IJCAT - International Journal of Computing and Technology, Volume 4, Issue 4, April 2017
ISSN : 2348 - 6090
www.IJCAT.org

Study of Cloud Computing Models

[1] Ashish Chaturvedi; [2]Ankur Sharma

[1,2]Assistant Professor
Department of Computer Science, Jain College
Gwalior, Madhya Pradesh, India

Abstract - In recent year cloud computing technology has been become an emerging computing technology in the aria of IT sector such as Microsoft, Amazon, and Google etc. Cloud computing is becoming as a model of "everything as a service" (XaaS). This paper present a basic study of service model and deployment model of cloud computing. This paper also attempts to layout the advantages and disadvantages of cloud computing.

Keywords - Cloud computing, SaaS, PaaS, IaaS, Hybrid

1. Introduction

Cloud computing is a type of computing which work on the principal of *sharing computing resources* rather than having local servers or personal devices to handle applications. Cloud computing is a model of computing that use the internet for sharing of software, information and resources to computer and other devices. This enables the end user to access the cloud computing resource at any time from any platform such as mobile, cell phone computing platform or the desktop. Cloud computing is the delivery of computing services such as storage, databases, networking, software, analytics etc. over the Internet. Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage. The current major cloud service providers are Hewlerr Packard, Microsoft, Amason, IBM, and Google. The evolution of cloud computing can handle such massive data as per on demand service [1].This paper present the study of different service and deployment model of cloud computing.

This paper is organized as follows. Section 2 describe the different service model of cloud computing. Section 3 describe the deployment model of cloud computing. Section 4 identify advantages and disadvantages of cloud computing. and section 5 describe the conclusion of this paper.

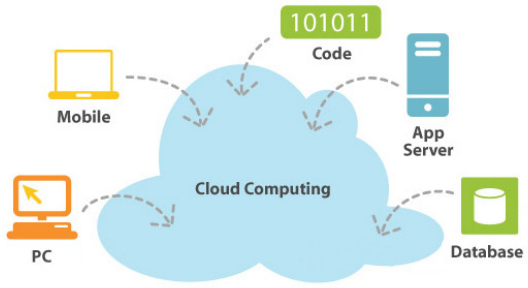

Fig.1 Cloud Computing

2. Service Model of Cloud Computing

Service model of Cloud Computing can be classified into three different class according to their abstraction level and recourse provided.

C. Saas-Software as a service

In Saas model a software provider license a software application to be used and purchased on demand. SaaS uses the web to deliver applications that are managed by a third-party vendor and whose interface is accessed on the clients' side. Most SaaS applications can be run directly from a web browser without any downloads or installations required, although some require plug-in. These applications can be accessed through network from various clients (web browser, mobile phone etc) by application user [2].

B. PaaS-Platform as a Service

Platform as a service (PaaS) is a cloud computing offering that provides users a cloud environment in which they can develop, manage, and deliver applications. The difference between PaaS and SaaS is that SaaS only host completed cloud application where PaaS provides a development platform for both completed and in progress cloud application. Developers

gain with PaaS is a framework they can build upon to develop or customize applications. PaaS makes the development, testing, and deployment of applications quick, simple, and cost-effective.

PaaS offer an environment where developer can create and deploy their applications and they do not need necessarily to know the amount of memory and number of professor using by their application. PaaS model give benefit to developer in term of develop complement software life cycle from planning to designing to developing application to deployment and maintenance [3].

C. IaaS-Infrastructure as a service

Infrastructure as a service (IaaS) is an instant computing infrastructure, which is being provisioned and managed over the Internet. It is quickly scale up and down with demand and pay only for what you use. This model focus on enable technologies. IaaS model offer a service to get a virtual server within few minutes and pay only for the resources they use [4].In IaaS model consumer can directly use infrastructure components such as storage, firewall, network etc.
IaaS as a service provider offer virtual server containing one or more CPU running several choices of operating three-Deployment model of cloud computing.

