Types of Cloud Computing

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Abstract- *The paper discusses the Cloud computing and its various types. This paper determines various forms of cloud deals with requirement. In this paper technologies are enhanced and provided a suitable platform for user. This paper illustrates cloud reliability and continues data packet availability as a significant factor.*

Keywords- SaaS, ASaaS, SSaaS, TSaaS, SESaaS, PaaS, PDPaaS, TPaaS, IaaS, SIaaS, NIaaS, SSIaaS Cloud computing, Cloud Computing Type.

I. INTRODUCTION

What Is Cloud? .Cloud computing [4]is term to use anything online at any time to anyone.Cloud computing is type of computing in which dynamically scalableand offer virtualized resources are provided as a service over the Network. In cloud computing [2] we can use software, hardware,Infrastructure, data stores, security application using Internet.

II. TYPES OF CLOUD COMPUTING

1	*Software as a Service (SaaS)* *1.1Appliction software as a service(ASaaS)* *1.2 System software as a service(SSaaS)* *1.3Testing software as a service(TSaaS)* *1.4Security software as a service(SESaaS)*
2	*Platform as a Service (PaaS)* *2.1 Programming and Development tools Platform as a Service(PDPaaS)* *2.2 Test Platform as a Service(TPaaS)*
3	*Infrastructure as a Service (IaaS)* *3.1 Storage Infrastructure as a service (SIaaS):* *3.2 Network Infrastructure as a service (NIaaS):* *3.3 Security Infrastructure as a service (SSIaaS):*

Fig:1 Types of cloud computing

III.

1. Software as a Service:

In the software as a service (SaaS), user or customers gainuse to application software and databases. Cloud providers manage the infrastructure and platforms that run the applications. SaaS is also called “on-demand software" and is generally priced on a pay-per-use basis or using a subscription fee. Some service provider’s Offers service as [7] “Free and open source” (Absolutely free to access any Global user).

In the SaaS model, cloud providers install and operate application software in the cloud severer and cloud users access the software from cloud user machine multiple virtual machines at run-time to meet changing work demand. Load balancers distribute the work over the set of virtual machines. This process is transparent to the cloud user, who sees only a single access-point. To accommodate a large number of cloud users, cloud applicationscan be multitenant, meaning that any machine may serve more than one cloud-user organization. The pricing model for SaaS applications is usually a monthly or yearly flat fee per user,so prices become scalable and adjustable if users are added or removed at any point. Proponents claim that SaaS gives a business the potential to reduce IT operational costs by outsourcing hardware and software maintenance and support to the cloud provider.

1.1 Appliction software as a service (ASaaS):

The software applications which is using internet browser like Email, Google Search Engine, Office Suite, Online PDF converter , etc., this software application doesn’t need download on user machine. Applications are hosted on a highly scalableInfrastructure and it is offered over the internet. Users can access it using an ordinary web browser, without any need to install software in their local computer. Companies like Microsoft, Google, and Wordpress offer their applications as a service to the end users.

1.2 System software as a service (SSaaS):

The system software likeAmazon styleCloudStack, Eucalyptus, and OpenStack this software assess using internet browser.

1.3 Testing software as a service(TSaaS):

BlazeMeter: a commercial, this is testing software base on testing software as a servive.

Blitz: Load and performance testing of websites, mobile, web apps and REST APIs.

SOASTA: a provider of cloud-based testing solutions, and created the industry's first browser-based website testing product.

Testdroid: Smoke, compatibility and functional testing of websites, mobile, and web apps on real Android and iOS devices.

Automated web testing tools like Selenium,Ranorex,SoapUI, SoapUI, Tellurium, Watir, Windmill this software assess using internet browser.

1.4 Security softwareas a service (SESaaS):

Some vendors offer security software as a service to end users. This software offer cloud based security to end user. Some antivirus is good example of security software as a service.

IV.

