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Editorial

We would like to wholeheartedly thank our honorable Chairman, Secretary, Executive Director and Principal for their continuous encouragement and constant support for bringing out the magazine. We profoundly thank our Head of the Department for encouraging and motivating us to lead the magazine a successful one right from the beginning. Ishare serves as a platform for updating and enhancing upcoming technologies in Information and Communication. We are grateful to all the contributors to this magazine so far. The magazine has been sent to almost 60 Institutions in and around Tamilnadu. So far we have received feedbacks and appreciations from various Institutions.

We would be very pleased to receive your feedbacks. Please send your feedbacks to ishare@ksrcas.edu

By,

Editorial Board

CONTENT

ENTERPRISE MOBILE APPS

R. SUDHA

ASST. PROFESSOR IN COMPUTER APPLICATIONS

Mobile Tech innovation will continue to shape the enterprise in a big way.

Enterprise mobility will take businesses to the next level. Mobility will change how employees, partners and customers communicate, share content and collaborate. Applications will introduce new efficiencies and will create new and innovative ways to handle operations more efficiently.

Here are five future trends that will influence how enterprise mobile apps are developed and used in 2015:

Increase in M2M Communications

By adding sensors and networking technologies to the products they sell, companies will find new ways to gather powerful insights. Timely actionable data will help enterprises speed up decision-making, streamline supply chains, understand customer demands, and bring new products to market quickly.

For example, today M2M systems are being used by farmers to automatically adjust the composition and amount of fertilizer needed based on data from satellites and ground sensors and by advertisers to

enable billboards to display personalize messages to passers-by according to data collected from their mobile devices.

Evolution of the User Interface (UI)

The user interface of enterprise mobile apps will evolve from passive screens to proactive context-aware notifications, similar to the Google New Personal Assistant who makes personal recommendations based on user preferences and location.

Improved voice control, use of vibrations, and small, wearable devices are all making the screen a less significant part of how we interact with mobile apps. In 2015, context-aware apps will use sensors and web services to anticipate user needs and provide the relevant type of interaction (e.g. touch, voice control) as needed.

Focus on App Performance

While the visual design of enterprise apps is important and tends to be a major focus of app designers, with the added complexity of cloud services and applications that cross multiple business systems, performance will become the critical element. In order to assure usage and prevent user frustration, apps must be responsive and works offline so that that user can continue to work even when network connectivity is disconnected or unavailable.

More Consideration to ROI

While there is a general consensus that using native development technologies results in a more natural and intuitive user experience, HTML5 development and multi-platform app development tools are more resource efficient. With the number of enterprise mobile apps on the

increase, the amount of value received developing in native environments will be considered against the far higher total cost of ownership of developing and maintaining the same app for three different operating systems.

Companies that want the best of both worlds will look toward multi-channel application platforms that provide the advantage of supporting both native and HTML5 applications.

Data Quality becomes a Top Priority

Poor data quality, such as duplicate customer records, can pose a big challenge to enterprise mobile apps that typically include information from multiple systems (e.g. CRM, ERP, and billing) on a single screen, wasting user time dealing with out-of-date or incorrect information. Add to this the limited patience of mobile users to search multiple records and the increased likelihood of introducing more errors by incorrectly typing on small touchscreens, and data quality quickly becomes a bigger issue.

Enterprises will employ data quality solutions such as integration platforms to match and de-duplicate data across multiple sources and records to allow users to work more effectively.

USING MINECRAFT TO UNBOGGLE THE ROBOT MIND

Ms. J. MARY DALFIN BRUXELLA
ASST. PROFESSOR IN COMPUTER APPLICATIONS

Researchers from Brown University are developing a new algorithm to help robots better plan their actions in complex environments. It's designed to help robots be more useful in the real world, but it's being developed with the help of a virtual world -- that of the video game Minecraft.

Basic action planning, while easy for humans, is a frontier of robotics. Part of the problem is that robots don't intuitively ignore objects and actions that are irrelevant to the task at hand. For example, if someone asked you to empty the trashcan in the kitchen, you would know there's no need to turn on the oven or open the refrigerator. You'd go right to the trashcan.

Robots, however, lack that intuition. Most approaches to planning consider the entire set of possible objects and actions before deciding which course to pursue. In other words, a robot might actually consider turning on the oven as part of its planning process for taking out the trash. In complex environments, this leads to what computer scientists refer to as the "state-space explosion" -- an array of choices so large that it boggles the robot mind.

"It's a really tough problem," said Stefanie Tellex, Assistant Professor of Computer Science at Brown. "We want robots that have capabilities to do all kinds of different things, but then the space of possible actions becomes enormous. We don't want to limit the robot's capabilities, so we have to find ways to shrink the search space."

