good display, nice still photography, smooth multitasking experience

CONS: Videos are jittery

Bottomline: Cool 1 has been very alluringly priced at Rs 13,999 and is available in two colours, silver and gold, since January 5th exclusively on Amazon.in via open sales.

ASUS ZENFONE 3 LASER

A balanced smartphone with decent performance and excellent camera

— Ashok Pandey

The budget range consumers of smartphones have many options, with new models coming into the market regularly. Asus has regularly launched many smartphones catering to various segments and now it has added another smartphone to its line up with Zenfone 3 Laser.

Looks similar to other Zenfone devices: The overall construction of Zenfone 3 Laser is similar to Zenfone 3 Max which we reviewed previously. It comes with a 5.5-inch full HD display IPS (1920x1080p) with 2.5D curved glass on the top. The screen shows vibrant images that look crisp with rich colors and have wide viewing angles. It is also bright, which makes it easy to use it in daylight conditions. However, due to reflective glass on top, you might face some problem while using it under direct sunlight.

The phone weighs around 150g and you can easily hold it in one hand, despite its large 5.5-inch screen. The look and design of Zenfone 3 Laser is premium thanks to its metallic unibody design. Asus has polished the body using the hyperfine sand-blasting technique to give its luxurious look and feel.

Captures life in detail: Asus uses PixelMaster 3.0 with Laser to capture life moments quickly and easily. We have seen this in Asus Zenfone 3 and Zenfone 3 Max as well. The device packs a 13MP sensor, large f/2.0 aperture lens and laser auto-focus.

It can capture decent quality images in daylight condition with vibrant contrast and quick autofocus. With rich details and colors, images come alive with every shot and you can also use the macro mode. The Asus camera app is loaded with lots of options enabling photo enthusiasts to capture images using manual mode. Though the daylight photography is decent without any red spots and noise, the low light images doesn't impress us. The front camera also clicks decent selfies and is wide enough to capture groupies. As in the case of previous camera app, this phone also comes with beautification feature to enhance your selfies.

Great for basic usage: The phone is backed by simple hardware which is powerful enough to handle daily tasks. You can play with the phone without experiencing any visible lag. We used the device for more than three weeks and stuffed it with several apps and games to test its real world performance. As it's not a high-end device, we were satisfied with its performance during moderate usage. We browsed the internet, captured images and played games like Asphalt 8, NFS, etc. There was not any visible lag in performance while enjoying the game, though when switched between games, we noticed a bit delay.

The phone is backed by a 3000 mAh battery that can last for a day with moderate usage, approx more than 16 hours. In our



Super resolution mode

HDR mode

Auto HDR mode

Price: ₹16,999/-

SCORE

PRICE: 8/10

PERFORMANCE: 8/10

FEATURES: 9/10

Overall: **8/10**

KEY SPECS: Qualcomm Octa Core Snapdragon 430 64-bit Processor, 4 GB RAM, 32 GB ROM, Expandable Up to 128 GB, 5.5 inches Full HD Display, 13 MP Primary Camera, 8MP Front, 3000 mAh Battery, Android 6.0 Marshmallow with ZenUI 3.0

PROS: Build quality, camera, screen

CONS: Average performance

video loop test, it lasted for 5 hours and 14 minutes while playing video over YouTube with full brightness and sound.

Bottomline: For a camera enthusiast, Zenfone 3 Laser could be a good choice, but since it has average performance, you can consider buying Zenfone 3 Max with the large battery or Lenovo Zuk with overall good performance.

NUBIA N1

Decent battery life and good camera performance

— Sidharth Shekhar

The budget segment has been hot for quite some time and every other player out there has launched many smartphones in this fiercely competitive budget segment. Nubia is the latest entrant to jump on the budget smartphone segment with Nubia N1.

This is the company's third handset to be launched here with an affordable price tag of Rs 11,999.

Design: The design of Nubia N1 is very similar to other budget smartphones in the market. The back panel has a metallic construction with a fingerprint sensor which has a pretty impressive response time. The front panel has no physical keys but one capacitive red colored home key below the display that lights up every time the phone is used. The volume rocker and Power button can be found on the right, while the SIM card slot is on the left. The 3.5mm audio jack is on the top left side of the phone while the USB Type-C port lies at the bottom, between speaker grilles.

Nubia N1 has two color variants - Gold and Silver, but currently, the gold color option is available in the Indian market.

Performance and camera: The smartphone is powered by an octa-core MediaTek Helio P10 SoC paired with 3GB of RAM and 32GB/64GB of internal storage. The memory can be increased via microSD cards (up to 128GB). On the display front, it has 5.5-inch Full HD display with 1080x1920 pixel resolution and runs Android 6.0 Marshmallow with Nubia UI 4.0 on top.

In our tests, we found the N1 to be just an average performer. However, it has some interesting features like 'Edge Gestures' that work effortlessly. It allows you to go to any app by sliding your thumb up and down on either edge of the display. It can be configured in the phone's settings.

The device tends to heat up a little while playing graphic intensive games.

The Nubia N1 boasts a large 5,000mAh battery, but during heavy usage, it lasted only for a day. If you are going to use the phone for basic browsing and music then it is going to last for 2 days.

In terms of camera performance, Nubia N1 is the best smartphone currently available in the market at this price range. The images we clicked from the rear camera were quite impressive and did not pixelate when zoomed in. In Pro mode, you'll find features that are normally found on a DSLR and we loved its performance in low light. Nubia N1 has features like Slo-mo, time-lapse, multi-exposure and scene modes like light painting, star-trail, slow shutter and even RAW format shots that are usually found in high-end phones.

Verdict: There's nothing extraordinary about Nubia N1 apart from the camera and powerful battery.

With 32GB/64GB storage and 5,000mAh battery you can pack your phone with movies and TV shows to kill your time if you are traveling. The display too is bright enough and we are



Price: ₹11,999/-



SCORE

PRICE: 6/10

PERFORMANCE: 5/10

FEATURES: 6/10

Overall: 5/10

KEY SPECS: 13MP primary camera with sapphire glass IR filter, 5P precision optical lens, F2.2 aperture, 5-pieces lens, F2.2 aperture, 80-degree wide angle, beauty filter and 13MP front facing camera, 13.97 centimeters (5.5-inch) LTPS HD Full Lamination capacitive touchscreen with 1920 x 1080 pixels resolution, 401 PPI pixel density and 16M color support, Android v6 Marshmallow operating system with 2.0GHz MTK Helio P10 octa-core processor, ARM Mali T860 GPU, 3GB RAM, 32GB internal memory expandable up to 128GB and dual SIM (nano+nano) dual-standby (4G+4G), 5000mAh lithium-ion battery

PROS: Good battery life, decent camera performance, features

CONS: Heating issues, design

sure that you'll enjoy watching them. Nubia N1 has been priced at Rs 11,999 however; you can also consider Moto G4 or the Redmi Note 3.

Bottomline: There's nothing extraordinary about Nubia N1 apart from the camera and powerful battery. You can also consider Moto G4 or the Redmi Note 3.

HTC DESIRE 10 PRO

Capture breathtaking selfies and gorgeous landscapes with this dual-4G smartphone

— Tushar Mehta

The HTC Desire 10 Pro is capable of drawing fandom from its 20-megapixel rear and 13-megapixel selfie cameras. It became our handy choice for capturing the spine-tingling landscapes and stunning selfies on a vacation to Barot, Himachal Pradesh.