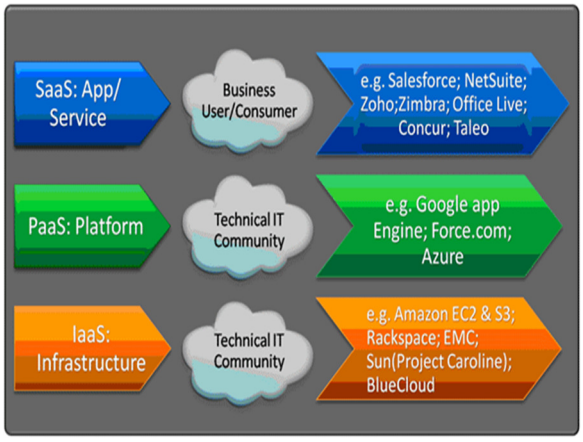

Fig.2 Service Model

3. Deployment Models of Cloud Computing

- **Private cloud**-The private cloud represent a model where a single organizations stand up cloud capacity and only the member of organizations are allowed to consume the capacity. This is also known as internal cloud [5]. This is a common model for government and large enterprise .private cloud is good in security concern, it may exit on premise or off premise.

- **Community cloud**- this is a type of cloud hosting in which the setup is mutually shared between many organizations that belong to a particular community, such as banks and trading firms. It can be hosted internally or externally. The cost is shared by the specific organization within the community, hence community cloud has cost saving capacity [6]. A community cloud is appropriate for those organizations and businesses which work on joint ventures, tenders or research and that needs a centralized cloud computing ability for managing, building and implementing similar projects. It may be managed by organization or a third party.

- **Public cloud**- this is a type of cloud hosting in which the cloud services are delivered over a public network. The cloud infrastructure is available to general public. It's a cloud that anyone can use like Google, Amazon. Public cloud implementation is large cloud implementations around [7].

- **Hybrid cloud**-The Hybrid cloud are combination of two or more cloud model(private, community, public) that remain unique entity but are bound together by standardized technology that enable data and application portability. This deployment model helps businesses to take advantage of secured applications and data hosting on a private cloud, while still enjoying cost benefits by keeping shared data and applications on the public cloud [8].

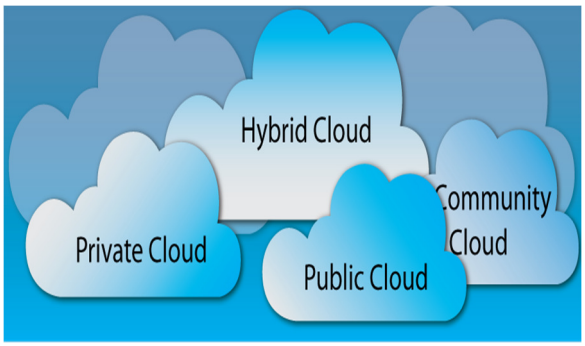

Fig.3 Deployment Model

4. Advantages And Disadvantages of Cloud Computing

4.1 Advantages Of Cloud Computing

The cloud computing environment is scalable. System and customized software stack it has various advantage, some are given blow [4].

- Backing up and restoring the data is relatively much easier than storing the same on a physical device, since all your data is stored in the cloud.

- Its setup cost is low. Companies don't have to purchase equipment and build out and operate a data center; they don't have to spend significant money on hardware, facilities, utilities and other aspects of operations.

- With cloud computing, companies can reduce the size of their own data centers. The reduction of the numbers of servers, the software cost, and the number of staff can significantly reduce IT costs without impacting an organization's IT capabilities.

- Data and applications are available to employees at anytime and anywhere.

- In addition to IT industries, Small scale business can also adopt this technology.

- It Provides unlimited storage capacity, you do not need to worry about running out of storage space.

