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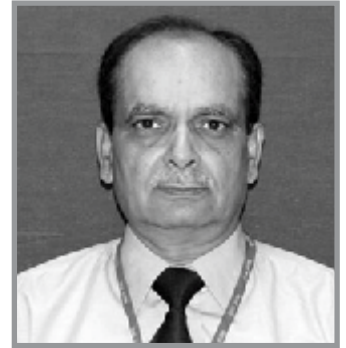
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Editor-in-Chief's Message

GREETINGS! It gives me a great pleasure to launch this new Journal, "IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH". Technology can play a very distinct role to meet the necessities of life. One of the key objectives of research should be its usability and application. This journal attempts to inculcate the Technology Sectors which could range from education, energy, environment, health care, transport, shelter, manufacturing and service areas. The key focus would however be the emerging sectors and research which discusses application and usability in societal or user context whether individual or industrial.



The application of technology is a key theme in every paper which is published in this journal. The intent of this journal is to showcase technologies which could bring about a fundamental change in achieving researchers impact.

The first issue has been very carefully put together covering a range of computer Application Technologies in the domain of Digital India, Human Computer Interface, Wireless Technologies, IT services. The contributions have come in not only from IPEM academics but also from very renowned institutions.

As the Chief Editor of "IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH" I would like to take opportunity to express my sincere gratitude to the authors who have chosen this Journal to disseminate their research work. I would like also to thank you the readers, printer, the content providers, who have made this Journal the best possible.

A great Journal cannot be made great without a dedicated Editorial team of Editors and reviewers. I would also like to thank the Editorial Team members, Review Committee members, Executive Director and Director General of IPEM for the success of this Journal.

We look forward to make this Endeavour very meaningful and ensure to receive contributions for the next issue from Academicians, Scholars and Professionals to ensure consistency and the success of Journal.

I am happy to wish that this Journal would experience steady and healthy growth.

We welcome comments and suggestions that would further enrich this Journal.

Dr. R.P.S. Tomar
Editor-in-Chief

From the Editorial Board

We are glad to present the first Edition of the Computer and IT Department Journal "IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH" December 2017. Publishing a research Journal is a tough task. However, we braved all the odds, and published this issue as always, on time. We followed a rigorous method to select the papers. All the papers we have included in this issue of IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH are peer reviewed and only those papers which went through this rigor have been given space in this Journal.

This journal attempts to document and spark a debate on the research focused on technology in context of emerging technologies. The areas could range from Data Mining, Cloud Computing, Adhoc Network, Wireless Network, Innovation in Smart Cards, Technologies involved in Digital India etc. These technologies could be very sophisticated to very elementary but in terms of impact they would be capable of being commercialized, scaled up and focus on real life challenges.

We sincerely hope that these in-depth research papers, focusing on different issues, will further stimulate the academic research, and will help in developing an insight in the concerned areas. We are eagerly waiting for your critical response which we shall incorporate in the forthcoming issues. We are greatly indebted to the paper writers who took keen interest and submitted their research papers on time. It is because of the sincere efforts of these people that the IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH is in your hand today.

We are grateful to our Secretary Mr. Anupam Goel who provided all the moral and financial support to publish the IPEM JOURNAL OF COMPUTER APPLICATION & RESEARCH.

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Analysis on Color Models of Images and Processing Algorithms

Lalit Kumar Tripathi*
Ranjit Kumar**

ABSTRACT

The objective of this paper is to experiment on various color models of color images and to apply several image processing algorithms on these models. This paper is based on processes like color model conversions, smoothing, enhancement and green screen techniques. For the requirement of the applications various color models were used in this paper and appropriate image processing steps were applied into appropriate models.

Keyword: Color models, Processing Algorithms

INTRODUCTION

Color images, their different models and processing of coloration snapshots are the important things of this project. Here, various color models were invoked in details which will give a clear explanation of the importance of colors. Conversion between the color models were performed. Image processing techniques like color image smoothing, color image enhancement and green screen techniques were also explained with proper implementation in this project. This report will portray the Background, Methods, end product and Outcome of the undertaking in an organized way.

BACKGROUND

The use of coloration in picture processing is inspired by means of most important elements. First, To start with, shading is an effective descriptor that frequently improves question recognizable proof and extraction from a scene. Second, people can observe a great many shading shades and powers, contrasted with about just two dozen shades of dim. The motive of a colour model is to facilitate the specification of colors in a few trendy, typically universal manner.

In phrases of digital image processing, the hardware- orientated fashions most normally utilized in exercise are the RGB (red, inexperienced, blue) models for colour video display units and a large class of coloration video cameras; the CMY (cyan, magenta, yellow) and CMYK (cyan, magenta, yellow, black) models for color printing; and the HSI (hue, saturation and intensity) model, which corresponds closely with the way humans describe and interpret color. Methods. In this paper, 8 problems are solved as required.

Problem 1: A 256 x 256 size test image was created. First, an empty test image of zeros was created by using MATLAB command `zeros(256,256,3)`. Second, three 256 x 256 size matrices R, G and B were populated with the values required for the image. Third, the `(:,:i)` planes of test image were replaced by R, G and B matrices where $i = 1$ for R, $i = 2$ for G and $i = 3$ for B.

Problem 2: In a single figure, the test image created previously was plotted along with the gray scale plots of R, G and B matrices. This is the plot of the image and its RGB planes.

Problem 3: A 256 x 256 test image was created having red, green and blue squares (each

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side of square was 32 pixels) in the Bayer pattern mosaic. First, R plane was constructed looping through 32 to 255 in both x and y direction and making consecutive white and black squares. Second, B plane was constructed by index shifting of R plane. Third, G plane was created from (1 RB).

Then, all of the planes were combined to prepare the Bayer mosaic image.

Problem 4: The RGB model of Bayer mosaic was converted to HSI and YCbCr models using the conversion routines used in the previous steps.

Problem 5: In this part, a 99 size unweighted smoothing mask was used to different color models of the previously used Bayer Mosaic image. For the RGB model, all three planes were smoothed by the mask. For the HSI and YCbCr models only I and Y planes were smoothed respectively.

Problem 6 : In this part, a 512x512 size color test image 'lena' was used to show each element of RGB and HSI models in two different figures. Conversion equations used in part three were used here to convert from RGB to HSI model.



Figure 1: Test Image 'Lena'

Problem 7 : In this part, the test 'lena' image was modified by different steps to reduce too much "orange" look . Two elements of HSI model were modified here. Since, intensity I is the average of all 3 color planes of RGB model, histogram equalization were applied to I to distribute the color intensities from a smaller range to wide range. Since the color saturation of the image also seemed quite high, the

saturation S was also deducted by small amount to look more natural.

Problem 8 : In this part, green screen technique was used to produce a manipulated image. Two color images were used for this part. One was AFA, a 1312 X × 2000 photograph taken at the U.S. Air Force Academy Colorado) and the other image was F16, a 2000 potograph taken at the U.S. Air Force Academy (Colorado) and the other image was F16, a 466 x 720 photograph of an F-16C aircraft. The F16 image had the original background removed and substituted with a highly saturated green hue. The required task was to create a composite image, using green screen techniques, that makes it appear in the upper right area of the AFA image. This part was done in some steps. Step 1, the F16 image was resized to half of its original size by bilinear interpolation on each plane of RGB. It was done to put the F16 in the AFA image with adjustable ratio. Step 2, a middle of the road picture of size of AFA picture was built which had a similar green screen like the green foundation of F16 picture. Step 3, the resized F16 image was placed to the upper right corner of the intermediate image. Now the intermediate image gave the look of a larger inexperienced screen (having same size of AFA) with the F16-C in the higher proper corner. Step 4, where the green plane element of the intermediate image had same pixel value of the green background of the F16 , every element of RGB was replaced by the corresponding element of the AFA image. So, the intermediate image looked like the AFA image, having the F16-C in the upper right area.



Figure 2: Image of Airforce Academy

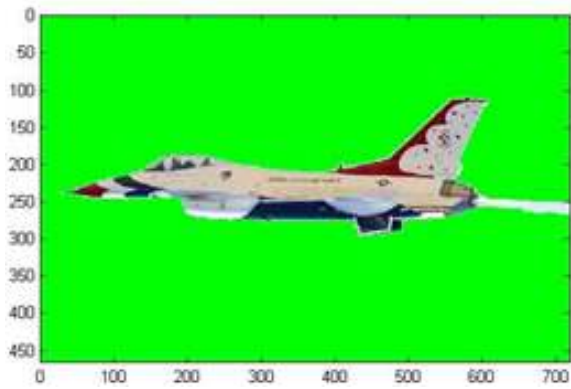


Figure 3: F16-C with green background

RESULTS

Problem 1: A test image was created in MATLAB of size 256 X 256 by combining the three separate color planes. 256 by combining the three separate color planes.

Problem 2: Original image and its RGB components were plotted in four sub plots of a 4 figure. Here upper left area of the test image is blue that's why R, G planes are black and B plane is white in that portion. Upper right of the image is white that's why all the planes are white in that region. In test image bottom left is black, so all the planes in that portion are black. Bottom right is yellow which is the complement color of blue. So in that region both R, G planes are white and B plane is black.

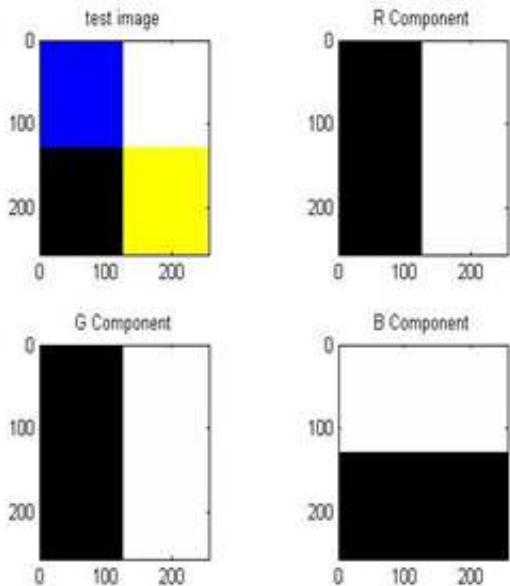


Figure 4: Original test image and its red, green and blue component

Problem3: In this part, one 256 256 test image named 'Bayer pattern mosaic' was constructed. The mosaic was made up of red, green and blue squares. The size of each square is $N/8 = 32$ pixels across and down.

Problem 4: The Bayer mosaic constructed was plotted into 3 different figures with the different elements of its RGB, HSI and YCbCr models respectively.

In any pixel position, this test image has just a single color of R, G and B. So the R, G and B components are white where the corresponding color is present and black where others than that color are present.

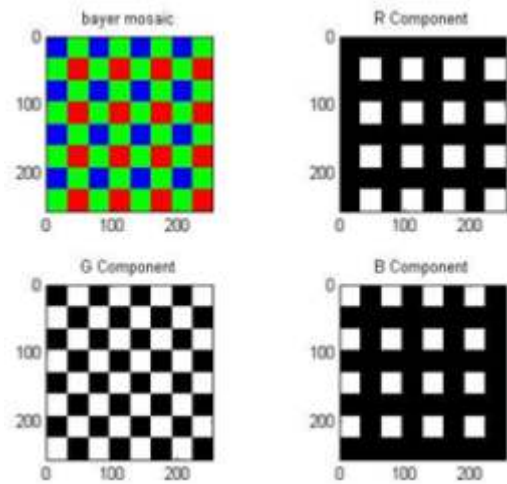


Figure 5: Bayer mosaic and RGB components

In HSI model, the H values are 0,120 and 240 for R, G and B respectively. Saturation S values are 1 for the whole image since every pixel position has a single pure color R or G or B. Depth I is 1/3 within the whole image for the presence of simplest one color in a particular position.

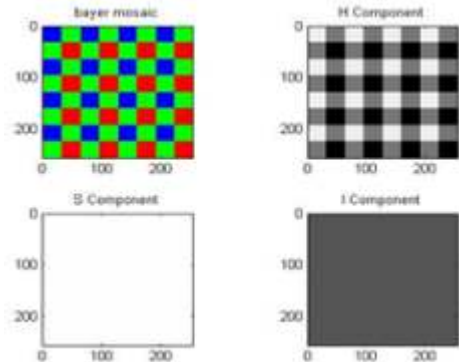


Figure 06: Bayer mosaic and HSI components

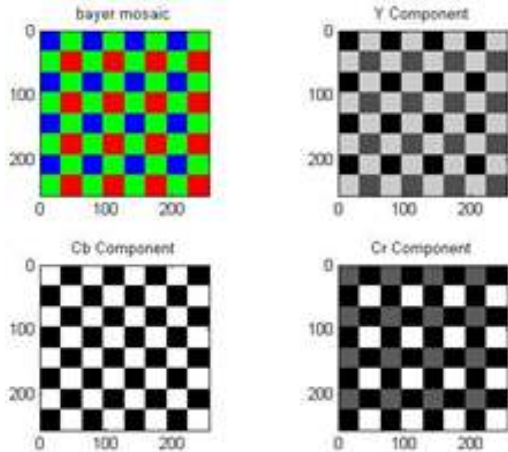


Figure 07: Bayer mosaic and YCbCr components

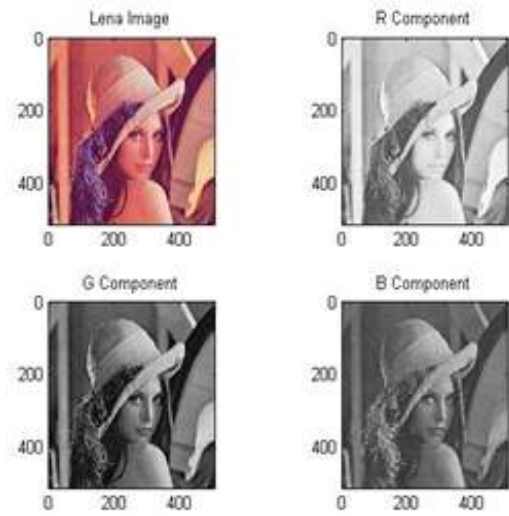


Figure 08: Lena image and R,G,B components
The R, G and B

Problem 5:

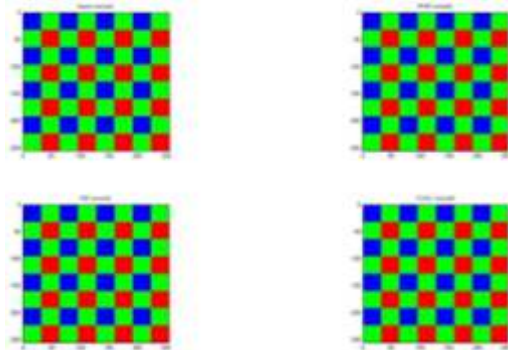


Figure 08: Results of Bayer mosaic image after smoothing in RGB, HSI and YCbCr plane
Smoothing in HSI model (smoothing just intensity I) gave best result.

Since I is the average of three element R, G and B, it is a linear process. So applying smoothing mask on HSI is also a linear process which gives almost same image like the original one. But smoothing on each plane of RGB plane or on YCbCr plane is not linear, hence both of these two give poor result after smoothing. Smoothing in RGB plane resulted in high color shifting phenomena.

Problem 6:

Figure 08: Lena image and R,G,B components
The R, G and B components computed and plotted in this part looks brighter than the ones of Fig 6.38 of the textbook 1. It seems in the book, the pixel values of R,G and B components were reduced by some offset values.



Figure 09: Lena image and H,S,I components

The H and I components computed in the project are brighter than that of Fig 6.39 of the textbook. The S component of the project is darker than that of textbook.

Problem 7:

In this part, Lena image was enhanced by histogram equalization of intensity I and some deduction in saturation S. As a result it turned into color image of distributed range and less saturation as well.



Figure 10: Lena image and its enhanced form

Problem 8: In this part, the image of a F16-C aircraft was placed into the upper right area of an image of airforce base using green screen technique.



Figure 11: Final image by green screen technique

CONCLUSIONS

This project introduced various problems related to image processing techniques of color images in a precise order. Chronologically, the project was

concentrated on color image generation, conversion between RGB, YCbCr and HSI models, checking of conversion routines, color image smoothing, enhancement and green screen technique. In a concise this project gave a good understanding about the color models of images and their processing algorithms. Some better performance could be performed in some aspects. In problem 8, other processing steps in addition with histogram equalization of intensity could turn in better enhanced image of 'Lena' test image. In problem 9, some edge correction steps could be implemented to make the manipulated image of green screen technique more realistic.

REFERENCES:

- [1] K.N. Plataniotis and A.N. Venetsanopoulos (2000) *Color Image Processing and Applications Engineering - Monograph (English)*.
- [2] Kamaljeet Kaur, Ms. Manpreet Kaur (2015) CASE STUDY OF COLOR MODEL OF IMAGE PROCESSING. Volume 6, Issue 12, Dec 2015, pp. 60-64, Article ID: IJCET_06_12_007
- [3] Rashad J. Rasras, Ibrahiem M. M. El Emary, Dmitriy E. Skopin (2007) *Developing a New Color Model for Image Analysis and Processing*. ComSIS Vol. 4, No. 1, June 2007.
- [4] *Image Data Formats and Color Representation*, A. C. Frery and T. Perciano, *Introduction to Image Processing Using R*, 21 SpringerBriefs in Computer Science, DOI: 10.1007/978-1-4471-4950-7_2, © Alejandro C. Frery 2013.
- [5] Monika Deswal, Neetu Sharma, A Fast HSV Image Color and Texture Detection and Image Conversion Algorithm, *International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064*. Volume 3 Issue 6, June 2014.
- [6] M.Tech student, 3rd Sem, Department of Computer Science & IT, University of Jammu, J & K, *Analysis on Image Color Model*, Vol. 4, Issue 12, December 2015.
- [7] Bhubneshwar Sharma* and Rupali Nayyer (2015), *Use and Analysis of Color Models in Image Processing*, *Food Processing & Technology*.

Utilization of Applets for Java Cards Innovation for Smart Cards

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Nancy Mendiratta**
Dr. Rohit Kumar***

ABSTRACT

Java Card innovation empowers keen cards and different gadgets with exceptionally constrained memory to run little applications, called applets, which utilize Java innovation with a safe and interoperable execution stage that can store and upgrade various applications on a solitary gadget. This quickened procedure decreases improvement costs, expands item separation, and upgrades quality to clients. In a way reciprocal to the Standard, Enterprise, and Mobile versions of the Java 2 Platform, Java Card innovation makes it simple to incorporate security tokens into a complete Java programming arrangement. A smart card runtime environment must give the best possible exchange backing to the solid redesign of information, particularly on multi application cards like the Java Card. The JAVA CARD exchange instrument permits to ensure delicate operations on keen cards against issues because of card tears or power misfortunes. Articulations inside an exchange are seen as a solitary nuclear operation so that possibly they are all performed or none of them is. We consider security issues that can be brought about by a card tear. A standout amongst the most difficult issues of Smart Card System, for example, Java Card is around a measure of inadequate memory. Also, a large portion of the implanted gadgets with Java VM support the post-issuance of new applications. These applications are normally put away in the memory, which is generally EEPROM..

Keywords: *Applet, Smart card, RMI, JVM, CAD, EEPROM*

INTRODUCTION

TBy and large, there are 256 byte code guidelines in Standard Java. Be that as it may, Java Card is actualized as a subset of the Standard Java for an impediment of a typical resource-compelled gadget. We find that guidelines of 186 to 253 are neither determined nor saved. These free directions can be changed into new guidelines for enhancing the execution of time and space.

Smart card backing is a segment of the IT framework in a developing number of parts [5]: keeping money, portable and non-versatile correspondences, ID/access, government, sight and sound, and so on. The majority of the applications require a high-level of unwavering quality. Java Card [6] is one of the primary advances in this fragment as it gives

significant parts: different applications, accommodation, and comparability with a conspicuous programming tongue development (Java).

The B strategy is a decent contender for such process. Taking into account the experience accumulated from the improvement of formal particular dialects, for example, VDM and Z, B is one of the premier formal techniques with a solid mechanical backing. Brilliant cards give the secured access to put away information. Data on the keen card is for the most part not accessible for an outside application until the point that it has approved itself to the card sufficiently. In the event that the correspondence just comprises of read gets to, the card can convey the asked for information without bargaining the security and uprightness of the put away

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information. In case the outside application makes or redesigns data on the card, mind must be taken that the reliability of the data is secured all through the correspondence. It is conceivable that all redesigns occur in the midst of the correspondence or the data on the card is come back to its fundamental state in case of an interfered with execution.