Available in colours with rather jazzy names – Polar White, Stone Black, Royal Blue, and Valentine Lux, its unibody chassis makes it light and thin with an iterated design from HTC Desire 10 Lifestyle.

HTC Desire 10 Pro runs HTC Sense Home interface atop Android Marshmallow 6.0, supports for 4G LTE and dual-band wifi but NFC is missing.

Display & Sound: The IPS display 5.5-inch on the HTC Desire 10 Pro sports Full HD resolution at 401 ppi. The display tilts towards warmer, oversaturated hues. Otherwise vivid & bright, the reflective screen takes a beating under strong sunlight.

The mono speaker at the bottom feels frail with dreadfully low volume, resulting in missed alarms and calls. The bundled earphones sound rich and clear, but lacking towards the bass frequencies, which can be enhanced using HTC's Boomsound Audio.

Battery: The Desire 10 Pro is definitely remarkable in terms of the battery, which can serve for good 24 hours on average usage with 4G and wi-fi interchangeably being used, and flamboyant photography as well as moderate gaming. The 3000 mAh battery pack is really robust as it lasted six hours in our video loop test. It comes with Fast Charging at 2A and charges completely in less than 90 minutes.

Camera: The 20-megapixel rear shooter focuses quickly and provides DSLR-like manual controls. The camera app is rich with features such as Panorama, HDR & Auto-HDR, selfie panorama and HDR selfie. The rear shooter takes impressive macro shots. The 13-megapixel front camera features retina flash which significantly adds to low-light selfies. 4k and slo-mo video are disappointingly missing due to lack of hardware support.

Storage, Processing and Gaming: HTC got a little carried away with the storage, and it means well. With the inbuilt 64 GB you are not likely to run out of space easily. You can also use MicroSD card up to 2TB. At its heart, Desire Pro 10 uses a 64-bit MediaTek Helio P10 Octa-core processor at 2.2 GHz, also seen on the Oppo F1 Plus, Xperia XA and Yu Yuniorn. This is backed by 4 GB of RAM which makes multitasking agile.

Desire 10 Pro fails to awe gamers with the weak on-board Mali-T860 GPU. While testing, we played Alto's Adventure, Badland 2, Mekorama, Asphalt Xtreme, and Modern Combat 5 and observed minor seizures causing ripples in the gaming experience.

Fingerprint: The fingerprint, placed on the rear face, is to be accessed by index fingers. Screen wake up is zippy and rarely misses a scan. The fingerprint can be used to click pictures as well as secure sensitive media and information using HTC's Boost+ App.



Price: ₹26,490/-

SCORE

PRICE: **8/10**

PERFORMANCE: **8/10**

FEATURES: **9/10**

Overall: **8/10**

KEY SPECS: 20-megapixel rear camera with manual mode, BSI and dual-flash, 13-megapixel selfie camera, 5.5-inch FullHD Display, Fingerprint with App Lock, MediaTek Helio P10 Octa-core processor, 4 GB RAM, 64 GB ROM with MicroSD support up to 2 TB

PROS: Stunning selfies and detailed rear camera shots, snappy fingerprint, customization via Theme Engine, lightweight, MicroSD up to 2 TB, HTC Boomsound in headphones, battery

CONS: Low speaker volume, mediocre processor, weak GPU

Bottomline: HTC Desire 10 Pro doesn't displease at any point, unless you expect a slayer performance. The camera is great for social media, and you will be clicking endless selfies, appreciating the performance in all lighting conditions. Fast Charging and a long-lasting battery are great supplements. At its price, it faces counteraction from Honor 8, Oneplus 3 and Samsung Galaxy A7 (2016).

CONVEGENIUS SLATE

A 7" Lenovo Tab Modified as an Educational Platform For Kids

— Adeesh Sharma

Mobile devices such as tablets and smartphones have taken over from desktops and laptops as gadgets where kids spend most of their time each day. So, we see a lot of innovative gadgets with educational content loaded on top, that ends up making a complete interactive package for the kid. The beauty of such products is the whole experience for small kids is more of a fun without a trace of intimidation that regular classroom studies bring about.

What we now have for reviews is the CG Slate from ConveGenius, an educational technology company in collaboration with Lenovo. The CG Slate educational platform for kids has been designed for children studying in Pre-School to Grade 5 and pretty much supplements the knowledge students gain at school. The device itself is a 7-inch black tablet, a very basic tablet that's good enough for light gaming, basic photography and for running the common mobile apps. It has a dual boot feature wherein you can use the tablet as a mobile device while the other is the CG Slate mode where the education platform kicks in. An interesting animated character 'Titu' welcomes you on board when you select the CG Slate mode and helps a parent through the initial setup process. You may add more than one child profile and the process is fairly simple that also adds you mobile number for authentication. The entire content for kids has been made available through a 32GB microSD card. The device is available for Rs 7,499 on Flipkart.

How do kids get on with it: The device under the CG Slate mode has three zones for kids to explore — Learn Zone, Play Zone and Shop Zone. You don't need a web connection to use the Learn Zone and the Play Zone. The Learn Zone has various modules for different subjects such as English, Maths, Science, Social Studies and General Knowledge. The child can explore through a set of rich images, animations, video stories, games and exercises.

In the Play Zone, children can watch cartoons and movies as they would do on television but with the caveat that they have to first put in a certain minimum amount of time in the Learn Zone. And the time allowed on the Play Zone is based on how well the child has performed in the Learn Zone. This should not be too much of a hassle for the child as the Learn Zone has been designed to be much simpler for a school going kid. Then there's the 'Parent Mode' where you can keep track of your child's progress over a period of time. The device also sends you alerts from time to time, informing about the activities done and the progress made by your child.



Price: ₹7,499/-

SCORE

PRICE: **8/10**

PERFORMANCE: **8/10**

FEATURES: **7/10**

Overall: **8/10**

KEY SPECS: 7-inch IPS display (1024×600 pixels), 1.3GHz Quad-Core MediaTek MT8127, 8GB RAM, 16GB ROM (expandable up to 32GB via microSD card), 2MP rear camera, 0.3MP front camera, 3,450 mAh battery, Android 5.0 Lollipop

PROS: Vivid educational content, easy to use

CONS: Lacks 3D support

Finally, we saw a Shop Zone which enables the children to buy toys based on the points earned by them during the learning process and after clearing various levels. However, this store is more of a listing and the actual process of buying is facilitated through another seller.

Bottomline: There is plenty of innovation to be seen in the kids' educational platforms with the use of virtual reality headsets connected to smartphones that contain the learning software. And such devices eliminate the need to buy a dedicated tablet separately. The use of virtual reality also provides a 3D experience that can't be experienced through tablets such as CG Slate. Having said that, the device still offers a comprehensive learning experience for kids and does not really burn a hole in your pocket as well!

TV

DAIWA 40 INCH FULL HD TV

Impressive picture quality at a very competitive price

— Tushar Mehta



Despite being dominated by portable and mobile devices, one appliance which has secured itself from being replaced by a gizmo is our beloved idiot box. However, it has really tightened its belt – gotten leaner and smarter.

Clouded under the gamut of features, we often ignore the model aspect of a TV – its display quality for the price – and this is what Daiwa has prioritised with its new 40 inch LED television. The Daiwa 40 inch LED TV hosts a Full HD resolution, something which most other brands in the price bracket shy away from. It comes with plastic feet and the build can be justified considering the price.