The algorithm that Tellex and her students are developing does just that. David Abel, a graduate student in Tellex's lab, led the work and will present it at the International Conference on Automated Planning and Scheduling.

Discovering the likely path

The algorithm augments standard robot planning algorithms using "goal-based action priors" -- sets of objects and actions in a given space that are most likely to help an agent achieve a given goal. The priors for a given task can be supplied by an expert operator, but they can also be learned by the algorithm itself through trial and error.

The game Minecraft, as it turns out, provided an ideal world to test how well the algorithm learned action priors and implemented them in the planning process. For the uninitiated, Minecraft is an open-ended game, where players gather resources and build all manner of structures by destroying or stacking 3-D blocks in a virtual world. At over 100 million registered users, it's among the most popular video games of all time.

"Minecraft is a really good a model of a lot of these robot problems," Tellex said. "There's a huge space of possible actions somebody playing this

game can do, and it's really cheap and easy to collect a ton of training data. It's much harder to do that in the real world."

Tellex and her colleagues started by constructing small domains, each just a few blocks square, in a model of Minecraft that the researchers developed. Then they plunked a character into the domain and gave it a task to solve -- perhaps mining some buried gold or building a bridge to cross a chasm. The agent, powered by the algorithm, then had to try different options in order to learn the task's goal-based priors -- the best actions to get the job done.

"It's able to learn that if you're standing next to a trench and you're trying to walk across, you can place blocks in the trench. Otherwise don't place blocks", Tellex said. "If you're trying to mine some gold under some blocks, destroy the blocks. Otherwise don't destroy blocks."

After the algorithm ran through a number of trials of a given task to learn the appropriate priors, the researchers moved to a new domain that it had never seen before to see if it could apply what it learned. Indeed, the researchers showed that, armed with priors, their Minecraft agents could solve problems in unfamiliar domains much faster than agents powered by standard planning algorithms.

Having honed the algorithm in virtual worlds, the researchers then tried it out in a real robot. They used the algorithm to have a robot help a person in the task of baking brownies. The algorithm was supplied with several action priors for the task. For example, one action prior let the robot know that eggs often need to be beaten with a whisk. So when a carton of

eggs appears in the robot's workspace, it is able to anticipate the cook's need for a whisk and hand him one.

In light of the results, Tellex says she sees goal-based action priors as a viable strategy to help robots cope with the complexities of unstructured environments -- something that will be important as robots continue to move out of controlled settings and into our homes.

The work also shows the potential of virtual spaces like Minecraft in developing solutions for real-world robots and other artificial agents. The team hopes other researchers can use it to solve new problems, or that regular Minecraft players might find it useful.

In the real game, the researchers hope to use their algorithm to perform tasks in larger and larger Minecraft domains -- and ultimately perhaps all of Minecraft. That would be a huge leap for Artificial Intelligence.

"The whole of Minecraft is what we refer to as 'A.I. complete,'" Tellex said. "If you can do all of Minecraft you could solve anything. That's pretty far off, but there is lots of interesting research objectives along the way."

Summary:

Researchers are developing a new algorithm to help robots better plan their actions in complex environments. It's designed to help robots be more useful in the real world, but it's being developed with the help of a virtual world – that of the video game Minecraft.

WHY THE WI-FI OF THINGS IS THE CONNECTED FUTURE?

S. VENKATESAN

II B.Sc (CS) "B"

When IBM PC launched in 1981, few businesses considered the PC a must-have for their employees. Yet in less than a decade, a PC was as fundamental to the workplace as pencils and paperclips.

But at the same time that desktop PCs became a staple of the modern office, laptops were still a luxury. Fast-forward a decade: Laptops are outselling desktop PCs and no serious mobile worker can be without one. The first iPhone shipped in 2007 and the iPad in 2010. Within a couple of years both had wedged their ways into corporate budgets. Yet despite the millions upon millions of PCs, Laptops, Smartphones and Tablets that have shipped in the three and a half decades since that first IBM PC, they only scratch the proverbial surface of the building tsunami of intelligent devices that already outnumber the 7 billion people occupying this planet. Yet all

of these devices are mere piles of junk – scraps of silicon, plastic and metal – if they cannot connect.

Why the Internet of Things is more than just a Smart Fridge?

As for the Internet of Things, Gartner recently estimated that by the end of 2015 there will be 4.9 billion connected 'things' in use, and this will grow to a staggering 25 billion by 2020. The market potential for device manufacturers working in the space is huge too, with IDC predicting that by 2020 the global IoT market will be worth $1.7 trillion.

The notion of the internet connecting people and devices like never before is undoubtedly an exciting one. For instance, your car could book its own service or your home might run on auto pilot. Billions of man hours will be accounted for by self-aware products, which will see a transformation of work, play and society. While a lot of the hype around IoT remains star-gazing, the reality of the connected future is much nearer than you think, thanks to the continued global growth of Wi-Fi.