The terminal applications set up and control the correspondence with the shrewd card and generally likewise control the consistency of their information on the card totally. Current applications regularly hail their data on the card to strife with the essential make access in the midst of a movement of upgrades. After all updates, the terminal application finally records its data on the card to be solid yet again.. In the event that a terminal application is stood up to with a card in a conflicting state, its state might be reset by the terminal application itself, however all the more regularly should be satisfied under uncommon power inside a trusted domain. The dependence of the shrewd card consistency on outside applications can be recognized the length of the splendid card is used for two or three fundamental applications where any irregularity must be recorded and checked at a central site. Something else, a smart card ought not just have the capacity to confirm the entrance privileges of an outside application, yet ought to likewise give a more tightly control over the consistency of the inside put away information. Particularly, on multi application cards where every application on the card has admittance to its own particular information, applications should likewise have the capacity to control the respectability of their information. Along these lines the crucial structure must give a true blue trade framework which ensures the correct move between solid states of uses and offers its handiness to all applications living on the card.. The undertaking of the framework is then twofold. In the first place, the framework is required to guarantee that all redesigns of an application are performed molecularly; second, it must perform crash recuperation to give strength: the framework must recoup its state and the condition of the applications to a reliable state if a value-based calculation falls flat. Exchanges can be expected to start and end inside the correspondence with a terminal application, are along these lines brief and need not be part in different sub exchanges

regardless of the fact that various applications coordinate together. Regardless, the use of a trade framework is destroyed by the significantly obliged resources on a keen card.

With RAM restricts around 1 KByte and writable EEPROM confines around 16 KByte the trade execution must be meticulously picked. If there should arise an occurrence of the Java Card, the basic standard Java environment should first be stretched out to offer incorporated value-based calculations. The commonplace programming accommodation of Java ought to be held while the fundamental asset requests must be kept as negligible as could be allowed.

The JAVA CARD programming vernacular is a JAVA dialect uniquely fitted to the change of uses for shrewd cards, called applets. Its middle tongue is a strict subset of the JAVA protest orchestrated lingo with a plan of imprisonments as a result of the advantage obliged wise card condition: there are neither one of the floating point numbers, arrangement of characters, strings, nor multi-dimensional displays. In any case, because of the specific method for brilliant cards it contains some additional parts available through the structure API. Among them is an indicated trade segment.. It is legitimized by security issues concerning the likelihood of detaching a card from its per user at any minute amid a session. In such a case the consistency of delicate information, determinedly put away on the card, ought to be preserved.

JAVA CARD INTRODUCTION

Microsystems distribute the Java Card Platform Specification and the Java Card Development Kit, which incorporates a reference usage in view of the determination. Giving the premise to cross-stage and cross-seller applet interoperability, variant 2.2.2 of the determination incorporates three records:

The Java Card Virtual Machine Specification characterizes the elements, administrations, and conduct that an execution of the Java Card innovation must backing.

The Java Card Runtime Environment Specification portrays the basic direct of the runtime condition (RE) in any execution of the Java Card advancement.

Programming interface for the Java Card Platform supplements the Java Card Runtime Environment Specification, and portrays the application programming interface of the Java Card advancement.

The Java Card Development Kit is a suite of apparatuses for planning usage of the Java Card innovation, and for creating applets in light of the Java Card API Specification.

Table 1. Java Card Component size in Kilobytes

Virtual machine	4.0
Memory management subsystem (including transaction support)	4.0
Garbage collector for RAM and EEPROM	1.5
DES implementation (no hardware)	1.4
RSA/DSA implementation (PK coprocessor)	2.4
On-card RSA/DSA private-key generation	0.6
PK hash algorithm (SHA1)	0.6
T = 1 protocol	1.0
T = 0 protocol	0.5
T = CL (contactless) protocol	0.5
Java Card system classes (no crypto)	2.5
Java Card crypto classes (IBM proposal)	0.7
Java Card crypto classes (JC21)	5.0
OP implementation (mixed native/Java code)	8.0
Full- fledged Security Domain support	1.0
Applets required to be in ROM for VOID compliance	1.2

APPLET EXECUTION

The Java Card environment imparts the essential engineering to the standard Java environment. Be that as it may, because of the constrained assets on current keen cards the Java Card gives up various Java highlights.

The runtime environment starts the applet establishment by calling the introduce() technique for its class instantiating an applet protest and enrolling it at the runtime environment.

An outside application can start a session with the introduced applet by selecting it first at the runtime environment. The select order will be sent by the runtime to the applet's select () technique, every after summon will be sent to its procedure () strategy. The applet forms every charge and comes back from its conjuring with a reaction for the terminal application. In this manner the conjuring of the applet is occasion driven until the remote application completes the card session or chooses an alternate applet where the present applet is told by the summon of it's deselect () method

MEMORY MANAGEMENT

The applet occasion and related tireless objects of an application are set in the non unpredictable capacity on a card, generally EEPROM, gives comparative read and compose access as RAM does, yet with the vital contrast that the quantity of physical composes is restricted and keeps in touch with EPROM cells are ordinarily more than thirty times slower than keeps in touch with RAM. Execution of composes can be developed various present chips by beginning piece makes as opposed to various single EEPROM forms where solitary bytes are made in parallel to EEPROM.

Neither single byte nor square composes are ensured to succeed if there should arise an occurrence of sudden force misfortune, the compose operation can all of a sudden fall flat after a self-assertive number of bits have as of now been composed. Along these lines the runtime environment can just depend on the result of a solitary banner compose as the essential building hinder for exchanges. Both RAM and EEPROM size is to a great degree restricted on current shrewd card

equipment, going ordinarily up to 1 Kbyte for RAM and up to 16 Kbyte EEPROM for current Java Cards.

As opposed to EEPROM, RAM loses its worth if there should be an occurrence of a force misfortune. For reiterated, execution and security delicate counts, RAM must be usable by Java Card applications. A valid example execution state, operand stack and neighborhood factors must be placed in RAM by the virtual machine.. Other than that, the Java Card 2.1 determination permits applets to assign exhibit occasions unequivocally in RAM. Our model broadens the Java Card determination by permitting any sort of article to be put both in EEPROM and in RAM. The structure is depicted in purpose of enthusiasm for and especially allows the basic sending of a RAM garbage collector..

Information situated in RAM, i.e. execution state and transient articles, is not thought to be a piece of the persevering state and its controls are not recorded amid the exchange because of various reasons, among which are execution punishment and security suggestions. In this manner, just changes to the applet objects in EEPROM must be secured by the value-based mechanism

JAVA CARD SPECIFIC FEATURES

The Java Card runtime and virtual machine additionally bolster highlights that are particular to the Java Card stage: Persistence: With Java Card, articles are of course put away in industrious memory (RAM is rare on shrewd cards, and it is utilized for transitory or security-delicate items).

Atomicity: As brilliant cards are remotely controlled and depend on relentless memory, diligent upgrades must be nuclear. The individual compose operations performed by individual bytecode guidelines and API strategies are along these lines ensured nuclear, and the Java Card Runtime incorporates a restricted exchange instrument.

Applet detachment: The Java Card firewall is a framework that isolates the different applets exhibit on a card from each other. It similarly joins a sharing framework that allows an applet to unequivocally make a thing open to various applets.

The JAVA CARD programming dialect contains a few exceptionally particular components that

originate from the qualities of the shrewd card inserted environment. Some of them are impelled by the way of the fundamental equipment; others are given as API for the software engineer to handle security needs. In this paper we consider three of them for which we give the backing in the KRAKATOA apparatus: the way memory is sorted out, the purported card tear property and the nuclear exchange system. We also reason about non atomic methodology calls however for motivation behind lucidity we will introduce them later in this paper.

In JAVA CARD, the memory is sorted out in a totally distinctive manner than in JAVA. A qualification is made between tenacious articles (put away in EEPROM) and transient (or unstable) objects (put away in RAM).

Brilliant cards can be teared out of the terminal peruser at any minute amid a session. Subsequently all transient items are cleared and tenacious ones are left in the state they were at the exact moment of the force misfortune. A noteworthy issue for the security of an implanted application is to save information respectability and to keep up a reasonable memory state in the event that a card tear happens.

Another topical issue is to guarantee information consistency on the off chance that a card tear happens amid a succession of a few upgrades to diligent memory. To that point the JAVA CARD API gives a purported exchange instrument — as those of database frameworks — that puts forth an arrangement of expressions as though it was a solitary nuclear operation. Every one of the redesigns are viably done or none of them is.

The class `javacard.framework.JCSystem` contains the techniques for utilizing the exchanges. Solidly, an exchange begins with a call to the technique `beginTransaction()` and the progressions produced using that point just get to be successful after `commitTransaction()` is called. An exchange can be prematurely ended either by the framework (i.e. the JAVA CARD Run time Environment) if a card tear — or all the more by and large any sudden force misfortune — or a memory support flood happens, or by the developer on account of the technique `abortTransaction()`. In such a case, steady protests

are reset to their qualities in the state just before the exchange. Transient memory is not in the slightest degree influenced by exchanges, in this way any task to an unpredictable variable is done unconditionally.[3]

In JAVA CARD, the memory is sorted out in a totally distinctive manner than in JAVA. A qualification is made between decided things (set away in EEPROM) and transient (or eccentric) objects (set away in RAM). The estimations of determined articles are available in the midst of the whole card life cycle; it is usually the case for applet objects and their fields. In any case, transient data are cleared after each session between the card and a terminal since they don't get by without compel. For the most part, in JAVA CARD programs some vast exhibits are dispensed in transient memory keeping in mind the end goal to figure helper estimations speedier.

Brilliant cards can be teared out of the terminal peruser at any minute amid a session. Therefore all transient articles are cleared and determined ones are left in the state they were at the exact moment of the force misfortune. A noteworthy issue for the security of an installed application is to protect information uprightness and to keep up a sound memory state on the off chance that a card tear happens.

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SMART CARDS AND JAVA CARD

An expanding number of IT applications require that clients give information by means of a compact gadget. Also, for security reasons, it is attractive that such gadgets incorporate in any event basic preparing abilities. The keen card innovation answers the senecessities and increases acknowledgment and ubiquity. Interesting amongst the diverse smart card working stages, Java Card gives seller between operability and has now achieved a true standard status in this industry .

The Java Card stage gives a subset of the Java programming dialect . It permits memory - constrained devices, similar to brilliant cards, to run applications in a protected and interoperable way. Security is acquired through Java components, similar to its safe execution environment, which controls, for case, the level of access to all strategies and properties; and the applet partition by an asset named applet firewall. Between operability is the trademark that permits the execution of a Java Card application in any keen card that takes after the Java Card details, autonomously of equipment and programming makers, without or with few code alterations.

The utilization of this innovation brings numerous enhancements for the engineer of brilliant card applications. The straightforwardness of programming in Java, that altered organizations the low level inconspicuous components of the quick card structure; and Java change mechanical assemblies (like IDEs, test frameworks and emulators) allow a quick application fabricate, test and foundation cycle, reducing the time and the cost of programming age. Also, different advantages are the likelihood of numerous applications to exist together in a same card and the abundant similarity with smart card worldwide gauges, as ISO 7816.

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reasons, it is attractive that such gadgets incorporate in any event basic preparing capacities. The shrewd card innovation answers these necessities and additions acknowledgment and ubiquity. One of a kind amongst the distinctive brilliant card working stages, Java Card gives merchant between operability and has now achieved an accepted standard status in this industry.

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The utilization of this innovation brings numerous changes for the designer of shrewd card applications. The simplicity of programming in Java, that edited compositions the low level points of interest of the brilliant card framework; and Java improvement devices (like IDEs, test systems and emulators) permit a quick application construct, test and establishment cycle, diminishing the time and the expense of programming generation. Furthermore, different advantages points are the probability of different applications to match in a same card and the satisfactory likeness with shrewd card widespread measures, as ISO 7816.

SMART CARD SYSTEM AND COMMUNICATION MODEL

A keen card framework is made out of equipment and programming parts. These parts are: Support programming, programming for correspondence with the card acknowledgment gadget (CAD), the CAD itself and the brilliant cards and their applications.

Client CAD correspondence programming (host application) This product is in charge of the correspondence between an outside application, called "host application", and the code running inside the card. It sends charges for the brilliant card

application and gets the reactions to these orders. This product can be incorporated into a desktop PC, in a mobile phone or in a security subsystem.

Card Acceptance Device (CAD): A CAD is the gadget situated between the host application and the shrewd card. It supplies energy to the card and is the method for correspondence between the host application and the application inside the card. A CAD can be associated with a desktop or a terminal, for example, an electronic installment terminal.

Smart Cards and their applications: Applications are put away in the card memory. This ought to be conceivable when the card is being manufactured, presenting applications in its ROM memory, or later, presenting the applications in the card's non-shaky and writable EEPROM memory. The EEPROM memory can likewise be composed by applications to store their information. Keen cards additionally have a (quicker) RAM memory to store transitory information. Dialects like C, the low level computing construct of the card and Java Card can be utilized to build up these applications. Today, Java Card is bolstered in more than 95% [8] of the cards and is viewed as the best decision when efficiency and security are the primary prerequisites.

Bolster programming: This sort of programming gives administrations to a brilliant card application. Case in point, we could have an application that permits the applet to get to a charge card administrator administration securely[9].

The Java Card Remote Method Invocation framework

The Java Card RMI expect that the host application needs to utilize an administration gave by an applet on the card as an application programming interface (API). This administration is determined as a Java interface that expands specifically the predefined Java Remote interface (see case in Figure 1). The techniques for the relating execution class (see Figure 2) are invokable from an alternate virtual machine (for this situation, the host-side virtual machine). This usage class should be created in the Java Card lingo. This class might acquire from the CardRemoteObject class gave by the Java Card RMI system that gives strategies to empower and debilitate the remote access to objects. The RMI

likewise gives the class RMI Service that makes an interpretation of technique summons to APDU-level correspondences. Java Card forces confinements because of the very way of the stage it keeps running on: there is a limited arrangement of essential information sorts, no strings, no insurance that there is a junk jockey either. Likewise, keeping in mind the end goal to stay away from loss of information consistency on the card, the Java Card structure gives exchange offices, and additionally particular components to recognize diligent information (should be kept up when the force is killed) from transient information (might be eradicated when the card is reset).

In the Java Card environment, applications are called applets, and are classes acquiring from the java card.

An applet must give a usage to the techniques introduce and prepare. The introduce technique makes the applet by conjuring its constructor strategy and registers it in the Java Card Runtime Environment (JCRE), by summoning the register technique. The procedure strategy gets the APDU messages of the host application, does the underlying handling of these messages, and summons a technique, going to it the APDU object as a parameter. In Figure 3, we introduce on a case how the execution of Remote item can be coordinated into an applet and connected with a RMI Service object in charge of the correspondence with the host-side.

At long last, a reference to the remote protest should be made on the host-side. The Open Card structure gives capacities to get such reference. When bound to a neighborhood question, the RMI is straightforward to the developer.

ELEMENTS OF JAVA CARD PROGRAMMING

Programming for a brilliant card requires extra ordinary consideration against two conceivable issues:

Accessible memory Smart card as a rule has an extremely restricted measure of memory; furthermore, the runtime environment does not as a matter of course have a junk jockey.

The software engineer needs to apply particular memory distribution methodologies. Case in point, a strategy ought to maintain a strategic distance from, at all cost, distribution of items, as there is no accessible refuse gathering component. Accordingly, question allotment is normally limited to the constructor. Likewise Java Card gives an uncommon exemption system, where the reason for a special case is a short esteem rather than a string as in Java.

Information coherency: The keen card might be physically expelled from the card acknowledgment gadget whenever, bringing about a force disappointment and interfering with the execution of the virtual machine. To maintain a strategic distance from that items get into conflicting states, Java Card gives an exchange instrument that sureties atomicity of execution (at an expense). What's more, questions might be indicated as being tenacious (keep up their quality when force is killed) or transient (are reinitialized when force is killed).

CONCLUSION

The principle commitment of this work is to give backing to a thorough advancement of Java Card segments for smart card mindful applications, taking into account the B strategy.

This paper introduces the viable mix of exchange backing in the Java Card. It reports the essential exchange semantics required by the Java Card 2.1 particular which just requires the base usefulness required for straightforward value - based calculations. For example, the Java Card particular and particularly its exchange model experiences its static designation model where any space allotted inside exchanges may not be discharged if there should be an occurrence of a prematurely end. Conversely, we have demonstrated that item instantiations can without much of a stretch be incorporated in the exchange component even if there should arise an occurrence of the tight memory assets on a brilliant card. The different conceivable execution decisions are examined in point of interest, including different log plots, their effect on execution and memory use and conceivable advancements.

REFERENCES

1. Deharbe, B. G. Gomes, A. M. Moreira, "Automation of Java Card component development using the B method", *Engineering of Complex Computer Systems, ICECCS*, 2006.
2. M. Ostriches, "Transactions in Java Card", *Computer Security Applications Conference*, 1999.
3. March, "Verification of JAVA CARD Applets Behavior with respect to Transactions and Card Tears", *Software Engineering and Formal Methods, SEFM 2006*, 2006.
4. M. S. Jin, M. S. Jung, "A study on how to reduce time and space by redefining new byte code for Java Card", *11th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA'05)*, 2005.
5. Robinson, "The worldwide market for smart cards and semiconductors in smart cards", *Technical report, IMS Research*, 2005.
6. Z. Chen, Addison Wesley, "Java Card Technology for Smart Cards: Architecture and Programmer's Guide", ISBN: 0201703297, 2000.
7. R. Abrial, "The B-Book — Assigning Programs to Meanings". Cambridge University Press - 0521021758.
8. "Java card technology at-a-glance: The foundation for secure digital identity solutions". SUN MICROSYSTEMS INC, 2005.
9. Willis, N. (2014) Smart Card Features on the YubiKey NEO. <https://lwn.net/Articles/618888>

Dynamics for the Acceptance of Enterprise Resource Planning (ERP) Systems and Financial Performance

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ABSTRACT

The reason of this inquire about paper to show the synthesized hypothetical and observational writing to offer assistance in the improvement of suggestions and proposals of a inquire about motivation on the acknowledgment of ERP frameworks and their connect with monetary execution. The paper creates the innovation acknowledgment demonstrate (TAM) to synthesize pertinent writing and to create suggestion for future inquire about plans. This inquire about gives a positive affiliation between the acknowledgment of ERP frameworks and budgetary execution. Moreover, the utilize of TAM hypothesis gives advance understanding into distinguishing the acknowledgment components of ERP.

Keywords: Technology acceptance model, organizational performance, corporate performance, ERP, financial performance.

INTRODUCTION

Today, ERP systems are critical for managing thousands of businesses of all sizes and in all industries. The utilization of the ERP systems and the conduct by which the affiliations get that has been broadly inspected. The appropriation prepare which the organization attempt shows up to mindfulness at the uncommon sorts of wishes of the individual and the approaches in which the office is competent of fulfill the wishes of the customer . This investigate paper explores the hyperlink between the issues which is the buyer faces with the financial by and large execution of the enterprise in the course of the appropriation of ERP frameworks. One of the key estimations of this investigation is to propose future investigate arrange for the ERP gathering, which ought to consider the considerable and vague prizes Vital focal points of the ERP allotment can be a essential misstep from directors. This investigate makes utilize of the era engaging quality show to secure the primary components of the notoriety of most recent advances counting ERP structures in groups.

THEORETICAL FRAME WORK

Technology Acceptance Model

We endorse the usage of the generation popularity adaptation (TAM) as a hypothetical position that can watch the acknowledgment of organization valuable asset making plans (ERP) structures in offices. TAM demonstrate is of the see that the seen usefulness and ease of use of IT are the major determinants of the usage of new systems[1].

The innovation notoriety model posits that the way of the dissemination of the gadget is carefully related to the way wherein the advancements are respected by way of the clients . These gatherings of modern propels, as per the advancement affirmation demonstrate can be basically crucial for affiliations as they ensure that the client of the system can take up the utilization of the system in a capable and fruitful way, provoking various leveled focal points of the framework.

The perceived usefulness of a system, also has a direct relationship with the acceptance of the system,

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and can directly influence the way in which the organizations can implement new systems [11]. The connect between the acknowledgment of the innovations in the organization, and the way frameworks are actualized can lead to resistance of alter issues, which clients can discover progressively troublesome to bargain with, as political issues as a well as organization components can impact this resistance of the frameworks [9]. The way clients take conveyance of the brand unused innovation is regularly furthermore fundamentally based on the political settings interior the association, and thus can impact the seen benefits of any unused contraption .The financial and economic benefits of adopting new systems have been established. However, the costs of a lack of acceptance of new systems has also been mentioned as one of the most significant reason for a need for managers to be careful about the way in which the deal with the acceptance of new technologies, as the possible economic ramifications of the failure of technological systems can be significant [2],[14]. The poor effect of the failure of systems may be full-size, particularly within the modern-day generation as agencies are increasingly the usage of records structures to advantage and preserve a competitive benefit, and because the structures have become the critical part of the records systems within the agency

[25], [16]. These issues are also important for managers, which motivate the employees, and can therefore improve the financial performance of the organization .