A Bay of Ports, Misses Out on Smart Features: The Daiwa TV offers an array of ways you can connect wired devices to the TV. It features three HDMI ports, two USB ports and a 3.5 mm jacks for Audio in and out, besides VGA for PC connectivity. The Daiwa Full HD 40-inch LED comes with peculiar features like Bluetooth. It connects easily and can be used to play audio via a connected device. You cannot, however, connect external speakers such as Xander Bluetooth 5.1 using Bluetooth – restricting you to use more wires.

Warm Display, Ideal for Distance Viewing: The hues on this 40 inches Full HD LED TV are inclined towards warm tones, but the aptly bright LED panel doesn't let give a yellow tint to white portions of the image. Viewed from at least 3 feet away, the display quality is pleasing and this is ideal for a wall-mounted positioning. But as you inch nearer, the display tends to appear grainy. This is relatively richer than most HD only TV sets in the price range. 178° viewing angles make watching in large gathering enjoyable.

Loud but Shallow Bass: Sound on the Daiwa 40 inch Full HD LED TV is generous and can reach loud decibels without any noticeable cracking. Daiwa's dual 10W stereo speakers produce ample treble and mids sufficient for movie dialogues and sports commentary. Bass is, however, lacking and will disappoint if you crave for a delighting experience while listening to music or movies with vivid soundtracks. User mode allows you to play with 5-band equaliser.



Price: ₹19,999/-

SCORE

PRICE: **10/10**
PERFORMANCE: **9/10**
FEATURES: **8/10**

Overall: 9/10

KEY SPECS: 40 inch (102 cm), Full HD 1080p LED panel, 178-degree wide viewing angle, HDMI, USB, PC in, Audio Out, Bluetooth

PROS: Rich and Bright Full HD display, surplus options for wired connectivity

CONS: Lack of Wireless support, No support for external Bluetooth audio

Bottomline: Producing pleasing picture quality if viewed from a sufficient distance, it can double as PC monitor or a secondary screen for graphic producers stilted by a budget. The sound is well-suited for movies, sports and live TV, but lacks deep bass. Abundant with input options, it can serve as a great TV if you can deal your way with wires, considering its price.

NAS DRIVE

SEAGATE IRONWOLF 10 TB

A perfect choice for NAS storage with good transfer speed

— Ashok Pandey



Price: ₹33,900/-

Every day we are generating huge amount of data, which is being stored digitally. Whether you are a small or large enterprise or individual, one day you could also face the problem of low storage space. Seagate's IronWolf 10 TB NAS Drive is one such solution that alleviates your storage problems.

Bundled with loads of features: The drive is specially built for NAS applications and comes with a two-year Seagate Rescue Data Recovery Service Plan, meaning IronWolf drives are covered when disaster strikes – such as flood, fire or accidental damage.

For every NAS user, a reliable drive is a prominent requirement. Seagate enhances the IronWolf with AgileArray technology to offer optimal reliability and system agility. It scales up the NAS performance as it empowers with multi-user technology and has extreme workload rates. Optimization for NAS with AgileArray helps businesses to enhance performance for file sharing, backup and private cloud environments.

Empowered with RV sensors, the hard drive can easily balance and maintain the performance in multi-bay NAS enclosures. Moreover, RV sensors help users to have the consistent performance for years to come. Build to last longer it works well with multi-users, and the drive is optimized for both enabling user workloads of up to 300 TB/year.

Performance: As it's a NAS drive, we first used it as part of our Lab's NAS infrastructure. We tested its transfer speed and found it to be pretty decent. We used the standard benchmark tests and found the drive to achieve a

SCORE

PRICE: 8/10

PERFORMANCE: 10/10

FEATURES: 9/10

Overall: 9/10

KEY SPECS: 10TB storage capacity, SATA 6Gb/s interface, 256 MB cache

PROS: Transfer speed, Silent operation

CONS: Pricey

read speed of 251.7 MB/s and write speed of 239.3 MB/s on CrystalDiskMark. Using the HDTunePro, it gained 243.7 MB/s max and 110.6 MB/s min read speeds. We also transferred 2 GB of assorted data from PC to drive in just 06 seconds. The round trip, transferring data from drive to PC, took just 03 seconds. This is amongst the best result we've ever achieved for such drives during our tests.

Bottomline: For a NAS solutions, it's one of the perfect choices with great transfer rates. It's also a silent performer but comes at a wee bit higher price but that can be ignored if you value it just for its performance.

ASUS TUF Z270 MARK 1

Looks great with rugged build and has RGB LED lighting!

— Ashok Pandey

Asus has brought out yet another power-packed motherboard designed for a 7th generation LGA1151 socket with several connectivity options. The motherboard has AURA sync RGB lighting with the ability to synchronise effects across an ever-expanding ecosystem of AURA Sync-enabled products. The motherboard is primarily geared to attract gamers, though it has a lot of features for other consumers as well, who are looking to upgrade their PC.

Backed by features: Asus is promoting it as the ultimate force, with its several attractive features. We can say that this motherboard is better than what we usually come across. TUF can go easily with both gamers and professionals. It supports a wide range of workstation graphics cards. Its ASUS Aura Sync technology offering full RGB lighting control comes with a variety of pre-set modes for on-board LED illumination.

Mark 1 is implemented with DRAM layout. The third-generation ASUS T-Topology delivers new DDR4-overclocking dynamics, enabling the user to push memory frequencies further up to 3866 MHz. You don't require any technical expertise to experience the overclocking performance. It has the Thermal Radar 2+ that incorporates the TurboV Processing Unit (TPU) for efficient operation with voltage control and monitoring. It is equipped with dual Intel Gigabit Ethernet connectors, which facilitate your data to move swiftly and efficiently.

In addition to the above, it is quite strong because of the exclusive TUF Fortifier that doesn't let the motherboard buckle under the weight of heavy graphics cards and CPU coolers.

Amazing performer: Despite having a high price tag, the motherboard demonstrates really great performance. We used Intel Core i7-7700K processor (up to 4.5 GHz clock speed, 8M cache, 4 cores, 8 threads, processor graphics), 8 GB Zion DDR4 SDRAM, 4GB Gigabyte GPU and Hitachi 500GB HDD.

We first started with gaming performance. Hence, we installed different games including Shadow of Mordor, Thief, NFS etc. It was able to handle graphics and overall performance was great. We didn't notice any visible lag in the performance during the test. Moreover, we left one game running at the back and played another one. Still, only a slight delay was seen, otherwise it was running fine.

To check its day-to-day real life performance, we opened more than 20 tabs in Chrome and Mozilla web browsers. Simultaneously, we operated MS office and some other applications. We were able to switch between apps without any performance issues and were also able to browse the net. Even while overclocking, it was steady till 5000 MHz and we managed it using its simple UI.



Price: ₹19,700/-

SCORE

PRICE: 8/10

PERFORMANCE: 10/10

FEATURES: 8/10

Overall: 9/10

KEY SPECS: Supports Intel Socket 1151, DIMM memory, Integrated Graphics Processor-Intel HD Graphics support, M.2 Socket, Support Raid (0, 1, 5, 10), Intel Rapid Storage Technology, Intel I219V, 1 x Gigabit LAN Controller(s), ASUS Turbo LAN Utility, ASMedia USB 3.1 controller, USB 3.1 and C ports.

