International Journal of Academic Research and Development
ISSN: 2455-4197
Impact Factor: RJIF 5.22
www.academicsjournal.com
Volume 3; Issue 2; March 2018; Page No. 641-644

The role of public cloud computing

K Muthuchamy
Assistant Professor, Department of Computer Science, Theivanai Ammal College for Women (Autonomous), Villupuram, Tamil Nadu, India

Abstract
Nowadays a fast growing computing technology is the public cloud computing technology. Cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet ("That is the cloud"). Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage, similar to how you are billed for water or electricity at home. Cloud is fast becoming the new normal. By the end of 2015 it's estimated that 90% of UK businesses will be using at least one cloud service. This article focuses on effect of public cloud computing in public limited in past few years.

Keywords: cloud computing, public cloud, web services, cloud security

Introduction
Cloud computing is computing based on the internet. Where in the past, people would run applications or programs from software downloaded on a physical computer or server in their building, cloud computing allows people access to the same kinds of applications through the internet. When we update our Facebook status, we are using cloud computing. Checking our bank balance on our phone, we are in the cloud again. Chances are we rely on cloud computing to solve the challenges faced by small businesses, whether we are firing off emails on the move or using a bunch of apps to help us manage our workload. It has helped many organizations to solve their day to day activities and problems such as marketing, labour and financial (vetrivel, 2017) [16].

Cloud computing working principle
Cloud computing services all work a little differently, depending on the provider. But many provide a friendly, browser-based dashboard that makes it easier for IT professionals and developers to order resources and manage their accounts. Some cloud computing services are also designed to work with REST APIs and a command-line interface (CLI), giving developers multiple options.

Cloud computing characteristics and benefits
Cloud computing boasts several attractive benefits for businesses and end users. Cloud computing is a big shift from the traditional way businesses think about IT resources. These are the main benefits of cloud computing are:

- **Self-service provisioning:** End users can spin up compute resources for almost any type of workload on demand. This eliminates the traditional need for IT administrators to provision and manage compute resources.
- **Elasticity:** Companies can scale up as computing needs increase and scale down again as demands decrease. This eliminates the need for massive investments in local infrastructure, which may or may not remain active.
- **Pay per use:** Compute resources are measured at a granular level, enabling users to pay only for the resources and workloads they use.
- **Workload resilience:** Cloud service providers often implement redundant resources to ensure resilient storage and to keep users' important workloads running -- often across multiple global regions.
- **Cost:** Cloud computing eliminates the capital expense of buying hardware and software and setting up and running on-site datacenters-the racks of servers, the round-the-clock electricity for power and cooling, the IT experts for managing the infrastructure. It adds up fast.
- **Speed:** Most cloud computing services are provided self service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks, giving businesses a lot of flexibility and taking the pressure off capacity planning.

Types of cloud services
Most cloud computing services fall into three broad categories: infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (Saas). These are sometimes called the cloud computing stack, because they build on top of one another. Knowing what they are and how they are different makes it easier to accomplish your business goals.

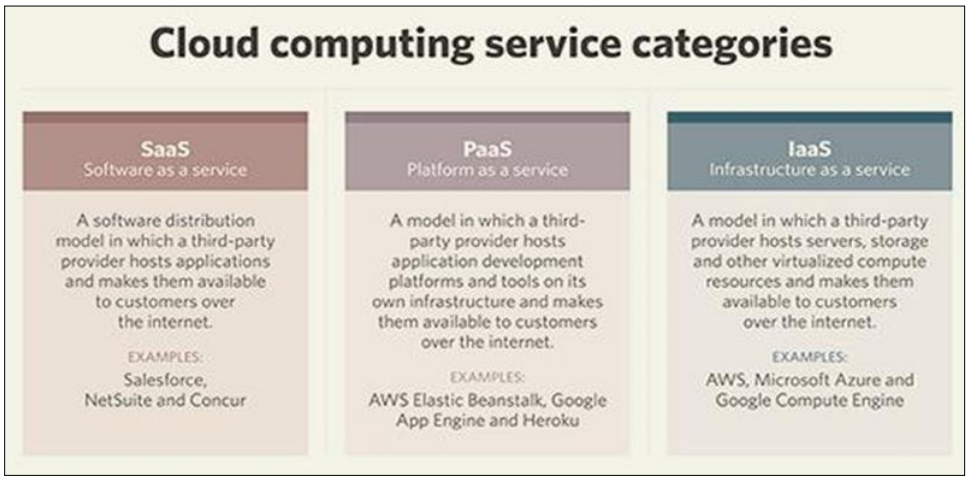

Fig 1

Infrastructure-as-a-service (IaaS)

The most basic category of cloud computing services. With IaaS, you rent IT infrastructure—servers and virtual machines (VMs), storage, networks, operating systems—from a cloud provider on a pay-as-you-go basis.