REVIEW OF LITERATURE

ThesestudiesexaminedERPsystemsasenveloping a settled of sports and having an impact on overseeing the one of a kind resources of the association in an successful way [15].

Be that as it may, the manners by which the workers and clients of the framework receive are not generally in view of the cost factorsalone, and are subject to various different issues. These issues have a critical connection between the financial performance of the organization and the distinctive components which prompt the reception of ERP framework by the client . This review of literature is based on testing a number of propositions, and to examine how these have been addressed in the literature, which aims to explain our research model (Fig.1):

User Training and Education’s Influence on perceived Benefits of User

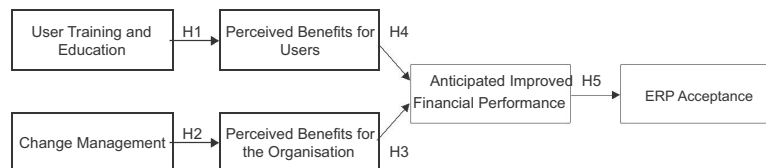


Figure 1. Model for acceptance of ERP.

One part of the appropriation of innovation as a rule, and the reception of ERP specifically is the manner by which the clients have possessed the capacity to receive new advancements .The benefits that the user perceives from a particular system have, according to a number of studies been associated with the training that they receive and the level of education of the user [16], [8]. For example, one reason was to examine the ways in which web based learning and training was substantially important for users was established .

framework, and get budgetary advantages to the framework [16].

Benefits of Change Management and ERP :For Users

Another factor which has been distinguished is the manners by which change administration is managed by the senior administration. Change administration has been connected broadly with the. One of the significant issues which the writing manages with respect to the change administration is the manner by which the client opposes the new frameworks. The protection from change subject has been predominant in the early writing of ERP usage,

The client preparing is likewise vital as a piece of the innovation acknowledgment models, as it enables the clients to guarantee that they can utilize the

and has kept on being one of the repeating topics which has been viewed as critical by the literature [42], [43]. The protection at the board or senior administration levels was generally because of the senior directors feeling unreliable about their employments or status, and in this way opposed changes in the hierarchical setup.

Benefits for Organization and Financial Performance

The authoritative advantages of ERP execution have been generally talked about in the writing . These advantages have for the most part been arranged into two fundamental perspectives being the unmistakable advantages and the immaterial advantage .The progressing recipients of frameworks might be founded on issues, for example, upgrades to the procedures, work process and the data get to that directors have in connection to a specific framework. .Other ongoing benefits of ERP systems to the organization may be based on the level of customer services that they can deliver to the end user, which has a higher quality and support for the customer .

Benefits for User and Financial Performance

The apparent advantages for the client have additionally been researched by the writing . The client fulfillment has been utilized customarily as one of the key benchmark for the expanded advantages for the clients of the ERP frameworks . The financial performance of the system is also linked to these factors as the increased use of the system can lead to better use of resources, leading to the increased benefits of the systems in the long run for the organization .

The Impact of Financial Performance on ERP Acceptance

The impact of higher financial performance of an organization on the ERP adoption has also been studied. One of the core applications of the ERP systems have traditionally been financial management, and within an enterprise this focus has been on the capital flow of good .Within the debate on the financial performance (See Table I), and its impact on the adoption of the ERP system,

organizations also tend to take the aspects of tangible and intangible results on their investments seriously too [7]. One of the key determinants in whether a firm adopts the ERP system or not depends on the way it perceives the value it gets from that particular system [12],[13].

DISCUSSION

In the wake of inspecting the significant parts of the survey of writing, we contend that the selection of the ERP frameworks is emphatically connected with expanded monetary execution. This is based on the assumption that organizations need to justify the cost outlays of new ERP system and need to undertake a number of other factors which lead to the adoption of ERP system. The survey of writing has prompted the improvement of five fundamental recommendations, these suggestions are as per the following:

A. Proposition One: User Training and Education has a Positive Influence on the Perceived Benefits for Users of ERP Research suggests that the benefits of a satisfied user is highly significant for the adoption of the system, as the user is able to take part in the implementation of the system and the resistance to change from the user is kept to a minimum. Another basic segment of the client preparing amid the execution of a framework is that the preparation condition which the administration gives is additionally part of an aggregate inclining process . As this would ensure that the user is able to be an active part of the system development process, and then will be more likely to be benefit from system.

Change administration is additionally a basic segment of the innovation acknowledgment display, as it enables the administration to adjust the diverse parts of the change administration procedures and hence to guarantee that the association can adapt to the progressions being realized by the acknowledgment of the new advancements in the association [6].In this regard, the acceptance of technology by the users can be based on the internal issues such as the culture of the organization, and on other external issues such as the environment within which the organization operates.

Table 1. Synthesized Key Literature from This Survey

Author of Study	Method	Sample	Study focus and findings /conclusion
(Amoako-Gyampah, 2007)	Mail Survey	571	The focus of study was on managerial effort on increased the perception of users. The results suggest that personal relevant to technology will contribute to implementation success.
(Change et al, 2008)	Questionnaire	600	Proposal of a conceptual model to understand the adoption of ERI systems by employees.
(Markus et al, 2000)	1: reviews of published and in-process research studies and teaching cases of ERP implementations 2: in-depth case studies 3: Interviews	12 Case Studies 11 Interviews	Early identification of the problems are of ERP implementation. significantly important
(Chem et al, 2008)	Questionnaire	N/A	ERP users should focus on their actual needs, and select their suppliers carefully
(Foster et al, 2008)	Survey	208	Large scale implementation of ERP is highly complex and have a long reaching impact on the organizational -set ups.
(Murphy and Simon, 2002)	Case Study	1	Information systems highly difficult to qualify Intangible terms
(Hong and Kim 2002)	Interviews Questionnaire	160	ERP implication success primarily depends on the fit between the organization and the implementation contingencies
(Choi et al, 2007)	Mail Questionnaire	236	The importance of training of end users significant for successful ERP implementation, however companies still have relatively low budgets and do not focus significantly on these issues.

Proposition Two: Change Management has a Positive Influence on the Perceived Benefits for the Organization

The survey writing on the protection from change has likewise been tried with the usage of ERP, and it demonstrates that change administration stays one of the key issues which chief need to manage The key hidden part of the change administration is by all accounts vulnerability in the authoritative condition.

The benefits which ERP users can derive are based on their acceptance of the technologies [15]. One of the benefit of the new technologies is that the managers can develop a system, where the change management process becomes part of the technology acceptance procedure in the organization, which can facilitate the entire process, and ensure that the different aspects of the organizational procedures.

Proposition Three: The Perceived Benefits for the Organization have a Positive Impact on Improved Financial Performance

Our exploration recommends that the immaterial advantages which an association gets as a feature of the reception of ERP are not recorded legitimately, and are hard to quantify. There is a need by association to quantify these advantages to get an exact gauge of the various types of advantages which associations get as a major aspect of their interest in ERP frameworks .

The advantages to the association additionally were to be adjusted inside the innovation acknowledgment display. The innovation acknowledgment show in such manner is of the view that there is a requirement for the distinctive parts of the framework to be legitimately acknowledged by every one of the partners, if the association needs to get the prizes of the framework.

Proposition Four: The Perceived Benefits of Users have a Positive Influence on Improved Financial Performance

The opposite side of the story appears to show that the associations is the by all account not the only partner in having a positive money related effect amid the appropriation of ERP selection. Another basic part of the reception story of the ERP is by all accounts the advantages that the clients get, and the positive money related effect of these advantages on the association. Research recommend that the fulfillment of the client can likewise be expanded if the client is a piece of the improvement procedure of a framework, and can speak with a large number of the distinctive partners in this procedure.

Another impressive issue is that the monetary change found in the authoritative air [64], financial framework, which can convey process effectiveness to the execution because of expanded client benefits should be estimated precisely. As a rule, the ERP framework has concealed advantages for the client.

Proposition Five: Improved Financial Performance of ERP Systems has a Positive Impact on ERP Acceptance.

The legitimization for the ventures which administrators attempt in an authoritative situation is for the most part in view of plausibility considers. Initially, the selection of ERP frameworks ought to be founded on the hard bookkeeping proof that the framework will be monetarily feasible, and empower the association to bring down its expenses or enhance its benefit. Another segment with in the money related feasibility of the new frameworks amid times of other authoritative needs. The acknowledgment of the new innovation, it shows up is straightforwardly connected with the money related execution of the association. Clients will probably embrace another innovation, when they feel that a specific innovation can profit the association more, and along these lines can prompt money related prizes for the association and the representatives.

CONCLUSION

This exploration paper endeavors to give a hypothetical establishment on the selection of ERP frameworks and their relationship with the monetary execution of the association, particularly centering in connection to the TAM. The method of reasoning for the execution of the ERP frameworks in various associations has been a befuddling set of components, which have been featured by the writing. This paper, has endeavored to recommend an arrangement of suggestions, which we accept are the key hidden variables which can be considered by associations when they are attempting to execute new ERP frameworks. One of the key finishes of this exploration is that albeit money related execution is one of the key activity for, for example, client fulfillment and the need to represent the numerous backhanded advantages from the framework likewise should be considered to comprehend the progression of ERP reception in Organizations. One of the key variables which should be considered is the client fulfillment, which has likewise been featured in TAM. This is by all accounts the key activity which the associations need to consider for an effective usage of ERP frameworks in association today, as the achievement or disappointment of these frameworks is profoundly subject to the ways in which users adopt the systems. The associations need to guarantee that the preparation administrations of the client are in accordance with

the social and mental needs of the client, which would guarantee a concordance in the usage procedure.

REFERENCES

1. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *Mis Quarterly*, vol. 13, no. 3, pp. 319-340, 1989.
2. W. J. Crump, R. J. Tessen, and A. J. Montero, "The department without walls-acceptability, cost, and utilization of interactive videotext technology," *Archives of Family Medicine*, vol. 6, no. 3, pp. 273-278, 1997.
3. S. L. Fisher and A. W. Howell, "Beyond user acceptance: An examination of employee reactions to information technology systems," *Human Resource Management*, vol. 43, no. 2-3, pp. 243-258, 2004.
4. J. H. Wu, W. S. Shen, L. M. Lin, R. A. Greenes, and D. W. Bates, "Testing the technology acceptance model for evaluating healthcare professionals' intention to use an adverse event reporting system," *International Journal for Quality in Health Care*, vol. 20, no. 2, pp. 123-129, 2008.
5. M. L. Markus, S. Axline, D. Petrie, and C. Tanis, "Learning from adopters' experiences with ERP: Problems encountered and success achieved," *Journal of Information Technology*, vol. 15, no. 4, pp. 245-265, 2000.
6. S. S. Chen and L. B. Liu, "Measure of ERP users' satisfaction," in *Proc. IEEE International Conference on Service Operations and Logistics, and Informatics*, 2008, vol. 2, pp. 1980-1985.
7. P. Longinidis and K. Gotzamani, "ERP user satisfaction issues: Insights from a greek industrial giant," *Industrial Management & Data Systems*, vol. 109, no. 5-6, pp. 628-645, 2009.
8. K. A. Gyampah and A. F. Salam, "An extension of the technology acceptance model in an ERP implementation environment," *Information and Management*, vol. 41, no. 6, pp. 731-745, 2004.
9. G. Chen, Y. Sai, and J. Zhang, "ERP implementation strategies based on critical success factors," 2009.
10. Ronteltap, J. C. M. van Trijp, R. J. Renes, and L. J. Frewer, "Consumer acceptance of technology-based food innovations: Lessons for the future of nutrigenomics," *Appetite*, vol. 49, no. 1, pp. 1-17, 2007.
11. M. Daneva and R. Wieringa, "Cost estimation for cross-organizational ERP projects: Research perspectives," *Software Quality Journal*, vol. 16, no. 3, pp. 459-481, 2008.

12. R. J. Kusters, F. J. Heemstra, and A. Jonker, "ERP implementation costs: A preliminary investigation," in *FILIFE*, J. C. J. C. J. ed. *Enterprise information systems-books*, 2008.
13. M. Y. Yi, J. D. Jackson, J. S. Park, and J. C. Probst, "Understanding information technology acceptance by individual professionals: Toward an integrative view," *Information and Management*, vol. 43, no. 3, pp. 350-363, 2006.
14. J. E. Scott, "Post implementation usability of ERP training manuals: The user's perspective," *Information Systems Management*, vol. 22, no. 2, pp. 67-77, 2005.
15. Tinker and P. Lansley, "Introducing assistive technology into the existing homes of older people: Feasibility, acceptability, costs and outcomes," *Journal of Telemedicine and Telecare*, vol. 11, pp. 1-3, 2005.
16. G. M. Cao and M. McHugh, "A systemic view of change management and its conceptual underpinnings," *Systemic Practice and Action Research*, vol. 18, no. 5, pp. 475-490, 2005.

Mobile cloud computing : Architecture, Issues and challenges

Savita Singh*
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ABSTRACT

Today, Big Data has gained maximum attention from researchers, students and the Information Technology sector. The rapid generation and collection of digital information, is exceeding its upper bound. It seems very difficult to implement effective analysis data using the existing conventional techniques, on this huge size of rapidly generating data. Because of this plentiful utilization of cell phones and scope of uses, versatile distributed computing turns into a noteworthy part for cell phones, because of unwavering quality and portability as information preparing and capacity occur outside of the versatile.

In general, cloud based huge information appears financially savvy, quick to manufacture and adaptable. The unfriendly impact for the managers lies in riding the information. The unstructured insights seem like regular organized measurements stack, if a machine manager has a non-open cloud, where Infrastructure as an administration is in the base layer, database in the center layer and projects on the best. This paper discuss about the Mobile Computing & issues and challenges in mobile cloud computing. In general, cloud based huge information appears financially savvy, quick to manufacture and adaptable. The adverse effect for the administrators lies in riding the data. This paper surveys on the two fronts – Big Data and its issues and challenges in mobile cloud computing.

Keywords—MCC, Big Data,

INTRODUCTION

Cloud computing (CC) becomes an important research area over the past few years as it allowed software to be operated on internet enabled devices. Cloud is a dispersed processing worldview. It is an accumulation of interconnected and virtualized PCs, which are provisioned and exhibited progressively as bound together figuring assets offered on a compensation for every utilization.

Cloud computing depends on shared computing resources. It is not having local server or personal devices to handle application. In cloud computing, assets are offered in an on-request and pay-per-utilize premise from the distributed computing

vendors. Cloud computing effects mobile banking and games etc. as cloud computing support large number of applications like document manipulation, Scanning, shopping apps, video games, image processing and e-banking etc. In general cloud computing means connection of large computers through real time communication networks (i.e internet). Apart from describing the architecture and challenges of MCC this paper additionally introduces the future challenges and trends in the era of MCC.

A cloud computing system is having following components-i.e data centers, clients & distributed servers. Every component deliver a particular functionality based on cloud-based algorithm.

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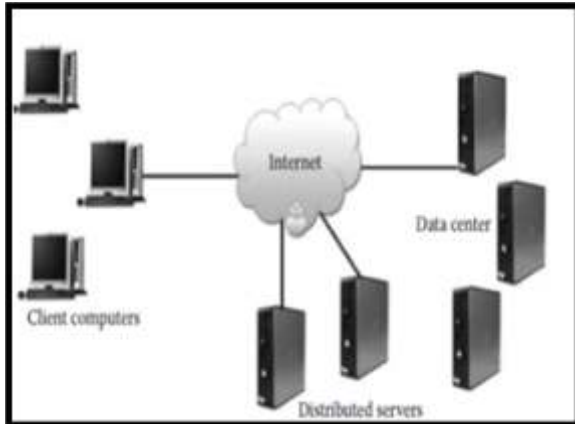


Fig 2: Origin of MCC from MC and CC

OVERVIEW OF MOBILE CLOUD COMPUTING

The popularity of Mobile cloud computing is increasing due to the overhead of mobile devices and use of less power consumption. Health monitoring, learning, commerce and gaming which are based on mobile computing are gaining importance day by day.

In today's era, due to the vast development of mobile network and technology Mobile computing is emerging as a vast topic of research. In previous years, for different computing purposes people use computers. But according to recent surveys, people want to use personal digital assistants (PDAs), Smartphones, laptops rather than desktop computers.

The users of smartphone are increasing day by day, it has already reached by 1 billion. As the user interface environment and portability mobile devices has become more feasible concept than Conventional desktop approach. Though the use of MC technology has increased but due to some drawbacks like limited battery power, lack of memory space as well as low computational power, these are becoming the challenges for MC.

All these problems can be solved only by a cloud platform with MC. These cons of MC technology gives the motivation to improve the MC architecture

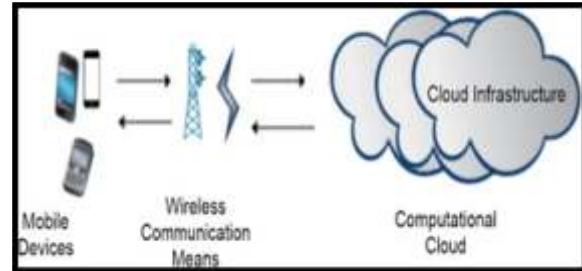


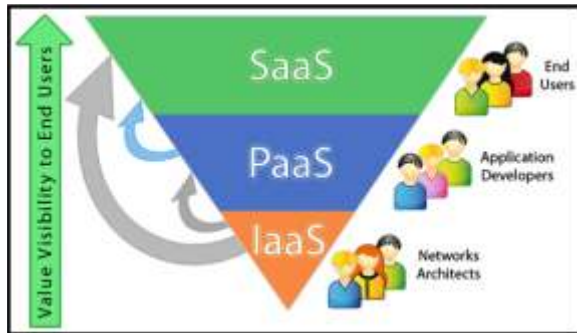
Figure: 3 Mobile Cloud Computing

and to cope up with latest MCC environment. This is having the characteristics of both MC and cloud computing as shown in fig:2.

Cloud computing can be considered as a modern computing paradigm that can give administrations on request at a negligible taken a toll.

The three well-known and commonly used service models in the cloud paradigm are described underneath:

- **Software as a service (SaaS)**- Its is something which charged for the Time of using application. It is widely used by the end users, which have minimum usage. Just like google and Microsoft are providing web services to the users, so they can access them without need of installing it.
- **Platform as a service (PaaS)**- In PaaS, a service provider facilitates services to the users with a set of software programs that can solve the specific tasks. Lets take an example of Java compiler or C/ C++ compiler, If you are a developer or coder, so you must have complies with you all time, but cloud services makes it easier for you, by providing any time any where compilation facility. Toady you just need to write code, and you can compile it online to generate output.
- **Infrastructure as a service (IaaS)**- It is a customised services, which is built in operating systems that are already running. IaaS means you can rent a server and pay according to used resources. The cloud service provider facilitates services to the users with virtual machines and storage to improve their business capabilities. Its target audience is software



developers.

Figure 4: Services Models used in Mobile cloud computing

Different characteristics of Mobile Cloud Computing

Mobile cloud computing have different characteristics like

- a) **Multitenancy:** Means the sharing of resources and cost, between users.
- b) **Application Programming Interfaces :** Mostly using REST APIs.
- c) **Scalability & Elasticity :** On demand resources scaling up/out based on real time requirements
- d) **Virtualization:** It is Sharing of servers and storages devices and increased utilization . Like Amazon Web Services.
- e) **Device & Location Independence:** You can Use any device from any where, any time.
- f) **Reduced Cost:** Conversion from CAPEX model to OPEX model
- g) **Application Programming Intefaces:** Mostly using REST APIs.

Benefits of Mobile Cloud Computing:

- Extended battery life.
- Improvement in data storage capacity and processing power.
- Improved synchronization of information due to "store in one put, get to from anywhere" arrangement.
- Improved reliability and scalability.
- Ease of integration.

ARCHITECTURE OF MOBILE CLOUD COMPUTING

Mobile Cloud Computing (MCC) is the phenomena which is basically relay on three basic thins: mobile

computing(like any mobile user, or any other computing device), wireless technology(like bluetooth, internet), cloud computing. So, now Mobile cloud computing refers to a model or technique or framework in which user is provided with mobile application built ,powered and hosted cloud computing techniques.