4.2 Disadvantage of cloud computing

Cloud Computing technology also have some disadvantages such as

- When we adopt this technology, we should know that we are surrendering all our company's sensitive information to a third-party (cloud service provider). This could potentially put our company to great risk.

- In cloud computing, minimal flexibility is present while application and services run on a remote server. Due to this, enterprises using cloud computing have minimal control not only on the functions of the software but also on hardware.

- In cloud computing system, if your business involves transferring large amounts of data, be aware that while transferring data to the cloud (inbound) is free, outbound data transfers over the basic monthly allowance are charged on a per GB basis.

- In cloud computing environment the data is not specifically segregated. It is distributed throughout the cloud network and causes the problems when specific data needs to be segregated.

- Cloud computing makes your small business dependent on the reliability of your Internet connection. When it's offline, you're offline. If your internet service suffers from frequent outages or slow speeds, cloud computing may not be suitable for your business.

- Cloud computing based services do not always provide proper support to the customers. The vendors are not available on e-mail or phones and want the consumers to depend on FAQ and online community for support.

5. Conclusion

This paper gives an overview of cloud computing service model and deployment model to evaluate and improve the existing system. This paper also explains some advantages and disadvantages of cloud computing technology. Now a day's Cloud computing technology is the promising paradigm for delivering IT services as computing utilities. Cloud is designed to provide services to external user; provider needs to be compensated for sharing their resources and capabilities.

References

[1] Amit Sangorya, Saurabh kumar, JaiDeep Dhok, and Vasudeva Varma. "Towards Analyzing Data Security Risks in Cloud Computing Environments", International conference on Information systems, Technology, and Management, Thailand, March, 2010.

[2] K.V. K Mahesh Kumar "Software As a Service For Efficient Cloud Computing" International Journal of Research in Engineering and Technology eISSN: 2319-1163 | pISSN: 2321-7308

[3] Arnon Rosenthal, Peter Mork, Maya Hao Li, Jean Stanford, David Koestar, Patti Reynolds. "Cloud Computing: A new business paradigm for biomedical information sharing". Journal of Biomedical Informatics 43, pages 342-353, August, 2008.

[4] P. R. Jaiswal, A. W. Rohankar "Infrastructure as a Service: Security Issues in Cloud Computing" , International Journal of Computer Science and Mobile Computing, Vol.3 Issue.3, March- 2014, pages 707-711

[5] Venkatesan Balu, Dr. L. Josephine Mary "A Model of Security Architecture on Private Cloud Using OpenStack" International Journal on Recent and Innovation Trends in Computing and Communication, Volume: 3 Issue: 2, ISSN: 2321-8169, pages 587 – 590

[6] Farheen Patel "Community Cloud Computing with association of cloud computing paradigm: A study" International Journal of Advanced Research in

Computer Science and Software Engineering 4(5), May - 2014, pp. 1484-1485, ISSN: 2277 128X

[7] Mohsin Nazir, "Cloud Computing: Overview & Current Research Challenges", IOSR Journal of Computer Engineering (IOSR-JCE), ISSN: 2278-0661, ISBN: 2278-8727Volume 8, Issue 1 (Nov. - Dec. 2012), PP 14-22

[8] Anukrati Dubey, Gunjita Shrivastava , Sandeep Sahu "Security in Hybrid Cloud", Global Journal of Computer Science and Technology Volume XIII Issue II Version I 1 Year 2013, ISSN: 0975-4172 & Print ISSN: 0975-4350

Ashish Chaturvedi received his B.E. degree in CSE from maa kaila devi institute of information technology & management, Gwalior and M.Tech in CSE from ITM University, Gwalior. Currently he is working as assistant professor in Jain College, Gwalior. His research interest includes protocols, Ad Hoc Network, WiMAX, Colud Computing etc.

Ankur Sharma received his M.C.A degree from Boston College, Gwalior. Currently he is working as assistant professor in Jain College, Gwalior. His research interest includes social networking, Programming & MANET.