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A Review Paper on Cloud Computing & Security Issue

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Abstract:- The term "Cloud Computing" has become an interesting and tempting technology which is offer to the service to its user on demand over the internet. It is a way to increase capacity and capability of organization without invest in training and infrastructure. With cloud computing we can construct and maintain application dynamically. It provides us data storage online and infrastructure required for our application. Cloud computing store the data in the environment security has become the major obstacle which is development on cloud environment .There are many number of user's to used cloud to store their own data and then data storage security is required in the storage media. In the cloud computing the main concern is security during upload the data on cloud server. In the cloud computing the data storage in server attracted incredible amount of consideration in different communities. This paper discuss the security issues of data storage.

Keywords:- Cloud computing, Cloud data storage, Cloud data security, Deployment models, Service model, Cloud security challenge.

1) Introduction:- The term Cloud Computing is also known as "On-demand" is a kind of internet based computing service in Information Technology like Infrastructure, Platform, and application should be arranged and shared through the internet. Where shared resources, data devices are provided to computer & other device in On-demand .It is a model for enabling ubiquitous on-demand access to a shared pool of configurable computing resources including data storage space, network, computer processing power. Cloud computing is a type of computing that relies on sharing computing resource rather than having local server or personal devices to handle applications. Cloud computing has now become a highly demanded service or utility due to the advantages of high computing power ,high performance, scalability ,accessibility as well as availability. Cloud computing may also be referred as permitting a network of remote server hosted over the internet to store, .Cloud storage specifies the storage on cloud with inexpensive storage and backup option for small enterprise. The actual storage location may be on single storage environment or replicated to multiple server storage based on importance of data. There are some examples of cloud service like webmail, online file and business applications. The basic cloud storage environment represented as below:

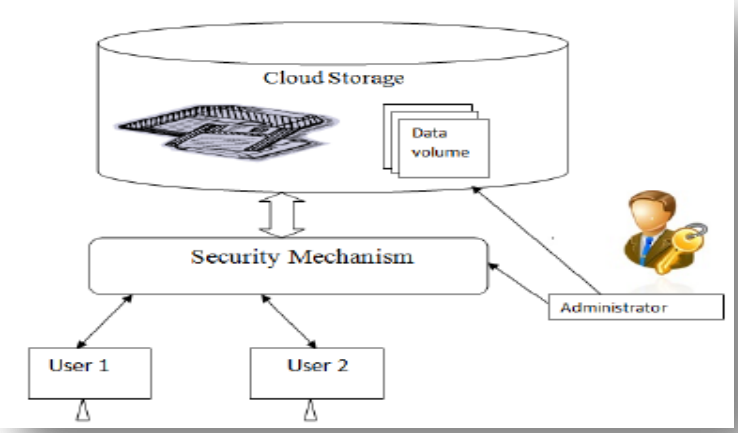

Figure 1 : Cloud Storage Environment

2) Cloud Service Model:-

Figure 2:-Cloud Model

(A)Cloud Infrastructure as a service (IaaS):- The cloud service providers give infrastructure like storage, computing power etc. to the users through virtualization. It can save cost time reducing capital expenditure on infrastructure and ongoing operation cost for support maintenance. . There are different issues in IaaS such as:

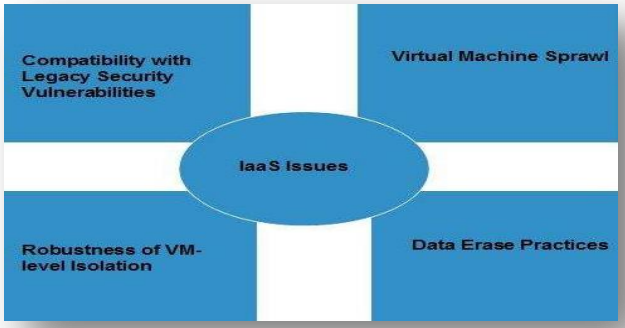

Figure 3:- IaaS Issue

(B) Cloud Platform as a service (PaaS):- The cloud service providers give platforms, tools and other services to the users. This software supplies client with the ability to establish and extended applications that are mainly positioned on equipment and programming languages promoted by the suppliers. Examples of this class of services include Google App Engine, Windows Azure Platform and rack space. There are different issues in PaaS such as:-