It woks like at whatever point a client (portable client) needs to store a few information or data safely on a few disseminated cloud, then this distributed computing comes when assignments and information are kept. Then user sent request to BTS(base transceiver station) , it then Forwards it to the wireless technology like internet, which is in turn used to transmit information from on course to another. The web Applications keep running on a remote server and after that sent to the customer. Here the cell phones can also be a part of computing if the user has a audio data, associated with the versatile systems through the base stations ; they will set up and control the associations (air interface) and maintains interfaces between the mobile networks and mobile devices.

As shown in fig.3It shows the architecture how mobile devices can get connected to the mobile networks with the use of base stations (such as: base transceiver station, access point i.e. mobile device user, or satellite for signals) that can establish and control the connections (air links) and functional interfaces between the networks and mobile devices like smartphones and personnel digital assistants , which are capable using data manipulation applications. Mobile users sends requests to the base transceiver and then the information (e.g., ID and location) is transmitted to the central processing unit that further connected to the servers which are providing mobile network services to users. Mobile network operators can provide different services to mobile users.These administrations has been created with the concepts of utility computing, virtualization, and service-oriented engineering (e.g., web, application, and database servers).

ISSUES : Cloud Computing and Its Channel:

Cloud computing as contradicted to standard computing has a few issues which can cause

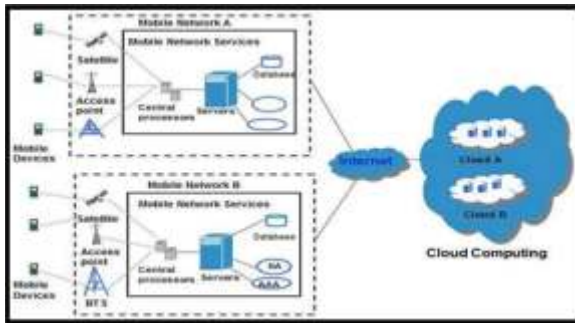


Figure 5: Architecture of Mobile cloud computing

hesitance or fear in the client base. A few of these issues incorporate concerns almost protection and information possession and security. A few of these concerns are particularly important to versatile gadgets. Cloud Computing is frequently showcased as an effective and cheap arrangement that will supplant the client-server worldview.

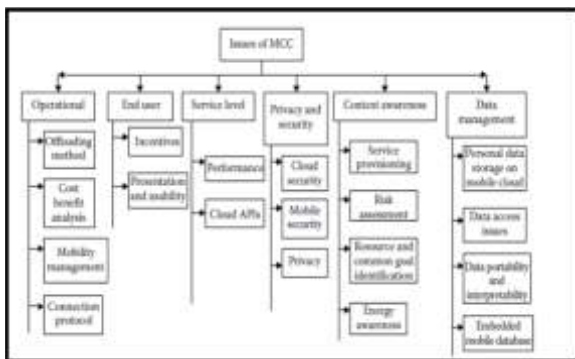


Figure 6: Description of MCC Issues

The worldview move involves/results in the misfortune of control over information as well as unused security and security issues. With Cloud Computing quickly picking up ubiquity, it is imperative to highlight the coming about dangers. As security and security issues are most imperative, they ought to be tended to some time recently Cloud Computing builds up an imperative advertise share

A) Issues of Cloud Computing :

Security: Data security has consistently been a major issue in information technology. As the data in cloud computing is located at different places security is become an important issue. The security related issues are classified into two categories: Mobile network user’s security & Cloud security. In mobile cloud computing, information are put away in the cloud. As the two information access and capacity are done outside the cell phone and into a remote

cloud server, the client has no individual control over it.

Low bandwidth: Transmission capacity is one of the enormous issues in MCC since the radio asset for remote systems is much rare as compared with the conventional wired systems.

Availability: Benefit accessibility gets to be a more imperative issue in MCC than that in the CC with wired systems. Versatile clients may not be able to associate to the cloud to get a benefit due to activity clog, arrange disappointments, and the out-of-signal.

Heterogeneity: Mobile cloud computing will be used in the highly heterogeneous networks in terms of wireless network interfaces.

Computing offloading : As of late, a number of computation offloading systems have been proposed with a few approaches for applications on versatile gadgets. In any case, the computation offloading components are still going up against a few challenges.

B) Issues of MCC Channel

The area of mobile cloud communication channel requires having a lot of improvement at various levels. The following attacks are possible at communication channel:

- Access control attacks
- Data integrity attacks
- Attacks on authentication
- Attacks on availability

CONCLUSION

Mobile cloud computing is a mixture of mobile computing and cloud computing . Though the problem of mobile computing is very much resolve by combination of these two technologies, yet bandwidth, mobility management, security, Resource poverty, latency, QoS, and so on are the critical issues in MCC. Mobile Cloud computing (MCC) is one of the versatile innovation patterns in future since it combines the advantage of both versatile computing and cloud computing .Due to the significance of MCC , this paper has not only discusses about the cloud computing , its architecture but also discussed latest issues that should be resolve in MCC.

Though some scheme is already being developed for resolving these issues of Mobile cloud computing but still these issues is not resolved completely. In the future, the existing approaches will be modified to solve these problems more efficiently and effectively.

REFERENCES

1. Miss Pritee Ashok Rewatkar, Pof. Sonal Honale "Basic Overview of Mobile Cloud Computing" *International Journal Of Engineering And Computer Science* ISSN:2319-7242 Volume 3 Issue 12 December 2014, Page No. 9408-9411
2. Hoang T. Dinh, Chonho Lee, Dusit Niyato, Ping Wang "A survey of mobile cloud computing: architecture, applications, and approaches".
3. Ms. Gayathri M R, Prof K. Srinivas "A Survey on Mobile Cloud Computing Architecture, Applications and Challenges" *International Journal of Scientific Research Engineering & Technology (IJSRET)*, ISSN 2278 – 0882 Volume 3, Issue 6, September 2014.
4. Jibitesh Mishra , Sanjit Kumar Dash , and Sweta Dash "Mobile-Cloud: A Framework of Cloud Computing for Mobile Application".
5. <https://www.cepis.org/index.jsp?p=641&n=825&a=4758>
6. Shakti Shivalingam¹, Ranjana Rai² "MOBILE CLOUD COMPUTING: ARCHITECTURE AND SECURITY ISSUES".
7. <https://www.ibm.com/blogs/cloud-computing/2013/06/mobile-cloud-computing/>
8. <http://www.cse.wustl.edu/~jain/cse574-10/ftp/cloud/index.html>
9. Mobile Cloud Computing Mitchell Shanklin, mds3@cec.wustl.edu
10. <http://aksitha.com/Cloud%20Computing%20Books/Mobile%20Cloud%20Computing.pdf>
11. Yunchuan Sun, Junsheng Zhang, Yongping Xiong, Guangyu Zhu "Data Security and Privacy in Cloud Computing".
12. "Security Issues In Mobile Cloud Computing" JASLEEN Lovely Professional University, Phagwara, Jasleen / *International Journal of Computer Science & Engineering Technology (IJCSET)*.

Digital India Program: is Connectivity the only Challenge?

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ABSTRACT

Digital India program of the government of India is mainly focused on providing digital infrastructure and rural connectivity with high speed internet network. The objectives of the program are digital empowerment of citizens, E-Governance and online provision of Government services. However, in addition to the need for infrastructure, there are a number of other challenges that must be addressed to bridge the digital divide in India. This paper features some of these difficulties that incorporate different explanations behind advanced separation in India, for example, instruction and PC proficiency, age and sex based partition, absence of substance in vernacular and so forth. In addition to the digital divide, the paper also highlights the regulatory and legal issues in cyberspace, security and privacy of data, cybercrimes, as well as emerging social issues such as open source movement and intellectual property rights.

Keywords: Digital Divide, Cyberspace, Regulatory and Legal Framework, Cybercrimes, Security and Privacy of Data, Open Source, IPR

INTRODUCTION

Digital India program of the Government of India is a laudable effort to bridge the digital divide. The program envisages connecting rural areas with high-speed Internet networks and improving digital literacy. The focus of the program is on three key areas – Digital Infrastructure, E-Governance & online availability of Government services, and Digital Empowerment of Citizens.

Bharat Broadband Network Limited, a PSU under the Department of Telecommunications, is executing the National Optical Fibre Network project (NOFN), now called BharatNet, that will provide connectivity upto gram panchayats. BSNL proposes a mass deployment of hot spots across the country. Be that as it may, however great network is an absolute necessity for bringing the advantages of Information and Communication Technology to the rustic and remote regions of the nation, there are various different difficulties.

OTHER REASONS FOR DIGITAL DIVIDE

Education and computer literacy is another important reason for the digital divide in India. Some facts on literacy in India¹ are as under:

- India is home to largest population of illiterate adults in world – 287 million, amounting to 37% of the global total.
- 47.78 % out of school children are girls. In the next census they will be calculated as illiterate women, which would then have a ripple effect on the education of their children.
- Bihar, Jharkhand and Uttar Pradesh are amongst the bottom five states in terms of literacy of Dalits.

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- Though India's literacy rate has increased six times since the end of the British rule — from 12% to 74% in 2011, yet, India has the world's largest population of illiterates.
- 6.60 lakh children in India are still out-of-school
- 7.92% government schools are yet to fully implement the RTE Act.

According to some estimates, computer literacy in the country is about 6.15%. India being a patriarchal society, the women are at a disadvantage vis-à-vis the men leading to a gender based divide. The older generations, even the educated ones, were not exposed to the computer technology resulting in a divide based on age. Finally, the Digital Divide also exists due to a lack of content in vernacular. For example, in India, most of the content is available only in English.

ICT has a huge potential for employment. It has created a need for software professionals, system analysts, programmers, web designers, digital content providers etc. Many of the old processes are being automated [1]. Those who do not have access to ICT are, therefore, put to a disadvantage. ICT is a source of vital information to the society. Information relating to job opportunities, careers, education opportunities etc. is provided by ICT. The role of "Aadhar Card" in providing identity and address proofs (POI and POA) that can be verified online is an example of how even the under privileged segments of the society, who had no means for POI/POA, can be facilitated by means of ICT. The access provided to banking through online and ATM machines to millions of persons, access provided to online bookings and transportation by trains, taxis, and even buses, are some example of role played by ICT in the social and economic welfare of the people and benefits denied to those who do not have this access.

REGULATORY AND SOCIAL ISSUES

In addition to the issue of digital divide, there are other emerging issues in the use of cyberspace. Unlike physical space, cyber space transcends the national and geographical boundaries. Internet is a

connection of computer networks that may be physically located anywhere in the world. Whether it is the availability of content, goods and services or simple social interactions, the users in the cyberspace can interact/transact without limit of any physical boundaries. Though, cyberspace has revolutionized the way we live, interact with each other, and do business, it has also thrown up a number of challenges. The issues in cyberspace are regulatory as well as social.

The regulation of cyberspace is a complex issue. Since the internet can be used to provide digital content such as movies, programs, music etc. there is a need to regulate as under:

- To prevent distribution of obscene, indecent and pornographic content especially that related to child pornography.
- To protect the intellectual property rights of the owners/producers of the content.
- To safe guard the data of the users
- To ensure privacy of the users.
- Use of cryptography. Encryption of data is required to prevent eavesdropping by unauthorized third parties and to prevent the misuse of commercial information. On the other hand, a strong encryption is not acceptable to many countries from the security point of view.

SECURITY AND PRIVACY OF DATA

The security of data and privacy, and prevention of cybercrimes is another issue in cyberspace that needs to be addressed by the stakeholders, regulators and lawmakers. The cybercrimes can broadly be classified into two categories; crimes committed with the help of computers and using ICT; crimes that relate to ICT such as unauthorized access to sensitive and confidential data, stealing the identity of someone, stealing the digital signatures etc [5]. While the first category of crimes may be tackled by modifying existing laws, separate legislature is required for the second category of crimes.

OPEN SOURCE MOVEMENT

On the social front, in addition to digital divide, there are issues of global commons and open source movement.

The issue of global commons can be summarized as a trade-off between the open source and ownership content protected by intellectual property rights. Historically, three types of properties are recognized. Those that are privately held by the owner, public property that is meant for the use of all public and cannot be purchased or sold or passed on by inheritance, and the property that belongs to whole of mankind (6). Internet has lot of content that is available freely without any cost to all. One such excellent effort is the project "Gutenberg". The project is to provide worldwide literature, and books in various languages, on the digital platform. The literature and the books that are not protected by copy rights, are converted into e-books supporting various formats such as "MOBI", "PDH" etc. and are provided free of cost to whosoever wants to use them. The whole project is based on voluntary contributions. Another example is the free courseware content provided by MIT, USA, online to all. Wikipedia is another example. Internet itself is an open global common connecting various networks of the world. There is a creative commons movement and iCOMMONS is an international organization that has grown from this. There is also an effort to promote international trade by global commons through the principal of reciprocity where tariffs and other barriers to the trade are reduced/removed by the countries on a reciprocal basis.

Same as in the case of other content, software can also be broadly classified into two categories; propriety software; open source software. Propriety software, as the name implies, is owned by a proprietor and its use is controlled. This control may be legal in the form copyrights and patent laws, and the use of software may be licensed. Generally, there would be restrictions on the modification and re-distribution of such software. Most of the software developed by Microsoft, Apple Inc. etc. fall in this

category. Open source software in contrast has no specific owner and it is in the public domain just like public property. Anybody can adapt and modify this software which may then be distributed further. "Linux" is the best example of an open source operating system. "Android" is an example of an OS for mobile phones that is in the public domain and has gained a lot of popularity recently.

CONCLUSION

To conclude, the challenges of a digital India are not limited to providing connectivity. Though connectivity is a must, there are a number of other issues relating to digital divide, legal and regulatory framework, privacy and security of data, prevention of crimes etc. As the use of ICT increases so will the attempts at data and identity thefts and other online crimes. An attempt has been made in this paper to highlight some of the issues that must be addressed so that the benefits of ICT may reach to all.

REFERENCES

1. Crandall, Michael, and Karen E Fisher. *Digital inclusion: measuring the impact of information and community technology*. New Jersey: Medford, 2009.
2. *Digital divide*- Wikipedia. https://en.wikipedia.org/wiki/Digital_divide
3. "Educational Statistics at a Glance" Government of India, Ministry of Human Resource Development, Bureau of Planning, Monitoring and Statistics, New Delhi, 2014.
4. *Information Technology Act, 2000*. Ministry of Law, Justice And Company Affairs (Legislative Department) New Delhi, the 9th June, 2000.
5. Johnson, David R, and David G. Post. *Law And Borders: The Rise of Law in Cyberspace*. 48 *Stanford Law Review* 1367 (1996).
6. "What drives broadband take-up?" *Media International Australia*. No. 127, May 2008. <http://www.emsah.uq.edu.au/mia/policy.html>
7. Panda, Ipsita ,Chhatar DurllavCharan and MharanaBulu. "A Brief View to Digital Divide in Indian Scenario." *International Journal of Scientific and Research Publications*, Volume 3, Issue 12, December 2013.

Knowledge Management in Higher Education

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ABSTRACT

Knowledge is mainly spread by the educational institutions and Universities. Knowledge management in education system discuss how working organizations can update their policies and methodology that help people share, manage and learning more knowledge. In higher education settings basically two types of knowledge involved: Academic knowledge and Organization working knowledge. This paper evolves strategies for the formation of KM ecology in an academic knowledge framework and organizational working knowledge framework.

Higher educational institutions (HEIs) make knowledge for creation point of view and apply knowledge during their whole processes and teaching learning process activities. This paper stress on the requirement for learning administration in higher instructive foundations and to inspect the effect of data and correspondence innovation (ICT) based KM intercession. The authors have evaluated the functional parameters for ICT based KM intervention and search out the anticipated benefits. In order to redesign the results, the authors have anticipated a conceptual framework for the efficient capture, encapsulation, structuring, dissemination and employment of the organizational working knowledge towards the organizational goals and objectives.

This paper tests the application and preview of knowledge management systems (KMS) in a private educational institutions and college in India, who is facing tremendous challenges from administrative and flourish competition. The multi-perspective modeling approach is adopted. The private institution/college first defines SWOT analysis and relate it with its vision through faculty brainstorming sessions.

***Keywords:** Knowledge Management, Integration, Decision Making, Integrating*

INTRODUCTION

The objective of Knowledge Management (KM) is the improvement which can be made in the quality of the contributions people make to their organizations by helping people to make sense of the context within which the organization exists, to take responsibility, to cooperate and share what they know and learn, negotiate and learn from others. Organizations have the potential to learn and that new knowledge may be effectively incorporated into specific practices, so that the knowledge is accessible

when needed. Schools, like most organizations, should learn and gain knowledge so as to innovate and improve decisions and especially in the age where decision makers have increased external and internal pressures for change and give new to the market. KM can be used as a strategic tool by all life of schools to improve competitive performance. Zhao (2010) [1] points out that basic KM can facilitate acquiring, sharing and in most cases application of teacher knowledge in every walks of life so as to better manage and execute in walk of life practical and non-practical assets, especially the

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professional knowledge, experiences, their immense experience and competencies of teachers. Several recent studies have stated in large way called for new latest research to focus on KM in institutions. In this paper, KM at organizational level will be the focused. This study is the starting point to look for insight into the design and implementation of KM initiatives at functional organization level and minimize the hidden issues in KM practice in a school level and secondary level education. The question is what value is added to the products and services they deliver by the effective use this knowledge asset. One of the biggest challenge that higher education is suffering and faces today is perceiving the way the students learn and alumni. Institutions would like to know, for example, students liking or disliking to prefer a course, and which students will need assistance in order to achieve higher degree. Are some students keen to transfer than other students? What groups of alumni are more interested to offer pledges?

Issues such as time-to-degree, enrollment management in colleges and traditional issues always motivate colleges for better solutions.

KNOWLEDGE MANAGEMENT

According to E-Zest "knowledge management (KM) is the process by which information is used to create something actionable".

Alhaway defined tacit knowledge, which is experimental, intuitive, and experience based knowledge that cannot be expressed in words, sentences, and formalized or articulated and therefore difficult to share also. Generally knowledge we refer to is explicit in nature meaning expressed in terms of words and numbers and knowledge could be shared. Kerry E. Howell and Fenio Annansingh [6] examined that critical junctures and transformation of culture is possible with knowledge generation dissemination and sharing. Most of the reviews has been explained with this theme i.e.,

- i) gather the knowledge through tacit and explicit,
- ii) knowledge transfer
- iii) knowledge sharing
- iv) knowledge storing
- v) knowledge utilization and reuse.

- vi) knowledge storing
- vii) knowledge utilization and reuse.

Arun O. Gupta, Senior Director Business Technology, Pfizer Ltd describes KM as a practice that addresses the need for information that is required for making effective decisions. By predefined rules the information is translated into knowledge if it is structured.

KM tool is particularly 30% technology and 70% services. These services are provided by librarians and so they are treated as the knowledge manager. These librarians provide services to the users, understand their need & share the information, analyzes the document by sorting them and for fetching data easily build the indexes.

APPROACHES OF KM IN MANAGEMENT EDUCATION

All approaches to KM essentially look at the methods to manage the human interactions better. The KM approach is cognizant incorporation of every single human asset included, all the scholarly procedures and the innovative headway's associated with planning, catching and actualizing the scholarly framework of any administration organization. Institutional obstacles include (Petridis, 2004) [8] factors like data access, data integrity and technological incompatibility. Gopal and Shobha [9] studied the general understanding of students about Knowledge Management, the opportunities available for their Knowledge Management and KM practices adopted by them in their higher education. They recommended integrating the KM in university teaching and learning process.

DATA MINING OVERVIEW

Data mining uses a combination of an self explanatory knowledge base, domain knowledge to uncover hidden trends, analytical & sophisticated skills, and the prevailing pattern.

The prevailing trends and patterns on the basis of estimated models that enable data analysts to produce large and new observations from existing data. Gartner Inc.'s definition of data mining is the

most comprehensive: "...the process of inventing new and meaningful relationship, trend and patterns by sifting through huge amounts of data stored in repositories, and pattern recognition technologies use, and other mathematical and statistical techniques." For mining the large data or raw dataset some useful Data mining are used. It cannot occur without direct interaction with unitary data.

DATA MINING IN HIGHER EDUCATION

In the categories of some tools for academic intervention data mining is one of them which is very powerful. For example by data mining, a university or institution could predict 85 percent accuracy about the will or not student will or will not go for graduation. It is useful to concentrate for the university as an academic assistance and can collect this information on those students most at risk.

