Comparative Study of Cloud Computing and Mobile Cloud Computing

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ABSTRACT
In this paper we are discussing about cloud computing, their types, the problem faced while using cloud computing, their solutions mobile cloud computing, we also explain why we use mobile cloud commuting ? What is mobile cloud computing? We also study the architecture of mobile cloud computing. In this paper we purposed new techniques how do backup and restore data from mobile to cloud. Here we purposed to apply some compression technique while backup and restore data from Smartphone to cloud and cloud to the Smartphone.

Keywords— MCC, cloud computing, ***femtocell***

1. INTRODUCTION:
These days cloud commuting is very famous and it is used to run various types of business application. We also explain the architecture of cloud commuting, mobile cloud commuting, how does it work?To create cloud commuting environment internet, server hardware, cloud OS is needed.The cloud OS is installed on the hardware. It provides interfaced between user and server and manages and distributes all resources of cloud systems. Some of the Cloud OS are eyeOS, VMware Cloud Operating System, icloud, Cloud, Cornelios etc...

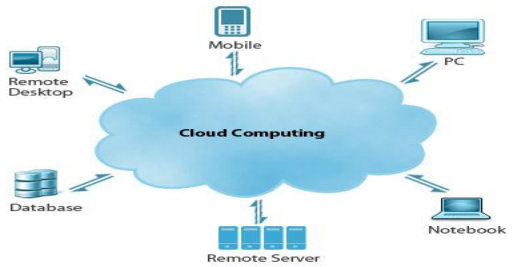

Fig no:1

With the help of utilities provided by Cloud OS we can create virtual servers for our clients. Clients can login and use the allocated virtual server/resources. We can increase and decrease the resource usage by client. Cloud Computing is growing fast and companies are taking full advantage of the services provided by Cloud computing.

1.1What is cloud commuting?
Cloud Computing Is one of the computing model, not a technology. It is another version of internet technology. In this model "customers" plug into the "cloud" to access IT resources which are priced and provided "on-demand". Essentially, these IT resources are accessible and shared among multiple users. In very easy words we can define cloud computing as it is provider of pooled network resources such as CPU, RAM, Storage, software over the web. These services are easily provides and released on demand. These days hosting companies are provided cloud servers, cloud resources, cloud storage, software hosted on the cloud environment. The business people use cloud in minimum cost they just pay for the storage usage. Cloud Computing combine virtualization (one computer hosting several "virtual" servers), automated provisioning (servers have software installed automatically), and Internet connectivity technologies to provide the service. These are not new technologies but a new name applied to a collection of older technologies that are packaged, sold and delivered in a new way.

1.2 What do I need to use Cloud Computing?
To acquire and use Cloud Computing needed a credit card (or other payment method) and a LAN with an Internet connection robust enough to support the Cloud delivered service. These two requirements are deceptively simple. Typically, Internet access is provided by a single commercial service ISP provider through a single port on a router. A characteristic of this type installation is that all of the computers connecting through the LAN share the Internet bandwidth equally. Suppose a business had 5 computers using a Cloud solution and sending data to the cloud for processing. The bandwidth available to each computer would be 373Kbps (up 1867/5). That is about 46 (8 bit) characters per second to the cloud application and does not include any communication or application data. The cloud does not work to slow. It is easily accessible by the user when they want to use it.

1.3 How does it work?
In a large university or a consortium might become a provider of cloud services. Storage and processing needs can also be met by the cloud. Institutions pay only for the resources used, and users can access the applications and files they need from virtually any Internet-connected computer. In a mature cloud computing environment, institutions would be able to add new IT services or respond to changes in capacity on the fly, saving capital costs that can be redirected to programs of strategic value to the institution.[7]

Cloud computing is actually a website that lets you access an application that can do different things. The basic concept is that you should not install any application on your computer. We can access the application as well and back at home on your computer, and from a public computer located in a mall or another store. This is an advantage if you have a job that requires always to be connected with other people, such as for example a manager or promoter. If your boss asks for a report and you're in the mountains for a few days of relaxation, you can access the application of cloud computing architecture and will make the report required, and besides that you get a bonus. The cloud computing architecture includes different

types of services. Service with a higher stocking is called SaaS. Mode of operation is very simple, as is the start of an application, Due to the low cost of application and hardware resources needed to run this little application is very easy to implement in a company. Comparing the costs of a normal PC application, applications deployed in the cloud are several times cheaper. An estimated cost for an application for text editing in the cloud reaches $ 10 per month, while the Office suite can cost over $ 1000. Another type of cloud computing architecture is growing is utility computing. For the use cloud commuting only need to pay for the usages of resources. Among the leading providers of utility computing are Amazon, Microsoft and Google are in a constant struggle for customers. Due to low cost utility computing in a few years will become a trend in terms of servers. [3]Cloud computing allows freedom of movement that NO other service you can offer.

