

RECENT CONCERN ISSUES IN CLOUD COMPUTING

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Abstract: Cloud computing is the fastest growing sector in today's time. Due to the ever increasing demand of cloud computing, more and more organizations and people are getting associated with it because there are numerous benefits of cloud computing infrastructure, services and platform.

Regardless of having benefits of cloud computing, this paper describes the concerned issues related to cloud computing. Several issues like quality of service, cost, reliability, downtime, vendor- lock- in and many more such issues has been discussed in this paper, which are limiting the usage of cloud computing in terms of advantages.

Keywords: Saas, PaaS, IaaS, Downtime, Vulnerability, Latency and Rigidity.

I. INTRODUCTION

Cloud computing is a way of computing that depends on sharing and computing resources rather than having local servers or personal devices to handle various applications. Cloud is used as a metaphor for "the internet". Therefore cloud computing is an internet based computing where various services such as application servers and storage are dispatched to an organization's computer and devices through the internet. [8]

It provides features like on- demand service, resource pooling, broad network access and many more.

Cloud computing allows people to share large amount of data. This can happen through various types of cloud available like Public Cloud, Private cloud, Hybrid cloud and Community cloud. [7]

- a) **Public cloud:** This type of cloud provides open service to the public. These clouds give the highest efficiency while sharing the resources. But on the other hand they are also prone to malicious users. In this type of cloud customers lack the visibility and control over the infrastructure.
- b) **Private Cloud:** When the infrastructure is dedicated to a particular organization, then that cloud is called private cloud. This type of cloud is more secure than any other type.

Basically there are two type of private cloud:

- 1) **On Premise Private Cloud:** When the cloud is hosted within an organization's facility. It is used when the organization requires the complete control and security of data.
- 2) **Externally Hosted Private Cloud:** When the cloud is controlled by third party and used by single organization is called externally hosted private cloud.
- c) **Hybrid Cloud:** Composition of two clouds is called hybrid cloud. It shows characteristics of both the clouds and offer benefits of deployment model. The drawback of this cloud is that security of multiple clouds has to be tracked.
- d) **Community Cloud:** It shares cloud infrastructure between different organizations of same community [8]. The main aim of community Cloud is to give public cloud benefits along with additional security. These type of clouds are best used when a government aided organization of a state needs to share some data or resource. Not only multiple users share cloud computing but this serviced also gets dynamically reallocated as per demand.

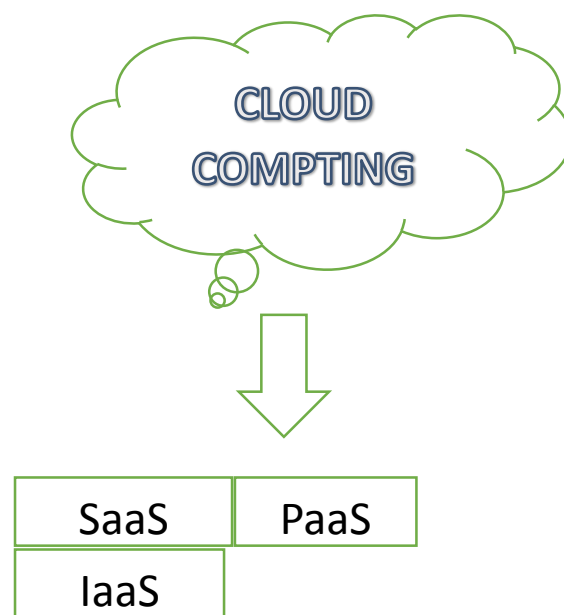


Fig.1. Service Model of Cloud Computing

Service delivery in cloud computing includes three different service models, namely Software as a Service (SaaS), platform as a Service (PaaS) and Infrastructure as a service (IaaS).

- a) **SaaS:** In SaaS model, application software are installed and operated in cloud itself by cloud providers and user can access these applications from cloud clients. Infrastructure of cloud is not managed by users therefore it becomes easy for users to use software without any need of installing them on their computers.
- b) **PaaS:** In PaaS model, computing algorithm is made available by cloud, which includes operating systems, programming language and execution environment, web servers, etc. It is basically a platform for creation of software, over a web. It is basically delivering of cloud computing platform services on the internet.
- c) **IaaS:** IaaS model provides computing infrastructure – storage, servers, network and operating system on demand. Equipment is owned by the service provider and is responsible for renting, running and maintaining it. Payment is made as per the usage.

