Cloud Computing: A Study on New Approach of Computation

Hiteshi Pal

M.Tech. Student, Department of Computer Science Engineering, Devi Ahilya Vishwavidyalaya, Indore, India

Abstract: In nut shell, cloud computing is a financial economical and technologically robust innovation that is designed in such a way where a large pool of systems are connected in private or public or hybrid networks. It enables any need, for delegated space and on site management of expensive hardware infrastructure and delicate software systems. A cloud service provider is solely responsible for providing of infrastructure constituted by physical hardware and expensive software. A client is absolutely free from such burdens and inturn he is billed only for those resources which are requested or used by him. Under the contractual agreement, at any geographical location and at any time a client can assess the available resources. Cloud provides / offers services in computing models as Saas, "Paas" and Iaas".

Keywords: Internet, Infrastructure, Data Storage, Data Security, Iaas, Paas, Saas, Daas, virtulization, Computational Network, Application and Services.

1. Introduction

In present time of 21st century, computational network has become very large and complex. The utility services like Electricity, Gas, Water are chargeable on their use. Briefly cloud computing is an on demand self-service through internet infrastructure where a costumer can pay and use only what is demanded through a cloud service provider. In other words, cloud computing is a platform of on demand network access to a shared pool of computer resources like network, servers, Data storage, Data security, Application and services. Data owner gets rid of from the burden of data storage, security and maintenance. Owing to the computational power of integrated large data centers, cloud computing offers web-based infrastructure, application, data base and data security. Cloud computing overcomes platform dependency by not installing software on local computers. So the business application becomes mobile and collaborative by cloud computing. Very soon cloud computing is going to become the next mega computer power utility service.

2. Evolution of Cloud Computing

The evolution of cloud computing has started from early stage of the computer. The figure below shows six phases of computing paradigms.
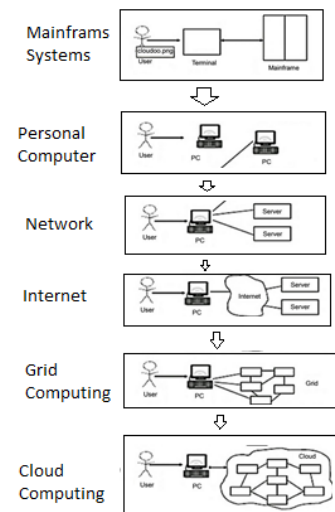

Fig. 1. Evolution of cloud computing

A. Uses of cloud computing

Although Cloud computing is of enormous use, a few of them is indicated below

- Create new apps and services.
- Store, backup, recover data.
- Hostes Websites and blogs.
- Stream Audio and Video.
- Delivers Software as on demand.
- Analyse data for patterns and make predictions.

B. Cloud computing models

There are two types of cloud computing models:
1. Deployment Models
2. Service Models

C. Deployment model

There are Three deployment models for cloud computing
1. *Private Cloud:* Private cloud may be owned and managed by the organization or the designated service provider. Private cloud are built for the executive use of one client providing full control over data, security and quality of services.
2. *Public Cloud:* Public cloud are run by third parties and

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-6, June-2019
www.ijresm.com | ISSN (Online): 2581-5792
197

application from different costumer are likely to be mixed together on the cloud server, storage system and networks. A public cloud provides services to multiple costumers.

3. *Hybrid Cloud:* This model of cloud computing is a composition of two or more clouds i.e. public or private clouds enabling data and application portability.
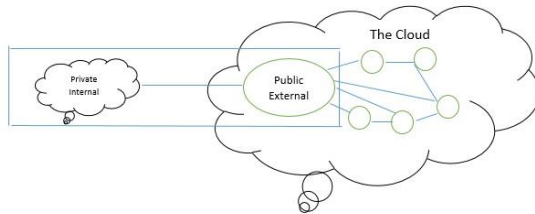

Fig. 2. Hybrid cloud

3. Deployment model of cloud computing

Service model: Basically there are three different service models provided by the cloud computing as follows:

1. *Saas:* Software as a service This service refers software application provision for the cloud. It is the business model of software license, which involves the development and support of the software Vendor. Costumers also have the opportunity of paid use of it through the internet.
2. *Iaas:* Infrastructure as a service A Computer structure typically presented in the form of virtualization is a service within the concept of cloud hosting.
3. *Pass:* Platform as a service It is an integrated platform for the development, deployment, testing and support of web applications presented as a service within the concept of cloud hosting.
4. *Dass:* Desktop as a service (Dass) is another business model of software license which is a slightly improved model of Saas, mostly involving the use of multiple services at the same time necessary to complete the work. It has been established that through the World Wide Web using cloud hosting, any requirement in the processing of information can be met out. This is the main advantage of cloud computing hosting in the IT based business.
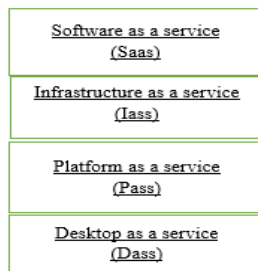