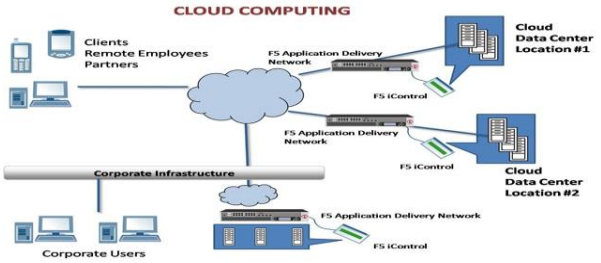

Fig no:2

1.4 Why is it significant?

Cloud computing presents with different model of operation, advantage of the maturity of web applications and networks and the rising interoperability of computing systems to provide IT services. Cloud providers specialize in particular applications and services, and this expertise allows them to efficiently manage upgrades and maintenance, backups, disaster recovery, and failover functions. As a result, consumers of cloud services have advantageous as reliability, even as costs decline due to economies of scale and other production factors. With cloud computing, organizations can monitor current needs. Aside from the potential to lower costs, colleges and universities gain the flexibility of being able to respond quickly to requests for new services by purchasing them from the cloud. Finally, cloud computing allows college and university IT providers to make IT costs transparent Cloud computing encourages IT organizations and providers to increase standardization of protocols and processes so that the many pieces of the cloud computing model can interpret properly and efficiently. Cloud computing scalability is another key benefit to higher education, particularly for research projects that require vast amounts of storage or processing capacity for a limited time. Some companies have built data centers near sources of renewable energy, such as wind farms and hydroelectric facilities, and cloud computing affords access to these providers of "green IT.".[7]

2. LITERATURE REVIEW

2.1Benefits of Cloud Computing

In this section we will see the benefits of Cloud computing for businesses. The most import benefits of Cloud Computing this save money and time. If we required we demand for the required resource from the Cloud resource and pay to the service provider based on our usage.

Reduced Cost: Cloud Computing reduces our overall physical hardware and maintenance of these hardware. We want to just pay for what we use from the Cloud Computing resource pool. It does all work for us.

Scalability of System: we can easily request for more processing power from the resource pool at very minimum cost according to our requirement.

***Automatic Updates of software*:** Cloud Computing company will automatically update the software if a new version is released.

Remote Access of the System*:* our employees and customers can access the data from anywhere around the world.

Disaster Relief: The Cloud Computing Company keeps the backup of data and ensures the proper functioning of the system.

Quick Customer Support: the Cloud Computing vendor provides quick customer support, which is essential for the functioning of your business.

Sufficient Storage: more space is available for storage of our data.

2.2 Types of cloud commuting.

Public Clouds: it is a traditional concept of cloud computing. We can use from anywhere anytime. These clouds can be used in a so-called pay-per-use manner, meaning that just the resources that are being used will be paid by transaction fees

Private Clouds: Private clouds are more secure than public cloud computing.

In this we are used in a private network so it restricts to use the unwanted public to access the data that is used by the company. That's why it needed more building and maintenance of the system.

Hybrid Cloud: As the name suggest, a hybrid cloud is a combination of both a private and public cloud. In this work load being processed by an enterprise data center while other activities are provided by the public cloud.[8]

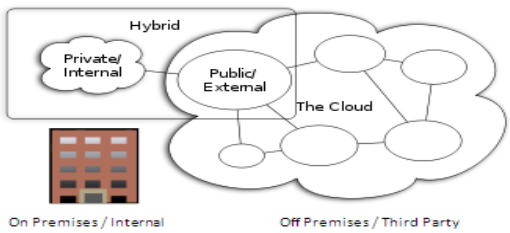

Fig no:3

SaaS (Software As A Service) **:**it is the most widely known and widely used forms of cloud computing. It provides all the functions through web to many customers and often thousands of users of all the sophisticated traditional applications. Little or no code is running on the User's local computer. SaaS eliminates customer worries about application servers, storage, application development and related, common concerns of IT. The most common examples are Salesforce.com, Google's Gmail and Apps, instant messaging

from AOL, Yahoo and Google, and VoIP from Vonage and Skype. [6]

PaaS (Platform as a Service) by using these we can create and run our own application: without having to worry about maintaining the operating systems, server hardware, load balancing or computing capacity. It provides APIs or development platforms to create and run applications in the cloud – e.g. using the Internet. Well known providers include Microsoft's Azure, Sales force's Force.com, Google Maps, ADP Payroll processing, and US Postal Service offerings.