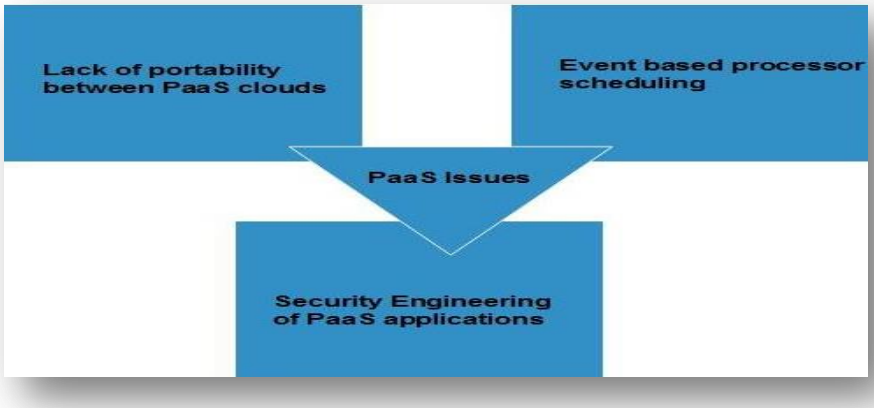

Figure 4:- PaaS Issue

(C) Cloud Software as a service (SaaS):- The cloud service providers give various software applications to the users, who can use them without installing them on their computer. This software supplies the ability to usage the appliances which implemented on cloud organization.

(D) Cloud Network as a service (NaaS):- NaaS provides the capability to use the network services and inter-cloud network connectivity services. Improvement of possession allocation services include in view of network and computing resources. These type of services involved extensible, enhanced virtual private network.

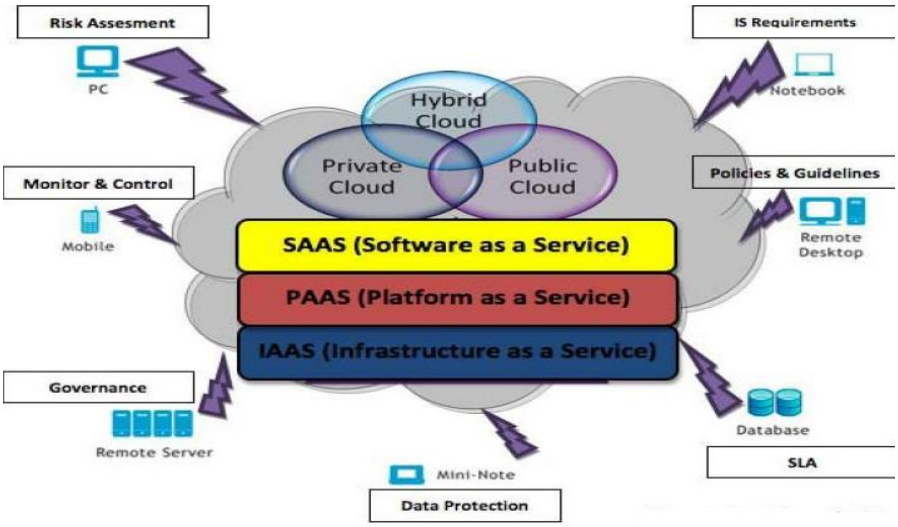

Figure 5:-Cloud Computing Map

3) Cloud Deployment Model:-

(A)Public Model:- Public cloud describes the conventional meaning of cloud computing that is accessible, effective ways , which are accessible on internet from a third party, which detached assets and charges its clients on the basis of utility. The third-party provider handles all responsibilities associated with managing and maintaining cloud services because they own the hardware .It is owned by an organization selling cloud services. It may be free or implemented as pay-per-usage policy. For example, Google, Amazon, Microsoft (Windows Azure), Apple (iCloud) etc. provide cloud services to the public users over the Internet.