Platform as a service (PaaS)

Platform-as-a-service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases needed for development.

Software as a service (SaaS)

Software-as-a-service (SaaS) is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure and handle any maintenance, like software upgrades and security patching. Users connect to the application over the Internet, usually with a web browser on their phone, tablet or PC.

Cloud computing market projected to reach $411B By 2020

In the late 1990s, Sales force offered one of the first commercially successful implementations of enterprise SaaS. This was followed closely by the arrival of AWS in 2002, offering a range of services, including storage and computation -- and now embracing databases, machine learning and other services. Today, Microsoft Azure, Google Cloud Platform and other providers have joined AWS in providing cloud-based services to individuals, small businesses and global enterprises.

Gartner's latest worldwide public cloud services revenue forecast published earlier this month predicts Infrastructure-as-a-Service (IaaS), currently growing at a 23.31% Compound Annual Growth Rate (CAGR), will outpace the overall market growth of 13.38% through 2020. Software-as-a-Service (SaaS) revenue is predicted to grow from $58.6B in 2017 to $99.7B in 2020. Taking into account the entire forecast period of 2016 – 2020, SaaS is on pace to attain 15.65% compound annual growth throughout the forecast period, also outpacing the total cloud market. The following graphic compares revenue growth by cloud services category for the years 2016 through 2020.

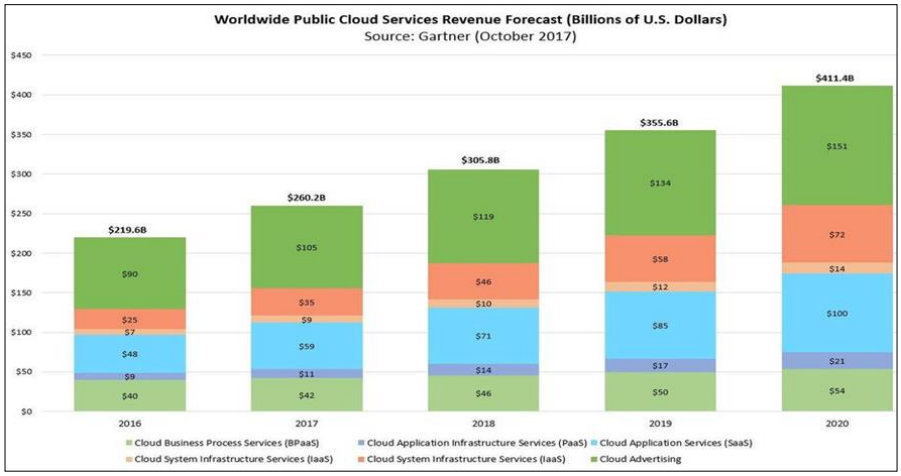

Fig 2

Catalysts driving greater adoption and correspondingly higher CAGRs include a shift Gartner sees in infrastructure, middleware, application and business process services spending. In 2016, Gartner estimates approximately 17% of the total market revenue for these areas had shifted to the cloud. Gartner predicts by 2021, 28% of all IT spending will be for cloud-based infrastructure, middleware, application and business process services. Another factor is the adoption of Platform-as-a-Service (PaaS). Gartner notes that enterprises are confident that PaaS can be a secure, scalable application development platform in the future.

Cloud platforms are enabling new, complex business models and orchestrating more globally-based integration networks in 2017 than many analyst and advisory firms predicted. Combined with Cloud Services adoption increasing in the mid-tier and small & medium businesses (SMB), leading researchers including Forrester are adjusting their forecasts upward. The best check of any forecast is revenue. Amazon's latest quarterly results released two days ago show Amazon Web Services (AWS) attained 43% year-over-year growth, contributing 10% of consolidated revenue and 89% of consolidated operating income.

Security in cloud

With all the recent well-publicized hacking and malware attacks, not to mention numerous meteorological events that have affected companies around the globe over the last year, IT leaders are very aware of the need for robust cloud security and compliance.