IaaS (Infrastructure as a Service): These Cloud Computing saves cost and time of capital equipment deployment but does not reduce the cost of configuration, integration or management and these tasks must be performed remotely it provides grids or clusters or virtualized servers, networks, storage and systems software, usually (but not always) in a multitenant architecture. IaaS is designed to augment or replace the functions of an entire data center. It would include Amazon.com (Elastic Compute Cloud [EC2] and Simple Storage), IBM and other traditional IT vendors.

2.3Why Cloud Computing is the Future of Mobile

Cloud computing potential doesn't begin and end with the personal computer's transformation into a thin client - the mobile platform is going to be heavily impacted by this technology as well. At least that's the analysis being put forth by ABI Research. Their recent report, Mobile Cloud Computing, is the cloud will soon become a disruptive force in the mobile world, eventually becoming the dominant way in which mobile applications operate.[1]What does the term "mobile cloud computing" really mean? Basically, it refers to an infrastructure where both the data storage and the data processing happen outside of the mobile device. Today, no of good ex of mobile cloud computing applications including mobile Gmail, Google Maps, and some navigation apps. However, the majority of applications today still do most of the data storage and processing on the mobile devices themselves and not in the cloud. In a few years, that could change.

2.4 When Will Mobile Cloud Computing Take Off?

According to ABI, this change is only a few years earlier by 2010, we'll see one or all of the major PaaS players marketing their mobile capabilities, they say. But first, API standards from open-source mobile collaboration group BONDI will go into effect. Later, in 2011, we'll see more of HTML5, and the One API standard will come into play. All these factors combined will help drive the move to the cloud.[1]

The changes will occur with differing speeds depending on the market. Markets with higher Internet participation will obviously lead the way, as will markets with higher subscriber penetration. That includes Western Europe, North America, and parts of Asia. Other markets will then follow. By 2014, mobile cloud computing will become the predominant application development strategy. By that time, our PCs will be more like thin client devices than they are today, and now it seems our phones will too.

2.5 The current state of mobile cloud computing

Mobile cloud computing was defined in a 5 March 2010 entry in the Open Gardens blog as "the availability of cloud computing services in a mobile ecosystem. This includes many elements, consumer, enterprise, femtocells, transcoding, end-to-end security, home gateways, and mobile broadband-enabled services." (A *femtocell* is a small cellular base station.)[2]

a)mobile platforms: *Platform smart phones*smart phones is the most ubiquitous platforms .The most-used mobile operating systems are the Research in Motion (RIM) BlackBerry operating system, the Windows™ Mobile® operating system, Nokia's Symbian platform, and UNIX® variations such as Google Android and Apple iOS. The BlackBerry operating system, developed by RIM, is a proprietary mobile operating system. For application developers, it offers a Java™ development environment that includes a BlackBerry IDE, a smart phone simulator, and APIs for Java Platform, Micro Edition (Java ME) and BlackBerry. Applications are distributed through BlackBerry App World and third-party vendors such as MobiHand. The Android mobile operating system is built on a modified Linux® kernel. Initially developed by Android, Inc., and bought by Google in 2005, Android development and maintenance is now performed by the Android Open Source .Android application developers write code mainly in the Java using the Android SDK, which includes an emulator of a run time environment for testing and debugging. Applications are distributed through the Google Android Market and other distribution channels, such as GetJar and Handango. Apple is derived from Apple Mac OS X, it is a set of UNIX-based operating systems and GUIs. Developers build applications mainly in Objective-C using the Apple iOS SDK, Xcode, and Interface Builder. Applications are distributed through Apple's App Store, which currently contains more than 300,000 applications.Windows Mobile proprietary operating system is called Windows® Phone 7, which is a successor to the Windows Mobile operating system. According to Microsoft, Windows Phone 7 was designed for the user experience instead of enterprise support. Developers write the code to access the mobile device through its APIs, but some APIs are not yet available, such as a compass API, a video API, or a sockets API. Applications are distributed through the Windows Phone Marketplace. The Symbian platform is an open source operating system designed for Nokia Smartphones. It uses a proprietary operating system services layer, with a Java ME application services layer. Application developers write code in C++, the Java language, and Perl and use an SDK that can be customized for the IDE the developer intends to use.

