Cloud Computing Security Issues

Amrinder Kaur
Research Scholar, Department of Computer Sc. & Applications, Kurukshetra University, Kurukshetra-136119
Email: er.amrinder09@gmail.com
Sunil Saini
Assistant Professor, Kurukshetra Institute of Technology & Management, Kurukshetra-136119
Email: it.sunilsaini@gmail.com

----------**ABSTRACT**----------
Cloud Computing is a conceptual term that define the basic of tomorrow's computing. After research of many years on virtualization, distributed computing and networking the beneficial final result comes in the shape of "Cloud computing". Cloud computing is totally internet based technology where user data is stored and maintained in various data center provided by cloud provider. Some issues are also there other than cloud computing strength and that are it suffers from various security issues like data security, privacy of users information and security from infected applications.This paper presents a review on basics of cloud computing and on some security issues attached with this new technology.

Keywords -Cloud Computing,Data Issues, Infected Application Issues, Privacy Issues, Security Issues

1. Introduction

The meaning of Cloud computing in very general terms is that the storing and accessing of some useful data or information over the internet instead to stored it on someone's machine.The main concentration in cloud computing is sharing of information in any network of nodes. ``A Cloud is a kind of distributed and parallel system which consists of a collaboration of virtualized machines or computers which are inter-connected and further they are dynamically presented and provisioned as one or more joined computing resource(s) based on SLA's (service-level agreements) established through the negotiation between users and cloud providers(Buyya, 2009)".Cloud computing helps us to save our data or information to the internet instead of to saving it on one's computer memory.Cloud computing provide us the facility of accessing data or information from any device and from anywhere in the world the only condition is that the device or machine must connected through internet facility(Sung-Jin, 2010). When some people are storing their data like photos through online mode rather than to store it on some machine's hard disk than people is using a cloud computing services (Rong, 2012).As data of people are on internet through cloud computing some security risks are also the matter of concern that includes privacy, data ownership, legal data, data location and security threats and attacks.

By considering above risks, there must be an urgent need to securely manage, store and analyze someone's data or information that is placed on any cloud so it is important that the cloud must be secure. The main security challenge with cloud is that the user has no control over that where their data or information is placed on cloud. There are many security issues for cloud computing as it incorporates many technologies including operating system,

database, network, memory management and load balancing. Therefore security issues for many technologies and system are applicable to cloud computing. Here, one of the basic view of cloud computing is shown diagrammatically that includes all the major parts of cloud computing.

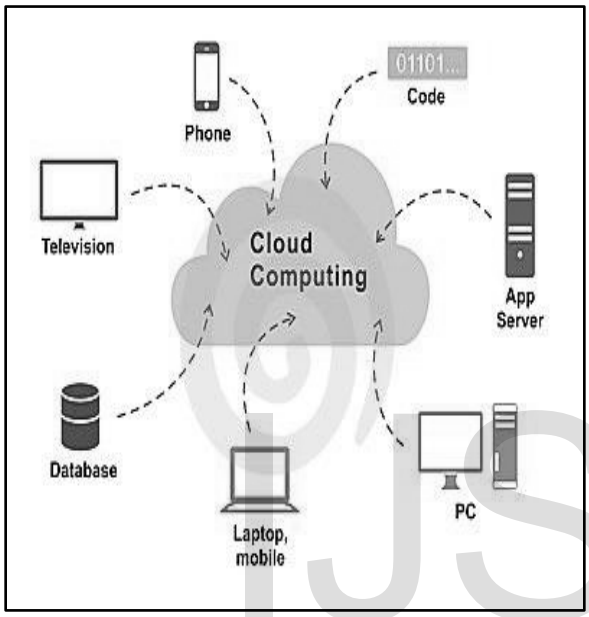

Figure 1: A view of Cloud Computing

2. Layout of Cloud Computing

Mainly the concept of cloud computing is divided into two parts:-

Front End: The front end part contains the client's machine and the several applications that are necessary to access the cloud computing system. It contains various services like electronic mails, accessing online files etc.

Back End: The back end part contains the various machines and servers that form the cloud for computing services. In this type of system, each application has its own dedicated server. The central server maintains the role of administrator.

3. Delivery Modelsin Cloud Computing

In cloud computing there are four cloud delivery models, as defined by National Institute for Standards and Technology (NIST), and this is totally based on who provides the cloud services. The cloud providers may adopt one model or a combination of different models for efficient delivery of applications.

Four models are:

(i) Private- In this, the cloud services are provided merely for an organization and also that is managed by the same organization.

(ii) Public- In this cloud services are available to the public and maintained by any organization that selling the cloud services. An example of this type of services is Amazon cloud service.

(iii) Community- In this type of cloud services the services are shared by differentgroups for supporting a particular community that has shared concerns. These services may be managed by the organizations and may exist offsite.