2. Platform as a Service (PaaS):

In the PaaS service cloud providers deliver a computing platform.Characteristically including operating system, programming editor platform, programming-language execution environment platform, database platform, and web server. Application developer'splatform [21]can develop and run their software solutions on a cloud platform without the cost and complication of buying and managing the basic hardware and software layers. Selected vendors are offering programming tools platform, application development platform and test platform as service.

2.1 Programming and Development tools Platform as a Service(PDPaaS):

Good example of programming tools [12] platform is service, Parse is software is good example of programming platform is service.

Parse is backend mobile applications, it used to designlet mobile developers for write code.

Some of cloud vendors offer development platform is service.

Some software like Microsoft Windows Azure, Google App Engine, VMware Cloud Foundry, Force.com, Heroku, Amazon Elastic Beanstalk, Engine Yard Cloud, Engine Yard Orchestra, CumuLogic is good example of development platform is service (DPaaS).

2.2 Test Platform as a Service(TPaaS):

Some of cloud vendors offer teat platform as service [9] (TPaaS).

Some test platform are fully automated and some test platform are semi-automated. Sauce Labs is good example of test platform as a service.

V.

3. Infrastructure as a Service (IaaS):

Offer physical, [6] virtual machines and other resources of computer and its resource as a service. Some cloud vender offer infrastructure as a service,

IaaS clouds offer additional resources such as a virtual headwear asses through network,virtual-machine disk-image library, printer, scanner, raw block storage, file or object storage, firewalls, load balancers, online storages, IP addresses, virtual local area networks (VLANs), and routing device.

In this model cloud vendors offer hardware infrastructure as service like storage hardware, network hardware and security hardware. Hardware component like Wide Area Network (WAN) Components, Local Area Network (LAN) Components, wireless asses point, switch, high performance router ,high capacity storage device,Firewall, monitoring hardware, Sensor, Camera, Printing and scanning device, database storage, high performance processor like super computer, RAID, Hard discs,clustering.

3.1 Storage Infrastructure as a service (SIaaS):

SIaaS offer cloud storage infrastructure for user, like cloud hard discs, cloud database, cloud RAID, cloud clustering, some top cloud facility are available for use is Dropbox for Business, SugarSync for Business, Box, Google Drive, Microsoft OneDrive, SpiderOak, MozyPro, Carbonite Business, CrashPlan, Acronis Backup to Cloud,

3.2 Network Infrastructure as a service (NIaaS):

NIaas is offer network infrastructure as a service. User can use Hardwar component like Wide Area Network

(WAN) Components, Local Area Network (LAN) Components, wireless asses point, switch, high performance router, Printing and scanning device, high performance processor like super computer for data processing.

3.3 Security Infrastructure as a service (SSIaaS):

Some of cloud vender offer security infrastructure as a service like Firewall, monitoring hardware, Sensor, Camera,

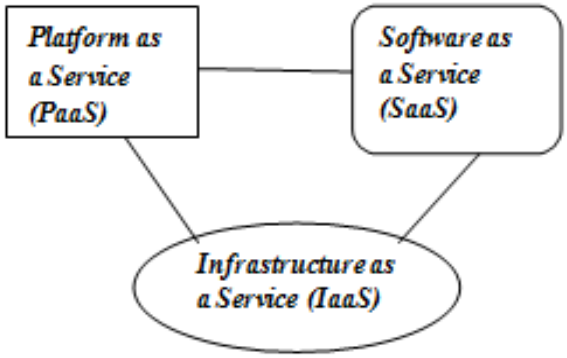

Fig: 2 Types of cloud computing

VI. CONCLUSION

We conclude that, in cloud computing we studied different type and its use in real world andCloud computing technology can prove to be a great asset to Software Incorporations. Cloud computing will encourage the use of sharedresources and when we are sharing the resourcesamong different users it will definitely lower the costsand will help in keeping the environment clean. This is an added benefit for the students that Cloud computing help in e-learning by providingmany services online. We need touse this technology in our daily routine by creatingmany applications using cloud.