b) Nokia abandons MeeGo:
Nokia is abandoning an alliance to develop another open source mobile operating system called *MeeGo*that it was developed jointly with Intel and a consortium of smaller companies. MeeGo is aimed at a variety of platforms, including smart phones, tablets, automotive systems, and set-top boxes. 2011 and 2012 will be transition years of smart phone sales.

c) Platforms: tablets
As of the end of 2010, the top-selling tablets were the Apple iPad and Android tablets made by Samsung, Motorola, and Acer .Many tablet will be based on the Android operating system .Tablet computers are larger than a smart phone but interact with the user in much the same way, using a touchscreen as a primary input device. They often don't have a keyboard. Unlike laptops, they are single-user personal devices; however, tablets access the cloud in the same manner as smart phones..RIM will introduce its BlackBerry PlayBook, which uses the BlackBerry Tablet OS. Motorola will introduce its Android-based Xoom tablet. Apple will

release its second- and third-generation iPad tablets. Expected improvements include a dual-core processor, a higher-quality display, a front-facing camera, and an SD card slot.

d)Trends:Now days mobile cloud is in demand. Work patterns and habits are also changing because of the mobile cloud Customers are demanding smart phone and tablet applications so they can access companies' key applications. Employees are demanding access from their mobile devices. Another trend points to the mobilization of money through the mobile cloud. For example, the company Tabbed Out has created a service that allows people to use their smart phones to open, review, and pay tabs. Starbucks recently began allowing customers to pay for purchases with an application that accesses the customer's account and generates an on-screen bar code that the cashier scans to complete the payment. The customer's Starbucks account is replenished with a credit card or PayPal account.

e) Issues: issue of mobile with the mobile cloud is the resource poverty of mobile devices. Compared to desktop computers, they have a mini screen real estate, less compute power and memory, battery capacity limits. Because of this resource poverty, the mobile cloud is viewed as an *SaaS cloud,* meaning of that computation and data handling are usually performed in the cloud. Smart phones access the cloud through internet or thin clients. The mobile cloud affected by the Latency and bandwidth. It also affected by the WI-Fi improves latency but may decrease bandwidth when many mobile devices are present. Bandwidth for 3G cellular may be limited for cell tower bandwidth in some areas. Similarly, connectivity may be intermittent. As cellular providers build out their networks, the situation will improve. Security issues increase with mobile devices. After all, it's easier to lose a mobile device.

3. Problem formulation:

In this section we outline new problem areas in security that arise from cloud computing. These problems may only become apparent after the maturation and more widespread adoption of cloud computing as a technology.

3.1Security problem:

Cheap data and data analysis: The rise of cloud computing has created enormous data sets that can be monetized by applications such as advertising. Google, for instance, leverages its cloud infrastructure to collect and analyze consumer data for its advertising network. Collection and analysis of data is now possible cheaply. Because of the cloud, attackers potentially have massive, centralized databases available for analysis. How much more privacy did one have before one could be Googled? Because of privacy concerns, enterprises running clouds collecting data have felt increasing pressure to anonymize their data. EPIC has called for Gmail, Google Docs, Google Calendar, and the company's other Web applications to be shut down until appropriate privacy guards are available. some identifying data will be removed such as IP addresses and cookie information. The anonymized data is retained though, to support the continual testing of their algorithms. Another reason to anonymize data is to share data with other parties.

We note that anonymizing data is a difficult problem. as an ex, the Netflix data set was partially de-anonym zed, and the then-Governor of Massachusetts was identified as a patient of Massachusetts General Hospital from an anonymized list of discharged patients. Tools are needed for effective anonymization, which will increase in importance as clouds proliferate and more data is collected that needs to be analyzed safely or shared.

Cost-effective defense of availability: Availability also needs to be considered for the sabotage activities. The damages are not only related to the losses of productivity, but also extend to losses due to the degraded trust in the infrastructure, and potentially costly backup measures. The cloud computing model encourages single points of failure. It is therefore important to develop methods for sustained availability and for recovery from an attack. The latter could operate on the basis of minimization of losses, required service levels, or similar measures.