(iv) Hybrid- In this type of cloud the cloud is a composition of various cloud computing infrastructures (private, public or community).

4. Cloud Computing Security Challenges

Today's user of cloud is more concern about their data security as the user is not much known about where their data or information is saved and about the exact placed of their data or

information. It's the job of the cloud service provider to ensure users about the security of their cloud. This is the matter of concern for cloud service provider and for this the service provider makes sure that the customer doesn't face any problem such as data theft or data lost. There is also the possibility that the unauthorized user can penetrate the cloud by infecting the whole cloud. This leads to affect many customers whose data are on that particular cloud (Lord). Following are the main four types of Cloud Security issues thatare shown in Figure2.

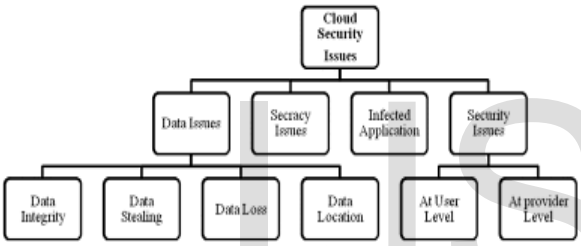

Figure 2:Security Issues in Cloud Computing

4.1.Data Issues

Whenever the data is on cloud anyone can access any data from anywhere at any time from cloud since data may be sensitive or private and on same time consumer and cloud provider access and modify data. So data integrity method must be needed in cloud computing. Data stealing is also another serious issue in cloud computing as many cloud provider takes third party server help instead of their own server and because of this the chances of data stolen is extremely high. Another serious issue in cloud computing is data lost. If any cloud provider closes their services due to some legal or financial problem then the data lost occurs for the users.Data location is another issue in cloud computing environment as provider always hide the data location of users data from user and it gain the data security threat to user(Jain,2012), (Angadi,2013), (Anitha, 2013).

4.2. Privacy Issues

To maintain the privacy of any customer's personal data or information is the main concern of any cloud computing provider. It is the job of cloud computing provider that the customer's data is secure from other cloud provider, other customers and user. Most of servers are external so this is the job of cloud computing provider that it makes sure thatit makes sure that who is accessing the data or information. (Jain,2012), (Angadi,2013), (Anitha, 2013).

4.3. Infected Applications Issues

As the cloud provider has all access to monitor and maintain all the data or information that is on their server so it helps in preventing any malicious user for accessing any information from cloud and also preventing from uploading any infected file onto the cloud. So this type of monitoring protects cloud computing services from infected applications. (Jain,2012), (Angadi,2013), (Anitha, 2013).

4.4. Security Issues

In this type of issue we consider the security on two levels. One security issue is on cloud computing service provider level and second security issue is on user level. The service provider makes sure to the user that the server is well secured from other service providers, malicious user and all other external threats. On the other hand in user level the users of same cloud services make sure that there should not

be stealing, tampering and loss of data of other users. A cloud is functioning well only when there is an excellent security provided by cloud computing service provider to the users.(Jain,2012), (Angadi,2013), (Anitha, 2013).

5. CONCLUSION

In cloud computing various security issues comes under consideration. To secure the cloud the various security issues need to be controlled. The data or information in cloud is also prone to threats and different issues like data integrity; confidentiality of data and security issues comes under consideration. The customer and cloud service provider are jointly makes sure that cloud is safe from external threats so for smooth working there must be a mutual understanding between customer and cloud service provider. In this paper various security issues that are related to the basic services provided by a cloud computing are considered.

References

[Angadi,2013]Angadi A. etal. ,*" Security Issues with Possible Solutions in Cloud Computing-A Survey"*, IJARCET, Volume 2, Issue 2, ISSN: 2278 – 1323, February 2013.

[Anitha, 2013] Anitha,*" Security Issues in Cloud Computing - A Review"*,IJTPD, Vol. 1, Issue 1, October-December 2013.

[Buyya, 2009] BuyyaR. etal.,*" Cloud computing and emerging IT platforms: Vision, hype, and reality for delivering computing as the 5th utility, Future Generation Computer Systems"*,Elsevier, 2009.

[Jain,2012] Jain P. etal.,*" Security Issues and their Solution in Cloud Computing"*, IJCBR, proceedings of 'I-Society, GKU, ISSN: 2229-6166, 2012.

[Lord] Lord C.,*"Problems Faced by Cloud Computing"*,[online] https://dl.packetstormsecurity.net/papers/general/ProblemsFacedbyCloudComputing.pdf

[Rong, 2012] Rong C. et al,*" Beyond lightning: A survey on security challenges in cloud computing"*, Elsevier, 2012.

[Sung-Jin, 2010] Sung-Jin B. etal.,*"Efficient server virtualization using grid service infrastructure"*, JIPS, Vol.6, No.4, December, 2010.