Cloud Computing With Its Application And Model

Miss. Ankita O. Andure
ME (CSE)1st Year
P.R.Patil College of
Engineering Amravati

Prof. P. P. Deshmukh
P.R.Patil College of
Engineering Amravati

ABSTRAC

A cloud is a pool of virtualized computer resources. A cloud can host a variety of different workloads, including batch-style back-end jobs and interactive, user-facing applications. Allow workloads to be deployed and scaled-out quickly through the rapid provisioning of Virtual machines or physical machines. Support redundant, self-recovering, highly scalable programming models that allow Workloads to recover from many unavoidable hardware/softwarfailures.

It can resource use in real time to enable rebalancing of allocations when Cloud computing environments needed support grid computing by quickly providing physical and virtual Servers on which the grid applications can run. Cloud computing should not be confused with Grid computing. Grid computing involves dividing a large task into many smaller tasks that run in parallel on separate servers. Grids require many computers, typically in the thousands, and Commonly use servers, desktops, and laptops. Clouds also support no grid environments, such as a three-tier Web architecture running standard Or Web 2.0 applications. A cloud is more than a collection of computer resources because a Cloud provides a mechanism to manage those resources. History The Cloud is a metaphor for the Internet, derived from its common depiction in network diagrams (or more generally components which are managed by others) as a cloud outline. The underlying concept dates back to 1960 when John McCarthy opined that "computation may someday be organized as a public utility" (indeed it shares characteristics with service bureaus which date back to the 1960s) and the term

The Cloud was already in commercial use around the turn of the 21st century. Cloud computing solutions had started to appear on the market, though most of the focus at this time was on Software as a service. 2007 saw increased activity, including Google, IBM and a number of universities embarking on a large scale cloud computing research project, around the time the term started gaining popularity in the mainstream press. It was a hot topic by mid-2008 and numerous cloud computing events had been scheduled.

1.Introduction

Supercomputers today are used mainly by the military, government intelligence agencies, universities and research labs, and large companies to tackle enormously complex calculations for such tasks as simulating nuclear explosions, predicting climate change, designing airplanes, and analyzing which proteins in the body are likely to bind with potential new drugs. Cloud computing aims to apply that kind of power—measured in the tens of trillions of computations per second— to .problems like analyzing risk in financial portfolios, delivering personalized medical information, even powering immersive omputer games, in a way that users can tap through the Web. It does that by networking large groups of servers that often use low-cost consumer PC technology, with specialized connections to spread data-processing chores across them. By contrast, the newest and most powerful desktop PCs process only about 3 billion computations a second. Let's say you're an executive at a large corporation. Your particular responsibilities include making sure that all of your employees have the right hardware and software they need to do their jobs. Buying computers for everyone isn't enough -you also have to purchase software or software licenses to give

employees the tools they require. Whenever you have a new hire, you have to buy more software or make sure your current software license allows another user. It's so stressful that you find it difficult to go to sleep on your huge pile of money every night. installing a suite of software for each computer, you'd only have to load one application. That application would allow workers to log into a Web-based service which hosts all the programs the user would need for his or her job. Remote machines owned by another company would run everything from e-mail to word processing to complex data analysis programs.   .

In a cloud computing system, there's a significant workload shift. Local computers no longer have to do all the heavy lifting when it comes to running applications. The network of computers that make up the cloud handles them instead. Hardware and software demands on the user's side decrease. The only thing the user's computer needs to be able to run is the cloud computing system's interface software, which can be as simple as a Web browser, and the cloud's network takes care of the rest. Instead of running an e-mail program on your computer, you log in to a Web e-mail account remotely. The software and storage for your account doesn't exist on your computer --it's on the service's computercloud.

Seven Technical Security Benefits of the Cloud
1.CentralizedData
2.IncidentResponse/Forensics
3.Password assurance testing (aka cracking)
4.Logging
5.Improve the state of security software (performance)
6.Securebuilds
7. Security Testing

2.Service Models
Once a cloud is established, how its cloud computing services are deployed in terms of business models can differ depending on

requirements. The primary service models being deployed (see Figure 1) are commonly known as:

2.1.Software as a Service (SaaS)
 Consumers purchase the ability to access and use an application or service that is hosted

in the cloud. A benchmark example of this is Salesforce.com, as discussed previously, where necessary information for the

interaction between the consumer and the service is hosted as part of the service in the cloud.

Also, Microsoft is expanding its involvement in this area, and as part of the cloud computing option for Microsoft®Office 2010, itsOffice Web Apps are available to Office volume licensing customers and Office Web App subscriptions through its cloud-basedOnline Services.

2.2.Platform as a Service (PaaS)
 Consumers purchase access to the platforms, enabling them to deploy their own software and applications in the cloud. The operating systems and network access are not managed by the consumer, and there might beconstraints as to which applications can be deployed.

2.3.Infrastructure as a Service (IaaS)
 Consumers control and manage the systems in terms of the operating systems,

applications, storage, and network connectivity, but do not themselves control the cloud infrastructure.

