

Cloud Computing: A Critical Analysis

Surendra Kumar

Shekhawati Institute of Engineering & Technology, Sikar
surendrakumaryadav1989@gmail.com

Abstract— With cloud computing, IT professionals can devote more energy to enhancing the value of using IT for their enterprises and less on the day-to-day challenges of IT. Cloud computing provides a new environment that enables organizations to leverage emerging technologies that address growing business challenges and to position their companies to be more competitive in a cost-effective manner. This paper is analysing the basic use, knowledge benefits available in the Internet Cloud. Also introduce the disadvantages associated with cloud computing. It covers the meaning of cloud computing in simple terms, why is it called ‘cloud’ computing, how does it develop and how we can access it.

Keywords- Cloud computing, SaaS, Paas, Iaas

I. INTRODUCTION

Cloud computing is combination of two terms: Cloud & Computing. Cloud is the Network. A network is a bulk of thousands of users. These users may or may not be connected. If they are connected, there will be one of model formed, discussed further. The cloud also consists of Server & a Database. Server is also known as Cloud-Provider; while Database is a collection of user-details and applications to be worked upon by users. Computing is the term used for services of cloud.

Cloud computing, simply, allows businesses to “rent” IT and hosting services instead of investing in new infrastructure, training new personnel, or licensing new software. It differs from traditional hosting in three key areas: cloud service is sold on demand; it is flexible, allowing a user to employ as much or as little of a service as they want at any given time; and the service is fully managed by the provider. Additionally, customers do not need to pay for excess resource capacity in-house to meet fluctuating demands. This includes storage systems over multiple networks. The user does not “see” these multiple storage devices; instead the user has information seemingly accessible from a single machine on the Internet.

Cloud computing fosters business innovation by enabling organizations to explore quickly and cost effectively the potential of new, IT-enabled business enhancements that can grow with unprecedented scale. Not only does cloud computing deliver a greater return on IT equipment spending, but it also promotes more efficient and effective use of technical staff. With its highly autonomic character, cloud computing eliminates much of the time traditionally required to requisition and provision IT resources.

II. TYPES OF CLOUDS

In this section we are mentioning the various types of clouds available for cloud computing

A. Public Cloud

Public Cloud (also referred to as “external” Cloud) shows: scalable, dynamically provisioned, often virtualised resources available over the internet from an off-site third party provider, which divides up resources and bills its customers on a “utility” basis.

B. Private Cloud

It (also referred to as „corporate“ or „internal“ Cloud) is a term used to denote a proprietary computing architecture providing hosted services on private networks.

C. Hybrid Cloud

A hybrid Cloud environment combines resources from both internal and external providers.

D. Community Cloud

The cloud infrastructure is shared among a number of organizations with similar interests and requirements. This may help limit the capital expenditure costs for its establishment as the costs are shared among the organizations.