PROS: Looks cool, RGB LED lights, rugged, performance

CONS: Slightly expensive, missing AC WIFI and 10Gbit ethernet jack

The LED AURA software lets you enable or disable the LED lights according to your taste and requirement. With almost every connectivity option, it also hosts USB type C port which is now becoming popular in both smartphones and laptops as it offers versatile connectivity options alongwith great data transfer speed. But we missed the AC WIFI; and also the absence of 10 Gbit Ethernet jack that we could expect from a powerful motherboard like TUF.

Bottomline: Rugged, backed by several features and various connectivity options, this motherboard is one of the most perfect available in the market. Though it comes at a high price, it offers a number of functions and gives amazing performance which won't let you feel its high cost.

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ASUS PRIME Z270-A

A feature-rich motherboard with classic looks and performance

— Ashok Pandey

Asus is very popular among enthusiasts and it has come up with yet another motherboard with advanced technology that supports latest CPUs from Intel. We recently reviewed another Asus motherboard TUF Z270 Mark 1 that also supports the LGA-1151 socket. Asus Prime Z270-A has various similarities with its other siblings as it has Aura Sync. It also supports DDR4 3866MHz, dual M.2, Intel Optane memory ready, HDMI, SATA 6Gb/s and has USB 3.1 Type-C. It supports 3D-printed parts, with dedicated 3D mount for easy installation, which means it's ready for the future as well.

Classic looks with loads of features:

The motherboard looks classic and it comes with Asus 5-Way optimization feature to boost the system performance based on real-time usage. It has many fan slots that can keep the system cool with more fans with more users. Additionally, you get complete control over fans as it's configurable via Fan Xpert 4 and UEFI BIOS. It boasts a dedicated integrated circuit to protect each fan header from over-temperature and overcurrent.

The Prime has a dedicated base-clock generator designed for 7th Generation Intel processors enabling base clock frequencies up to or beyond 425 MHz. The Prime supports the latest Intel Optane Memory technology to accelerate the boot and reduce load time. It comes with x4 PCI Express 3.0/2.0 bandwidth, M.2 supports up to 32Gb/s data transfer speeds, enabling faster boot, load and processing.

Asus Prime Z270-A is backed by graphical BIOS featuring two modes – easy and advanced. The BIOS lets you configure and manage the machine as per the requirement.

Marvellous performance: We set up the prime motherboard using Intel Core i7-7700K processor (up to 4.5 GHz clock speed, 8M cache, 4 cores, 8 threads, processor graphics), 8 GB Zion DDR4 SDRAM, 4GB Gigabyte GPU and Hitachi 500GB HDD.

We used the PC for more than three weeks to check its real-life performance while using it for day-to-day tasks. We ran multiple applications including MS office and browsed the internet. It managed them quite easily.

To go beyond, we ran two browsers, Chrome and Mozilla, with more than 20 tabs in each. Simultaneously, we operated MS office and some other applications. We were able to switch between apps without any performance issues.

Using the BIOS we did simple tweaks to check over-clocking capability. It was able to achieve 5000 MHz and performance was steady. We installed different games including Shadow of Mordor,



Price: ₹16,600/-

SCORE

PRICE: 9/10

PERFORMANCE: 9/10

FEATURES: 9/10

Overall: **9/10**

KEY SPECS: Supports Intel Socket 1151 for 7th/6th Generation Core i7/i5/i3/Pentium/Celeron Processors, Supports Intel Turbo Boost Technology 2.0, DDR4, Dual Channel Memory Architecture, Integrated Graphics Processor – Intel HD Graphics support, Supports up to 3 displays simultaneously, M.2 Socket 3, SATA 6Gb/s port, USB type C.

PROS: Looks classic, Asus Aura Sync, good performance

CONS: No AC WIFI and 10Gbit Ethernet jack

Thief, NFS etc. to check its gaming performance. It handled them easily. Graphics and overall performance were great. We didn't notice any visible lag in the performance during the test. Moreover, we left one game running at the back and played another one. Still, only a slight delay was seen; otherwise it was running fine.

Bottomline: Prime Z270-A is one of the excellent choices loaded with the latest technology and ready for future as well. It comes with the good Overclocking feature as well as overall performance is excellent.

LENOVO IDEAPAD 310

A slim and lightweight laptop that can handle intensive apps

— Ashok Pandey

Ultrabooks and convertibles are becoming trends in the market, yet people are looking for a full-fledged device capable of managing almost every task that they want to perform. The big issue is if you are looking for a portable device with a combination of powerful hardware, then you must have a good budget as well.

Though Lenovo Ideapad 310 isn't an ultraportable device, you can consider it as an purpose laptop with a slim and light profile.

Looks slim and has cool design:

The laptop has 15.6-inch screen enclosed in a synthetic material plastic body. The laptop is available in different colours, making it an interesting choice for different people. Though it has a plastic body, the paint on the top and the bottom finish gives it an attractive look. Overall it's a good looking laptop to flaunt.

Apart from looks, it's also packed with lots of connectivity options including USB 3.0 Optical Drive, Bluetooth 4.1 Combo with WiFi Card, 3.5 mm Combo Audio Jack, VGA, HDMI, RJ45 Gigabit LAN and 4-in-1 Card Reader (SD, SDHC, SDXC, MMC). Though it has numerous options for connectivity, we missed type C port which is becoming popular in the market. The IdeaPad has a Chiclet keyboard with flat keys. The keys are quite soft and responsive enabling you to type even for longer hours. It offers comfortable yet crisp press resistance.

Vibrant screen with good contrast: The laptop boasts a 15.6-inch display that supports 1366x768 pixels resolution. It offers a native contrast of 714:1, enhancing your visual experience. The brightness levels of Ideapad 310 are also good. The colours on the screen are quite vibrant, offering great pleasure while watching videos or playing games.

Can handle various intensive applications: Lenovo IdeaPad 310 is not for gamers but it is equipped with powerful hardware which lets you do almost everything. It can handle numerous intensive applications easily. We tested the notebook for more than three weeks. We installed different apps and games on it as well as performed several other day-to-day tasks. It was able to handle them without any visible lag in the performance. We played games like Thief and Shadow of Mordor and there was no visible performance lag.

It is equipped with stereo speakers producing a good amount of sound. You can enjoy music as well as games on it. The speakers produce crisp sound, but loud enough to watch a movie in a large room, where it's recommended to use external speakers.



Price: ₹47,990/-

SCORE

PRICE: **9/10**

PERFORMANCE: **10/10**

FEATURES: **9/10**

Overall: **9/10**

KEY SPECS: Intel core i3 7th gen, Intel HD graphics 620, 15.6-inch FHD IPS screen, 1 TB storage, Windows 10 OS, 1 MP webcam, 2 cell battery.

PROS: Silent, design, slim profile, good battery, keyboard, can handle intensive tasks

CONS: No type C port

Optimal battery life: While using the laptop, it was able to stand for more than 18 hours with moderate usage, which includes internet browsing, videos and games, etc. And with heavy usage and core gaming, it was able to deliver more than 4 hours of backup in one full charge. In our video loop test, it delivered 5 hours and 32 minutes of backup when playing videos over YouTube using Wi-Fi with full brightness and volume.