Why and how data mining works, very fundamental concepts first are to understand. First, for essential methods on which data mining relies: categorization, classification, visualization and estimation. Categorization uses rule applicable in induction algorithms to handle categorical outcomes, such as "transfer" or "stay and "persist" or "dropout,". Visualization uses pictorials, interactive graphs which demonstrate mathematically induced rules and scores, these are more sophisticated than pie or bar charts. Previously Visualization depict 3-D geographic locations of mathematical coordinates. Estimation functions those predictive in nature or likelihood and deals with continuous outcome variables, such as GPA and salary level.

Classification is used by Higher education institutions for overall analysis of student characteristics. Some estimation tools are used for retention, transferability of a student etc.

Types of Modeling :

- Supervised modeling
- Unsupervised modeling

Classification and estimation may use either of the techniques as unsupervised or supervised modeling.

For a unknown patters or group situation unsupervised data mining is used. For example In students course databases, very little is known about the tendency of students which courses are usually taken by a group of students, or relationship which course types are connected with which student types. First patters are studied by unsupervised data mining and search for previously hidden patterns, in order to understand, typify, classify, and code the objects of study before applying theories.

For records that have known outcome supervised data mining is used. For example, a graduation database is a database those completed their graduation studies, as well as of those who dropped out. Academic behavior of both the groups can also

REASONS FOR APPLYING KM PRINCIPLES IN BUSINESS SCHOOL EDUCATION

Due to the following reasons KM is applied in Management Education

- A-state -of -art ICT system and infrastructure are available in all management institutes.
- All management institution share knowledge among faculty, staff, students conducting Faculty Development Programmes, courses, programs, placements. The academic environment is trustful in the manner that no one is hesitating nor being afraid of publishing knowledge.
- There is continuous rating of Newsletters, Research Papers, Business Magazines and publish strategic issues for competitive advantage.
- The internal documentation management of each institute is meant for sharing knowledge, high level of information and knowledge sharing to continuously improved.
- There is an increased demand for new strategies that help management institutions meet external and internal demands.

CONCLUSION

KM approach will help business schools to rapidly respond to their goals and meet objectives. It will also preempt staff and faculty demands in some cases. To develop strategies the business schools

have to more effectively use their resources and infrastructure to gain more benefit from the investments incurred in both people and technology. The business schools are to develop a robust and thriving knowledge environment to burst their resources, the institutions need to look beyond technology and develop the overall culture of sharing, accessing and managing knowledge. In the author's opinion the real achievement of KM in B schools lies in guiding the students and to grow them into worthy human beings with solving the problems with an inner strength. Every initiative requires time, money, knowledge, energy and resources for its maturity and suit to the business schools. Fro author's point of view in the coming years KM would adopt a good step in the right direction of all Indian higher educational Institutions.

REFERENCES

1. Zhao, J. (2010). *School knowledge management framework and strategies: The new perspective on teacher professional development*. *Computers in Human Behavior*, 26(2), 168–175.
2. Chu, K. W., Wang, M., Zhou, S., & Yuen, A. H. K. (2009). *Teacher Perception of Knowledge Management: A Case Study in a Secondary School*. *Session presented at the 4th International Conference on e-Learning, Toronto, Canada, 16–17*.
3. Ge, X., Zhang, X. M., & Wang, Q. (2006). *The development of teachers specialization in the perspective of educational knowledge management*. *Computer Knowledge and Technology*, 13(12), 227–228.
4. KM. (n.d.). In *e-Zest Solutions*. Retrieved August 29, 2007 from <http://www.e-zest.net/knowledgegmt.html>
5. Alhawary, F. A. & et al, (2011). *Building a Knowledge Repository: Linking Jordanian Universities Elibrary in an integrated database system*, *International Journal of Business and Management*, 6(4), 129-135.
6. Kerry E. Howells and Fenio Annansingh, (2013), "Knowledge generation and sharing in UK universities: A tale of two cultures?", *International Journal of Information Management Volume 33, Issue 1*
7. Gupta, D. (2005, February) *Collecting and sharing knowledge*. *Network Magazine*. Retrieved August 29, 2007 from <http://www.networkmagazineindia.com/200502/coverstory09.shtml>
8. Petrides, L. (2004) 'Costs and benefits of the workarround: inventive solution or costly alternative', *International Journal of Education Management*, vol. 18, No.2, 2004, pp.100-108.

An Approach To The Next-Generation AD HOC Wireless Networks – The Universal AD HOC Network

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-Impact on the Future Mobile Communication Systems

ABSTRACT

India has now more than 120 billion population. This impact the dramatic increase of the cellular phones with Internet access capability, wireless communications have been penetrating into every course of action of human being. Technologies based on development of a single –chip, low cost, radio based wireless network technology like Bluetooth which enables users to connect a wide range of computing and telecommunication devices easily and simple, without having to busy additional or propriety network. Bluetooth is further accelerating this trend to connect everything over a wireless link. With such a background, various types of ad peaks. In this paper, some impact of multi-hop ad hoc wireless network on the next generation mobile communication ad-hoc networks systems will be briefly discussed. At the same time, some of the key issues that must be solved to realize such networks will be presented.

Keywords: Ad Peak, Multihop, MANET, Route

INTRODUCTION

The number of wireless communication devices increasing at global level. About 40 percent of the world's population - 2.7 billion people - are online. The ratio of users in developing countries approaching double of developed countries. The developing world is home to about 826 million female Internet users and 980 million male Internet users. On the other side developed countries 475 million women users and 483 million male users uses Internet services. In India for making Indian economic condition strong- on line should also have a individual home with the help of wireless services.

Today, it is said that a cellular phone becomes a must for daily life as its penetration exceeds 50% [1]. Penetration in developed countries is more than 100 percent, with many people having more than one phone . At the same time, Internet access through wireless network has been growing very fast. In small-enterprises Mobiles have spawned a wealth,

offering work to people with little education and with few resources. As an examples mobile is a tool which selling airtime on the streets every where. The key to successful use of mobile is its affordability, and easily availability. The data argues, "India has shown to the developing countries the way in making it as cheap as possible so everyone can access to this kind of mobile equipment, People exchange e-mails and enjoy web browsing through i-mode cellular phone. It can be monitor how people below poverty line are using mobile phones and design policies to build on that. It is ensured that poor people can use their phones for other purposes in micro-business. At the end of 2016 almost half the rural population in India were not covered by mobile signals. Forget texting and driving or talking on the phone.

The new worry, says a survey released by mobile service providers recently, is what the insurance company cleverly calls "webbing while driving." That means subscribers are looking up for Web pages, following driving directions by maps,

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reading mails and composing e-mails, checking social accounts, and twiddling with smart-phone apps. If it makes a difference, there tend to heavy traffic on connectivity and websites, stopped on signal, the traffic also increases during day time, or when subscribers go on long drives on the open road.

However, all of the current wireless communication services assume fixed infrastructures consisting of base stations (BS) and the associated links to fixed wired networks. Even two subscribers located very close make a conversation by way of a base station, as shown in Fig.1 (a), they can also communicate possibly located several km apart. This phenomenon wastes power and frequency utilization efficiency.

In contrast to this, so-called ad hoc network is a

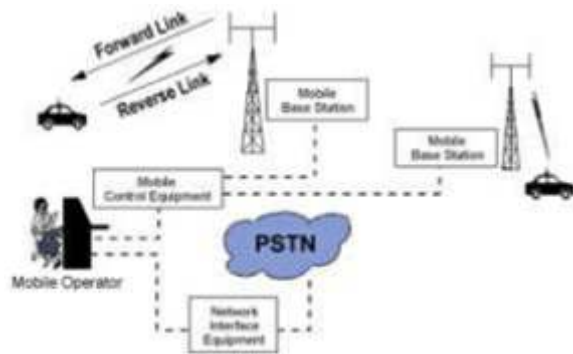
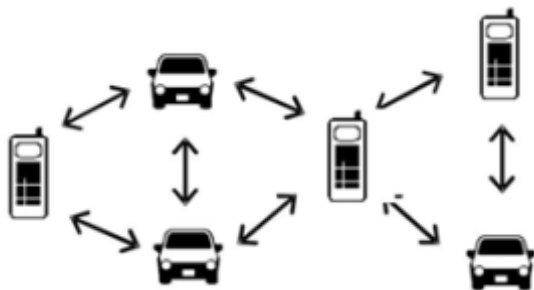


Figure 1. a) Conventional cellular network



b) Ad hoc network

Figure 1. b) Networks with base station and without base station.

network which requires no infrastructure such that mobile terminals themselves autonomously forms a network without base station to communicate each other under the distributed control as shown in Fig.1(b). Mobile ad hoc networks (MANETs) are envisioned to become key components in the 4G

architecture. In the next generation the ad hoc network capabilities are expected to become an important part of overall wireless network functionalities. In general, mobile ad hoc networks are configured with the mobile nodes. The mobile nodes are automatically connected with the wireless equipment (links). It does not use an existing network infrastructure. These mobile nodes are free to move randomly and they also set relationship themselves; so the ad-hoc topologies cannot be fixed and they change according to the situation and environment. The operation of the network is standard, or may be connected to the other larger Internet. Mobile ad hoc networks are infrastructure less networks since they do not require any fixed infrastructure such as a base station for their operation.

In general, links among nodes in an ad hoc network are made including multiple hops and, so, it is worth to call such networks "multihop wireless ad hoc networks." in Figure 2 mobile ad hoc network is shown along with its communication topologies. In the figure several home-computing devices are shown. An ad hoc network might consist of, including tabs, hand held PCs, mobiles devices and so on. Each node will be able to communicate directly with other nodes that reside near to it and within its transmission range. For communicating with nodes those are far away, the communication node communicates hop to hop i.e. one device to another. A ready message initially send to the nearby hop and then to next hop. This communication is also known as hop-to-hop also.

Due to the decentralized nature of wireless ad-hoc networks, it is suitable for a variety of applications in which central nodes can't be relied on and may improve the scalability of networks. Easy configuration and quick deployment of the network make ad hoc networks suitable for emergency situations like natural disasters or military purposes. The presence of dynamic and adaptive routing protocols enables ad hoc networks to be formed quickly. Wireless ad-hoc networks can be further classified by their application.

With the fast change of the LSI technologies for the wireless communications, there emerges a concept of embedding a wireless transceiver circuit everywhere, including shops, to form the world a completely networked so that any information can

be extracted from anywhere and also can be transmitted to the users anyone. Wireless sensor network, where small sensors are placed randomly in an unknown environment and connected in an Ad hoc multi-hop manner, is another example. So called ubiquitous computing or embedded computing refers to this kind of concept for the networked society. A concept of universal ad hoc wireless network has been proposed recently by Mase et al.[3]. In the near future, most of the terminals are expected to have wireless routing function, so that they not only transmit and receive messages by themselves but also can relay other users' message packets. This kind of wireless router might be placed at any fixed places and may become a gateway to the fixed network. It might also become a broadband wireless router behaving like a small-scale base station. In particular, broadband router-mounted automobiles might be good candidates for the "moving base stations" to support many low speed wireless terminals surrounding it and relay the packets as illustrated in Fig. 2. With the intermittent help by the infrastructured network such as terrestrial base station or satellite, the wireless network consisting of automobiles may become a rather stable and survivable network with extremely low cost of message transmission. The paper

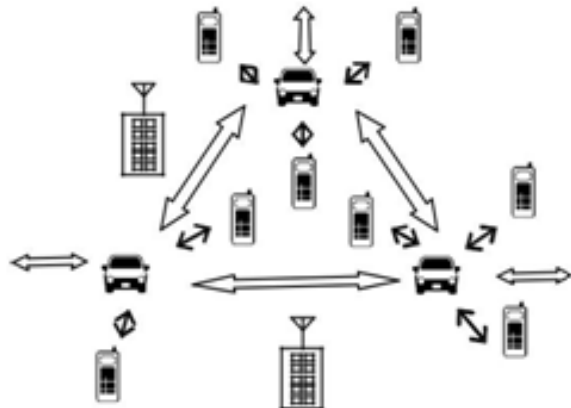


Figure 2. Automobiles might act as base stations.

highlight such a near future vision how the ad hoc network will influence on the telecommunication network. At the same time, some key issues associated with the ad hoc network will be discussed.

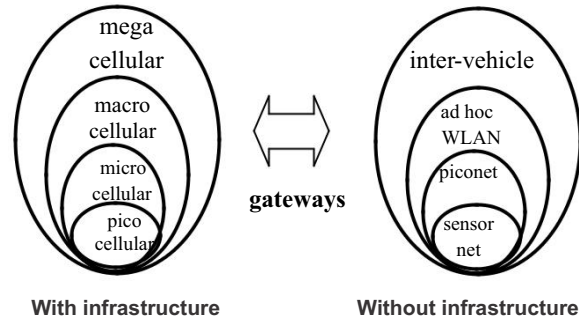


Figure 3. Networks with infrastructure and without infrastructure interact complementarily.

MOBILE AD HOC NETWORKS

The advantage of ad hoc network inherit common characteristics found in wireless networks to ad hoc networking. More recently, the European Hiper LAN has been originally conceived to be ad hoc network. Unfortunately, however, LAN standardization of ad hoc network seems to have attracted small attention. With the rapid progress and spread of computers and other communication equipment, which naturally require wireless connections. "Bluetooth" is expected to be a short-range wireless link connecting every device to form a very flexible network. The smallest cell known as piconet of Bluetooth can work as an autonomous ad hoc wireless network, and this is expected to enhance the trend to connect every consumer product by wireless link. Inter-vehicle communication for the intelligent transport systems (ITS) is also a very challenging ad hoc wireless network of considerable interest. Other advantages are also considerable as Autonomous and infrastructure less. MANET does not depend on any established infrastructure or centralized administration. The topology of such an ad hoc network is dynamic in nature due to constant movement of the participating nodes, causing the intercommunication patterns among nodes to change continuously.

ROUTING ALGORITHMS

Multi hop routing technique is adopted in Ad hoc Network. There is no dedicated routers are necessary for routing purpose. Every node acts as a router and forwards each others' packets to enable information sharing between mobile hosts. Ad hoc

wireless networks eliminate the constraints of infrastructure and enable devices to create and join networks on the fly.

Routing algorithm to relay packets from the source to the destination is particularly important in the case of ad hoc wireless network since some of the nodes might be moving. The movement of the nodes once established might be disconnected. Many routing algorithms have been developed. They are classified into table driven and on demand routing algorithms. When ad hoc network is rather static, i.e., routes are rather stable, table driven algorithm in which routing is performed according to the routing tables prepared at each node is desirable. In other words, when some of the nodes are moving, then overhead packets to renew the routing tables transmitted among nodes might consume non-negligible bandwidth. Therefore, on demand routing algorithm, in which route is discovered only when it is necessary and is maintained during the packet transmission, is desirable. On the other hand, terminal location is going to be identified within an accuracy of 125 meters with 67% of the time by October 2002 according to the rule FCC E-911 in the U.S. Therefore, some of the routing algorithms are designed to reduce overhead by utilizing the



location information efficiently. We studied one algorithm trying to find a stable route by finding relaying nodes with smaller relative velocity among them.

At least, we can reduce the route search area by the use of location information. Figure 4 shows two kind of route searching areas assumed in our computer simulation. Figure 5 depicts how the overhead

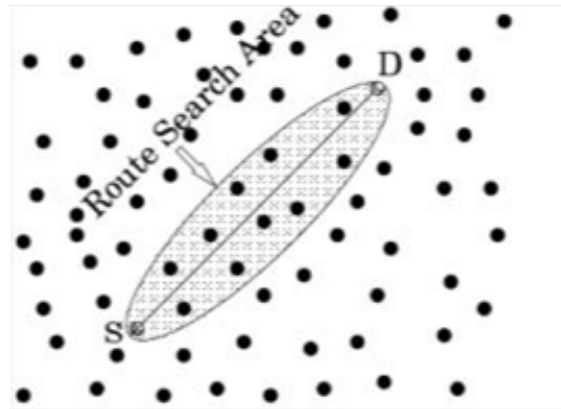


Figure 4. Two kinds of route searching areas in the ad hoc networks.

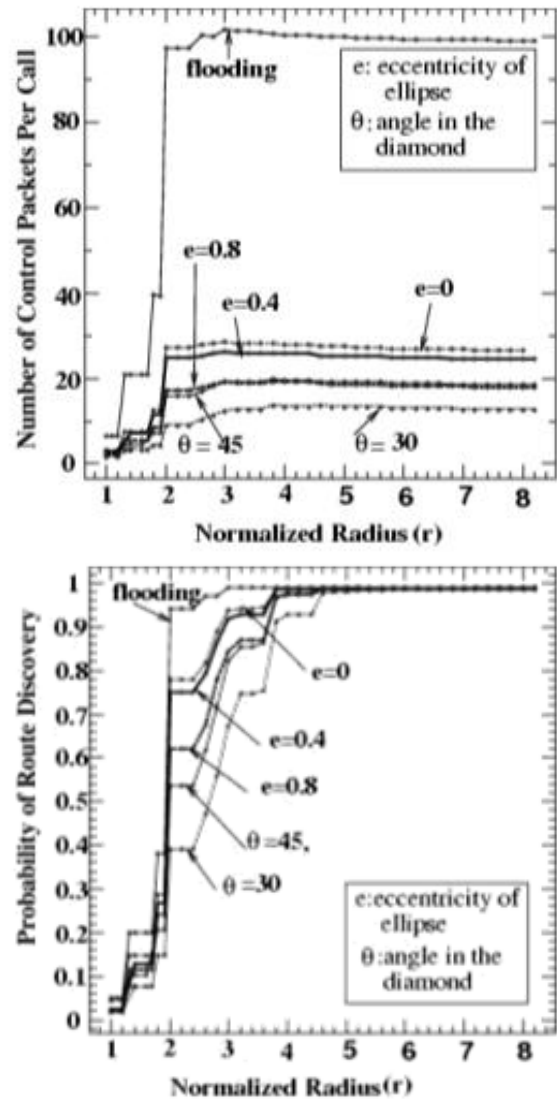


Figure 5 (a) Number of overhead packets vs. normalized radius, (b) Probability of route discovery vs. normalized radius

packets are reduced as compared to flooding protocol and how the route discovery probability changes against normalized radius by restricting the route discovery area to either diamond shape or ellipse shape, where normalized radius means the coverage radius of the node divided by the radius of a circle whose area is equivalent to the average area per node. In the case of larger network, we need some hierarchical structure to reduce the overhead. By somehow clustering the overall network and deciding cluster head for each cluster, routing is attributed to inter-cluster packet relaying among cluster heads, thus contributing to reduce the overall overhead.

INTERNET LAYER ROUTING AND DYNAMIC WIRELESS NETWORKS

Computer and communication networks such as the Internet are multilayered, complex systems relying on many different protocols and associated algorithms for seamless, reliable operation. As networks extend beyond direct-link connection cases (e.g. a local area network in which all nodes are logical single-hop neighbors), there is a need for some function to forward traffic on the behalf of source systems to destination systems that are out of direct connectivity range. Within the Internet Protocol (IP) suite, IP routing technology is typically used to direct the forwarding of such traffic. Several of the technical fundamentals of routing involve how protocols find, manage, and use multihop paths for forwarding information on the behalf of specific end systems to particular destination systems. The global internetwork (i.e., the Internet) routing system must adapt on some reasonable time scale to changes and failures in the network infrastructure, and it must scale to support many billions of end systems.

New technology developments and design extensions that better address and meet the unique challenges and opportunities of wireless operation are needed. MANET can enable improved dynamic wireless operation by addressing routing technology improvements within this context.

