Cloud Computing: New Paradigm of Internet Services

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Abstract— In recent days, Cloud computing is one of the most powerful techniques. Most educational organizations are trying to reduce the cost of computing infrastructures with alternative structures that have the same efficiency. Cloud computing provides a distributed computing environment comprises of heterogeneous components like hardware, software, firmware, networking as well as services. Due to growing need of huge amount of resources, educational institutes have to spend large capital on their infrastructure to fulfill their requirements. Cloud Computing is a distributed computing technology which offers hardware and software through internet in the form of services.

Keywords—Cloud, Firmware, Heterogeneous

1. INTRODUCTION

Nowadays, the technology plays a key role in our life. Cloud computing is one of the new technologies which provide a numbers of benefits for the internet users and the financial and non-financial institutions. The term cloud computing has a number of definitions. It can be defined as a large container of services, software and hardware that can be used and accessed at any time and place through the web (Mell & Grance 2011). Many organizations such as Google, Amazon and Microsoft have these resources working on their servers at particular fixed places, and they sell it as pay-per-use. It offers a computing infrastructure ready to use with low costs and easy to access from anywhere and anytime such as data stores, software and services (Sinanc & Sagiroglu 2013). In addition, the high flexibility and possibilities provided by the cloud, with low cost, encouraged many organizations to adopt it even the education sector (Aljahdali et al. 2014).

2. WHAT IS CLOUD COMPUTING

Cloud computing generally works on three type architecture namely
1. SaaS (Software as a Service).
2. PaaS (Platform as a Service).
3. IaaS (Infrastructure as a Service).

There are different issues and concerns with each of the cloud computing technology

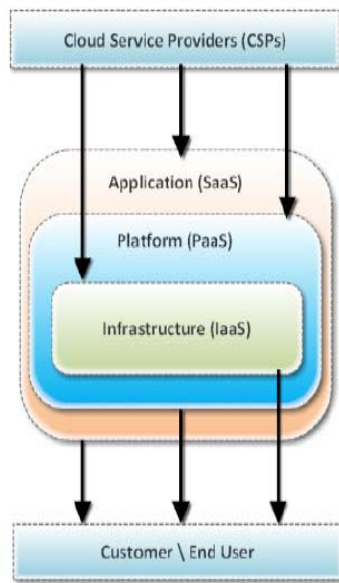## SaaS (Software as a Service):

- Hosts and manages a given application in their data Centre and makes it available to multiple users over the web.
- Examples of SaaS are Oracle CRM on Demand and salesforce.com.

PaaS (Platform as a Service):

- Application development and deployment platform which deliver over the web to developers.
- Facilitates development and deployment of applications without the cost and complexity of buying and managing the underlying infrastructure.
- All of the facilities required to support the complete lifecycle of building and delivering web applications and services entirely available through internet.
- Includes database, middleware, development tools and infrastructure software.
- Paas service providers include Google App engine and Engine Yard.

IaaS (Infrastructure as a Service):

- Delivery of software and hardware as a service.
- It is a traditional hosting that does not require any log term commitment and allows users to provision resources on demand.
- Amazon web services elastic compute cloud (EC2) and secure storage service (S3) are examples.

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3. Types of Cloud

1. Public Cloud -A public cloud can be accessed by any subscriber with an internet connection and access to the cloud space.

2.Private Cloud - A private cloud is established for a specific group or organization and limits access to that group.
3.Community Cloud -A community cloud is shared among two or more organizations that have similar cloud requirements.

4.Hybrid Cloud -A hybrid cloud is essentially a combination of at least two clouds, where the clouds included are a mixture of public, private, or community.

A. Characteristics of Cloud

There are several key characteristics of cloud computing:

1.The customer doesn't have to know (and buy) the full capacity they might need at a peak time. Cloud computing makes it possible to scale the resources available to the application.

2.Customers pay only for what they use. They don't have to buy servers for their maximum needs. Often, this is cost saving.

3.The cloud will automatically (or, in some services, with semi-manual operations) allocate and de-allocate CPU, storage, and network bandwidth on demand. When there are a few users on a site, the cloud uses very little capacity to run the site,
and vice versa.

4.Because the data centres that run the services are huge, and share resources among a large group of users, the infrastructure costs are lower (electricity, buildings, and so on). Thus, the costs that are passed on to the customer are smaller.

4. INFRASTRUCTURE

The cloud computing infrastructure does differ from traditional hosting services because of scalability, and pay-as-you-go pricing. A start-up company might be very interested in getting the scalability, and in not paying for the time they're not using the service. It is convenient, especially if you're trying to grow the traffic on your Web application but don't know how soon, or how well, you'll succeed.

Storage

With the storage layer, you get a database or something similar, and pay per gigabyte per month. A storage layer is nothing new or special, except for the full stack of services. It is, of course, vital. There are several possibilities for storage. Some are traditional relational databases, and some are proprietary solutions such as Google's Big table or Amazon's Simple DB.

Security

The information housed on the cloud is often seen as valuable to individuals with malicious intent. There is a lot of personal information and potentially secure data that people store on their computers, and this information is now being transferred to the cloud. This makes it critical for us to understand the security measures that your cloud provider has in place, and it is equally important to take personal precautions to secure the data. The first thing we must look into is the security measures that the cloud provider already has in place. These vary from provider to provider and among the various types of clouds. What encryption methods do the providers have in place? What methods of protection do they have in place for the actual hardware, the data will be stored on? Will they have backups of the data? Do they have firewalls set up? If you have a community cloud, what barriers are in place to keep your information separate from other companies

5. CONCLUSION

Cloud Computing could become a key technology of our century (European Commission, 2012). It has been suggested that more research related to security is needed to assure public support for cloud computing. How people perceive the benefits and risks associated with this new enabling technology must be taken into account in order to achieve effective risk assessment of cloud computing. The psychometric paradigm is commonly used to identify factors that explain risk perceptions of different hazards (Slovic, 1987). How people react to cloud computing technology in the short or midterm depends on how

industry and governmental agencies handle the issue. A social amplification process (Kasperson et al., 2003) could enhance the perceived risks of cloud computing hazards. Based on the results of the present study, cloud computing applications, for which such a social amplification process will most likely increase perceived risk can be identified.

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