IT professionals at different companies around the world are all in favour of the cloud computing, but they still worry about the risk in the technology. Today along the advancement and development in the cloud computing there are various major concern topics which need to be examined. Top challenges of cloud computing which are bothering users are as such – security of data, unexpected downtime, cost, rigidity and many more [1].

In this paper we will discuss these few basic but most essential concern area of cloud computing.

II. SECURITY OF DATA

Data management in cloud computing might not be fully secured and trustable. The risk of malicious insiders and openness and multi-tenant characteristic of the cloud computing causes threats to security [1].

Virtualization in cloud infrastructure implementation brings security concern for customer. It alters the traditional security aspects. [2]

Virtual machines are using servers which are also used by other virtual machines, some of which might be malicious. Therefore attacks from those malicious machines may be possible. To overcome security threats updated data security systems should come into existence and every infrastructure should be controlled with set of rules which can deal with latest ways of phishing and hacking data.

III. UNEXPECTED DOWNTIME

Unexpected server outages, lead to problem for the cloud computing service providers. It leads to customers depending on the internet connection and if there is a server problem, whole computing will come to a standstill.

Coding error issues in online services may results in downtime. It may not be accessible to users and if the customer needs to access some data, it may not be able to do. Even the best and the biggest companies have got the excellent plans wasted as their services go dark for hours [3].

IV. RIGIDITY

This is the most important issue which needs concern. While choosing a cloud computing vendor, we must not choose the one having their own proprietary applications and formats [3].

Since the ambience we are working with may be incompatible with others, we have to make sure that we are able to transfer out the information as desired [5].

V. DEPENDENCY ON VENDOR AND DATA TRANSFER

Cloud computing user has utmost dependency on the service providers. It is difficult and many times almost impossible to migrate from one service provider that we are in tie up now to other.

In the case user has to switch to other provider, then it becomes really difficult, time consuming and hectic to transfer the whole data from old to new service provider [5]. In this case the data is to be saved on portable storage and physically deliver it to the data center for uploading purpose [6].

Furthermore, data may have been altered earlier for the compatibility purpose of the previous service provider which is now to be brought back in original state, before transferring it to some other provider.

VI. COST

Cost is the benefit of cloud computing since it is less expensive than the solution we used in traditional data centers, when involving hardware, software and human resources.

Cloud providers can update or fix software application anytime as and when without bothering the cloud users, who have to upgrade a new version instead. But when updates are not on time, this benefits can result in disadvantage as bugs and various other issues can actually slowdown the users.

Also there are various instances when cloud computing are actually not cost efficient. This is the case when application are more costly to operate on clouds when taking in account the cost of feature and porting that application may require. In many cases businesses are under the impression that they have to pay only for the server that they are using but generally there is a minimum amount that is being charged

every month [5].

VII. RISING VULNERABILITY

Cloud solutions add new threats to attack, methods such as fraud, phishing and exploitation of software. Access of the credentials by an attacker can lead to eavesdropping on our activities and data.

Since the cloud based solution are exposed on the public internet and therefore they are more prone to get attacked by malicious users and hackers.

Since system are dependent on each other, therefore, if any one of them compromise on the one of machine where data is present, can leads to hacking of the data.

Therefore service providers and consumers, both should take the responsibility of reducing the vulnerability.

VIII. LATENCY

Time taken by the computer for interaction with the cloud server is called latency. In cloud computing data is not available on our computer, so we tend to take into consideration this issue.

Here cloud server's service plays an important role. Since the resources of the cloud are located at multiple locations, latency comes into existence.

With the increase of cloud traffic, there is a chance of increase of latency, which results in inconvenience. [5]

To overcome the problem of latency, specialized satellites with low latency connections should be utilized.

IX. CONCLUSION

Cloud computing is fastest growing technology in IT sector. Since everything has its pros and cons, similarly cloud computing also have some drawbacks which need to worked upon, so that they can be converted into advantages and can enhance the features of cloud computing.

Lack of security and vulnerability needs to be carefully considered before deciding to implement them.

But since research in this sector is growing at a very high speed and hence, soon concerning issues of cloud computing will be looked upon and get reduced as per the growth and requirement since cloud computing has a great potential for future.

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