Wi-Fi everywhere

Wi-Fi connectivity is being included in a vast array of devices. A report from Strategy Analytics expects the number of Wi-Fi-enabled devices to grow to more than 7 billion by 2017. Interestingly, the report highlighted that Wi-Fi capability is now embedded in 68% of all consumer devices sold in the US and 57% of all consumer devices worldwide. In many cases, wired connectivity is on its way out - with many new laptops excluding Ethernet ports from their features.

The growth of Wi-Fi isn't just restricted to hardware; it remains users' preferred connectivity option when using popular applications, such as

Skype, Netflix or Facebook. For many people, cost and connectivity concerns remain when it comes to using 3G/4G services, so a 'Wi-Fi first' attitude is the norm.

This demand for Wi-Fi shows no sign of slowing down. Research commissioned by iPass last year estimated that by 2018 there will be over 340 million public Wi-Fi hotspots globally. However, when it comes maximizing the potential of global Wi-Fi in the context of IoT and beyond, there is still work to be done.

An Unlimited and Frictionless Future

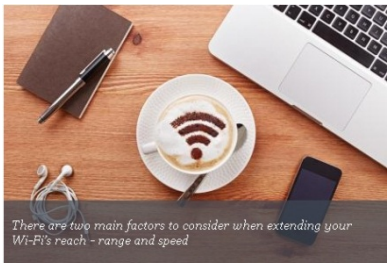
From a technical standpoint, Wi-Fi is the clear connectivity choice when it comes to IoT. Ethernet and other wired solutions are ungainly and impractical. Cellular connectivity is pointless for stationary devices and remains too power-hungry for wearables - it's no surprise that Wi-Fi connectivity is a key component of the Apple Watch. Bluetooth remains too inconsistent and short-range, while proprietary solutions are both costly to device manufacturers and limit the true potential of IoT.

Ubiquitous, secure and hassle-free Wi-Fi connectivity is the future. Unlimited Wi-Fi will be provided as standard with both hardware and software products, with people using it in the same way they use 3G/4G today.

For IoT to truly take off and reach its potential, users should not need to worry about Wi-Fi data or device limits. Ultimately, any IoT device is only as good as the connectivity supporting it. There are millions of Wi-Fi hotspots globally, yet currently it isn't the simple, hands-off and invisible experience users should expect.

It is all well and good having a smart internet-enabled home central heating system that can be controlled via a mobile device while you're on holiday. But if the hassle of getting on Wi-Fi means you end up having to call your next door neighbor so that they can go round to change the room temperature, then clearly the IoT dream is somewhat different from the reality.

Making the Internet of Things a Business Reality



For this reason, it is easy to envisage IoT device manufacturers wanting to offer unlimited and frictionless Wi-Fi services as standard - the customer experience depends on it.

IoT is all about simplicity and efficiency. It is now up to the entire Wi-Fi ecosystem (device manufacturers, network providers, technology platform players, etc.) to work together to ensure that Wi-Fi of Things can deliver on its IoT promise.

Just as it took a few years for devices from PCs to smartphones to become 'standard issue', there will be a time in the near future when it will be unthinkable for a business not to cover the costs of connecting these devices.

Top Wi-Fi Router hacks for boosting your Broadband

There are a few things to consider when looking boosting the strength and reach of your Wi-Fi connection

It is without doubt one of life's most frequent annoyances, whether it happens while gaming online or browsing the web, when a webpage doesn't load or the buffering symbol interrupts a film. A poor Wi-Fi

connection has affected us all and as more and more Wi-Fi routers appear, it is gradually getting worse.

The strength of a Wi-Fi connection can be influenced by a number of internal and external causes, from a cat sat on top of the router, to it being placed in a cupboard (the router, not the cat). Although myths and old wives tales have been shared over the years, many of the older solutions are still relevant today.

The Basics

When deciding where to place your router, there are a few things you need to consider. Ensure its placed in plain view, not hidden under a bed, in a cupboard or in a box, as this can drastically weaken the signal. The worst place you could hide it is behind a fish tank as water absorbs Wi-Fi signals very well.

If you are put off by the often bright lights on a router, place tape over them, rather than opting to hide them away. Some newer routers allow you to turn off or at least turn down the LED brightness.

Secondly, if possible, place your router in a central location in your house and above head height is usually the best bet. This ensures the signal strength is equally distributed, providing all corners of the house with a good level of signal.

There is the issue of walls and other obstacles, as you can't always place your router in view. A mid-price range router will have no problem working through one insulated wall and a thick door, as is common place in most modern houses, but trying to pass through two or three walls means you will encounter problems.

There are certain conditions in which the performance of a router can diminish. It's advised you don't place them in areas with prolonged exposure to direct sunlight, such as window sills, as the rise in temperature can shorten the life of components in your device.