Bottomline: Lenovo Ideapad 310 is an all-purpose laptop that can be used for both entertainment and office tasks. It can manage to handle several intensive tasks as well. Having a good battery life, comfortable keyboard and vibrant display, it is one of the perfect devices in the 50k price range.

ALL-IN-ONE

LENOVO THINKCENTRE X1

Beautiful design, slim profile, great performance!

— Tushar Mehta

The bigger is better' slogan has become a reality with the Lenovo ThinkCentre X1. Usually, people think of AIO (All-in-one) when they want to save space and avoid clutter, but most of AIOs give only good performance. Lenovo not only brings AIO easiness, but also fulfils everyday computing needs.

Looks stunning: ThinkCentre X1 has a thin profile with 23.8-inch (1920X1080p) non-touch screen featuring an anti-glare coating. On the back side, it has USB, HDMI and LAN port as well as at the left side also it has two USB ports allowing easy access.

The key highlight of the AIO is its stand, which apart from having a thin base, allows a wide range of tilt. And it's quite soft in terms of adjustment. One only needs to exert soft pressure to adjust it as per his/her convenience. This also gives the user a hassle free access to everything. The only drawback is that it has no option to adjust the height of the screen, so you need to bear with the height of the screen.

At the right side, it hosts power button, mute button for the microphone and computer/display switch. We loved the port arrangements of Lenovo AIO, as it enables easy access to all the frequently used ports.

The bigger and brighter screen: Choices may differ from person to person, as most people look for a space saving AIO and ThinkCentre X1 has a 23.8-inch screen, which some may find quite large to work on for the whole day. At the same time, others find it suitable for their jobs. All-in-all, we can say it's made for people looking for a large screen AIO with a sleek profile.

The screen produces vibrant colors, so that images and videos look rich. It has impressive wide angles letting you enjoy videos, even at 180 degrees. This enables you to share the screen without any worry. The brightness and dark levels are also good, adding great viewing experience to the user.

Amazing performance: You don't have to compromise on performance. Lenovo has added powerful hardware inside the thin screen that can easily handle intensive apps. We tested the device for more than three weeks and used it to run various applications and games.

While using the AIO for everyday tasks, we didn't notice any performance lag. We used it for everyday office jobs as well as played some games. We played games like Thief and Shadow of Mordor. It was able to handle both the games easily. To test it further, we opened Mozilla and Chrome browsers with more than 20 tabs in each and browsed different websites including YouTube. Further, we ran MS-office and other apps simultaneously, but there was no visible lag. However, while switching between apps we noticed a little delay. But this delay was expected due to such extensive load.

The 1080p webcam is placed on the top of the screen, which is good for video calls. Mic is also quite powerful, we made and took calls on this and found the overall performance to be



Price: ₹1,18,000/-

SCORE

PRICE: 9/10

PERFORMANCE: 10/10

FEATURES: 9/10

Overall: 9/10

KEY SPECS: 2.6 to 2.81 GHz Intel Core i7 CPU, 8 GB RAM, 500 GB storage, Win 10 OS

PROS: Thin profile with great design, great stand with easy to adjust, excellent performer

CONS: No USB type C or PCIe M.2, can't adjust height of screen

proficient. The AIO comes with Lenovo's keyboard and mouse. The chicklet style keyboard is responsive and comfortable to use. The mouse has five buttons, enabling the user to perform various tasks easily.

It is equipped with Dolby audio that produces nifty sound, though it's not very loud. But you can enjoy music, games and movies on it.

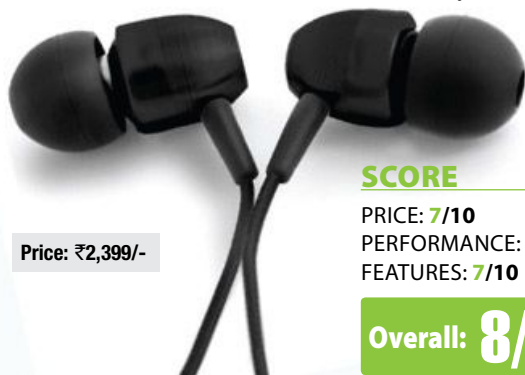
Bottomline: ThinkCentre X1 is meant for professionals who don't want to compromise on style and performance. However this machine is not for serious gamers, though you can enjoy some games on it. Its solid performance and great looks make a worthy investment.

HEADPHONE

BRAINWAVZ M5

Good build quality but average sound

— Raj Kumar Maurya



Price: ₹2,399/-

SCORE

PRICE: 7/10
PERFORMANCE: 8/10
FEATURES: 7/10

Overall: 8/10

Brainwavz Audio's another headphone M5 comes at the budget price. This is an IEM or canal type earphone made up of lightweight aluminum shells with metal (silver in color) nozzle filter covered with black color. The cables are a little bit thin as compared to the cable above the Y-split; the right one has to microphone along push button to perform a different task such call picking and music play or pause. The 3.5mm jack is in L-shape and has pretty solid and durable isolation. But the isolation near the ear driver is not so solid and may be stretch out accidentally, we think it should be more solid. The cable is rubbery and prone to tangle.

Comfort: The design is almost similar to the rest of IEM earphones which are available in the market but the main thing which makes each earphone different is its comfort level. The M5 is semi-deep insertion IEM and it comes with 6 pairs of silicon ear tips Small, large and medium wide & narrow single flange tips including one pair of medium comply foam tips, double flange tips, and a cable clip.

The comfort level it provides is good and the drivers are easily stuck into your ears and not stumble down while walking or running. Moreover, the proper insertion into ear and comfort level also depends upon the type of tips or buds your using. The cable is flexible and can be used as straight or over the ear. Cable noise is also not so extensive it present only when wore it over the ear.

Sound or Performance: The M5 has 10mm dynamic drivers having an impedance of 16 ohms and frequency range of 16 Hz-18Khz. It has a sensitivity of 103dB at 1 mW. For testing these earphone we used them on One Plus 3 smartphone and Windows PC by running various different genres such as rock, pop, Bollywood, jazz and classical. The Lows of the M5 are well separated and can differentiate easily whereas mids are clear and crisp. The vocals are great for the earphone at this price range on another hand instrumental separation can be easily identified. We also used M5 to listen track of Deep house session mix music which is a mixture of

KEY SPECS: Drivers: Dynamic, 10mm, Rated Impedance: 16ohms Closed Dynamic, Sensitivity: 103dB at 1mW, Frequency range: 16 ~ 18000Hz, Rated input power: 10mW, Maximum input power: 20mW, Plug: 3.5 mm gold plated, L Shape, Cable length: 1.3 meters Y cord, 1 year warranty, Dimensions (Packaging): 110 x 160 x 50mm

PROS: Durable metal housing, 6 pairs of silicon tips

CONS: Isolation at ear driver is not very solid, and bass is average

dance club beats and M5 perform very well, the speaker produced high fidelity and clear crisp mids and highs with accuracy but the bass is average. The microphone of m5 also worked very well with call and we didn't find any drop during testing.

Bottomline: The M5 produces average sound when bass is increased. So, we are not going to recommend it for bass lovers. Moreover, the build quality is good and comes with a metal driver.

HEADPHONE

ALTEC LANSING MZX147

A Budget in-ear headphone with good quality bass

— Raj Kumar Maurya



Price: ₹1,590/-

SCORE

PRICE: 9/10
PERFORMANCE: 7/10
FEATURES: 8/10

Overall: 7/10

Altec Lansing is a very old brand that deals in audio products. Altec has piled up its audio product line with a number of on and in-ear headphones. Now they have added a new member Altec Lansing MZX147 in-ear headphone with dual color stripped cable and metallic driver casing. The MRP of Altec Lansing MZX147 is Rs 1590 but at online you may get it at Rs 780.

