

How to Cite:

Lakshmipriya, G., & Mathumitha, M. (2022). Cloud computing in technical and social perspective view. *International Journal of Health Sciences*, 6(S4), 5809–5814.
<https://doi.org/10.53730/ijhs.v6nS4.9416>

Cloud computing in technical and social perspective view

Lakshmipriya. G

Assistant Professor, Department of Information Technology, Dhanalakshmi Srinivasan College of Engineering and Technology

Mrs. M. Mathumitha

Assistant Professor, Dhanalakshmi Srinivasan College of Engineering and Technology

Abstract---The term cloud computing is a recent buzzword in the IT world. Behind this fancy poetic phrase there lies a true picture of the future of Computing for both in technical perspective and social perspective. Though the term "Cloud Computing" is recent but the idea of centralizing 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.

Keywords---cloud computing, technical, social perspective view.

Introduction

Cloud computing is a recently developing paradigm of distributed computing. Though it is not a new idea that emerged just entry. In 1969 [16] L. Kleinrock anticipated, As of now, computer networks are still in their infancy. But as they grow up and become more sophisticated, we will probably see the spread of 'computer utilities' which, like present electric and telephone utilities, will service individual homes and the country." His vision was the true indication of today's utility based computing paradigm. One of the giant steps towards this world was taken in mid 1990s when grid computing was coined to allow consumers to obtain computing power on demand. The origin of cloud computing can be seen as an evolution of grid computing technologies.

Cloud Computing Basics

Cloud computing is a paradigm of distributed computing to provide the customers on-demand, utility based computing services. Cloud users can provide more reliable, available and updated services to their clients in turn. Cloud itself

consists of physical machines in the data centers of cloud providers. Virtualization is provided on top of these physical machines. These virtual machines are provided to the cloud users. cloud

Types of Cloud

1. Private Cloud { This type of cloud is maintained within an organization and used solely for their internal purpose. So the utility model is not a big term in this scenario. Many companies are moving towards this setting and experts consider this is the 1st step for an organization to move into cloud. Security, network bandwidth are not critical issues for private cloud.
2. Public Cloud { In this type an organization rents cloud services from cloud providers on-demand basis. Services provided to the users using utility computing model.
3. Hybrid Cloud {This type of cloud is composed of multiple internal or external cloud. This is the scenario when an organization moves to public cloud

Cloud Stakeholders

To know why cloud computing is used let's concentrate on who use it. And then we would discuss what advantages they get using cloud. There are three of stakeholders cloud providers, cloud users and the end users. Cloud providers provide cloud services to the cloud users. These cloud services are of the form of utility computing i.e. the cloud users use these services pay-as-you-go model. The cloud users develop their product using these services and deliver



Advantages of using Cloud

Cloud Providers' point of view

- a. Most of the data centers today are under utilized. They are mostly 15% utilized. These data centers need spare capacity just to cope with the huge spikes that sometimes get in the server usage. Large companies having those data centers can easily rent those computing power to other organizations and get out of it and also make the resources needed for running data center (like power) utilized properly.

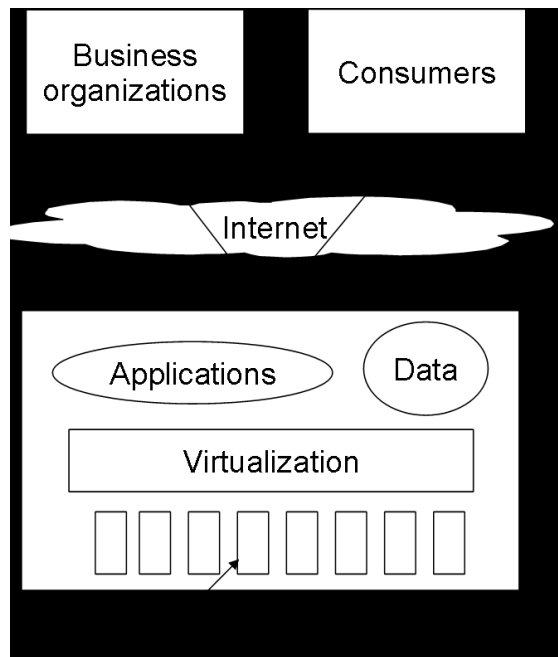
- b. Companies having large data centers have already deployed the resources and to provide cloud services they would need very little investment and the cost would be incremental.

Cloud Users' point of view

- a. Cloud users need not to take care about the hardware and software they use and also they don't have to be worried about maintenance. The users are no longer tied to some one traditional system.
- b. Virtualization technology gives the illusion to the users that they are having all the resources available.
- c. Cloud users can use the resources on demand basis and pay as much as they use. So the users can plan well for reducing their usage to minimize their expenditure.
- d. Scalability is one of the major advantages to cloud users. Scalability is provided dynamically to the users.