Increased authentication demands: a license purchased and software installation on the client side, users will authenticate in order to be able to use a cloud application. There are some advantages in such a model, such as making software piracy more difficult and giving the ability to centralize monitoring. It also may help prevent the spread of sensitive data on untrustworthy clients.

Thin clients result in a number of opportunities related to security, including the paradigm. Their security is managed by the cloud, which maintains the software they run. This architecture stimulates the mobility of users, but increases the need to address authentication in a secure manner. In addition, the movement towards increased hosting of data and applications in the cloud and a lesser reliance on specific user machines is likely to increase the threat of Phishing and other abusive technologies aimed at stealing access credentials, or otherwise derive them, e.g., by brute force methods. [3]

Mash-up authorization: As adoption of cloud computing grows, we are likely to see more and more services performing mash-ups of data. This development has potential security implications, both in terms of data leaks, and in terms of the number of sources of data used by user. Centralized access control may solve many of these problems, that may not be possible

3.2Potential Problems *:*

There are some potential issues The most notable problem is the lack of speedy mobile Internet access everywhere. Here in the US, for example, 3G coverage is spotty outside urban areas, leading to intermittent connection issues and slow speeds. ABI Research mentions initiatives like OMA's Smartcard Web Server, essentially a souped-up SIM card that connects directly with the carrier to push applications to mobile phones. There's also TokTok, a technology that allows access to web services like Gmail and Google Calendar by voice. With voice-enabled search like this, mobile apps could talk directly to the service itself which sits on the edge of the network, as opposed to needing the user to launch a web browser and navigate through the mobile web. Other markets may have it even worse. However, new technologies like HTML5, which does local caching, could help mobile cloud apps get past those sorts of issues. And there's even a chance that the browser could one day be replaced - at least in some markets - with another technology altogether which provides a better way to access the mobile web. [1]

4.1Why Mobile Cloud Computing?

Survey says that smart phones will grow in percentage and feature phones will become more sophisticated in time, these

lower-end phones are not going away anytime soon. The mobile cloud computing trend is becoming conman. Most web developers capable of building mobile web applications than there are developers for any other type of mobile device. Those factors, combined with the fact that feature phones themselves are becoming more capable with smarter built-in web browsers (and more alternative browsers available for download), will have an impact on mobile cloud computing growth.[1]

4.2What is mobile cloud computing?

I propose a Mobile Cloud Computing (MCC) architecture (see *figure 4)* which connects mobile devices to the Cloud Computing. The MCC architecture includes a mobile client and a middleware design.

There are two approaches to implement the mobile client: native applications and embedded browser applications. Native applications are built with specific programming languages supported by the mobile platforms. However, embedded browser applications can run HTML and JavaScript in the embedded browser and use interfaces exposed by native application. He middleware improves interaction between mobile clients and Cloud Services, for example, adaptation, optimization and caching. The middleware also provides extended functions to mobile clients, such as service mash up. In general, the middleware enhances the functionality, reliability and compatibility of the interaction between mobile clients and Cloud Services.[9]

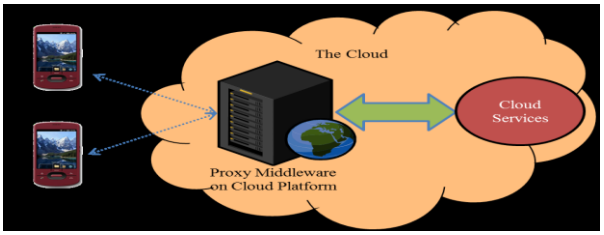

Fig no:4

4.3 The features of Mobile Cloud computing architecture are as follows

a)Loss of connection

 Client and middleware caching: Copies of result of the services are stored on both mobile clients and the middleware. When the mobile clients are not able to connect to the middleware, the client-side cache is used. When the middleware to WS connection is not available, the middleware returns its cached data to the mobile clients.

 ***Middleware push*:** When the middleware receives an update of service result, it immediately sends the update to mobile clients that are connected to the middleware. When the mobile clients detect an available network connection, they automatically establish a connection to the middleware.

b)Bandwidth/Latency:

 Protocol transformation: Protocol transformation reduces the latency as well as bandwidth of the client to service interaction. The middleware transforms SOAP WS to RESTful WS. SOAP is a verbose protocol which involves XML parsing, while RESTful WS can use light-weight format like JSON for the message. Transferring SOAP WS to light-weight protocols, like RESTful WS, reduces processing time as well as the size of the messages.