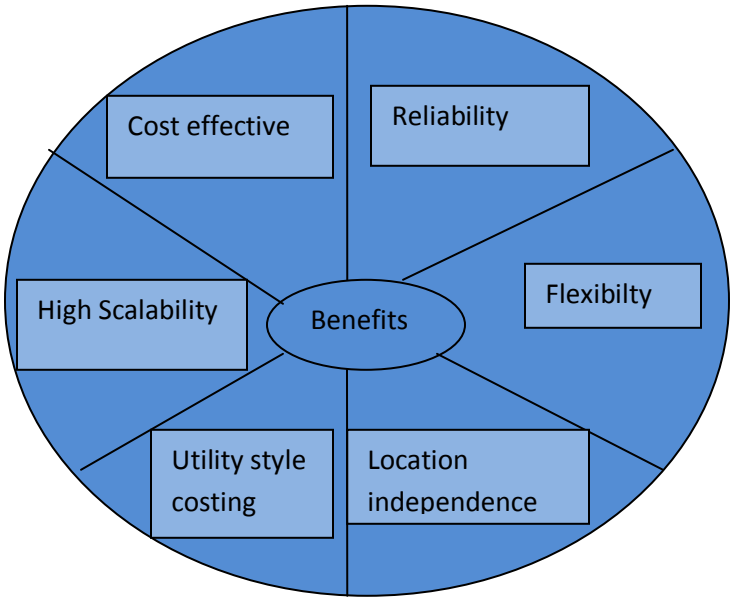

Figure 6:- Benefits of public cloud

(B) Private Model: - It is a model which provides cloud services to a private organization. It may be managed by the organization itself or a third party organization either on its premises or some other place away from it. Private clouds give the advantage of security to its organization, as all the data is stored on its own private servers, Big enterprises usually used this type of cloud computing to permit their private network and information Centre administrators to effectively become in-house 'service providers' catering to customers within the corporation.

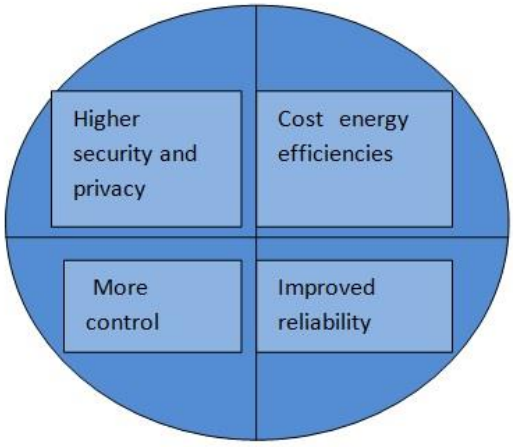

Figure 7 Benefits of Private Cloud

(C) Hybrid Cloud: - The hybrid cloud is a combination of both private cloud and public cloud. Also it is a model which is a composition of two or more clouds (private, public, community). These clouds are separate entities which are bound by some standards or technology and enables data and application portability. Another use of hybrid cloud is also the ability to expand during periods of limited peak usage, which is often preferable to hosting a large infrastructure that might seldom be of use. An organization would seek to have the additional capacity and availability of an environment when needed on a pay-as you-go basis.

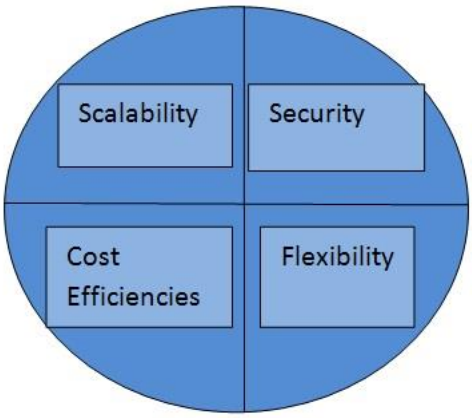

Figure 8 :-Benefits of Hybrid cloud

4) Cloud Computing Characteristics:-

Following are the characteristics of Cloud Computing:-

(A)On Demand Self-Service:- A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider.

(B)Broad Network Access:-The services are delivered across the Internet within a standard mechanism and access to the services is possible through assorted customer tools.

(C)Rapid Elasticity: - Cloud services can be rapidly and elastically provisioned, in some cases automatically, to quickly scale out and rapidly released to quickly scale in.

(D)Resource Pooling: - The provider's computing resources are pooled together to serve multiple consumers using multiple-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. The pooling together of the resource builds economies of scale.

(E)Measured Service: - The provision procured by different clients is measurable .The Use of asset will be directed, estimated, and accused for contributor and asset.

(F)Multi Tenacity:-It is the 6th characteristics of cloud computing advocated by the Cloud Security Alliance. It refers to the need for segmentation, isolation, governance, service levels, and models for different consumer constituencies.

5) Issue In Cloud Computing:-

More and more information on individuals and companies is placed in the cloud; concerns are beginning to grow about just how safe an environment it is? Issues of cloud computing can summarize as follows:-

(A)Privacy: - Cloud computing utilizes the virtual computing technology, users' personal data may be scattered in various virtual data centers rather than stay in the same physical location, users may leak hidden information when they are accessed cloud computing services. Attackers can analyze the critical task depend on the computing task submitted by the users.