Build and Design: The headphone driver casing is built with metal whereas the cable is of rubber that has white color strips on it. The overall design of headphone is not something unique but some add-ons on the black color driver such as silver color strips at front and back along small grills on left and right of the driver look very nice. It has flat cable design that houses an outer insulation layer to add sturdiness. At the cable partition, it has in-line remote and mic. It uses a volume control slider to control the volume directly from the remote. Beside volume slider, there is a single button to accept/reject calls, and play/pause music. The in-line mic works fine and picks up audio well. The insulation of cable at the driver end is good but at the 3.5mm jack it is average and can damage easily. The cable is tangle free and if it somehow gets tangled you can untangle it easily.

Audio Performance: The Altec Lansing MZX147 come with extra pair of ear tips S, M, L. The driver size is 10mm and the frequency at which it can work is 20Hz-20KHz. To test this in-ear headphone, we used test tracks: Angel of Mercy by Black Label Society, Stadium Arcadium, brutal bass drops, trance music and Bollywood romantic and dance songs. The MZX147 delivers a well-balanced sound and its frequency distribution is also well managed. The amount of bass fidelity is good and bass lovers can use it to enjoy bass music. If you talk about the vocals then it can be better as somewhere between treble and bass it becomes tough for it to stand. The mids sound clear and warm and provide enough detailing to keep enjoy favorite music. At the highest volume, the headphone provide ample amount of loudness and at the same level, we found some amount of noise leakage too.

KEY SPECS: Item Weight: 454 g, Product Dimensions: 25.4 x 5.1 x 25.4 cm, 10mm metal audio drivers.

PROS: Budget price, Good Bass

CONS: Average build Quality

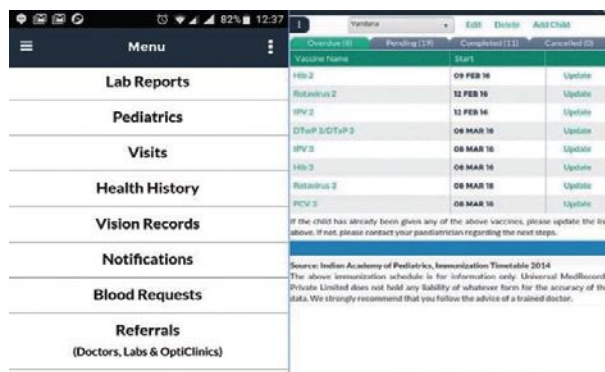
Bottomline: The sound quality of the headphone is good in terms of bass and treble. If you are a bass lover you can go for it. The build quality of it didn't impress us much but still it is acceptable if you look at its performance that comes under low budget price.

APP REVIEW

MEDRECORDZ — HEALTH RECORDS

Accumulate all your health records digitally at one place

— Raj Kumar Maurya



SCORE

PRICE: 9/10

PERFORMANCE: 7/10

FEATURES: 9/10

Overall: 8/10

When everything is becoming digital then why not your health records. It might be a little bit hectic to visit your doctor with a number of labs reports or prescription slips. And if you get tired of arranging them in order living under a fear of misplacing them, then try out the power of your smartphone. Yes, there are a number of smartphone applications that allow you to handle your reports and health records digitally, MedRecordz is one of them. It gives you an ability to keep a record of your personal medical information in an easy and convenient way.

Get automatic reminders for health checkups, child immunizations and more. You can receive automatically an electronic copy of your lab reports and vision records on your smartphone through this app but right now this feature is available only in Hyderabad, India.

Apps Interface is very clean and straight forward. The first screen which appears after opening the app will give a list of task that the app can do.

Using this app you don't need to store physical copies of your reports. All your reports will be automatically digitized and stored on the highly secure MedRecordz server AND will be available for you to access for your lifetime. You can also click an image of your reports or upload pdf to the app's server manually.

To take care of your child this app offers an electronic track record of your child vaccinations and also give you an automatic reminder when the next vaccination is due. The vaccination schedule adheres to the guidelines prescribed by Indian Academy of Pediatrics. The app also provides an automatic service in which a person will receive his eyewear (spectacles) prescription on MedRecordz mobile app when he/she visit optical clinics partnering with MedRecordz.

We have been using this from more than a 2 week and we didn't find any lag or glitches. The one thing which I like personally is its Blood request feature. In this feature, you

can request for blood and also can read the request of another person as well, while using the app we got a request of someone from KIMS hospital for blood.

Bottomline: The app is easy to use and anyone can create digital medical records on it without any hassle. The App user interface is not much intuitive and one might take some time to become use to it.

KEY SPECS: Health check-ups records, child immunizations reminder, electronic track record, Automatically receive your eye wear, diagnostic reports and vision records

PROS: Fast processing, Digital reports, Blood request feature, electronic track record

CONS: User interface is not much intuitive

EARPHONES

SYNQ DG-SQ200-BL

Airpod style in-ear wireless Bluetooth earphones set to grab your attention

— Tushar Mehta



Price: ₹2,499/-

SCORE

PRICE: 8/10

PERFORMANCE: 8/10

FEATURES: 8/10

Overall: 8/10

If you are one of those who quench for the newest accessories, we have a cheap replacement for the expensive Apple AirPods you were planning to buy. These even work well with Android devices. These wireless earphones are typically tiny cylinders with earbuds emanating from one face, while the other face serves as a button beside housing the notifications lights and microphone on individual. These come bundled along with a USB cable which has thin pin ends for charging.

Warm and Cuddly, these don't pull you down: These sit comfortably inside the ear, and the additional earbuds can ease it further for you. These don't tend to be very weighty on your earlobes. However, we cannot deny that these are equally easy to lose and difficult to find due to the tiny chassis.

All you need are tender hands and patience: Connecting the Synq DG-SQ200-BL earphones may be a difficult job as each pod has individual switches. Connecting with iOS devices is relatively easy as compared Android. We were able to get great connectivity up to a distance of nearly 15 feet without walls.

The droopy bass case: After listening to a variety of genres, we concluded that the sound is overall impressive with crunchy mids and uplifting treble, but lacks the necessary amount of bass. Bass is so feeble that some of the songs sound bass-less (and hence *baseless*). Loudness, however, is top notch and you usually don't observe any creaking.

Please don't call me: Calls, on the other hand, spell a misery with these. First of all, only one of the earplugs is active at a time, and the distance of the mic makes it even more dreadful. Listeners mostly complained of being able to hear partially or not at all.

Persistence, which may fail often: The only problem with this pair of earphones is that they function as individual sets and often feel short of breath even when you're well within the range. The units with 65mAh batteries each charge completely in nearly 60 minutes and can play as

long as almost 3 hours when both are used together.

Bottomline: Loud, clear and crisp sound is imminent feature of these earphones, but only if you can overlook the weak bass frequencies. If you can bear with a high price to flaunt these as part of your style quotient, or really do not care as long as the audio is loud enough, then you should grab hold of these.