That said it is in fact now easier for companies to engage in poor security practices because users do not have the same control over their cloud infrastructure that they have over their own on-premise infrastructure. Often, organisations using public cloud assume that their cloud provider is taking care of security and they may even have assurances of that from the provider. Yet usually, the customer has no visibility of the public cloud infrastructure they are using and little transparency with regard to security settings. For that reason, they are placing a lot of trust in the promise that the public cloud provider is addressing security when that may not actually be the case.

Ultimately, companies are becoming more complacent towards risk, simply because they don't have visibility into the security of the cloud infrastructure they are using and don't have a way to monitor that security. But as is often the case, ignorance is not bliss. The reality is that managing and monitoring cloud security is an ongoing task and customers need to work with a provider that is able and willing to proactively provide them with security information, alerts and notifications.

This is becoming even more important as companies use the public cloud for more mission-critical production applications. They need to ensure that they are deploying the same security features that are usually deployed for on-premise applications in the cloud.

Enterprise customers need to engage with a cloud provider that is prepared to partner with them around cloud security and compliance. They should demand visibility into native security and compliance functionality as well as support. Equally important, teams need to get precise clarity on who is responsible for each security measure – the vendor or the customer.

Increasingly, IT organisations are looking to cloud providers to deliver security assurance across multiple layers of the application. This is especially true as more teams are structured with IT generalists, rather than traditional security, networking, server and storage specialists. As pressures on IT teams increase, cloud providers must do more to arm customers with intuitive, advanced security functionality that includes alerts to potential threats as well as recommendations for addressing the issues.

Conclusion

Cloud computing is the future and one of the most flamboyant technological evolution witnessed in the field of technology. Cloud computing has seen the fastest adoption than any other technology in the domain. Virtually every business sector is betting big on cloud. 9 out of 10 organizations are using at least one cloud application today. The above are all the factors which show the immense importance of cloud computing and its applications. I might be overstating, but believe it or not, it is difficult to imagine the Internet as a whole without the concept of cloud computing. It is quite evident as according to Forbes *"Cloud computing is projected to increase from $67B in 2015 to $162B in 2020 attaining a compound annual growth rate (CAGR) of 19%."*.

References

1. Cloud-computing-forecasts-and-market-estimates-q3-update-2015/#7aa8f5606c7a.
2. Fernando MG. Cloud Computing Advantages in the Public Sector. Amsterdam: CISCO, 2011.
3. Fernando MG. Cloud Computing Concerns in the Public Sector. Amsterdam: CISCO, 2011.
4. http://nvlpubs.nist.gov/nistpubs/Legacy/SP/nistspecialpublication800-145.pdf.
5. http://talkincloud.com/cloud-computing/study-details-state-cloud-computing, 2015.
6. https://www.linkedin.com/pulse/cloud-saas-paas-iaas-adoption-trends-forecast-juan-noceda.
7. Ishikawa K. Guide to Quality Control. Tokyo: Asian Productivity Organization, 1982.
8. Juan N. Cloud, SaaS, PaaS, and IaaS Adoption Trends and Forecast, 2015.
9. Louis C. Roundup of Cloud Computing Forecasts and Market Estimates. Retrieved 09 02, 2016, from forbes. Com, 2015. http://www.forbes.com/sites/louiscolumbus/2015/09/27/roundup-of-
10. Michael C. 2015, 12 29. http://talkincloud.com/cloud-computing/study-details-state-cloud-computing-2015. Retrieved 09 01, 2016, from http://talkincloud.com:
11. Peter MT. The NIST Definiton of Cloud Computing. Retrieved 10 01, 2016, from National Institute of Standards and Technology, 2011.
12. Retrieved. from https://www.linkedin.com/: RightScale. State of the cloud report. RIGHT SCALE, 2015-2016.
13. Russell CJ. Cloud Computing in the Public Sector: Public Manager's Guide to Evaluating and Adopting Cloud Computing. Amsterdam: Cisco Systems, 2009.
14. Thomas EZ. Cloud Computing. New Jersey: Arcitura

Education Inc, 2013.
15. Vincent K, Omachonu PJ. Principles of Total Quality. Florida: Taylor & Francies e-Library, 2005.
16. Vetrivel V. Financial Problems of Unorganized Retail Sector, International Journal of Applied Research. 2017; 3(12):161-164.