(B)Reliability: - The cloud servers also experience downtimes and slowdowns as our local server.

(C)Freedom: - Cloud computing does not allow users to physically possess the storage of the data, leaving the data storage and control in the hands of cloud providers.

(D)Legal Issues: - Worries stick with safety measures and confidentiality of individual all the way through legislative levels.

(E)Compliance: - Numerous regulations pertain to the storage and use of data requires regular reporting and audit trails. In addition to the requirements to which customers are subject, the data centers maintained by cloud providers may also be subject to compliance requirements.

6) Security Issue:-

Cloud computing can provide infinite computing resources on demand due to its high scalability in nature, which eliminates the needs for Cloud service providers to plan far ahead on hardware provisioning. Many companies, such as Amazon, Google, and Microsoft and so on, accelerate their paces in developing cloud computing systems and enhancing its services providing to a larger amount of users. In this paper, we investigate the security issue of current cloud computing systems provided by an amount of companies. As cloud computing refers to both the applications delivered as services over the Internet and the infrastructures (i.e., the hardware and systems software in the data centers) that provide those services.

Based on the investigation security issue provided by companies nowadays are not adequate, and consequently result in a big obstacle for users to adapt into the cloud computing systems. Hence, more concerns on security issues, such as availability, confidentiality, data integrity, control, and audit and so on, should be taken into account. These are:-

(A) Availability: - The goal of availability for cloud computing systems (including applications and its infrastructures) is to ensure its users can use them at any time, at any place. As its web-native nature, cloud computing system enables its users to access the system (e.g., applications, services) from anywhere. This is true for all the cloud computing systems (e.g., SaaS, PaaS, IaaS, and etc.). Two strategies, say hardening and redundancy, are mainly used to enhance the availability of the cloud system or applications hosted on it.

(B) Confidentiality: - It means keeping users' data secret in the cloud systems. There are two basic approaches (i.e. physical isolation and cryptography) to achieve such confidentiality, which are extensively adopted by the cloud computing vendors.

(C) Data integrity: - In the cloud system means to preserve information integrity (i.e., not lost or modified by unauthorized users). As data are the base for providing cloud computing services, such as Data as a Service, Software as a Service, Platform as a Service, keeping data integrity is a fundamental task.

(D) Data Locations: - When users use, they probably won't know exactly where their data will hosted and which location it will store in. Service providers need to be asked whether they will accomplish to storing and alter data in particular arbitration, and on the basis of their customers will they make a fair accomplishment to follow local privacy requirement.

(E) Data Recovery: - It is defined as the process of restoring data that has been lost, Corrupted or accident.

(F)Trust Issue: - Trust is also a major issue in cloud computing. Trust can be in between human to machine, machine to human, human to human, machine to human. Trust is revolving around assurance and confidence.

7) Conclusion:-

Cloud computing is latest technology that is being widely used all over the world. Once the organization takes the decision to move to the cloud, it loses control over the data. Thus, the amount of protection needed to secure data is directly proportional to the value of the data. Security of the Cloud relies on trusted computing and cryptography. Number of cloud platforms are available now in educational as well as in enterprises circle. The security and privacy issues of cloud computing has also been discussed in brief. In this paper, we have discussed the issues related to data location, data recovery, security, availability and integrity. Establishing trust is the way to overcome these security issues as it establishes entities relationship quickly and safely. These issues mentioned above will be the research hotspot of cloud computing.

8) Future Scope Of Cloud Computing:-

According to the statistics provided by the Market Research Media, the worldwide market for Cloud Computing is likely to grow at a CAGR of 30% to reach US$ 270 billion through the year 2020. Considering the cutting-edge innovations and new industry-specific applications, Cloud Computing is fast emerging as an essential component of an enterprise's IT framework.

Organizations, both big and small have deployed the cloud technology in some suitable capacity. Enterprises need expert IT professionals to work around 'the cloud'. The Cloud Computing industry requires professionals with adept training and knowledge in both technical and managerial fields. The demand for IT professionals continues to rise at an exponential rate as more and more enterprises adopt Cloud Computing.

Aspirants focused on taking a plunge into the Cloud can choose from a range of career paths such as Cloud architects, Cloud engineers, Cloud security experts, Cloud developers, Cloud support analysts to name a few. Similar to all other IT jobs, jobs in the Cloud Computing stream involve considerably high pay packages. Even the entry level jobs receive fat pay packages, making the sector more lucrative for ambitious professionals.

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