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REFERENCES

[1] http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf

[2] Haghighat, M., Zonouz, S., & Abdel-Mottaleb, M. (2015). CloudID: Trustworthy Cloud-based and Cross-Enterprise Biometric Identification. Expert Systems with Applications, 42(21), 7905–7916.

[3] "The NIST Definition of Cloud Computing" (PDF). National Institute of Standards and Technology. Retrieved 24 July 2011.

[4] "What is Cloud Computing?". Amazon Web Services. 2013-03-19. Retrieved 2013-03-20.

[5] "Baburajan, Rajani, "The Rising Cloud Storage Market Opportunity Strengthens Vendors," infoTECH, August 24, 2011". It.tmcnet.com. 2011-08-24. Retrieved 2011-12-02.

[6] Oestreich, Ken, (2010-11-15). "Converged Infrastructure". CTO Forum. Thectoforum.com. Retrieved 2011-12-02.

[7] "Where's The Rub: Cloud Computing's Hidden Costs". 2014-02-27. Retrieved 2014-07-14.

[8] "Cloud Computing: Clash of the clouds". The Economist. 2009-10-15. Retrieved 2009-11-03.

[9] "Gartner Says Cloud Computing Will Be As Influential As E-business". Gartner. Retrieved 2010-08-22.

[10] Gruman, Galen (2008-04-07). "What cloud computing really means". InfoWorld. Retrieved 2009-06-02.

[11] "The economy is flat so why are financials Cloud vendors growing at more than 90 percent per annum?". FSN. March 5, 2013.

[12] Liu, [edited by] Hongji Yang, Xiaodong (2012). "9". Software reuse in the emerging cloud computing era. Hershey, PA: Information Science Reference. pp. 204–227. ISBN 9781466608979. Retrieved 11 December 2014.

[13] Schmidt, Eric; Rosenberg, Jonathan (2014). How Google Works. Grand Central Publishing. p. 11. ISBN 978-1-4555-6059-2.

[14] "Internet History 1977".

[15] "National Science Foundation, "Diagram of CSNET," 1981".

[16] Antonio Regalado (31 October 2011). "Who Coined 'Cloud Computing'?". Technology Review (MIT). Retrieved 31 July 2013.

[17] "Announcing Amazon Elastic Compute Cloud (Amazon EC2) - beta". Amazon.com. 2006-08-24. Retrieved 2014-05-31.

[18] "July, 1993 meeting report from the IP over ATM working group of the IETF". CH: Switch. Retrieved 2010-08-22.

[19] Corbató, Fernando J. "An Experimental Time-Sharing System". SJCC Proceedings. MIT. Retrieved 3 July 2012.

[20] Rochwerger, B.; Breitgand, D.; Levy, E.; Galis, A.; Nagin, K.; Llorente, I. M.; Montero, R.; Wolfsthal, Y.; Elmroth, E.; Caceres, J.; Ben-Yehuda, M.; Emmerich, W.; Galan, F. "The Reservoir model and architecture for open federated cloud computing". IBM Journal of Research and Development 53 (4): 4:1–4:11. doi:10.1147/JRD.2009.5429058.

[21] Kyriazis, D; A Menychtas; G Kousiouris; K Oberle; T Voith; M Boniface; E Oliveros; T Cucinotta; S Berger (November 2010). "A Real-time Service Oriented Infrastructure". International Conference on Real-Time and Embedded Systems (RTES 2010) (Singapore).

[22] Keep an eye on cloud computing, Amy Schurr, Network World, 2008-07-08, citing the Gartner report, "Cloud Computing Confusion Leads to Opportunity". Retrieved 2009-09-11.

[23] Gartner (2008-08-18). "Gartner Says Worldwide IT Spending On Pace to Surpass Trillion in 2008".

[24] "OpenStack History".

[25] "Launch of IBM Smarter Computing". Retrieved 1 March 2011