We define MANET operational regions as collections of wireless network platforms or “nodes,” where nodes may organize and maintain a routing infrastructure among themselves in a

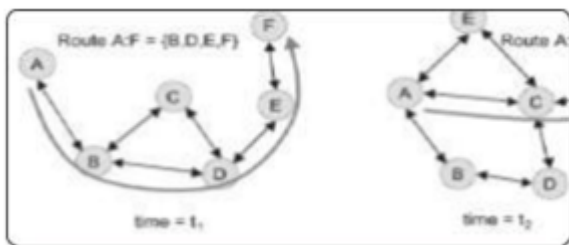
relatively arbitrary fashion. Due to the fundamental dynamic nature of wireless network communications, it is not necessary that nodes be in motion for this to be a valuable capability, but the general design assumption is that relative node mobility should be directly supportable. MANET nodes are enabled with the potential for wireless-compatible routing capabilities. With these technology enhancements, nodes can more effectively monitor and adapt to changes in the local neighborhoods and across MANET topological regions of operation. Figure 6 shows a simple example of the need for dynamic routing when a wireless topology change occurs. In this case, routing mainly do the work of the to forward traffic from node A to node F. Valid routes must be discovered and maintained in order to forward network data to the desired destination, node F in this example. This capability is no different from the general goal of IP layer routing, but the underlying design assumption of wireless interfaces and possibly mobile routing nodes presents increased technical challenges. Overall, MANET deployments have been envisioned in many different scenarios and on many different scales. In considering use of a particular MANET protocol or approach, it is important to be cognizant of operational parameters that can directly affect suitability and performance. Some operational parameters that affect overall performance and scalability include number of peer routing nodes, their type and degree of link flexibility, expected user traffic patterns, density of the network, and lower-layer technology characteristics. The interplay of all these parameters and their relative performance effects can be quite complex and different for each routing approach under consideration. Aware of the oversimplification and somewhat arbitrary nature of the following terminology, we define some rough scalability regimes based on the number of peer routers within a region to aid discussion:

- Small-scale (i.e., 2–29 nodes)
- Moderate-scale (i.e., 30–100 nodes)
- Large-scale (i.e., 100+ nodes)
- Very large scale (i.e., 1000+ nodes)

We are applying this terminology within a single service region, and, therefore, in this terminology a deployment of 10 moderate-scale MANET network service regions consisting of approximately 100

nodes each so total 1000 nodes is not a very large MANE, but is a considered collection of moderate-scale networks. At the time of this writing, MANET operational experience has been gathered in small-to moderate-scale routing region cases. Early research and applications of various routing schemes available performed on a variety of working hardware and software operating systems. Further in addition to already working MANET systems, a huge number of independent simulation models have been developed and numerous performance studies have been performed, mostly at the moderate-scale and some at the large-scale level across a wide variety of protocol types and within a range of available network simulation packages. From authors' point of view, there remains a growing technical work in future promising to be done in the area of creating large to very large MANET region technical issues, but even with some early implementations much of this scalability work remains at a research stage with many practical issues regarding performance to be further explored. On the other side, small-to-moderate level mobile network applications are adopting a level of understanding in a wide variety of scenarios.

Before we discuss other performance and application issues in MANETs, let us discuss some of



the motivational factors behind developing MANET technology for the Internet protocol suite.

TECHNICAL CHALLENGES AND RESEARCH OVERVIEW

The MANET issues and constraints described in the previous section present a host of challenges in ad hoc network design. A significant research is required to address these specific issues. In this section, we illustrate some of the main research areas within the mobile ad hoc network areas. In Figure 7 the MANET network layers and the corresponding

research issues associated with each layer are maintained.

Media Access Control and Optimization

In MANET, use of broadcasting and shared transmission media introduces a nonnegligible probability of packet collisions and media contention. In addition, with half-duplex radio, collision detection is not possible, which severely reduces channel utilization as well as throughput, and brings new challenges to conventional CSMA/CD-based and MAC protocols in general. Among the top issues are the hidden-terminal and exposed-terminal problems.

Network Layers	Challenges in each layer	All Layers:
L7: Application Layer	New/Killer Applications;	Energy Conservation; QoS, Reliability, Scalability, Network Simulation, Performance Optimization, H/W,S/W tools Support
L6: Presentation Layer	Network Auto-configuration Location Services	
L5: Session Layer	Security (authentication, encryption)	

Figure 7. MANET network layers and research challenges

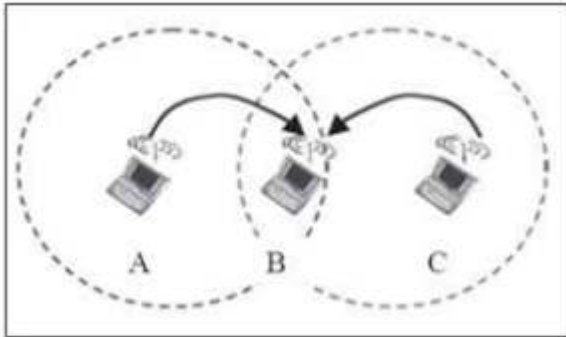


Figure 8. MANET network layers and research challenges

The hidden-terminal problem occurs when two (or more) terminals, say, A and C, cannot detect each other’s transmissions (due to being outside of each other transmission range) but their transmission ranges are not disjoint. As shown in Figure 8, a collision may occur, for example, when terminal A and C start transmitting toward the same receiver, terminal B in the figure. The exposed-terminal problem results from situations in which a allowed transmission from a mobile station (sender) to another mobile station (receiver) has to be delayed due to the many unnecessary transmission activity between two other mobile stations within sender’s transmission range.

POWER CONSUMPTION

To save the battery, the minimum amount of power that can provide satisfactory service will always be used. It has been shown that the most efficient method of communicating is to break a larger path down into a number of smaller hops [9]. However, the efficient routing of packet without incurring the large overhead is not trivial. Generally speaking, in ad-hoc wireless networks, each terminal has packet relay capability. This function introduces extra power consumption for just relaying a packet for other users. However, the required transmission power for each link between terminals can be much smaller than that of the cellular systems, since each link of ad-hoc network is fraction of that of cellular networks. In our initial study, the total transmission power per single node in ad-hoc networks is compared with that of cellular networks. Figure 9 shows the comparison of the total transmission power assuming 23,000 terminals in 5km x 5km area.

The allowable maximum hop count is 100, and the

initial transmission range of the ad-hoc network is 100m. The path loss exponent “a” is assumed as 3 for ad-hoc networks (denoted as PRN), and 3, 4 and 5 for cellular networks where 25 base stations exist. From this figure, it is shown that ad-hoc networks do not necessarily need more power, and may offer long battery life compared with the cellular networks

INTERFERENCE CANCELLATION

Code division and time division are the two typical multiple access schemes assumed for the ad hoc network. We compared the performance assuming inter-vehicle communication for ITS. For the IMT-2000, CDMA has already been accepted. For inter-vehicle communications, distances among vehicles are always changing and communication mode is not necessarily one-to-many (base station to mobiles), but many-to-many (mobiles to mobiles). Under such circumstances, power control that is a must for CDMA does not work completely. Therefore, we found time division scheme, such as TDMA, is more suitable than CDMA. Efficient autonomous packet relay protocols have been studied [11]. Yet, to support for as many terminals as possible to communicate simultaneously, co-channel interference is expected to be a bottleneck to assure high capacity. On the other hand, we have proposed Trellis-coded Co-channel interference Canceller (TCC) [12]. It is a kind of multi-user detector and this type of signal processing to alleviate the interference such as co-channel interference, adjacent channel interference, etc. is sure to be very important in the ad hoc network with densely distributed terminals.

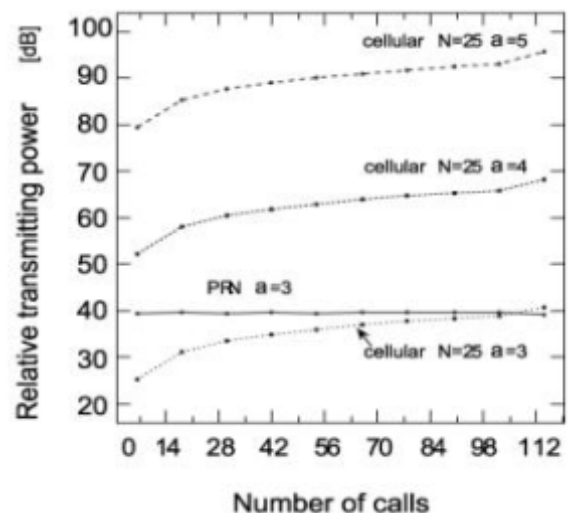


Figure 9. Comparison of the total transmission power.

CONCLUSION

Ad hoc networks are expected to play important roles in the wireless network beyond IMT2000. Even at 3GPP, ODMA has been proposed to enhance the capacity of TDD scheme. As the various autonomous distributed networks starting from sensor networks to inter-vehicle communications are becoming widespread use, self-deployable ad hoc networks with distributed control are sure to play important roles in the coming information society. All the packets are likely to be relayed by the terminals of someone else, and thus information security is so important in the ad hoc network. Eavesdropping and traffic analysis can be avoided by end-to-end encryption of the messages and the information identifying the senders but it definitely needs further study. Here in this paper some of the problems we are dealing are introduced mainly to trigger further research in this important field. Of course, there exist a lot of other important problems to be solved in order to deploy ad hoc networks to the extent that they are regarded as the "infrastructure" of the networked society.

REFERENCES

1. Shuzo Kato, *Banquet speech at PIMRC'99, Osaka, Sept. 1999.*
2. B.M.Leiner, R.J. Ruth and A.R, Sastry, "Goals and challenges of the DARPA GloMo program", *IEEE Personal Communications*, pp.34-43, Dec. 1996.
3. K. Mase, M.Sengoku and S.Shinoda, "An approach to the next-generation ad hoc networks – the universal ad hoc network --", *Proc. IEICE General Conf.*, March 2000.
4. E. M. Royer and C-K. Toh, "A review of current routing protocols for ad hoc mobile wireless networks", *IEEE Personal Commun.*, pp.46-55, April 1999.
5. J.H. Reed, K.J. Krizman, B.D. Woerner and T.S. Rappaport, "An overview of the challenges and progress in meeting the E-911 requirement for location service", *IEEE Commun. Magazine*, pp.30-37, April 1998.
6. H. Jiang, M.Shinada and S.Yoshida, "Routing for wireless ad hoc network utilizing location information", to appear in *Proc. Kansai Joint Conference of Electrical Engineering related Institutes*, Nov. 2000.
7. W. Li, H.Murata, S.Hirose and S.Yoshida, "Mobile ad-hoc network routing protocol using velocity information", *Proc. Symposium on Information Theory and Its Applications (SITA'99)*, Yuzawa, Nov. 1999.
8. Y. Shimazu, H. Murata and S. Yoshida, "Autonomous packet relay protocol for ITS vehicle-to-vehicle communication systems", *Trans. IEICE*, vol. J82-B, no.11, pp.2018-2025, Nov. 1999.
9. Y. Morino, R.Sakata, H.Murata and S.Yoshida, "Comparison of total transmission power between multi-hop autonomous distributed radio network and cellular network", to appear in *Proc. IEICE Commun. Society Conf.*, Nagoya, Oct. 2010.
10. http://www.3gppbluet.oorthrg/TSG/Dec99.com/_status_list.htm
11. Hahn, Hans and Kibora, Ludovic . "The Domestication of the Mobile Phone: Oral Society and New ICT in Burkina Faso". *Journal of Modern African Studies* 46 (2008): 87–109.
12. H. Murata and S. Yoshida "Trellis-coded co-channel interference canceller for microcellular radio", *IEEE Trans. Communications*, vol.45, no. 9, pp.1088-1094, Sep. 2014.

ABSTRACT

Cloud computing brings considerable benefits to businesses, such as sharing between multiple users the ability to meet the requirements of current enterprises. It allows to make a work more proper and easy. The cloud model helps businesses of all sizes and industry focus resources on optimizing their processes, freeing the maintenance, updating grades and paying back of technology investments in systems, which are often less efficient and are utilized within each organization. But other than all off this what are the most important benefits and risk involved in it. Any association who needs to move its in-house created applications to the cloud to spare cash and increment proficiency should be watchful and ought to consider how application security changes in a cloud situation.

Many solution providers have heard the phrase cloud computing thrown around as if it were the end-all, be-all future of information technology. Be that as it may, cloud computing can mean a wide range of things to various individuals, and the channel is no exemption. For some framework integrators and VARs, distributed computing is by all accounts to a greater extent a risk than an open door.

The perceived threat comes from the idea that a customer's computing resources can be converted into a virtual offering, where applications are hosted and storage is sold based upon need and capacity. In addition, that virtual offering can be situated in a data center hundreds or thousands of miles away, a long way from the compass of the nearby arrangement supplier.

That makes a noteworthy predicament for most little integrators and VARs: How would you be able to rival something that isn't exactly substantial and requires negligible in advance cost? The appropriate response originates from demystifying the IT element called the "cloud."

INTRODUCTION

Issues related to cloud computing

Most businesses are shunning public cloud computing services because of fears over the security of corporate data. Only 21 percent of IT chiefs questioned by Forrester Research said their business had made, or planned to make, greater use of a public cloud service known as infrastructure-as-a-service (IaaS) in 2010. According to Dennis Hurst, the founder member of CSA and security specialist, Hewlett Packard Co. 'When you go to the cloud you

have to consider that application is going to be a somewhat hostile environment.'

Worries about public cloud security are driving some companies to transform their own internal data centers into private clouds, the practice by which a businesses' in-house IT estate can deliver the same on-demand computing model provided by the public cloud. The absence of physical control over the systems administration framework may order the utilization of encryption in the correspondence between servers of an application that procedures delicate information to guarantee its classification,

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the CSA exhorted. The Forrester survey found that almost one-quarter of the IT chiefs questioned said that building a private cloud was a priority in 2010, up from 19 per cent in 2014.

The insider threat from employees being lax with or ignorant about security has long been an issue for CSOs. Yet, specialists trust the danger will rise this year, as more individuals combine their working and home lives.

Daniel Dresner from the National Computing Center (NCC) says, "The thing that worries me more than anything is the possibility that there is an enchantment entryway individuals go into when they go to work, and that you are a private individual when you leave work." Actually workers invest a ton of energy sharing individual and business data on long range interpersonal communication locales with "a trusting innocence", says Dresner. This abandons themselves and the association open to phishing and spam assaults. "We have to watch out for hazard," he says.

Paul Simmonds, a board member of The Jericho Forum, a global grouping of CSOs, says Jericho's focus for 2014 was on securing the wider enterprise to tackle issues that centre on insider threat.

The top three issues for 2014 were: securing cloud computing building on deperimeterisation, as organizations were forced to allow more access through their borders and collaboration oriented architectures (COA), which involved technology that allowed enterprises to collaborate securely with partners, vendors.

David Porter, head of security at business and technology consultancy Detica, said that employees being lax with security were one thing, but a bigger issue for 2014 was "insider exploitation". Cloud computing has been widely heralded as the "next big thing" in technology circles. It's protected to state that most organizations will in the long run receive at any rate a few parts of a distributed computing model - particularly on the off chance that it ends up being more conservative and adaptable. The need to trust whoever is giving the cloud benefit gives off an impression of being an unpreventable reality, yet it is likewise clear that there are a few stages that organizations can go out on a limb - from abnormal state demonstrating to more attempted and-ried

ways to deal with Internet and equipment security. Benefits of Cloud Computing:

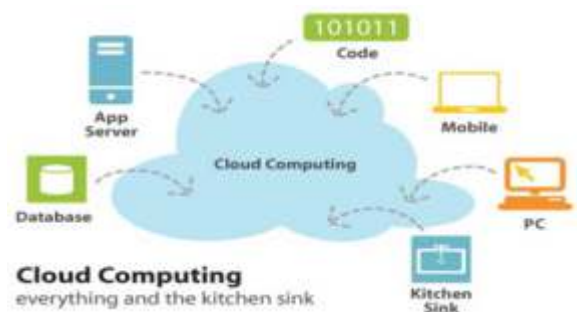
- Your server will have offsite backup in case something goes wrong.
- If something does goes wrong, you can get the support of your service providers
- You receive secure, managed hosting at very inexpensive costs.
- You do not need to purchase additional hardware as your space requirements grow.

Disadvantages:

- Additional cost of data transfer fees
- You do not have control over the remote servers, their software, or their security
- Your data is at the mercy of a third-party company (you better make sure you trust them).
- It may be difficult (or even impossible) to migrate massive amounts of data from the provider

These benefits and disadvantages may differ, depending on the provider. It is important for you to research them ahead of time and decide if cloud computing is right for you. Whether you need only a few applications like webmail or want all of your applications and/or data offsite, cloud computing may be an option you will want to consider.

Cloud Computing: What It Can Do For You And Your Business



A current post by Deloitte asked whether distributed computing makes venture engineering unimportant: "With less dependence on enormous, solid undertaking arrangements, it's enticing to feel that the diligent work of making feasible endeavor design (EA) is additionally behind us. Along these lines, the same number of organizations influence the move to distributed computing, they to suspect

deserting a great deal of the cerebral pains of big business design."

To put it plainly, we profit from counseling on big business design. It's practically equivalent to stating that some progressive new building material makes basically designing unessential. We should've advanced a bit at this point, considering the measure of time distributed computing has been on the scene. Distributed computing does not supplant endeavor engineering. It doesn't give "unbounded versatility," it doesn't "cost pennies daily," you can't "arrive in 60 minutes" . It's energizing innovation that holds the guarantee of giving more powerful, effective, and versatile processing stages, however we're taking this buildup to senseless levels nowadays. It's not politically right to push back on distributed computing nowadays, so the individuals who have worries about the cloud are hushing up about their sentiments.

Many of them are already there, even if they don't realize it. Some of the most basic Web tasks are based in the cloud — a generic term that basically means tapping into online-based services. Common tasks like e-mail, social networking and online photo-sharing take place in the cloud. At its most fundamental level, the cloud is a technique for keeping up computerized data and administrations online — regularly numerous states away in atmosphere controlled stockrooms stuffed with piles of servers. Utilizing the cloud arranges for organizations from purchasing, keep up and investigate their own particular data innovation administrations. It can likewise fill in as a path for firms to develop effortlessly and powerfully as they see surges in business. Worldwide revenue from public cloud services exceeded \$219.6 billion in 2014 and is on track to reach \$411 billion in 2020, according to International Data.

Cloud computing lets companies store data and do tasks on off-site servers

Prior to the approach of the power framework, organizations provided their own particular power with gadgets like waterwheels, agitating always to give enough squeeze to day by day tasks. However, more than a hundred years back, those organizations could connect to an incorporated

network, liberating them from dealing with their own energy sources. Organizations now confront a comparable change as they quit utilizing conventional in-house information stockpiling and processing arrangements and tap rather into a huge system of online storage.

That context, which serves as the thesis of Nicholas Carr's influential book "The Big Switch," is the basis of the cloud computing movement. Using the cloud — a catch-all term for storing data or completing tasks through off-premise servers — has become a key focus of businesses small and large. A recent Microsoft survey found that more than half of small-to medium-size businesses in 10 key U.S. cities including Detroit have either never heard of the cloud or has heard of it but know nothing about it. That same survey also found that only 16% of small-to medium-size businesses had a cloud project planned.

Threats of cloud computing

Here are seven of the specific security issues Gartner says customers should raise with vendors before selecting a cloud vendor.

1. Regulatory compliance. clients are eventually in charge of the security and uprightness of their own information, notwithstanding when it is held by a specialist organization. Customary specialist organizations are subjected to outer reviews and security accreditations. Cloud computing providers who refuse to undergo this scrutiny are "signaling that customers can only use them for the most trivial functions," according to Gartner.
2. Privileged user access. Delicate information prepared outside the undertaking carries with it an inalienable level of hazard, in light of the fact that outsourced administrations sidestep the "physical, intelligent and work force controls" IT shops apply over in-house programs. Get as much data as you can about the general population who deal with your information."Ask providers to supply specific information on the hiring and oversight of privileged administrators, and the controls over their access," Gartner says.

3. Data segregation : Information in the cloud is regularly in a common domain close by information from different clients. Encryption is viable however isn't a cure-all. "Discover what is done to isolate information very still," Gartner prompts. The cloud provider should provide evidence that encryption schemes were designed and tested by experienced specialists. "Encryption accidents can make data totally unusable, and even normal encryption can complicate availability," Gartner says.
4. Data location. When you utilize the cloud, you likely won't know precisely where your information is facilitated. Truth be told, you won't not realize what nation it will be put away in. Inquire as to whether they will focus on putting away and handling information in particular wards, and whether they will make a legally binding sense of duty regarding obey neighborhood protection prerequisites for the benefit of their clients, Gartner advises.
5. Recovery. Regardless of whether you don't know where your information is, a cloud supplier should disclose to you what will happen to your information and administration if there should arise an occurrence of a disaster. "Any offering that does not replicate the data and application infrastructure across multiple sites is vulnerable to a total failure," Gartner says. Ask your provider if it has "the ability to do a complete restoration, and how long it will take."
6. Long-term viability. Ideally, your cloud computing provider will never go broke or get acquired and swallowed up by a larger company. But you must be sure your data will remain available even after such an event. "Ask potential providers how you would get your data back and if it would be in a format that you could import into a replacement application," Gartner says.
7. Investigative support. Exploring wrong or illicit action might be unimaginable in distributed computing, Gartner cautions. "Cloud administrations are particularly hard to research, since logging and information for numerous clients might be co-found and may likewise be spread over a consistently changing arrangement of hosts and server farms. In the event that you can't get a legally binding sense of duty regarding bolster particular types of

examination, alongside prove that the merchant has as of now effectively upheld such exercises, at that point you're just protected presumption is that examination and disclosure solicitations will be unimaginable."