KEY SPECS: Wireless Bluetooth Earphones with in-built microphones, 65 mAh rechargeable batteries in each, nearly 20 ft range

PROS: Convenient while listening to music, powerful mids and treble

CONS: Prone to getting lost, Unimpressive Bass, poor call quality, single ear during call

HEADPHONE

BRAINWAVZ HM-2

Durable and comfortable headphones which you will love until you play them

— Tushar Mehta



Price: ₹2,999/-

SCORE

PRICE: 7/10

PERFORMANCE: 8/10

FEATURES: 8/10

Overall: 8/10

We loved Brainwavz HM-2 wired headphones for they are one of the most comfortable headphones used by us. The way they snuggle around your ears make you feel really warm. Made of a matte-finish gray plastic, these headphones feel posh. A carry case is what these folding pair of headphones come seated in. You can fold the headband midway. The left ear cup features a 3.5mm audio jack and these come with two cables – a standard aux cable and another with in-line microphone and volume slider – both 1.2 meters long.

Build of a lion, cry of a hyena: Sound through the headphones is not at par with the build quality. The bass is overwhelming but a bit muffled and unclear, mids are timid and can ruin your experience while listening drum covers, and highs feel greatly ignored. Clarity of audio and precision in the notes are clearly (oh, the irony!) astray. The in-line mic can be used for making calls and the calls are decently audible. When the bass gets heavy, earcups tend to dissipate vibrations into our earlobe – this can be thrilling sometimes, but may annoy in long usage.

Cuddly Cushion: A factor that makes me still like them is that you can lie down with these and even fall asleep without them spoiling your sleep for you. The thumpy bass can please those who like EDM or mostly listen electronic forms of music. Additionally, these could be great while watching movies or TV shows, as well as playing games for an immersive experience.

Erase the World Around: Noise cancellation or isolation is another factor that the Brainwavz HM-2 ace at. The powerful frame adds a sense of strength and confidence.

KEY SPECS: Foldable Wired Headphones, 1.2m cable, 3.5mm Aux-in, 431 g

PROS: Cushiony and comfortable, in-line mic and volume remote

CONS: Bass too loud, weak treble

Bottomline: These are decent performers with heavy and overpowering bass, and decent mids and treble. You could consider buying these if you play a lot of games or watch movies using headphones. Not recommended for audiophiles and musicians, especially broke musicians.

HEADPHONE

ZOOK MUSICANA ZM-ROCKER RDX I1

Extreme bass to blast your ears, literally

— Tushar Mehta



Price: ₹599/-

SCORE

PRICE: 10/10

PERFORMANCE: 7/10

FEATURES: 8/10

Overall: 8/10

Peculiar and attractive are two adjectives which aptly describe the aesthetics of Zook Musicana ZM-Rocker RDX I1. The earbuds, which seem inspired by the shells of shy marine creatures, may attract women more than men with their design. These host “Extreme Bass” feature and come with an in-line remote with microphone, single control button, and volume slider.

Flaunted proudly on the box of Zook ZM-Rocker RDX I1, Extreme bass seems to be a misunderstood jargon by the company. The bass is flabbergasting, and literally extreme on ears. In no way do low frequencies on this pair of earphones sound pleasing. They are oppressive. The reason we assert this is because the bass is excruciatingly loud, but not profound. The loud bass contributes in muffling the mids and shadowing treble.

If you listen to genres with a significant number of instruments, you are likely to miss out on tones originating from a lot of them. Even during calls, the audio is dominantly bassy and may irritate you while trying to hear important information. Reducing the volume doesn't remedy the troublesome bass as it gets thicker and muffled on low volume.

The inline microphone and buttons work without hassle and the build is sturdy. You can even wear it like a necklace, given the unique design, when you're not using them. It feels premium for the price. The sound and overwhelming bass fail to impress, lest you can cease listening to music with less bass.

Bottomline: Zook has clearly focused on good looks with this pair

KEY SPECS: Wired earphones with in-line mic and volume remote, 3.5 mm input, 1.25 m cord length, 20Hz ~ 20kHz

PROS: Stylish design, easy to carry

CONS: Overwhelming bass, compromised mids and treble

of earphones, and it manages to appease you as long as you don't hear it. Magnets and material are where Zook has seemingly cut cost. The bass in loud in a disturbing manner and mids and treble suffer because of that. Call quality will make you pull your hair.

CREATIVE MUVO 2 BLUETOOTH SPEAKER

Muvo 2 offers a solid sound quality compared to other speakers in its range and lasts long enough to let you party all night long

— Sidharth Shekhar

Creative has introduced Muvo 2 with a couple of key improvements and in my opinion, it has the potential to give its competitors a run for their money in terms of cost and sound.

Muvo 2 is water resistant and will allow you play music via Bluetooth, Micro SD, Aux in, and USB.

We received a black color review unit of Creative's MUVO 2 Bluetooth speaker, which is priced at around Rs. 8,438.00 and after extensive testing here's the complete review.

Design: Creative has maintained a rigid design structure with most of its Bluetooth speaker range and Muvo 2 is no different. Creative MUVO 2 is very light (340 grams) and has a simple rectangle box-type design. On top, you'll see six buttons (left to right): Power, Bluetooth, Mode, Volume Down, Volume Up, and Play/Pause. Above those buttons are two LED lights and a mic in between them. The left side has two large holes to strap the speaker. On the back, there is a flap that you can peel back to access the Aux port, charging port and micro SD port.

The new MUVO 2 speaker can also act as an independent music player, thanks to the microSD card slot on the back. This feature makes it more portable than many Bluetooth speakers out there and you just need to load your music library into the card to enjoy music anywhere. The speaker supports playing lossless FLAC and WAV files. MUVO2 is dust- and water-resistant with an IP66 rating and it can easily endure light rain or water splashes. The exterior is made of plastic with a soft-touch finish all over and the front grille is made of aluminum. Muvo 2 is powered by a 2,200 mAh Li-ion battery and the company claims that it lasts for 10 hours after a single charge.

Audio quality: Bluetooth speakers are often more focused on portability and tend to compromise on the sound quality. However, a great sound is essential for any speaker and MUVO 2 scores perfectly in terms of portability and audio quality. Equipped with a big passive bass radiator at the center and 2 full-range drivers on both sides, Muvo 2 has the best sound quality in its range. We tested the speaker in different cases and MUVO 2 came out as a winner in most. If you are listening to music in your room, the MUVO 2 can fill the entire area with immense clarity and detail in voice and bass. We played many genres and different file formats like MP3, WMA, WAV, and FLAC. The audio output depends on the file and we received the best listening experience while playing FLAC.

We played live soundtrack album, The Song Remains the Same, by the English rock band Led Zeppelin in FLAC format and the audio quality was stunning. If you are looking for a more powerful sound then pair two MUVO 2 speakers together using Wireless Link technology for stereo quality sound. You can also



Price: ₹8,438/-

SCORE

PRICE: **5/10**

PERFORMANCE: **8/10**

FEATURES: **7/10**

Overall: **7/10**

KEY SPECS: Bluetooth 4.2, AUX-in, Bluetooth, USB, 2 x Drivers, 1 x Passive Radiator, Microphone: Built-in, Battery Type: Built-in Li-ion 2200mAh, Battery Life: 10 hours, Charging by: Micro USB, Audio Formats: MP3, WMA, WAV, FLAC, LO-L8. IP66 Dust/Water Resistant.

PROS: Great sound and excellent bass, Great build quality with a water-resistant body, Supports lossless files, Stereo pairing.