It's also worth noting Electromagnetic Interference (EMI) given off from products, such as microwaves and baby monitors, should be avoided as they disrupt the signal given off from your router.

When video streaming, it's worth connecting your device using an Ethernet cable as this will improve your connection reliability. Relying on a wireless signal to stream and download leaves you susceptible to 'buffer-face.'

Shop Around

As consumers, we are often looking for the cheapest option to save extra pennies wherever possible. However, like many purchases, your Wi-Fi router is one product you should not to skimp on. Unrecognizable brands should be avoided and may be prone to fail over a short period of time.

Be wary of older models from the big brands as they will not be designed with today's superfast broadband connections in mind and may struggle to pass the data through, even if the wireless signal is good. There are some great and relatively cheap devices so a few minutes reading user reviews will help show if a device does what it says on the tin.

If you have owned your wireless router for a couple of years, it's likely it doesn't support the latest wireless standards which the latest phones and tablets do. You may find upgrading to an 802.11a or 802.11ac

device (often called a dual-band access point or router) may improve wireless speeds considerably. Although faster, the newer standard doesn't tend to reach so far due to the higher frequencies used.

If using a router supplied by your broadband provider, check whether a new version is available that has better Wi-Fi. Sometimes you can get a router from your provider for a lower price than in the shops. Just ensure there are no hidden terms and conditions or additional fees, such as a longer contract if the new router is free.

Extending your Wi-Fi

Extending Wi-Fi to areas such as your garden or conservatory can be difficult. As the weather improves and the days get longer, the desire to move outside is always high on the agenda. There are two main factors to consider when extending your Wi-Fi's reach - range and speed.

There is the option of purchasing a range extender or wireless repeater and these devices should be placed at the edge of a good level of coverage. You should never place them at the edge of reception as they need to see a good signal to rebroadcast it.

The signal will be picked up and redistributed, allowing devices that would otherwise be out of range to gain a strong level of coverage. However, this option can significantly reduce network speeds for those connected to the repeater, generally halving the speed seen. Fairly low bandwidth use like streaming music via Spotify or other cloud services should be fine with a repeater.

If this is the option you take, it may be worth purchasing the same brand of extender as your router, as manufacturers usually ensure their

products work best together. Compatibility has improved in the last few years, so if you're not sure, check you can return the device.

Another option is to add a wireless access point (WAP). These require you to run an Ethernet cable from your main router to the access point. You can place the access point in the ideal location to cover an area, and this is how airports ensure their free Wi-Fi covers a whole terminal. If you decide to purchase an access point, make sure the device has a dedicated access point and that it has an access point mode if it is a full router.

Most new routers will come with external omni-direction antennas which are used to distribute the signal evenly in all directions. Just moving the wireless antenna can make a big difference in reception, but be wary - you may fix one slow area but create another. Some routers can be fitted with higher gain antenna, but given the cost of decent antenna it's often better to invest in an access point to improve coverage.

SIX PREDICTIONS FOR CLOUD SECURITY IN 2015

R. RAJESH KUMAR

II B.Sc (CS) "B"

As cloud continues to grow in adoption across the enterprise, security will need to evolve with it. With 2015 underway, there's a lot of

discussion around the rapid evolution of cloud services from providers like Amazon Web Services (AWS), Microsoft, Google, IBM, and many others.

What's surprising is that we have not seen the same rapid evolution in the enabling technology sectors supporting these platforms – most notably in security. However, 2015 will be a landmark year as security companies fully embrace cloud-centric security strategies enabling more IT organizations to adopt, innovate and better manage the risks confronting their cloud-based infrastructure. Here are six predictions for cloud security in 2015.

1. **Security technologies will stop being Server-centric and become Service-centric**

For decades, organizations have become used to the network or the server as the battleground where security wars were waged. This made a lot of sense, as the server was the building block that directly stored critical data, and was relatively static in configuration and persistent in presence. The cloud has really disrupted this "server-centric" concept, creating a world in which servers are disposable containers that are not intended for the legacy functions.

Instead, a new breed of services have surfaced to fill those roles formerly held by the physical server (i.e. file storing, processing, functioning a database, etc.). What used to be an operating-system function is now an API call to a service that has been abstracted away from the user. The new challenge for security teams is engaging a whole breed of services that are not accessible using the traditional approach (i.e. can't install

software agents, don't have administrative OS access, or similar challenges).

Security has to shift to accommodate the proliferation of API-driven services in this abstracted cloud model, and leverage those APIs to perform security functions in the same way that developers leverage them to perform compute, storage and database operations.