Physical Security

In on-premises frameworks, work number one of security is to ensure that unapproved individuals don't get physical access to the machines. On the off chance that somebody can interface remote equipment, reconfigure the framework, or control the framework boot cycle, a terrible parcel of security is out the window. In a cloud-based administration, CIOs don't need to stress over this on the server side—that is the merchant's activity. While there have been intermittent ruptures of cloud benefits throughout the years, built up cloud sellers have quite tight activities gatherings—and the vast majority of them regard their inside security systems as profoundly monitored exchange privileged insights. Which implies CIOs won't have the capacity to get much data to assess them. With a legitimate merchant, it's protected to disregard this issue.

Encryption

Encryption is an undeniable prerequisite for cloud applications, and https is the pattern for all client logins and joining associations. Numerous cloud applications, in any case, are not worked to have information scrambled inside the cloud. In fact, now and again it's not by any means conceivable to have the cloud information put away in encoded shape. As this stances dangers for client security, and corporate snooping, CIOs must get some information about inner encryption and push for it in their guide introductions.

ILP/DLP

Information loss protection—or data leakage prevention—is a critical issue for business applications. In the US, 80 million consumer identities are compromised every year due to accidental losses and deliberate attacks.

In cloud frameworks, there are two noteworthy hazard territories for spills. The first is a rupture inside a cloud seller—something CIOs have little control over; other than screening merchants. In any case, they can at any rate request, as a major aspect

of their SLA, that they are advised of any rupture that influences their information.

The second class CIOs have control over: Loss toward the end-point. This requires add-on programming or equipment for every server, PC, and cell phone that presents or procedures information from their cloud application. The objective is to ensure that exclusive approved information exchanges happen, and they should be managed down to the gadget and document/protest level. Further, utilization of record encryption and auto (endless supply of control of the gadget) are required, especially if an association has an extensive field compel. While broadly useful ILP/DLP items are a decent begin, there are presently a few new businesses offering arrangements customized to the particular needs of cloud-based programming.

Privacy

Contingent upon the business and area of a CIO's business, there is an astounding exhibit of protection acronyms that their cloud application should follow: PCI, GLBA, CA1386, HIPAA, FERPA, Directive 95/46/EC, the rundown appears to be perpetual. The principal request of business is nailing ILP/DLP: CIO can't agree to any security standard if data is spilling out. The subsequent stage is to guarantee that cloud sellers are consistent with controls, or possibly have a sheltered harbor accreditation. While numerous cloud application sellers have accomplished this, there are a few classifications—remarkably cloud-reconciliation merchants—whose present age of administrations most likely can't be confirmed.

Audits

Review trails—for login history, regulatory activities, and information changes—are a basic fixing to security. While a review trail won't stop a break, it gives prove about what happened and how to direct a remediation. While reinforcements or chronicles are basic, they are not a substitute for a formal review trail. CIO must guarantee that their cloud seller offers a possibility for logging before they agree to accept the administration, and ensure that they divert on that choice from the very beginning. IT pioneers presumably won't be capable review each field's change, so they have to make a

point to pick the ones that are the most touchy and significant. At long last, they should ensure that review trails are themselves moved down (onto their own nearby media), as they may vanish from an association's framework following a couple of months. Recuperation of these review trails from inside the administration can be tremendously costly.

Denial-of-Service Attacks

Denial-of-service are probably going to be a changeless installation. While they are probably not going to target only one association, when cloud merchants go under assault it influences the business progression of numerous organizations. Like with catastrophe recuperation, CIOs need to realize what remediation systems their cloud sellers have set up and need to consult for a SLA covering administration recovery time.

CONCLUSION

Before choosing to make the jump into the cloud and move IT benefits there, organizations ought to have a reasonable thought of what benefits they're searching for. Arrangement suppliers can help control their clients there and hash out these advantages, which can incorporate diminishing the time and push to dispatch new applications; empowering IT to be more receptive to the necessities of the business; and bringing down capital uses and saving money on support costs.

So we can reason that Cloud registering is valuable. When the applications, procedures and information are approximately coupled or they are generally autonomous. This makes it less demanding to change to cloud. At the point when the information, process and conduct can be shared inside an application on very much characterized focuses. At the point when security of information and data isn't at top need as it were bring down level of security approves of the application and it doesn't influence the believability of the organization. At the point when the center inside design of the association is solid and sound, since it can without much of a stretch mapped to cloud engineering. At the point when the Web program can be utilized as a stage to get to the cloud administrations or no local APIs are required. Each coin has two sides same with the distributed computing. Cloud registering isn't

Useful/Applicable and we need to avoid potential risk in regards to these issues:

At the point when the applications, procedures and information are firmly coupled or associated. At the point when there are not all around characterized focuses to share the information, process and conduct inside an application. At the point when the application require an abnormal state of security. When you need add up to control on your procedures and information and along these lines can't outsource your application or its basic parts. At the point when the center inside engineering of the association isn't working great, at that point first makes it solid with the goal that it can be effectively mapped to cloud design. When you require local APIs, since the cloud does not give local APIs. When you are as of now utilizing an inheritance framework, since more established frameworks have number of troubles to move to cloud design.

REFERENCES:

1. Anthony Bisong and Syed (Shawon) M. Rahman " An Overview Of The Security Concerns in enterprice cloud computing" International Journal of Network Security & Its Applications (IJNSA), Vol.3, No.1, January 2011.
2. Abhinay B.Angadi, Akshata B.Angadi, Karuna C.Gull, "Security Issues with Possible Solutions in Cloud Computing-A Survey" International Journal of Advanced Research in Computer Engineering & Technology (IJARCET) Volume 2, Issue 2, February 2013.
3. Prof. Ashok Deokar "Cloud Computing Security Issues, Challenges and Solution" International Journal of Innovative Research in Computer and Communication Engineering, Vol. 5, Issue 2, February 2017.
4. Sanjay K. Madria "Security and Risk Assessment in the Cloud".
5. Sultan Aldossary, William Allen "Data Security, Privacy, Availability and Integrity in Cloud Computing: Issues and Current Solutions" (IJACSA) International Journal of Advanced Computer Science and Applications, Vol. 7, No. 4, 2016.
6. Lo'ai Tawalbeh1,, Nour S. Darwazeh , Raad S. Al-Qassas and Fahd AlDosari "A Secure Cloud Computing Model based on Data Classification".
7. <https://www.businessnewsdaily.com/5215-dangers-cloud-computing.html>
8. <https://www.dialogic.com/~ /media/products/docs/whitepapers/12023-cloud-computing-wp.pdf>
9. <http://searchitchannel.techtarget.com/>

Statistical Study on Spoken Tutorial based Learning

Dr. Sheelesh Kumar Sharma*

ABSTRACT

The advent of 21st century calls for modern approach in profession education. The world is becoming smaller and the educational field is becoming larger day by day. New modes of communication have emerged which calls for innovative information to be provided in the form of specialized education to be given to the modern students by the teachers in this century. The current era of ICT has brought revolution in the field of education system and has very good scope in the country like India. In this research work we statistically examined that the Spoken tutorials and online discussion with subject experts can bring revolution in the education system.

Keywords: ICT-Information Communication Technology

Introduction

Rapid scientific and technology changes demand that Students of 21st Century are prepared to have such an educational system that is intended to learn smart, fast, and well enough to manage today's fast-paced changes and leadership challenges—successfully and productively. New modes of communication have emerged which calls for innovative information to be provided in the form of specialized education to be given to the modern students by the teachers in this century (Bradley, 1996; Lackie, 1999; Englert, Tarrant, and Rozendal, 1993).

A modern society needs a modern higher education system with emphasis on knowledge management, information technology and lifelong learning (Pinto & Doucet, 2007). Thailand introduced the student-centered approach into all education levels (Office of the National Education Commission, 2008). Student-centered learning requires students to be active, responsible participants in their own learning and in lifelong learning with information literacy skills. This view is embraced by UNESCO (1996) and World Declaration on Higher Education (1998) explanations that propose another understudy

based instructive model in which the understudy must obtain a basic soul to examine issues, know how to receive arrangements, and accept social obligations. Moreover, the faculty wants to see an improvement in the quality of student work, and students want to become more confident in their ability to complete assignments, carry out research projects, and become active, independent learners (Rockman, 2004). Evidence appears in many academic research studies in Thailand that have evaluated the information literacy skills of undergraduate and postgraduate students (Hutthaphong, 2005; Nimitrprajak, 2004; Yingsukwattana, 2004; Oujit, 2003; Sramoon, 2003). These studies also show that students had problems using information to do homework, write academic papers and prepare research proposals. All information literacy skills offered in the universities are stand-alone courses. Therefore, students learn concepts and content without practice or hands-on experience.

The current era of ICT has brought revolution in the field of education system and has very good scope in the country like India. In this research work we statistically examined that the Spoken tutorials and online discussion with subject experts can bring

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revolution in the education system. Educational systems around the world are under increasing pressure to use and develop new ICT tools to teach students with more knowledge and skills (Mcintyre, and Wolff, 1998; Read, 1997). Developing a “best practice” and research-based framework (for design, teaching and learning strategies) to utilize different electronic medium of learning and to improve performance of education system, is critical to answer. Although this research work is based on the responses received from 200 Professionals (Educationists & Students of Professional Courses) but it gives an idea of growing need of application of new ICT tools in Indian education system. On the basis of responses received, following suggestions are submitted for effective use of new ICT tools to improve learning system:

- Understudies and instructors must have adequate access to advanced advances and the Internet in their classrooms.
- High caliber, important, and socially responsive computerized content must be accessible for instructors and students.
- Teachers must have the knowledge and skills to use the new digital tools and resources to help all students achieve high academic standards.

OBJECTIVES OF THE STUDY

“In this research paper we statistically examined that the spoken tutorials and online discussion with subject experts can bring revolution in the education system which can be innovative practice in professional education.”

METHODOLOGY

A questionnaire base survey was conducted to know the need of new ICT tools for implementation of Spoken tutorial based learning system in educational institutions. The responses from 200 randomly selected respondents were examined. Sample and Sampling Techniques: The Study is mainly based on the primary data. The present study was conducted in the Districts Gautam-Budh (Noida and Greater Noida) and Ghaziabad of Uttar Pradesh State in India. The primary data were collected from 100 teachers teaching in professional courses (MBA, and MCA) and 100 students of different institutions

in the area.

DATA ANALYSIS

The data were analyzed with the help of simple statistical technique, percentages. Table 1,2 show the responses received from Faculty Members (100) and Students (100) respectively to know the need of new Spoken Tutorials and Online Discussion System with Subject Experts, as one of the innovative learning method for the professional education. On the basis of responses a chi-square test at 5% level of significance is applied to test the independence between Professionals and their agreement towards the requirement of spoken tutorials and online discussions. The chi-square p-values (0.121525 & 0.011), on the basis of responses from Faculties and Students respectively, show that faculty members are not strongly in favour of Spoken tutorial based learning where as students are very much in favour of Spoken tutorials and online discussions.

Table 1

Faculties	Number of Respondents N=100			
	Number Agree	Strongly Agree	Neutral	-Agree
MBA	50	15 (30%)	20 (40%)	15 (30%)
MCA	50	30 (60%)	10 (20%)	10 (20%)
Total	100	45 (45%)	30 (35%)	25 (25%)

Table 2

Students	Number of Respondents N=100			
	Number Agree	Strongly Agree	Neutral	
MBA	50	20 (40%)	20 (40%)	10 (20%)
MCA	50	35 (70%)	10 (20%)	5 (10%)
Total	100	55 (55%)	30 (30%)	15 (15%)

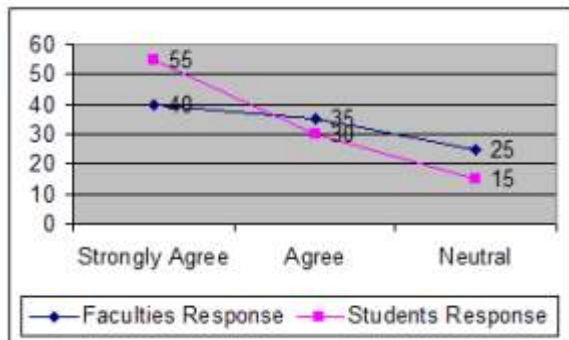


Figure1: Responses regarding the need of Spoken tutorials and online discussions.

On the basis of responses a chi-square test at 5% level of significance is applied. Let us take a null hypothesis that there is an agreement regarding spoken tutorial based learning is not based on type of students in professional course.

FINDINGS OF THE STUDY

- An important aspect which has emerged from the study is that seventy five percent of the faculties and eight five percent of the professional courses students are of the opinion that Spoken tutorials and online discussion with subject experts as one of the innovative learning method for the professional education.
- Based on the finding of the study, the researchers would like to make the following suggestions to bring newness and innovation in the professional education. The demand of the professional set up is that uniqueness is required to fill the emerging gap that has started taking shape in professional learning.
- Study shows that faculty members are not strongly in favour of spoken tutorial based learning where as students are very much in favour of spoken tutorial based learning.

CONCLUSION

The use of ICT should be employed at-least in professional education and Spoken tutorials and online discussion should be promoted by the Indian professional institutions. We are living in the age of so called 'globalization' and 'information revolution'. The innovative methods are being widely discussed in professional courses in recent years. The new approach of Spoken tutorials and online discussion with subject experts can bring innovation in learning. Spoken tutorials based

learning for professional education makes it easier for students to transfer study.

REFERENCES

1. Bradley, D. (1996). *Integration of Information Techniques into Teaching and Learning*. Canberra, AUST: University of South Australia.
2. Englert, C. S., Tarrant, K. L., and Rozendal, M. S. (1993). *Educational innovations: Achieving curricular change through collaboration*. *Education and Treatment of Children*, 16, 441-473.
3. Hutthaphong, S. (2005). *Information Literacy of Graduate Students at Srinakharinwirot University*. Thesis M.A. (Library and Information Science). Bangkok: Srinakharinwirot University.
4. Lackie, P. (1999). *Implementing technical innovations in the curriculum. Guidelines for faculty and technical support staff*. *Social Science Computer Review*, 17 (2), 189-195.
5. McIntyre, D.R. & Wolff, F.G. (1998). *An experiment with WWW interactive learning in university education*. *Computers and Education*, 31 (3), 255-264.
6. Oujit, D. (2004). *Assessing information literacy among undergraduate students of Burapha University: A re-search report*. Chonburi: Faculty of Humanities and Social Science, Burapha University.
7. Pinto, M., & Doucet, A.V. (2007, 26 June). *An academic portal for higher education information literacy: The e-COMs initiative*. *The Journal of Academic Librarianship*, 23(5), 604-611.
8. Read, Gay Garland (1997), "Globalisation and Education: the case of North Korea", *Comparative Education*, 27(2), 176.
9. Rockman, I.F., & et al. (2004). *Integrating information literacy into the higher education curriculum: Practical Models for Transformation*. San Francisco, CA: Jossey-Bass.
10. Supakavanich, W. (2004). *Integration of information literacy in teaching and learning process of English course for third year students at Rajamangala Institute of Technology, Kalasin Campus*. Minor thesis M.A. (Library and Information Science). Khon Kaen: Khon Kaen University.
11. World Bank (1997) "Development in Practice : Primary Education in India World Bank", Washington D.C. & Allied Publishers Ltd. New Delhi, pp.1-2;163.
12. World Education Report (2000), pp. 117; 119.

Role of Software usability Testing and its Utility in Various Software based Products

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ABSTRACT

Usability plays an important role when product marketed. Software usability testing is a systematic approach to building software systems that meet the needs of users in various environments with different levels of computer experience. The main aim of usability testing is to understand people using software systems to know what people want. In educational institution facilitator and learners have to utilize usability testing activities to help their educational organization. Some used it to provide crucial information to support procurement decisions and others used data from usability testing to understand where to focus training and other teaching learning efforts.

Keywords— *Software Testing, Usability Testing, Usability testing of E-Learning Content, Quality Criteria of Software, Benefits of Usability Testing, Miss-Usability, Quality Consideration of Software.*

KEY CONCEPTS

Usability means or it shows how it is easy to use a product to perform a stipulated tasks. This is distinct from the related concepts of utility and likeability. Programming testing is any action went for assessing a trait or capacity of a program or framework and establishing that it meets its required outcomes [2]. The software usability testing can be quality assurance, customer satisfaction verification of useable features and its validation, or reliability estimation. Software Testing involves the complete operation of a testing system or applications to be provided to the fuser under controlled and specified conditions and then evaluating results. The controlled condition should include both executable normal and conditions those are abnormal [1].

USABILITY TESTING

Usability testing is the exact standard by which user can determine that the design of an application meets the needs of its specific users and allows them to work according to his/her need to meet the

productivity. Usability tests recognize ranges where individuals battle with an item and enable you to make suggestions for development. Ultimately the aim is to better understand that the user can interact with your software and can improve the result which is expected. Usability tests recognize ranges where individuals battle with an item and enable you to make suggestions for development. In a typical test, some typical goals are to be accomplished by the real users, or tasks, with a product under controlled conditions. Researchers, stake holders, and softwar development team members watch, interact, collect data, and take notes of the user feedback. [10][11].

SOFTWARE QUALITY

The quality of software is assessed or measured by a number of parameters. These parameters can be divided into two categories a) external and b) internal quality criteria. External quality of a software is tested when a user or what a user experiences when running the software in its operational mode [13] . Interior quality refers to aspects that are code-subordinate, and that are not

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applicable to the end-client. External quality is critical to the end user, while internal quality is very meaningful to the software developer [12]

BENEFITS OF INCREASED SAMPLE SIZES IN USABILITY TESTING

The data sample size helps the uses to improve the usability. The rational data samples obtained after cross-validation improvise the usability of software. Sample size play very important role Usability test results make for strong arguments with design teams and can have a significant impact on fielded products. For example, in the complexity of any systems and with the common practice in the market of integrating the commercialize feature, readymade and available for sale products into newly developed systems, inferences of software usability problems cannot always be predicated , even in seems to be simple programs [11]

MISS-USABILITY

Usability of software has become so famous that its importance is being challenged by misuse of the usable terms and by misunderstandings the software importance which distinct between usability studies and empirical usability testing, between verification tests and usability standard, between comfort of use and its usefulness, and concerning how we analyse statistics for further use. This paper explore these problems and encourages researchers, academicians and practitioners to work toward more usable them.

6. View of Software Quality

- The transcendental view highlight quality as something that can be understandable, recognized but not easy to defined.
- From user point of view quality is as fitness for specified purpose.

Power consumption	√		Difficult
Internal Quality			
Test coverage		√	Yes
Testability		√	Hard
Portability		√	Somewhat
Thread-safeness		√	Hard
Conciseness		√	Somewhat
Maintainability		√	Hard
Documentation		√	Subjective
Legibility		√	Subjective
Scalability		√	Somewhat

- The manufacturing view sees quality is the ultimate product which can satisfy the use and meet to specification.
- The product view sees quality as characteristics of the product upto the need of the user.
- The value-based view sees quality is the satisfaction of the customer and customer is willing and bound to pay for it[4]

7. Quality Consideration of Software

S. N	Exterior Quality	Interior Quality	Future quality
1	Correctness	Efficiency	Flexibility
2	Reliability	Testability	Reusability
3	Usability	Documenta tion	Maintainability
4	Integrity	Structure	

8. Quality Criteria of Software

External Quality			
Quality Parameter	User	Developer	Measurable
Space	√	√	Yes
Network usage	√	√	Yes
Stability	√	√	Yes
Features	√	√	yes
Robustness	√	√	Somewhat
Ease-of-use	√		Subjective
Determinism	√	√	Yes
Back-compatibility	√		Yes
Security	√		Difficult

CHARACTERISTIC OF USABILITY

- Physical and Intellectual skill required to learn the system
- Time required becoming specifically efficient in the system.
- The net increase in productivity by use of the revitalization in the system.
- subjective assessment(usually in the form of questionnaire on the new system)[6]

USABILITY VS. UTILITY

A central attribute that decides an item's worthiness is convenience, which measures whether the real employments of an item can accomplish the objectives the originators expect them to accomplish. The concept of usefulness breaks down further into utility and usability. Although utility and usability are the terms those are interrelated, moreover they cannot interchangeable. Utility refers to the ability, functionality of the software to perform a utility factor or utility factors. If the product can handle more tasks or utilities for which the products are designed to perform, the more utility it has.[5][6]

Consider a typical application of Microsoft office is power point. Such programs facilitate a wide variety of powerful presentation and editing features, but users require to learn its functionality and remember large number of secret and correlated keystrokes to

perform them. Applications as defined above is high utility (they provide users with the necessary functionality) but their usability is very low (the users must be supposed to expend a large time and more effort are needed to learn & use them). On the other side, a well-designed, simple application oriented programme like a simple calculator may be very easy to use but not offer much utility or big and scientific calculations. Usability testing helps you determine how easy it is for users to perform particular tasks [5].