CONS: No aptX

take your calls off your smartphone wirelessly via Bluetooth and the quality is just fine.

Battery: The MUVO 2 uses a microUSB charger, which keeps the speaker on while charging. In our tests, Creative MUVO 2 was able to run for 7-8 hours straight while with a USB and microSD, it provided 10 hours of playback.

Verdict: Muvo 2 offers a solid sound quality compared to other speakers in its range and lasts long enough to let you party all night long. This is among the best-sounding Bluetooth speakers for the size, and we highly recommend this product.

Bottomline: I am pretty happy with the overall performance of Creative Muvo 2 and I really liked the microSD support which increases its overall usability.

GOOGLE ANNOUNCES TRAINING PROGRAMS TO INCREASE DIGITAL AWARENESS IN SMES

There are 68% of the total 51 million small and mid-sized businesses in India that are yet to adopt digital platforms for business growth. Making announcements to make them digitally aware at an event held in Delhi today, Sundar Pichai, CEO-Google, spoke to representatives from hundreds of small and medium business from across the country on the benefits of the web and digital technology.

During his address, Sundar Pichai said, "The Internet is a powerful equalizer and we are motivated to bring the benefits of information and technology to as many people as possible. Building for everyone and making it available in the hands of as many people is at the heart and core of what we do. And we do this by investing in open ecosystems."

Referring specifically to small and medium businesses, Pichai added, "the Internet and digital technology will be an engine of growth for the Indian economy. Today, anyone can become an entrepreneur, a developer, or a creator, but it is important that they have the right tools and skills to digitize. We believe it is important for us to invest in training and equipping these individuals and small businesses to accelerate their journey of growth."

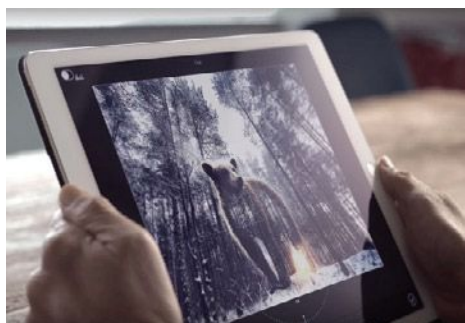
Setting the context for the initiative Google unveiled a joint research study with KPMG titled "Impact of internet and digitization on SMBs in India". The study reiterates that 68% of the 51m Indian SMBs are offline. Highlighting the macro-economic impact of the internet, the research found that rising penetration and greater uptake for digital by SMBs could help increase their contribution to India's GDP by 10 percentage points, taking it up to 46-48% by 2020. Ascertaining the benefits of going digital for small businesses, it determined that profits of digitally engaged SMBs grow twice as fast compared to offline SMBs. Likewise digitally engaged businesses are able to grow their customer base significantly with 52% catering to customers beyond their home city versus only 29% offline SMBs. The report cites the lack of understanding of the benefits of digital technologies and technical skills as the essential reasons for being offline.



ADOBE PHOTOSHOP WILL GET ITS OWN VOICE-ACTIVATED DIGITAL ASSISTANT

Adobe is planning to enter the digital assistant arena. The software company unveiled its plan through a video released earlier this FEBRUARY 2017. The video is quite brief and simple but it clearly indicates everything we need to know about the new software. Like Apple's Siri and Google's Google Assistant, a microphone icon will be present which will activate the Adobe Photoshop's digital assistant when pressed.

In the 30-second concept video posted by the company, a man can be seen looking at an image on an iPad. He then taps a microphone at the top of the screen that activates a digital assistant – which sounds similar to Alexa or Siri.



SAMSUNG UNVEILS QLED TVS AT CES 2017

Older LED TV models have always been plagued by the quality of video signals they receive as well as the inherent technology on which they work. So, on the one hand you have high-definition range compatible TVs that could only display as black an image or as white image as the quality of video signal beamed by the broadcaster, while on the other hand you high-definition video signals that struggle to be reproduced accurately due to limitations with LED quality. At CES 2017, Samsung unveiled the flat 88" Q9F TV and 65" Q8C TVs with enhanced quantum dot quality to provide more pure colors (true RGB) as well as strengthen their durability and energy efficiency. Samsung has worked to amplify the brightness of the QLED TVs, from 1000 nits up to 1500 nits. The 50% increase in brightness makes HDR content better any form: movies, live TV, or games. Samsung also revealed collaborations with 4K HDR providers to offer high-quality content that maximizes the high-performance features of their QLED TVs.



NOKIA P1 SMARTPHONE LIKELY TO BE LAUNCHED AT MOBILE WORLD CONGRESS

HMD Global which is exclusively developing Nokia smartphones is going to be present during the upcoming Mobile World Congress 2017 in Barcelona.

There are rumors that the launch of Nokia's Android-based P1 smartphone at MWC could also be widely expected. Rumors also say that the smartphone will be based on Sharp Aquos Xx3 that was launched in Japan last year.

According to a report from a Russian website Worket, the Nokia P1 will come with a 5.3-inch display, Gorilla Glass 5, Snapdragon 835 SoC, Android Nougat out-of-the-box and 6GB of RAM.

The 128GB variant will come at a starting price of \$800 (roughly ₹54,500) while the 256GB variant will come at around \$950 (roughly ₹64,700).



JIO EFFECT: VODAFONE IS OFFERING 4GB 4G DATA AT ₹250, 22 GB AT ₹999 PER MONTH

Reliance Jio has been a disruptive player since its arrival in the Indian telecom market with its aggressive data plans and discounts. Now Vodafone is offering four times more data to its SuperNet 4G customers. Customers buying the 1GB data pack at ₹250 will now be getting 4GB of data for 28 days. Apart from this, the company is giving 22GB of data on a recharge of ₹999. These packs are available in all circles in which Vodafone offers 4G services.



This new data plan can be purchased through digital channels and at local retailers. Vodafone is also offering 6GB data at ₹350, 9GB data at ₹450, 13GB data at ₹650 and 35GB of data at ₹1,500.

Few days before Vodafone had announced its SuperHour scheme that is offering unlimited 3G or 4G data for one hour at ₹16 for pre-paid customers. Another recharge from the company is giving unlimited local voice calls (within the network) for one hour at ₹7.

NEW LEAK REVEALS SAMSUNG GALAXY S8, GALAXY S8 PLUS PRICE, LAUNCH DATE AND MORE

After Galaxy Note 7 fiasco, Samsung is betting heavily on its next smartphone Galaxy S8 and Galaxy S8 Plus. While we don't have any confirmed details about Samsung's next phones, we have come across some rumors and leaks which indicate that the South-Korean smartphone giant is working on expanding its new Galaxy S line.

We received a tip from @Ricciolo1 on Twitter which suggests that S8 will be ready at MWC 2017, and will be present at the event. He added that the phone will not be showcased to a large audience, and will be unveiled later.

Samsung S8 will sport a 5.7-inch display while S8 Plus will be having a 6.2-inch display. There will be a fingerprint reader on the back of each phone, rather than under the glass on the front, as had been rumored previously. Samsung will be using either the Snapdragon 835 or Exynos 8895V depending on the market, 6GB RAM, UFS 2.1 storage with 64GB base (with SD slot), IRIS scanners, water resistance, USB Type-C ports, and 3.5mm headphone jacks.

S8 will be powered by 3000mAh battery while S8 Plus will come with a 3600mAh battery.



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