2. **Security controls will migrate closer to the object they protect**

Security controls in the data center often existed in wide-berthed perimeters. Firewalls encircled a broad set of network segments, server farms and storage tiers. Identity frameworks, access policies and network controls dealt with zones as their smallest component, often comprising whole subnets, data centers or even entire organizations. This was primarily because high costs and complexity of these security mechanisms prohibited granular deployments, and often, technological barriers impeded finer-grained controls.

The cloud redefined the limitation of these traditional environments by building in the micro-parameterization of security as a fundamental characteristic. In the cloud, every resource has its own set of security controls: virtual servers have their own dedicated firewall, role access policy, network access rights and more. Files stored in storage services can contain flexible and simple access policies and encryption mechanisms. Users can have powerful identity policies control and dictate their cloud capabilities.

These micro perimeters scope security to the resource level, permitting many resources to co-tenant in the cloud without the fear that

wide-sweeping security assumptions will create undesirable risk or danger for the organization. We'll see controls continue to migrate down to the resource level, enabling more flexibility and control than we've ever had in legacy data center environments.

3. **The incumbent players have to revitalize their portfolios**

The security incumbents - McAfee, Symantec, CA and similar behemoths - will have to innovate, acquire or partner to refresh their portfolios to be "cloud ready". The industry practice of re-packaging legacy technology and re-marketing it to fit the latest trend is not working with the unique challenges and opportunities provided by cloud environments. This is a do-or-die moment for big security incumbent players that could drastically impact the future revenue of these organizations.

4. **Security professionals will become key players in DevOps Teams**

During much of the rapid shift to cloud adoption, information security professionals have, unfortunately, been sitting the bench. The fundamental challenge has been the lack of time, resources and tooling to provide necessary security transparency and velocity to support high-velocity DevOps organizations. We saw a lot of progress in 2014 around bridging the gap, and we think 2015 is the year that companies reorganize their DevOps and Security practices to be much closer together – also known as the DevSecOps movement. In 2015, security becomes an enabling and differentiating capability for the organizations that adopt it and the bane of their competition who do not. Keep an eye on the DevSecOps movement.

5. **CSPs will provide fundamental components of security with partner ecosystems creating additional value**

Cloud Service Providers (CSPs) deliver utility-like technology, without diving into the complexities of extreme specificity. The big CSPs will deliver more fundamental building blocks of security. Rather than build very specific security solutions to solve each customer vertical's needs, CSPs like AWS will lean heavily on security partners to deliver incremental value on top of the toolkit provided by the platform. This type of partnership ultimately makes customers more secure than they were in their data center environment.

6. **Continuous Cloud Security monitoring and mitigation will be a must-have for CISOs**

Continuous monitoring and mitigation are critical capabilities for organizations as cyber-attacks are becoming increasingly sophisticated, automated, targeted and destructive. Organizations must move to automated defenses and mitigations. Otherwise, they'll continue to be a statistic like those seen in the Verizon DBIR, where attacks achieve their objectives in hours, but defenses fail to detect it for months. CISOs are getting much smarter about their defensive strategies. By equipping security pros with automated tooling that provides transparency, enforcement and even active mitigation, organizations can maintain parity with the present-day attacker capabilities.

3D MAGNETIC RECORDING

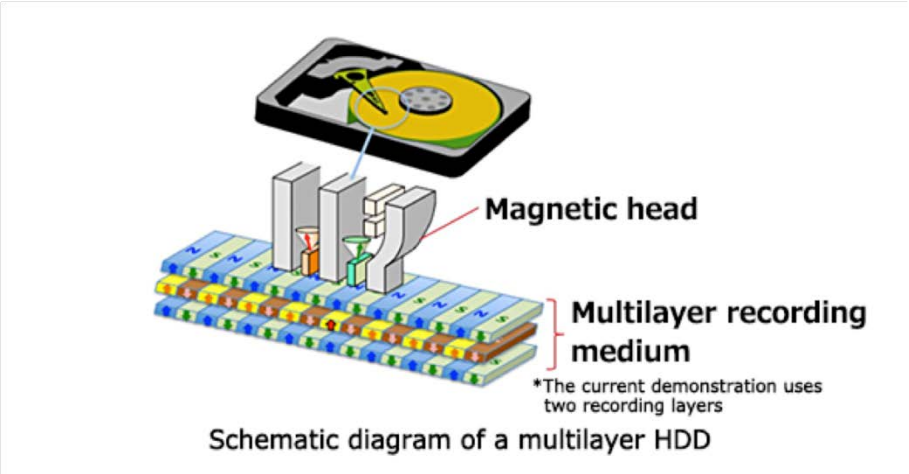
Mr. P.MATHESWARAN

SYSTEM ADMINISTRATOR

Toshiba Verifies '3D Magnetic Recording' to Increase HDD Recording Density

Toshiba Corp verified the efficacy of "3D magnetic recording," which increases the storage capacity of a Hard Disk Drive (HDD) by using microwaves and a multilayer recording medium.