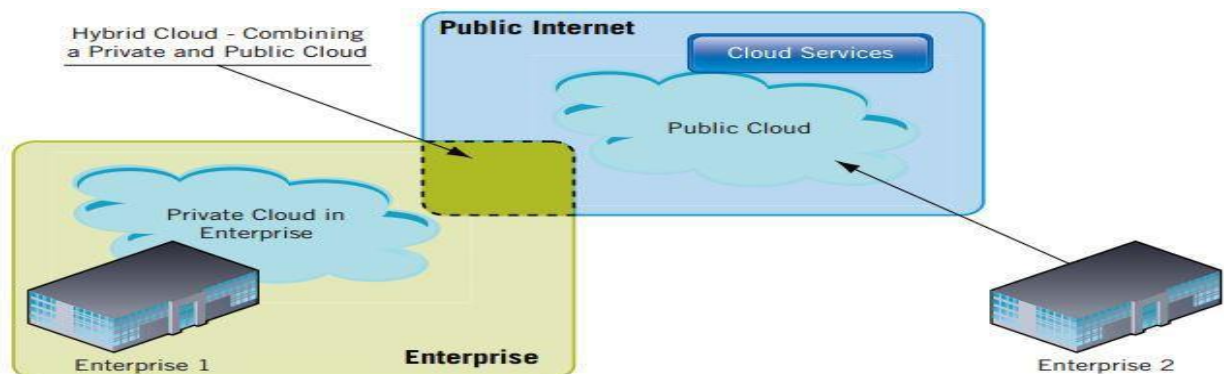


Fig 1 Public, Private and Hybrid Cloud

III. CLOUD SERVICE PROVIDER

There are three types of cloud providers that you can subscribe to: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). These three types differ in the amount of control that you have over your information, and conversely, how much you can expect your provider to do for you. Briefly, here is what you can expect from each type.

- SaaS is the model in which an application is hosted as a service to customers who access it via internet. When the software is hosted off-site, the customer doesn't have to maintain it or support it. On the other hand, it is out of customer's hand when the hosting service decided to change it. One the major benefits of SaaS is costing less money than buying the application outright.
- PaaS is another application delivery model. PaaS supplies all the resources required to build applications and services completely from the Internet, without having to download or install software. PaaS services include application design, development, testing, deployment, and hosting.
- IaaS is generally accepted to comply with the following: Resources are distributed as a service, allows for dynamic scaling, has a variable cost, utility pricing model and generally include multiple users on a single piece of hardware.

Needless to say, if a computing process does not meet both requirements listed in the definition it is not a cloud computing process. Here is a list of services that can be used in the Cloud. There are numerous services that can be delivered through Cloud computing, taking advantage of the distributed Cloud model. Here are some brief descriptions of a few of the most popular Cloud-based IT solutions:

- Hosted Desktops:

A hosted desktop looks and behaves like a regular desktop PC, but the software and data customers use are housed in remote, highly secure data centres, rather than on their own machines.

- Hosted Email:

As more organisations look for a secure, reliable email solution that will not cost the earth, they are increasingly turning to hosted Microsoft Exchange® email plans. Using the world's premier email platform, this service lets organisations both large and small reap the benefits of using MS Exchange® accounts without having to invest in the costly infrastructure themselves.

- Hosted Telephony (VoIP):

VoIP (Voice over IP) is a means of carrying phone calls and services across digital internet networks. In terms of basic usage and functionality, VoIP is no different to traditional telephony, but it has distinct cost advantages. A hosted VoIP system replaces expensive phone systems, installation, handsets, BT lines and numbers with a simple, cost-efficient

alternative that is available to use on a monthly subscription basis.

- Cloud Storage:

Cloud storage is growing in popularity due to the benefits it provides, such as simple, CapEx-free costs, anywhere access and the removal of the burden of in-house maintenance and management.

- Dynamic Servers:

Dynamic servers are the next generation of server environment, offering customers access to resources that look and feel exactly like a dedicated server, but that are fully scalable.

IV. ADVANTAGES

There are lots of advantages to using cloud computing for real people. One of the major ones is the flexibility that it offers. Cloud computing, means that they can access the files and data that they need even when they're working remotely or outside.

As long as they can get on the Internet, they can access information from home, on the road, from other people or even from a smartphone such as a BlackBerry or iPhone. People can also work collaboratively on files and documents, even when they're not physically together. Documents can simultaneously be viewed and edited from multiple locations.

Cloud computing can be very quick and easy to get up and running. Consider, for example, how quickly you can set up a Gmail or Hotmail account and start emailing - it takes minutes and all you need is a computer and the Internet. Downloading and installing software, on the other hand, takes much longer.

Cloud computing is often cheaper and less labour-intensive for companies too. There is no need to buy and install expensive software because it's already installed online remotely and you run it from there, not to mention the fact that many cloud computing applications are offered free of charge. The need to pay for extensive disk space is also removed. With cloud computing, you subscribe to the software, rather than buying it outright. This means that you only need to pay for it when you need it, and it also offers flexibility, in that it can be quickly and easily scaled up and down according to demand.