Also known are the various subsets of these models that may be related to a particular industry or market. Communications as a

Service (CaaS) is one such subset model used to describe hosted IP telephony services. Along with the move to CaaS is a shift to

more IP-centric communications and more SIP trunking deployments. With IP and SIP in place, it can be as easy to have the PBX in the cloud as it is to have it on the premise. In this context, CaaS could be seen as a subset of SaaS.
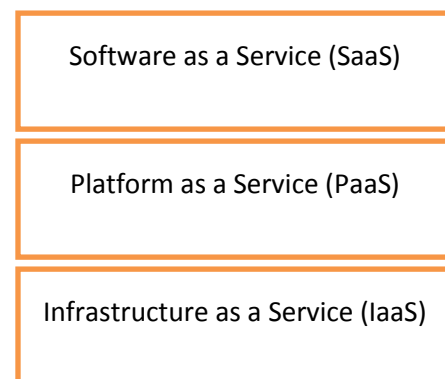

Figure1:Service Model
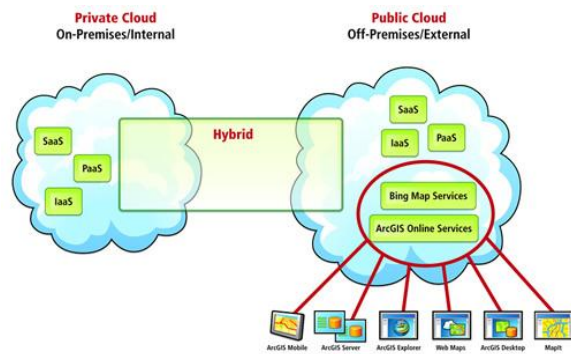
3.Deployment Models

Figure2:Deployment Model

Deploying cloud computing can differ depending on requirements, and the following four deployment models have been identified,each with specific characteristics that support the needs of the services and users of the clouds in particular ways (see Figure 2).

3.1.Private Cloud

The cloud infrastructure has been deployed, and is maintained and operated for a specific organization. Theoperation may be in-house or with a third party on the premises.

3.2.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. The

operation may be in-house or with a third party on the premises.

3.3.Public Cloud

The cloud infrastructure is available to the public on a commercial basis by a cloud service provider. Thisenables a consumer to develop and deploy a service in the cloud with very little financial outlay compared to the capital

expenditure requirements normally associated with other deployment options.

3.4.Hybrid Cloud

The cloud infrastructure consists of a number of clouds of any type, but the clouds have the ability

throughtheir interfaces to allow data and/or applications to be moved from one cloud to another. This can be a combination of private

and public clouds that support the requirement to retain some data in an organization, and also the need to offer services inthe cloud.

4.Advantages of Cloud Computing

If used properly and to the extent necessary, working with data in the cloud can vastly benefit all types of businesses. Mentioned below are some of the advantages of this technology:

4.1.Cost Efficient Cloud computing is probably the most cost efficient method to use, maintain and upgrade. Traditional desktop software costs companies a lot in terms of finance. Adding up the licensing fees for multiple users can prove to be very expensive for the establishment concerned. The cloud, on the other hand, is available at much cheaper rates and hence, can significantly lower the company's IT expenses. Besides, there are many one-time-payment, pay-as-you-go and other scalable options available, which makes it very reasonable for the company in question.

4.2.Almost Unlimited Storage 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.

4.3.Backup and Recovery 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. Hence, this makes the entire process of backup and recovery much simpler than other traditional methods of data storage.

4.4.Automatic Software Integration In the cloud, software integration is usually something that occurs automatically. This means that you do not need to take additional efforts to customize and integrate your applications as per your preferences. This aspect usually takes care of itself. Not only that, cloud computing allows you to customize your options with great ease. Hence, you can handpick just

those services and software applications that you think will best suit your particular enterprise.

4.5.Easy Access to 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.

4.6.Quick Deployment Lastly and most importantly, cloud computing gives you the advantage of quick deployment. Once you opt for this method of functioning, your entire system can be fully functional in a matter of a few minutes. Of course, the amount of time taken here will depend on the exact kind of technology that you need for your business.

5.Disadvantages of Cloud Computing In spite of its many benefits, as mentioned above, cloud computing also has its disadvantages. Businesses, especially smaller ones, need to be aware of these cons before going in for this technology.

5.1.Technical Issues 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. Even the best cloud service providers run into this kind of trouble, in spite of keeping up high standards of maintenance. Besides, you will need a very good Internet connection to be logged onto the server at all times. You will invariably be stuck in case of network and connectivity problems.

5.2.Security in the Cloud The other major issue while in the cloud is that of security issues. 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.

5.3.Prone to Attack Storing information in the cloud could make your company vulnerable to external hack attacks 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.

6.Conclusion

In this paper, a comprehensive study Cloud Computing. Like everything else, cloud computing too has its pros and cons. While the technology can prove to be a great asset to your company, it could also cause harm if not understood and used properly.

7.References

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