By using a microwave magnetic field, the orientation of the magnetization of a multilayer magnetic body was inverted for selected layers.

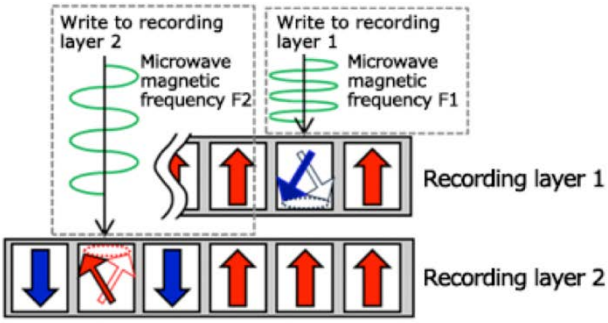


Schematic diagram of a multilayer HDD

With this 3D magnetic recording, Toshiba aims to realize a recording density of 10 Tbits/inch^2, which is about ten times higher than that of

existing HDD products (about 1 Tbit/inch^2). The company plans to apply the technology not only to HDDs but to magnetic memories and tapes.

Recording media (hard disks) are made by stacking magnetic layers having different "ferromagnetic resonance frequencies." When a microwave magnetic field with a frequency corresponding to the ferromagnetic resonance frequency is applied to a multilayer recording medium, it becomes possible to excite "magnetization oscillation" in a specific magnetic layer and reduce the amount of energy that the layer needs for "magnetization inversion" (microwave assist effect).



Schematic diagram of the newly demonstrated multilayer recording method: Multilayering using layers with differing ferromagnetic resonance frequencies

The microwave assist effect enables magnetization inversion with a selected recording layer for recording data. According to Toshiba, though the technology was confirmed in a simulation in the past, this is the first time that it has been verified. This time, the number of recording layers was two.

Toshiba plans to advance the development of "spin torque oscillation device," which enables to locally apply a microwave magnetic field, and develop a magnetic head on which the device can be mounted. In addition, the company will develop a recording medium suited for multilayer

recording. With such efforts, it aims to realize 3D magnetic recording by about 2025.

10 MOST ASKED QUESTIONS ABOUT LINUX

R.M. BALAJI

II B.Sc (CS) – "C"

You have probably heard of Linux as the free alternative to Windows and OS X. It's one of the most popular free PC operating systems out there and chances are you are already using it without realizing. Did you know that yourAndroid phone is powered by Linux? It is an incredibly versatile piece of codethat can fit the needs of almost any user.

If you are looking for something different to try on the desktop besides Mac and Windows, you should really give Linux a try. Not only is it free, it is extremely customizable. Similar to Android on the smartphone, you can customize Linux to your heart's content. But let's not get ahead of ourselves. In order to get into Linux, there are probably a few things you should know first before diving in. This article covers what you should know about a Linux operating system on the desktop.

1. What is Linux?

When someone mentions Linux, it's always in conjunction with another name, e.g. Fedora Linux, Ubuntu Linux, Android powered by Linux; the list goes on and on. What exactly is Linux anyway?

'Linux' refers to the Linux kernel, which is aprogram that interfaces between the application software and the hardware of a computer. What they all have in common is that they all use the same kernel as the interface between software and hardware. In cases where the computer is referred to as 'running Linux', it is running an OS with Linux as the kernel.

Some of you may encounter some people insisting that it be called GNU/Linux. This refers to the fact that most of the operating systems that uses Linux gets a large portion of their code from the GNU Project, without which, the Linux kernel itself cannot function. Calling it GNU/Linux is a way to give credit where credit is due. For the sake of simplicity, we will refer all operating systems using the Linux kernel as Linux.

2. Why is it free?

Most people know Linux as the free operating system, free here meaning free of charge. That's right, free of charge, but it also refers to free speech. What this means is that the source code for Linux is available for everyone to view, study and modify, along with sharing their changes with anyone who would like a copy.

Compare this to Windows and OS X which, while still popular, are closed source, cannot be studied and cannot be distributed freely. This open nature is one of the main reasons that Linux derived operating systems have been successful, with many people and companies creating their own derivative versions of Linux.

3. What is a Distro?

A 'Distro' refers to a distribution of the Linux Operating System, where a person, group or company builds upon Linux and releases it

under their name. Examples of popular Linux Distros include Ubuntu, Fedora, OpenSUSE, among others. While all of them use the Linux kernel, they are all different with what software they include. From the default software to even the user interface and experience, no two Distros are alike.

- **via Linux Mint Tumblr Page**

Each Distro brings something different to the table, offering up specific features for specific user sets. However, for a beginner, it is best to start simple, with a Distro that offers a simple user experience for people that are new to Linux. The most recommended Linux Distro for beginners would be Ubuntu Linux, as it is relatively easy to set up and use and has a lot of support.

