

Cloud Computing Environment

Mr. Ravindra R. Patil*

Assistant Professor, Dept. of CSE, Hirasugar Institute of Technology, Nidasoshi, Karnataka, India

Abstract – The word “cloud computing” is a recent word in the IT world. Behind this word there is a true aim of the future of computing for both in technical and sensible view of what is and is not important. However the term “Cloud Computing” is new but the idea of controlled by one central place computation and storage in distributed data centers maintained by third party companies is not new but it came in way back in 1990s along with distributed computing approaches, like grid computing. Computers that do work for you, but that are stored somewhere else and maintained by other companies is aimed at providing IT as a service to the cloud users on-demand basis with greater flexibility, availability, reliability and scalability with utility computing model. This new technology of computing has huge possible greatness in it to be used in the field of e-authority and control and in rural development perspective in developing countries like India.

Keywords- Cloud computing; IaaS, PaaS, SaaS, BPaaS

INTRODUCTION

Client server is a technology where information processing is carried between a client and a server. A good example of client/server is email. Your email client processes incoming email and then presents it to you. The mail server processes email and finds out where it goes next. Both client/server are processing information.

Cloud computing introduces the ideas that you can abstract the software from hardware, have applications that can scale up and down based on reasons such as demand, time, etc. The act of provisioning services in the cloud is automated and requires no user intervention. Clouds are also on-demand and can be metered meaning that you are only charged for the resources that you use. It's a consumption model.

2. WORKING OF CLOUD COMPUTING

The first requirement is the infrastructure where the cloud will be implemented. Some people make the assumption that environment should be virtualized, but as cloud is a way to request resources in an on-demand way and if you have solutions to provide on bare metal, then why not? The infrastructure will provide the different types of cloud (IaaS, PaaS, SaaS, BPaaS). To give these services you need Operating System Services (OSS), which will take responsibility of deploying the requested service, and Business System Services (BSS), is used to validate the request and create the invoice for the requested services. Any value could be used to create the invoice (for example,

number of users, number of CPUs, memory, usage hours/month).

A cloud computing environment will also responsible to provide interfaces and tools for the service creators and users. This is the role of the Cloud Service Creator and Cloud Service Consumer components.

How it works? When, you log in to a portal (enterprise or public wise) and you request your services through the Cloud Service Consumer. This service has been created by the cloud service provider (a simple virtual machine (VM)) based on an image, some network components, an application service such as an WebApp environment and a service such as MongoDB. It depends on the provider and type of resources and services. The cloud provider will validate, through the BSS (business support systems), your request and if the validation is okay (credit card, contract), it will provide the request through the OSS (operational support system). You will receive, in one way or another, the credentials to access your requested services and you will usually receive a monthly invoice for your consumption.

3. TYPES OF SERVICES PROVIDED BY CLOUD COMPUTING

- i) **Platform as a Service (PaaS):** A category of cloud computing that provides a platform and environment to use developers to build applications and services over the internet. Platform as a Service (PaaS) allows users to develop software applications using tools supplied by the provider. PaaS services can

consist of preconfigured features that customers can subscribe. Consequently, packages can vary from offering simple point-and-click frameworks where no client side hosting expertise is required to supplying the infrastructure options for advanced development.

The computer program and basic equipment needed for a business or society to operate are managed for customers and support is given. Services are often updated, as per the updation available. PaaS providers can guide developers from the conception of their original ideas to the development of computer programs, and through to testing and use service. This is all accomplished or gained with effort in a managed way.

As with most cloud offerings, PaaS services are usually paid for on a subscription (usage) basis with clients, in other words paying just for what they use. Clients also benefit from the making a lot of an item so each item costs less that come up from the sharing of the hidden (under) physical basic equipment needed for a business or society to operate between users, and that helps in lower costs.

Below are some of the features that can be included with a PaaS offering:

Operating system, Server-side scripting environment, Database management system, Server Software, Storage, Tools for design and development.

Benefits of PaaS to application developers:

1. They don't have to invest in physical infrastructure
2. Makes development possible for 'non-experts
3. Flexibility
4. Teams in various locations can work together

ii) **Infrastructure as a Service (IaaS):** The next step down from Platform as a Service (PaaS) and two steps down from Software as a Service (SaaS) in the Cloud Computing Stack. Instead of ready-made applications or services, development tools, databases, etc., IaaS provides the hidden (under) operating systems, security, networking, and servers for developing such computer programs, services, and for sending out and using development tools, (computer files full of information), etc.

Benefits of IaaS to application developers:

1. Various pricing models may allow paying only for what you use
 2. Some IaaS Providers provide development options for multiple platforms: mobile, browser, and so on.
 3. No need to manage the introduction of new releases of the development or underlying software.
- iii) **Software as a service (or SaaS):** A way of delivering computer programs over the Internet--as a service. Instead of installing and maintaining software, you simply access it via the Internet, freeing yourself from complex software and hardware management.