 Result optimization – Result optimization reduces the size of the service results, thus reduces the bandwidth used to interact with WS. The middleware converts the format of service results from XML to JSON and removes unnecessary data from the original service result. Less data transferring also reduces network latency. (C3) Limited resources

 Cloud Computing – Connecting mobile clients to Cloud Computing extends the resources of mobile clients in a cost-efficient way. Cloud Services extend the functionalities of mobile clients, while Cloud Platforms provide computational power to mobile clients. The middleware is designed to be hosted on Cloud platforms, like GAE and Amazon EC2. Scalability is the top concern of the middleware. Cloud platforms provide automatic scaling for the middleware.

 Personal Mashup Platform – Service mashup allow a mobile client to combine different services. However, service mashup requires interaction with WS and processing power. Because of the resource limitation (energy, processing power, software libraries) of 10 Mobile clients, it is inefficient to do service mashup on the mobile clients. The middleware provides a Personal Mashup Platform which does service mashup for the mobile clients. The platform has generic interfaces for defining and consuming WS. The services are stored on the middleware and can be connected to form a workflow (a mashup service) which provides a possibility to caching intermediate service results. [10]

4.4Architecture of mobile cloud computing:

The goal of the Mobile Cloud Computing (MCC) architecture is to provide a proxy for mobile clients connecting to Cloud services. *Figure 4.1* shows an overview of the MCC and its main features. The architecture consists of three parts, the mobile clients, the middleware and the Cloud services. Since Cloud services are usually controlled by service providers, the middleware performs all the necessary adaptation to the mobile clients. Some services require real-time updates, for example, news, Blog, and Twitter service. The middleware also pushes updates of service results to mobile clients via HTTP or email immediately after it receives the updates.

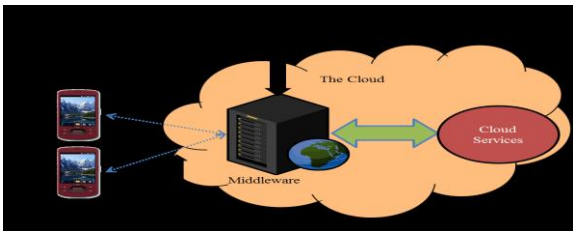

Fig no:5

The middleware is responsible for consuming the Cloud Services whether they are SOAP or RESTful WS and delivers the service result to the mobile client. On the mobile client, users can define WS or mash up services and later execute the pre-defined WS .The middleware provides a RESTful WS interface for the mobile clients. *Figure 4.2* indicates how to

consume/execute a pre-defined WS. When WS are executed through the middleware, the follow steps are involved in the middleware.

1. The mobile client sends a HTTP GET request with an identifier of a WS to the middleware.
2. The middleware deals with interactions to the WS (and generates SOAP WS client if necessary).
3. The middleware extracts (JSON or XML parsing) the required service results from the original service result and form a new service results in JSON format.
4. The middleware stores a copy of the result with the service ID in the database and returns the optimized result to the mobile client

5 The middleware is also a Personal Service Mashup Platform (PSMP) that is based on a novel data structure which represents WS as objects. The next section talks about the middleware design and how these functions are achieved.

5. PURPOSED WORK

5.1 How to backup your phone to the cloud:

As we know March 31 was World Backup Day. Everyone wants to keep our data safe and secure. As today's mobile world maximum our important data is on the cell phone so either store our data at local system or as today's internet age we keep our data on clouds menace space provided by internet to put our data. As cloud commuting is very famous now days so we can access our data anywhere anytime as Smartphone always connect with internet. Backing up to your Google Account One of the main benefits of Android is that we can connect our phone with your Google account. This means that we don't need to worry about leaving our bookmarks in either our personal computer or our phone and having to go without them. Google's linking with our device and that makes easy to access our data. If you'd like to keep your contacts, system settings, apps, calendar and email data in your Google account, simply go to Settings > Privacy on your phone. Check the boxes for "Back up my settings" and "Automatic restore." Make sure that under Backup account you specify the Google account that you want to backup data for. Next, go to Settings > Account & Sync, tap on the Google account you want to sync, and check all the available options. This way, your data will be stored in your easy-to-access Google account**.**