Fig. 3. Service model of cloud computing

A. Characteristics of cloud computing

Important characteristics of cloud computing which distinguish from distributed computing are as follows:

1. *Pay as per use:* It means that end clients only to pay for the computer resources they use, they will pay more if use more or pay less for little use.
2. *On demand service:* If the user may not know that some application may be needed in future though not required earlier, and a later stage, whenever it will be required, it must be fulfilled by the cloud computing service provider as services on demand.
3. *Multi tenancy:* Unlike conventional computing models cloud computing is a business model in which multi users use the same resources through virtualization technique.
4. *Resiliency:* If the cloud service may fail at any instant of time in that case faulty cloud server / resource must get isolated from the cloud customer. This is the resiliency property of the cloud computing.
5. *Rapid Elasticity:* It permits quick scalability i.e. customer can increase and decrease the capacity as per his need and he will be billed as per actual utilization only.
6. *Virtualization:* Scalability is the most important aspect of cloud computing and the technology that makes it possible is known as virtualization. Virtualization can be achieved by two ways.
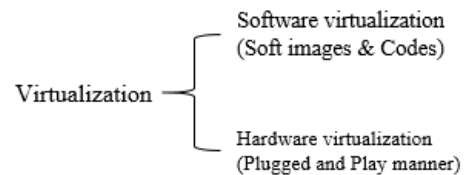
Full virtualization is a technique of complete installation of one machine is run on another.

B. Benefits of cloud computing

1. *Cost:* Cloud Computing eliminates the capital expense of purchasing hardware and software, their setup, on site running of data center and 24 hours electricity need for cooling system to maintain required temperature and to run the system.
2. *Speed:* Cloud computing services are provided self service and on demand huge amount of computer resources are provide with in no time.
3. *Economic Performance:* Bigger Cloud Computing services run on worldwide network which are upgraded time to time. Since individually owned networks or not needed thereby yield a greater economy.
4. *Reliability:* Cloud Computing makes data backup, disaster recovery and business continuity is easier and less expensive because of the multiple sites of cloud provider network.

International Journal of Research in Engineering, Science and Management
Volume-2, Issue-6, June-2019
www.ijresm.com | ISSN (Online): 2581-5792

198

4. Future Scope

At present cloud and Internet of things (IoT) are two different technologies. The Integration of these two (Cloud + IoT) like Inter Connected Power Grids will involve a deep study analysis, new challenges, applications and research issues. Further rapid transition towards the cloud may be of critical concern to visualized integrated cloud security to ensure authentication and confidentiality of data communication and storage.

5. Conclusion

Coverage in this paper is a brief study to cloud computing which includes software as a services and deployment models, concept of scalability through virtualization in cloud computing, the main features of cloud computing and benefits thereof to customers. The cloud computing is an advancing field in the computational era, lot of studies required for advance achievements. Which is to be covered in further studies since cloud computing is going to become the next mega computer power utility services.

References

[1] P. Mell and T. Grance, "The NIST definition of cloud computing," National Institute of Standards and Technology, Vol. 53, 2009.
[2] B. Furht and A. Escalante, Handbook of Cloud Computing: Springer-Verlag New York Inc, 2010.
[3] T. Sridhar, "Cloud Computing: A Primer, Part 1: Models and Technologies," Vol. The Internet Protocol Journal, Volume 12, No. 3, September 2009.
[4] T. Velte, A. Velte, T. J. Velte, and R. C. Elsenpeter, Cloud computing: a practical approach: McGraw-Hill Osborne Media, 2009.
[5] I. Menken and G. Blokdijk, "Cloud Computing Virtualization Specialist Complete Cerification Kit-Study Guide Book and Online Course," 2009.
[6] B. P. Rimal, E. Choi, and I. Lumb, "A taxonomy and survey of cloud computing systems," in 2009 Fifth International Joint Conference on INC, IMS and IDC, 2009, pp. 44-51.
[7] Y. Xiaojun and W. Qiaoyan, "A View about Cloud Data Security from Data Life Cycle," in Computational Intelligence and Software Engineering (CiSE), 2010 International Conference on, 2010, pp 1-4.