SaaS computer programs are sometimes called Web-based software, on-demand software, or hosted software. Whatever the name, SaaS computer programs run on a SaaS provider's servers. The provider manages access to the computer program, including security, availability, and performance.

Benefits of SaaS to application developers:

1. Time to deployment
2. Less internal responsibility
3. Scalable and Flexible
4. Anywhere Access

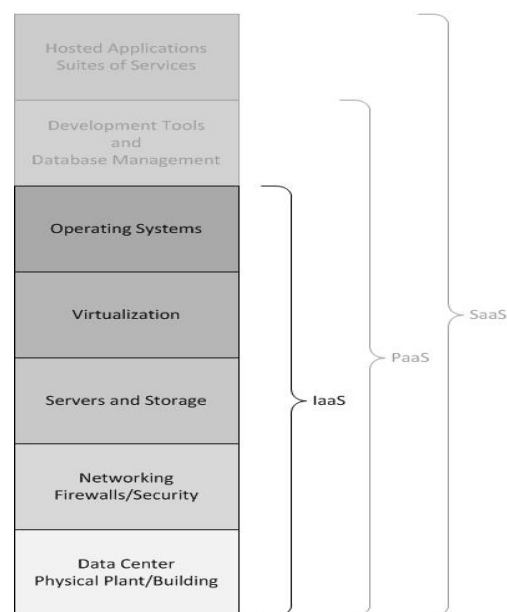


Fig3.1 Cloud computing service models

4. LIMITATIONS

According to Bruce Schneier, "The downside is that you will have limited customization options. Cloud computing is cheaper because of economics of scale, and like any outsourced task, you tend to get what you get. A restaurant with a limited menu is cheaper than a personal chef who can cook anything you want. Fewer options at a much cheaper price: it's a feature, not a bug and the cloud provider might not meet your legal needs. As a business, you need to weigh the benefits against the risks. Cloud computing poses privacy concerns because the service provider can access the data that is in the cloud at any time. It could accidentally or deliberately alter or even delete information. According to the Cloud Security Alliance, the top three threats in the cloud are Insecure Interfaces and API's, Data Loss & Leakage, and Hardware Failure—which accounted for 29%, 25% and 10% of all cloud security outages respectively.

5. CONCLUSIONS

Computers that do work for you, but that are stored somewhere else and maintained by other companies is still as much a research topic, as it is a market offering. What is clear through the change for the better, over time of evolution of cloud computing services is that the chief technical officer (CTO) is a major driving force behind cloud adoption. The major cloud technology developers continue to invest billions a year in cloud R&D; for example: in 2011 Microsoft committed 90% of its US\$9.6bn R&D budget to its cloud. Centaur Partners also predict that SaaS revenue will grow from US\$13.5B in 2011 to \$32.8B in 2016. This expansion also includes Finance and Accounting SaaS.¹ Additionally, more industries are turning to cloud technology as an efficient way to improve quality services due to its capabilities to reduce overhead costs, downtime, and automate basic equipment needed for a business or society to operate use service

REFERENCES

- "What is Cloud Computing?". *Amazon Web Services*. 2013-03-19. Retrieved 2013-03-20.
- Gruman, Galen (2008-04-07). "What cloud computing really means". *InfoWorld*. Retrieved 2009-06-02.
- "National Science Foundation, "Diagram of CSNET," 1981"
- "Defining 'Cloud Services' and 'Cloud Computing'". *IDC*. 2008-09-23. Retrieved 2010-08-22.

Mills, Elinor (2009-01-27). "Cloud computing security forecast: Clear skies". *CNET News*. Retrieved 2010-08-22.

Ananich, Anthony. "What is IaaS?". *ananich.pro*. Retrieved 2016-02-20.

Boniface, M.; et al. (2010), *Platform-as-a-Service Architecture for Real-Time Quality of Service Management in Clouds*, 5th International Conference on Internet and Web Applications and Services (ICIW), Barcelona, Spain: IEEE, pp. 155–160, doi:10.1109/ICIW.2010.91

Chhibber, A (2013). "SECURITY ANALYSIS OF CLOUD COMPUTING" (PDF). *International Journal of Advanced Research in Engineering and Applied Sciences*. **2** (3): 2278–6252. Retrieved 27 February 2015. [11] T. Gad, "Why Traditional Enterprise Software Sales Fail". July 2010, Retrieved on 6th Dec 2010: <http://www.sandhill.com/opinion/editorialprint.php?id=307>

"Microsoft Says to Spend 90% of R&D on Cloud Strategy". Retrieved 22 April 2015.

Corresponding Author

Mr. Ravindra R. Patil*

Assistant Professor, Dept. of CSE, Hirasugar Institute of Technology, Nidasoshi, Karnataka, India

E-Mail – ravindra688@yahoo.co.in