Now, each one use Smartphone and we always connect with the net so keeps our data at server so we can use it at anytime and anywhere. And it's more secure also. Our maximum impotent data is on Smartphone as, connects no, call, calendar, messages, drafts, etc., supposes that the Smartphone is less by mistake or missed placed then we lost our whole data. As Smartphone is a loss we can buy a new one but how we can get back our data. And if Smartphone is going to go in wrong hand then they can misuse it. To solve this problem Here we purposed new backup and restore techniques from a Smartphone. We plan developed a system which incorporated the implementation of backup and restore of mobile smart phones to the cloud. .Backup data from android platform and store on online server on cloud. And restore it back to the Smartphone when needed. To reduce the time while backup and restore it on cloud we plan to use some compression and encoding method while backup and restore process which helps to reduce data storage size and time of transaction The following diagram shows our plan how makes it possible.

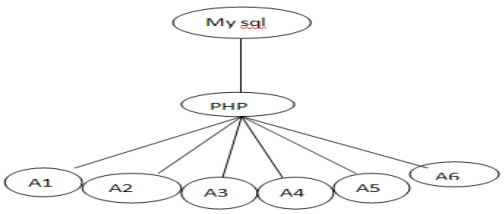

Fig no:6

Supposes A1 Smartphone is loosed then our data is loss, and we buy new one as A2 but it doesn't have anything of loosed data of Smartphone A1. If we backup our data on cloud we resolve this problem. Suppose I have Smartphone A1 and it has all my important data so I use cloud available on the net and keep our data on cloud by using cloud account with the reference of our Gmail account. And now my Smartphone is less. Then I need not to worry about it I just want to purchase new one as A2. And open my account on cloud click one button as "restore" it restores all my data as it is. But using this we purposed new technique of backup and restore. As I experience user faced problem while backup and restore mainly due to time to take backup and restore and storage place used more on the cloud. As many clouds are payable available on the internet and user want to pay money according to their usages so if size of the file is reduced then it can store in less space so it consumes less bandwidth and for the time while backup and restore it takes less time as compare to backup and restore data as it is from. So we try to implement compression techniques while backup and restore data from Smartphone to cloud and vice versa.

For backup and restore different steps are followed:

A. Creating a data for backup

The data is created for the information such as contacts, images, sound files, video files, and calendar events.

B. Store data as separate in application

Each data should be collected separately in the application folder of backup and restore.

C. Line of Action

The selected data then compress at the client router while backup and then send to the server for backup. Same procedure is performed for restoration. At the restore time server router will decompress and then send to the client.

6. CONCLUSION

Thus in this paper we study about cloud commuting and mobile cloud computing. We explain architecture of MCC. We compare cloud computing and MCC. We purposed new method to backup and restore on cloud.

7.REFERENCES

[1]http://www.readwriteweb.com/archives/why_cloud_computing_is_the_future_of_mobile.php Why Cloud Computing is the Future of Mobile: By SARAH PEREZ in AUGUST 4TH, 2009page no(4,6,7,).

[2]http://www.ibm.com/developerworks/cloud/library/cl-mobilecloudcomputing The current state of mobile cloud computing. page no (4)

[3] http://cloudcomputing-ppt.com/cloud-computing architecture-ppt/Cloud Computing Architecture page no.(2).

[4]http://www.roseindia.net/cloudcomputing/WhatisCloudComputing.shtmlPosted on: August 2, 2011 at 12:00 AM introduction: what is cloud comuting? Page no(1).

[5] A.Chervenak, V. Vellanki, and Z.kurmas, Protecting File Systems: A Survey of Backup Techniques. Proceeding Joint NASA and IEEE Mass Storage 1998.

[6] http://www2.verizon.net/micro/speedtest/java \cloud comuting.pdf types of cloud computing: page no(3)

[7] http://creativecommons.org/licenses/by-nc-nd/3.0/ EST0902.pdf in 21, august 2009 how does it work? Pa no(2) why it is significant page no(2)

[8] http://www.luitinfotech.com By luitBiz, types of cloud computing page no(3)

[9] M. Satyanarnynnan, "Mobile computing," *Computer*, vol. 26, 1993, pp. 81-82. What is mobile cloud computing?Page no(7)

[10] D.E. Bakken and M. Api, *Middleware*, 2001. The Mobile Cloud Computing architecture provides the following features. Page no(8)