Cloud computing is probably the most cost efficient method to use, maintain and upgrade Storing information in the cloud gives you almost unlimited storage capacity. Hence, you no more need to worry about running out of storage space or increasing your current storage space availability. Since all your data is stored in the cloud, backing it up and restoring the same is relatively much easier than storing the same on a physical device. Furthermore, most cloud service providers are usually competent enough to handle recovery of information. Once you register yourself in the cloud, you can access the information from anywhere, where there is an Internet connection. This convenient feature lets you move beyond time zone and geographic location issues.

V. DISADVANTAGES

Many organisations considering adopting Cloud computing raise concerns over the security of data being stored and accessed via the internet. Though it is true that information and data on the cloud can be accessed anytime and from anywhere at all, there are times when this system can have some serious dysfunction. You should be aware of the fact that this technology is always prone to outages and other technical issues. In spite of its many benefits, as mentioned above, cloud computing also has its disadvantages.

Before adopting this technology, you should know that you will be surrendering all your company's sensitive information to a third-party cloud service provider. This could potentially put your company to great risk. Hence, you need to make absolutely sure that you choose the most reliable service provider, who will keep your information totally secure.

Storing information in the cloud could make your company vulnerable to external attack and threats. As you are well aware, nothing on the Internet is completely secure and hence, there is always the lurking possibility of stealth of sensitive data.

A. Privacy

Your data, files and everything stored at third party server (cloud hosting vendor's), your e-mails, social networking records and everything stored in hosting. So many of organisations looking to take best hosting service, which provides privacy policy and guarantee.

B. Security

Again Security is a big concern, does third party give full security to files and data? this is a big question to give the clear conclusion to organisations. Security along with guarantee is very important for any organisation. Most of all cloud computing companies giving the guarantee on security.

C. Continuously Evolving:

User requirements are continuously evolving, as are the requirements for interfaces, networking, and storage. This means that a "cloud," especially a public one, does not remain static and is also continuously evolving.

D. Transferability

If you want to move from one cloud to another cloud that is from one hosting provider to another have to face more problems. It's not easy to move to other hosting provider because of migration process will take time to transfer files, which indirectly your business is off line for some time/days.

E. Compliance Concerns

The Sarbanes-Oxley Act (SOX) in the US and Data Protection directives in the EU are just two among many compliance issues affecting cloud computing, based on the type of data and application for which the cloud is being used. The EU has a legislative backing for data protection across all member states, but in the US data protection is

different and can vary from state to state. As with security and privacy mentioned previously, these typically result in Hybrid cloud deployment with one cloud storing the data internal to the organization.

F. Downtime

This is the panic situation for business owner, when site goes offline for some time. No doubt that this issue has to face everybody. Even Amazon, Google and Apple websites faced this problem. So think that, what's your business compared to those big companies. There was no other option for complete solution to avoid downtime completely.

G. Lack of Standards

Clouds have documented interfaces; however, no standards are associated with these, and thus it is unlikely that most clouds will be interoperable. The Open Grid Forum is developing an Open Cloud Computing Interface to resolve this issue and the Open Cloud Consortium is working on cloud computing standards and practices. The findings of these groups will need to mature, but it is not known whether they will address the needs of the people deploying the services and the specific interfaces these services need. However, keeping up to date on the latest standards as they evolve will allow them to be leveraged, if applicable.

VI. CONCLUSION

With the new changes in cloud services companies are able to instantly stream content right to your PC. All they have to do is connect to your cloud and use the program through it. Like everything else, cloud computing too has its pros and cons. While the technology can prove to be a great asset to your business and enhancing work flexibility, it could also cause harm if not understood and used properly. The scalability and speed of deployment offered by Cloud computing means you can expand your IT provision instantly to meet increased requirements, and you can also scale it down again whenever you want.

Security is typically greatly enhanced, along with resilience, and the flexibility and responsiveness of Cloud-based IT services mean that you can react quickly to a changing organisational environment. Waste (of both time and resources) is reduced, allowing you to effectively do more with less. This provides you with a leaner, more efficient IT model, available on demand.

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