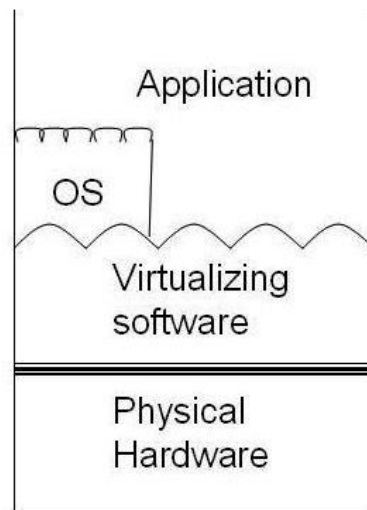
Cloud Architecture

The cloud providers actually have the physical data centers to provide virtualized services to their users through Internet. The cloud providers often provide separation between application and data. This scenario underlying physical machines are generally organized in grids and they are usually geographically distributed. Virtualization plays an important role in the cloud scenario. The data center hosts provide the physical hardware on which virtual machines resides. User potentially can use any OS supported by the virtual machines used. Operating systems are designed for hardware and software. It results in the lack of portability of operating system and software from one machine to another machine which uses different instruction set architecture. The concept of virtual machine solves this problem by acting as an interface between the hardware and the operating system called as system. Another category of virtual machine is called process virtual machine which acts as an abstract layer between the operating system and applications. Virtualization can be very roughly said to be as software translating the hardware instructions generated by conventional software to the understandable format for the physical hardware. virtualization also includes the mapping of virtual resources like registers and memory to real hardware resources. The underlying platform in virtualization is generally referred to as host and the software that runs in the VM environment is called as the guest. The Figure 3 shows very basics of virtualization. Here the virtualization layer covers the physical hardware. Operating System accesses physical hardware through virtualization layer. applications can issue instruction by using OS interface as well as directly using layer interface. This design enables the users to use applications not compatible with the operating system.



Basic Cloud Computing Architecture

Operating systems are designed for specific hardware and software. It results in the lack of portability of operating system and software from one machine to another machine which uses different instruction set architecture. The concept of virtual machine solves this problem by acting as an interface between the hardware and the operating system called as system . Another category of virtual machine is called process virtual machine which acts as an abstract layer between the operating system and applications. Virtualization can be very roughly said to be as software translating the hardware instructions generated by conventional software to the understandable format for the physical hardware. Virtualization also includes the mapping of virtual resources like registers and memory to real hardware resources. The underlying platform in virtualization is generally referred to as host and the software that runs in the VM environment is called as the guest. Here the virtualization layer covers the physical hardware. Operating System accesses physical hardware through virtualization layer. Applications can issue instruction by using OS interface as well as directly using layer interface. This design enables the users to use applications not compatible with the operating system. Virtualization enables the migration of the virtual image from one physical machine to another and this feature is useful for cloud as by data locality lots of optimization is possible and also this feature is helpful for taking back up in different locations. This feature also enables the provider to shut down some of the data center physical machines to reduce power consumption.



Virtualization basic

Popular Cloud Applications: A Case study

Applications using cloud computing are gaining popularity day by day for their high availability, reliability and utility service model. Today many cloud providers are in the IT market. Of those Google App-Engine, Windows Azure and Amazon EC2, S3 are prominent ones for their popularity and technical perspective.

Amazon EC2 and S3 Services

Amazon Elastic Computing (EC2) [13] is one of the biggest organizations to provide infrastructure as a Service. They provide the computer architecture with XEN virtual machine. Amazon EC2 is one of the biggest deployment of XEN architecture to date. The clients can install their suitable operating system on the virtual machine. EC2 uses Simple Storage Service (S3) for storage of data. Users can hire suitable amount CPU power, storage, and memory without any upfront commitment.

Cloud Computing Application in Indian con-text

Today most of the studies in cloud computing is related to commercial benefits. But this idea can also be successfully applied to non-organizations and to the social benefit. In the developing countries like India Cloud computing can bring about a revolution of low cost computing with greater efficiency, availability and reliability. Recently in these countries e-governance has started to Experts envisioned that utility based computing has a great future in e governance. Cloud computing can also be applied to the development of rural life in India by building information hubs to help the concerned people with greater access to required information and enable them to share their experiences to build

Conclusion

Cloud computing is a newly developing paradigm of distributed computing. Virtualization in combination with utility computing model can make a difference in the IT industry and as well as in social perspective. Though cloud computing is still in its infancy but its clearly gaining momentum. Organizations like Google, Yahoo, Amazon are already providing cloud services. The products like Google App-Engine, Amazon EC2, Windows Azure are capturing the market with their ease of use, availability aspects and utility computing model.

References

- M.Tech. Seminar Report by Abhirup Ghosh (Roll no :09305052) under the guidance of Prof. Anirudha Sahoo
- Rinartha, K., & Suryasa, W. (2017). Comparative study for better result on query suggestion of article searching with MySQL pattern matching and Jaccard similarity. In *2017 5th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-4). IEEE.
- Rinartha, K., Suryasa, W., & Kartika, L. G. S. (2018). Comparative Analysis of String Similarity on Dynamic Query Suggestions. In *2018 Electrical Power, Electronics, Communications, Controls and Informatics Seminar (EECCIS)* (pp. 399-404). IEEE.
- Susilo, C. B., Jayanto, I., & Kusumawaty, I. (2021). Understanding digital technology trends in healthcare and preventive strategy. *International Journal of Health & Medical Sciences*, 4(3), 347-354.
<https://doi.org/10.31295/ijhms.v4n3.1769>