USABILITY TESTING BENEFITS

The benefits of having usability considerations in the product which is included and also of large utility in the computer software development and these are of immense use. The benefits are too numerous to list. To summarise the benefits the author is of the opinion that it makes the software more "user friendly". The end result will be:

- Better quality software.
- Easy to use of the Software.
- Acceptance level is high and readily accepted by users.
- New users can easily learn and not the learning curve is too narrow [6].

THE ROLE AND BENEFITS OF USABILITY TESTERS.

For the test team point of view 'Usability Testers' have a very positive effect on the team itself. Several times author observed that test engineers become too familiar with the peculiarity of the software - and not point-out an error or usability issue. Often this is due to the test engineer thinking. These types of problem are softened by including utility test engineer in the test team [8]. They can also help to:

- Refocus the test engineer and increase their awareness and knowledge to usability issues, by providing a fresh viewpoint
- They provide to hesitate to share their expert knowledge - training the test engineer about the background and purpose of the system.[7]
- Provide a "realistic" element to the testing, so that test scenarios are not just "possible permutations" [8].

CONCLUSION:

1. The software development cycle should initially incorporate Usability evaluation process. It will minimize resistance to changes future.
2. A usability software evaluation tool be available in every Organizations should have an independent usability evaluation of software products to avoid the temptation to overlook problems to release the product.
3. Usability testing team should have multiple categories employees because subjective measurement is not always consonant with user performance.
4. Software changes should not be allowed in later stage due to usability, it is useful to point out areas where training is needed to overcome deficiencies in the software.

REFERENCES:

- [1] Lohr., L.L.: *Designing the instructional interface, Computers in Human Behaviour*, 16, 1998 pp.161-182.
- [2] D. Garvin, "What Does "Product Quality" Really Mean?" *Sloan Management Review*, Fall 1984, pp. 25-45.
- [3] ISO 9001 *Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation, and Servicing*, International Organisation for Standardization, Geneva, 1994.
- [4] M. Paulk et al., "Capability Maturity Model, Version 1.1," *IEEE Software*, July 1993, pp. 18-27.
- [5] R.K. Maurya, N.K. Singh, H.C. Mathur "Software Reliability Modeling & Market Trends"
- [6] Ian Sommerville 2004, *Software Engineering*, 7th edition. Chapter 23
- [7] Keene, S. J., "Comparing Hardware and Software Reliability", *Reliability Review*, 14(4), December 1994, pp.5-7,2
- [8] Kulik C. C.; Kulik J. A.; Shwalb B. J.: *The effectiveness of computer applications: a meta-analysis*, *Journal of Research on Computing in Education*, 27, pp. 48-61, 1994.
- [9] Dumas, Joseph S., and Janice Redish. *A practical guide to usability testing*. Intellect Books, 1999.
- [10] Barnum, Carol M. *Usability testing essentials: ready, set... test!*. Elsevier, 2010.
- [11] Faulkner, Laura. "Beyond the five-user assumption: Benefits of increased sample sizes in usability testing." *Behavior Research Methods, Instruments, & Computers* 35.3 (2003):379-383.
- [12] Boehm, Barry W., John R. Brown, and Hans Kaspar. "Characteristics of software quality." (1978).
- [13] Kan, Stephen H. *Metrics and models in software quality engineering*. Addison-Wesley Longman Publishing Co., Inc., 2002.

Deployment and Comparative Study of Mobile Cloud Services

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Dr. Sugandha Goel**

ABSTRACT

Mobile Cloud computing (MCC) is a technology that allows mobile users to access data and applications by using mobile instruments. MCC means the processing of data and storage of data, which takes place during processing in mobile device. MCC provide simple and fast methods for users to access cloud data for computing resources. The accessed data will be efficient and effective. The role of MCC to do on one platform the computing environmental data in the form of cloud There various services has been provided by the private and public cloud providers. This paper highlights the Mobile Cloud Computing Architecture and its challenges with Solutions. Moreover the deployment of the services provided by the Cloud and the comparative study of Mobile Cloud providers with these services.

Keywords: Mobile Cloud, SaaS, PaaS, IaaS, Mobile Cloud Computing

INTRODUCTION

Because of vast use of technology the application based models such as community network, cloud computing, software as a service (SaaS), web based store, and so on are increasing day by day. As a major application model in the era of the Internet, Cloud Computing area for researchers point of view has become a significant research topic of the world business class communities since 2007. In general, cloud computing is defined as a scope of services which are provided by an cluster system which is Internet-based. It offers safe, reliable, fast, convenient and transparent services such as data Storage.. According to the top ten strategic technological trends for 2012 [1] provided by Gartner, cloud computing is one of the top technology, which shows cloud computing will have an influencing impact on the business sector and on most of the organizations in 2012. The core technology of cloud computing is computing at a common place, services, and specific applications as a utility to users. Thus, the combination of a robust mobile network and cloud computing generates a new computing mode, namely Mobile Cloud Computing.

MOBILE CLOUD ARCHITECTURE

MCC form of cloud computing is in combination with mobile devices used to access the services. However, many challenges are faced by the mobile devices resources (e.g., battery life, bandwidth, storage) and communications (e.g., mobility and security)[4]. The main role of MCC is to apply computing capabilities of mobile equipment, preserve local resources - especially battery, storage capacity is extend. Clouds computing provide paid services with assured quality of service, availability and commitment according to the Service-Level Agreement (SLA) made between cloud vendors and mobile client.

From the concept of MCC, the general architecture of MCC is shown in Fig. 1. All mobile devices are initially connected to the network which is known as mobile networks via base stations (e.g., base transceiver station (BTS) links are provided through satellite known as access point that establish and control the connectivity (air links). A interface is maintained between the mobile networks and mobile devices. Mobile users' requests through their ID and information are transmitted to the central

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processors that are connected to central offices servers which provide mobile network services. Here, mobile network service providers can provide services to mobile users to meet authentication, authorization, and accounting in services based on the home agent (HA) and subscribers' data which is stored in databases. After that, the subscribers' requests are delivered to a cloud through the Internet.

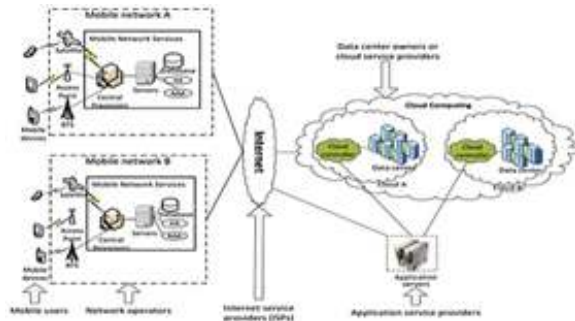


Figure 1: Mobile Cloud Architecture

In cloud technology, cloud controllers software process the requests made by the users and services provided to the mobile users with the corresponding cloud services. The utility computing is the objective to develop all these services like virtualization, computing, and service-oriented architecture.

MOBILE CLOUD COMPUTING CHALLENGES AND SOLUTIONS

The main objective of MCC is to provide a easy and conventional method for users to receive and access data from the cloud, The major challenge of MCC comes with the restricted use of Mobile devices . Such challenge makes mobile application designing, mobile programming which is deploying on mobile instrument and mobile distributed devices more complicated than on the fixed cloud devices [4].

In MCC environment, important factors that affect assessing from cloud computing are types of application, the limitations of mobile devices, communication technologies used, quality of wireless, and extra support from cloud computing to mobile etc. Table 1 depicts an overview of proposed challenges and solutions about mobile cloud computing

LIMITATIONS OF MOBILE DEVICES

Resource-constrains are main issues while discussing mobile devices in cloud. These are firstly though various versions of smart phones in improved form with various aspects such as capacity and capability of CPU and storage capacity, screen size communication network quality, sensing technology, and operation systems, still have serious limitations such as limited computing capability battery resources , to deploy complicated applications. By contradiction with PCs and Laptops in a working environment, all smart phones mentioned earlier such as iPhone 4S, Android , Windows based Mobile instrument decrease more than 3 times in processing capacity, many times in memory, large times in storage capacity and more than 10 times in network bandwidth. If the battery technology cannot be improved in a short time, then how to effectively save battery power in smart phone is a major issue we meet today. The storage, processing capacity, battery time, communication of smart phones improved consistently with the improvement of mobile computing. However, such large number of variations will persist as one of major challenges in mobile cloud computing.

Challenges	Solutions
Limitations of mobile devices	Virtualization and Image, Task migration
Quality of communication	Bandwidth upgrading, Data delivery time reducing
Division of applications services	Elastic application division mechanism

COMMUNICATION QUALITY

As wired communication uses fixed connections and equipment to ensure bandwidth consistency, the data transfer rate in mobile cloud computing environment is continuously changing and the discontinuity is due to the existing clearance in network overlay. Furthermore, data centre in big organizations and resources with ISPs normally are not in approach of end users, especially to mobile device users. In wireless network, the in network latency may be 200 ms in 'last mile' but only standard

network it is 50 ms. Some other issues such as mobility of users, dynamic changing of application throughput, and even weather will lead to changes in bandwidth and network overlay.

DIVISION OF APPLICATION SERVICES

On the social front, in addition to digital divide, In mobile cloud computing environment, due to the issue of limited resources, some applications cannot be extended in mobile instruments, these devices may consume large energy. Therefore, we have to divide the applications and for those purposes use the capacity of cloud computing, which is: the core computing task is processed by cloud. Those mobile devices are responsible for some normal tasks only .in processing, the major issues affecting mobile cloud computing performance are data delivery time, data processing, network handover delay, and could be other issues. For a given standards, providing a quality guaranteed cloud services should consider the following strategies.

- a. Wireless connectivity can be upgrade upgrading the bandwidth, web content also should be more suitable for mobile network using regional data centres.
- b. Configure the separate application processing node at the 'edge' of cloud in order to reduce data delivery time.
- c. Duplicate mobile devices to cloud using virtualization and image technologies, to process Data-Intensive Computing (DIC) and Energy-Intensive Computing, such as virus scanning in mobile devices.

CLOUD SERVICES

In Cloud as a Service the term Marketers have further make publicity of the phrase "in the cloud" to refer to platforms, infrastructure , and software that are sold "as a service". i.e. remotely through the Internet.

The energy consuming servers is being taken by seller which host product from a remote location.

The end-users can simply log on to the network which do not have these servers without installing

anything. Different cloud services may be offered in a public, private or hybrid network. Google, Amazon and Microsoft Azure are some well-known cloud vendors. services may be offered in a public, private or hybrid network. Google, Amazon and Microsoft Azure are some well-known cloud vendors.



Figure 2 : Cloud Services and Service Providers

SaaS (Software as a Service)

In SaaS (Software as a service) model users are provided with access to application softwares these are also known as on-demand softwares. No hazels about the installation, setup and running of the application software.. Users are to pay and use it through some service providers. Examples : Google execution environment, database, web server etc. Examples : AWS Elastic Beanstalk, Heroku, Force.com, Google App Engine.

PaaS (Platform as a Service)

Apps, Microsoft Office 365. It provides users operational platform like OS and any programming language.

IaaS (Infrastructure as a Service)

As the name implies it provide you computing infrastructure , firewalls, block, IP address etc. Example: Amazon EC2

AaaS (Applications as a Service)

Applications as a service is concern with the delivery of computer software applications as a

service via the Internet. The demand of this software is increasing day by day due to its cost saving and efficiency. It can best work in organizations for cost savings, regardless of their size. On-demand software also provides benefits from financial point of view to organizations by eliminating the expense of individual user licenses which normally accompany huge cost and saving of delivery time..

Task-Oriented Mobile Services

Though the use of mobile devices is increasing day by day but they are also facing some issues in memory and display capabilities. The wireless network environment often is changeable according to services. Mobile users also tend to use smart phones to do certain tasks but not all tasks. Hence some advance technology necessity raised. MCC must tailor task-oriented mobile services specifically to the need of mobile users. In below sub-heading survey has been done on existing work in the literature on Mobile-Data-as-a-Service, Mobile-Computing-as-a-Service, Mobile-Multimedia-as-a-Service and Location-Based Mobile Cloud Services. The traditional method of mobile device do not solve all the problems and more advance technology is needed that will expand the list of task oriented mobile services used by mobile users.

Mobile-Data-as-a-Service

More data is sent by mobile instruments today than it was in 2012 and one of the major reasons is because bring more mobile data comes from cloud computing applications. The data can be heterogeneous and often high-dimensional..

Mobile-data-as-a-service customizes the user need to provide customized data analytics service, leveraging indexing techniques for spatio-temporal data storage and retrieval such as B-Tree, R-tree, and TPR-tree.

Mobile Multimedia-as-a-Service

MCC can be used for multimedia due to its flexible network service delivery.

Zhu envisioned the following challenges for supporting mobile multimedia computing:

(a) At run time different action can be done on

cloud like data storage, fetching and distribution for load balancing.

(b) MCC must provide QoS provisioning for multimedia applications. Ferretti et al. proposed an architecture for QoS provisioning of mobile multimedia applications. The mobile multimedia service Implementation by IaaS, a virtual Machine which acts as a proxy between the cloud and the mobile users introduced and migrated with the mobile users. Nan et al. [6] addressed resource allocation in a multimedia cloud based on queueing network analysis. Scheduling, computation, and data transmission three queues considered by them for multimedia services. After analysis under several circumstances it proved that video conversion performed under some conditions will reduce the downloading energy for smartphone devices.

Location-Based Mobile Cloud Services

The application which is running on mobile devices supports location-based services. Many providers have already established location-based services, such as Intel and AT&T. In today's time the GPS is the most favorable application for finding any location. After a cell device connects with the closest cloud, the cloud server can without delay push advertisements or the consumer can question the cloud server. except area-primarily based offerings, one can also reap friends/circle of relatives information from the cloud. tan et al. explored the ability benefits of cloud-and crowd-assisted GPS to useful resource GPS calculations and, leveraging region corrections from different cellular device users, to beautify noisy GPS readings. cho et al. combined location based services with social networking based totally on social relationship and human mobility.. Location-based store data do not need to be downloaded each time as long as a local copy exists and the data item has not been updated.

COMPARATIVE STUDY OF CLOUD SERVICES AND CLOUD SERVICE PROVIDERS

While there are many benefits of adopting the platforms & services ,infrastructure offered by a Cloud Service provider, the applicability of these would depend on the nature & size of an enterprise.

As there are a numerous list of services provided by cloud computing service provider, the decision will be of business enterprises. Each services is having their own prons and cons. Like set of pricing, billing, flexibility, support and other important parameters etc.

The following table captures the comparison of significant features offered by key public cloud providers of the industry:

Providers	Pass	Pass	Pass	Pass	Pass
Cloud Services	Pass	Pass	Pass	Pass	Pass
1. Amazon CloudFront API Tools 2. Auto Scaling API Tools 3. Elastic Load Balancing API 4. AWS SDK for Erpise 5. AWS Management 6. Amazon EC2 API Tools 7. Amazon EC2 AMI Tools 8. Amazon EC2 Instance Profiles 9. Amazon EC2 IAM Roles 10. Amazon EC2 Substitution Tool for Ceph 11. Amazon EC2 Substitution Tool for Ceph 12. Amazon Mechanical Turk Developer Sandbox	1. Google Secure Data Connector 2. Data Connector 3. Private gateways 4. Google Visualization API 5. Google Apps API 6. Google voice tools 7. IDE support 8. Amazon SQS 9. Amazon SQS	1. Microsoft Azure Platform Training Kit 2. Windows Azure SDK for Development 3. Microsoft Visual Studio 2010 Service Pack 1 4. Microsoft Azure SDK for .NET 5. Windows Azure SDK for PHP 6. Microsoft Dynamics CRM 4.0 7. Microsoft Dynamics CRM 4.0 and ES3 Lata SDK	1. Apex Language Code Editor 2. Enhanced metadata Support 3. Salesforce.com Visualforce Framework 4. Chatter API Visualforce 5. Force.com IDE 6. Force.com Migration Tool	1. Bearstalk - Hassle-free Subversion Hosting 2. Attachment fu in Ruby Cloudvox Nautilus 3. Cloud Files Plug-in by Cirmouet Boudjnah 4. Paperkit - Cloudfiles 5. Clark Live Website Chat 6. Vanilla - Free Forum Hosting 7. Software Development Kit for Java, PHP, Python	1. GoGrid's Cloudcont rol Command Line Tool 2. Cloud Wizard's Ope Source Cross Cloud 3. Scripting Language Mitch Denny's Windows PowerShell Scripts 4. .NET API SD
Integrated DB supported	MySQL	Oracle, IBM DB/2, SAP HANA, Microsoft SQL Server, PostgreSQL, Oracle Exadata, SAP HANA, SAP BW, SAP ERP, SAP CRM, SAP NetWeaver, SAP Business One, SAP Business Suite, SAP Business Suite Enterprise Edition, SAP Business Suite on SAP HANA, SAP Business Suite on SAP HANA, SAP Business Suite on SAP HANA, SAP Business Suite on SAP HANA	SQL Azure	Not Applicable	MySQL, Microsoft SQL, Oracle

CONCLUSION

The emergence of Cloud Computing, and its extention into the mobile domain, has brought a new era to Cloud Services: the vision of a global, interconnecting "Mobile Cloud" where software application providers and business enterprises will be able to valuable mobile network and various cloud services multiple mobile networks, making it easy for those who are interested to enrich their services whether these applications run on a mobile device or in the web or in a SaaS Cloud, on the desktop or an enterprise server. Mobile Cloud Computing will provide a full commercial environment for applications, providing an easy way for smaller developers to accelarate their services as well as new approach to market.

REFERENCES

1. M. Satyanarayanan, "Fundamental challenges in mobile computing," in *Proceedings of the 5th annual ACM symposium on Principles of distributed computing*, pp. 1-7, May 1996
2. A.Manjunatha, A.Ranabahu, A.Sheth, and K.Thirunarayan, "Power of clouds in your pocket: An efficient approach for cloud mobile hybrid application development," in *Proc. IEEE 2nd International Conference on Cloud Computing Technology and Science(CloudCom 10)*, Dayton, OH, USA, Dec. 2010, pp. 496-503.
- 3.Mandeep Kaur Saggi, Amandeep Singh Bhatia, "A

Review on Mobile Cloud Computing: Issues,

5. S. Ferretti, V. Ghini, F. Panzieri, and E. Turrini, "Seamless support of multimedia distributed applications through a cloud," in *IEEE 3rd International Conference on Cloud Computing*, July 2010, pp. 548-549.
6. X. Nan, Y. He, and L. Guan, "Optimal resource allocation for multimedia cloud based on queuing model," in *IEEE 13th International Workshop on Multimedia Signal Processing*, October 2011, pp. 1-6.
7. M. Altamimi, R. Palit, K. Naik, and A. Nayak, "Energy-as-a-service (EaaS): On the efficacy of multimedia cloud computing to save smartphone energy," in *IEEE 5th International Conference on Cloud Computing*, June 2012, pp. 764-771.
8. Z. Tan, D. Chu, and L. Zhong, "Vision: cloud and crowd assistance for GPS urban canyons," *ACM Mobisys*, 2014, pp. 23-27.
9. E. Cho, S. A. Myers, and J. Leskovec, "Friendship and mobility: user movement in location-based social networks," in *ACM SIGKDD international conference on Knowledge discovery and data mining*, 2011, pp. 1082-1090.
10. P. Stuedi, I. Mohamed, and D. Terry, "Wherestore: location-based data storage for mobile devices interacting with the cloud," in *ACM Workshop on Mobile Cloud Computing and Services: Social Networks and Beyond*, 2010, pp. 1-8
11. "Cloud computing drives mobile data growth," October 2009. [Online]. Available: <http://spectrum.ieee.org/telecom/wireless/cloud>

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- 3 Tyagi, R.M, and Malik, S.P. (2007) Job Satisfaction Working Paper No 46, Indian Institute of Travel Management, Gwalior.
- 5 Jacoby, W. G. (1994). Public attitudes toward government spending. American Journal of Political Science, 38(2), 336-361. Retrieved from <http://www.jstor.org>.

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