4. Will My Hardware Support It?

It used to be that hardware support for Linux was spotty at best, with many components and peripherals not working properly or not working at all. Fortunately, most of that is in the past with the majority of Linux Distros being able to run on modern hardware with little to no problem. So chances are your hardware will be able to run it.

- **via Tom's Hardware**

While the Linux community has done an amazing job in making sure that the OS will be able to use your hardware, it may still not run. You will have to shoot down for a troubleshooting guide or hope that the manufacturer has provided a proprietary Linux driver for the hardware.

5. Can I try before I Install it?

The great thing about most Linux Distros is that you are able to try them before installing what you like on your computer. Linux providers

provide you with an easy way to try out the OS by way of a Live CD. Download an ISO, burn it, and from there you can boot from the disc so that you can try out a Distro before committing to it.

- **via NotebookNotes.com**

If you decided not to install Linux but the idea of carrying a spare OS around with you sounds useful (and really there are many cases where you might want one), you can create a Live USB. Just like a Live CD, a Live USB is a bootable USB drive that can boot Linux on most computers. This way you can have the Linux experience without installing over your computer's OS.

6. What Is A Desktop Environment?

As you may have noticed when looking over all the various Distros, not all Linux Operating Systems have the same look. This is because they are using different desktops environments such as GNOME, KDE, Unity, etc. This is similar to Aero for Windows 7 or Aqua for OS X; they govern the overall 'look and feel' of the operating system and the way you use them, having different features and ways of getting things done.

- **via Wikipedia**

The most popular of the desktop environments and the ones that most Distros ship with are GNOME and KDE. As with everything about Linux, if you don't like something, you have the freedom to change it. If your chosen Distro comes pre-installed with an environment that doesn't suit your taste, you can install your own preferred one instead.

7. Can I Run My Old Windows/Mac Apps?

There is currently no way of running any of your Mac apps on Linux but there is a way to run some of your Windows apps. This is done through the use of a program called Wine, which will allow you to run some of your Windows programs on Linux at native or near-native speed. Not all of your apps will run though, and even when they do, you may encounter some incompatibilities, such as graphical glitches or features that are not working.

- **via Invasao**

Wine is free to download and install but new users may find it difficult to use. In which case there is third party tools that make using Wine much easier to use and are preconfigured to make running certain Windows software much smoother on Linux, a prime example being CrossOver Linux.

8. How Do I Get Apps?

Now that you have a fresh install of Linux, naturally you will want to look at the apps it has to offer. Installing apps on Linux is a different experience compared to Windows or Mac. Unlike the two, where you have to hunt down an EXE or DMG, on Linux you will have to search through your Distro's repository to find what you are looking for.

- **via Wikipedia**

Most of the Distros make it easy by having a GUI for you to navigate; Ubuntu easier still by creating their own app store. Sometimes you may not find what you are looking for in the repository, in which case all you have to do is add another repository that contains the item you seek. Updating is

also easier due to the repository system, as the OS can find and update all of your installed apps in one go, instead of one at a time.

9. How Do I Get Support?

Just like when you first started using Windows or OS X, you have a few things to learn when starting to use Linux. The good thing is that nowadays Linux is pretty simple to figure out in terms of how to install and use, as most Distros have focused on ease of use for the end user. If the majority of your computing task is relatively simple, i.e. web browsing, word processing, chances are Linux will pose no trouble at all.

- **via Ubuntu**

However, there may be times when you need a little help with your operating system. Never fear as Linux has a large fan base and community ready to help you on any issue that you may encounter. Most of the time, troubleshooting Linux will not be that hard, as many can be resolved by typing in something in a command line, of which the community will help you with step-by-step.

10. Can I Still Run My Old OS?

So you've installed Linux and while you feel it's a great OS, you find that there are some things that are just better on your previous one. Usually this pertains to games and other apps you cannot run on Linux or Wine. The good news is that you can still have the open goodness of Linux alongside your favorite OS. This is done by either using a virtual machine or dual booting.

- **via VirtualBox**

With virtual machines, you get the best of both worlds, running Linux and your default OS at the same time. You could either run Linux or your OS in a virtual machine, depending on which you use more, as this method can eat up your systems resources. On the other hand, you have dual booting, where you run one OS at a time but can switch between them with a reboot. Either method is great depending on what you need. You can switch to Linux without worrying about getting access to your favorite OS.

G.fast

Mr. S. VIGNESHWARAN

ASST. PROFESSOR IN COMPUTER APPLICATIONS

NEW TECHNOLOGY ARRIVAL IN 2017: New Fastest Modem with Super-Fast Broad Band Over Copper

Alcatel-Lucent and chipmaker Sckipio Technologies are debuting modem technology that will help make speeds of hundreds of megabit per second over copper cables a reality.

The technology that makes it possible is called G.fast. Step by step, chipmakers and equipment manufacturers are getting it ready for large-scale commercial services that are expected to arrive next year.

After getting the network equipment to work, vendors are increasingly focusing on the modems.

Alcatel-Lucent

Alcatel-Lucent 7368 ISAM residential gateway works with both VDSL2 and G.fast.

Alcatel-Lucent has launched the 7368 ISAM residential gateway, which uses G.fast and 802.11ac to offer speeds surpassing 750Mbps, the company said. The product has four Gigabit Ethernet ports and two USB 3.0 ports. It can also be used to deliver broadband over VDSL2. The thinking is that operators can offer VDSL2 today and then upgrade to G.fast.

Sckipio, meanwhile, has announced a new line of G.fast reference designs to support G.fast modems inside an SFP (small form-factor pluggable) module. This approach lets modem manufacturers develop products that aren't tied to one access technology, and also makes upgrades easier. Sckipio has also developed a reference design for an affordable modem.

Neither company offered any details on pricing and shipping.

The speed increase offered by G.fast is needed for applications such as streaming 4K video (and in the future, 8K video), IPTV, cloud-based storage, and HD video calls. At the International CES trade show in January, Sckipio demonstrated G.fast's ability to carry 4K TV.

Operators backing g. Fast include British Telecom, Telekom Austria and Swisscom.

Last month, Swisscom said it was testing G.fast data transmission under real conditions for the first time, offering speeds up to 500Mbps. The operator is planning to use G.fast for all its FTTS (fiber to the street) and FTTB (fiber to the home) connections from 2016. Because G.fast performs at its best over short distances, the technology will be used in combination with fiber.

Telekom Austria also expects to launch commercial services next year. BT is a bit more cautious and has stated its first services will come next year or in 2017.

OPEN SOURCE BUG TRACKING SYSTEMS

Mr. P. KULANDAIVEL

ASST. PROFESSOR IN COMPUTER SCIENCE

1. Mantis Bug Tracker

Mantis Bug Tracker is an open source web-based Bug Tracking System. It is written in PHP and works with multiple databases like MS SQL, MySQL, and PostgreSQL.

Mantis has multiple items & dived into multi-level hierarchy as follows:

Projects -> Sub Projects -> Categories -> Bugs

Based on user access & permission rights user can contribute to each item. Mantis is powerful tool integrated with few applications like time tracking, chat, wiki, RSS feeds & many more.

Features:

1. Open source tool (GPL License)
2. Supports any platform that runs PHP (Windows, Linux, Mac, Solaris, AS400/i5, etc)
3. Customizable Issue Pages
4. Users can have a different access level per project
5. Support for Projects, Sub-Projects, and Categories
6. Supports comprehensive Email notifications
7. Search and Filter – Simple/Advanced Filters, Full Text Search, Shared Filters (across users / projects)
8. Supported Reporting with reports and graphs
9. Multiple Projects per instance
10. Supports Custom Fields
11. Allow to Customize issue workflow
12. Allow to watch the Issue Change History
13. My View Page
14. Source Control Integration
15. Unlimited number of users, issues, or projects.
16. Setup the Anonymous Access

17.Supports Time Tracking management

18.Available in 68 localizations.

19.Changelog Support

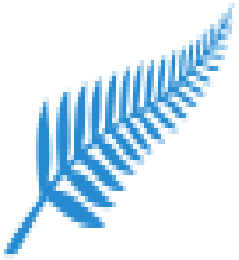
20.Simple User Experience

21.Easy to evaluate

22.Allow to see Roadmaps

23.Easy to install (both internally and in hosted environments).

2. eTraxis:



eTraxis is an open source bug tracking software developing simple, powerful and intuitive software for web-based project management. This system is developed in a PHP language. It supports multi-database like MySQL, PostgreSQL, MS Server and Oracle. This software is supporting the multiple languages. eTraxis gives you a flexible system for managing projects involving multiple organizations by providing a central place for all project activity and information while integrating with users' existing tools and workflow – all completely FREE.

This defect tracking system allows you to create unlimited projects with unlimited number of users. User can add issues in this system & easily see the bugs assigned to them. User can create n-number of workflows & able to customize as per there need.

eTraxis is more powerful tool & can be use multipurpose system as a bugtracker, a helpdesk, and even a CRM system.

Features:

1. Flexible permissions
2. Customizable workflows
3. Complete history
4. Powerful Filtering on issues
5. Commenting on issues
6. Supports attachments in reported issue
7. Comprehensive Email notifications

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BILL GATES

William Henry Bill Gates bour (October 28,1955) is an American business magnate.

FOUNDER OF "Microsoft".