

Descriptive Study of Cloud Computing: An Emerging Technology

Rydhm Beri

M.Sc (CS) Student

Department of Computer Science
BBK DAV College for Women, Amritsar
e-mail:rydhmberi@gmail.com

Veerawali Behal

Assistant Professor

Department of Computer Science
BBK DAV College for Women, Amritsar
e-mail:behalveerawali@yahoo.in

Abstract--Cloud computing is an emerging way of computing that is continue to advances over the last few years. The term cloud computing is related to the field computer networks. The term computer network is the collection of nodes, in which the different computers are attached to each other or to the main server to share the resources among them. Moreover the network is also confirmed to make communication between the different nodes. The Cloud Computing indubitably offers a handful advantages to both the Users and the Cloud service providers. Ascribed to the welfare, number of the cloud users is increasing rapidly day by day. Although, the cloud computing provides the Green computing that fetches many users for the cloud services. Moreover, the cloud computing is related to different technology is related to different technology that helps user to use the cloud easily and efficiently. This study discuss the various technologies related to cloud, how the cloud services are come into existence, and the types of clouds according to the requirement of the users.

Keywords--Cloud Computing, Properties, History, Types of Clouds, Advantages.

I. INTRODUCTION

In stable computer network large amount of data is stored on the server that may or may not be clustered at different location and can also share storage among different nodes. The major drawback of this architecture is that the user cannot have access to the resources outer the network. This drawback is able to remove with the help of cloud computing. Cloud computing is comparatively an applied science that fetches consciousness as it changes the direction of the technological scenarios.

II. DEFINITION OF CLOUD COMPUTING

The cloud computing is the trendy technology provided by the internet, through which we become able to access the storage and processor of the other computer over the network. This facility makes ability of user to use the software or hardware resources provided by other organizations, without taken any burden to maintain or purchase their own resources. User can also use the resources for fulfilling their software requirements.

Cloud computing is often used with the term Fog Computing. Fog computing refers to the facility of processing and storing data in the Local Area Networks in conjunction with the cloud computing.

Cloud Computing is probably the only technology that completely complements the internet. It is defined as new style of computing in which vigorously flexible and often virtualized resources are provided as services over internet [1]. This paper is organized as different sections Such as: Review of Related Work, Properties of Cloud Computing, History of Cloud Computing, Application areas of Cloud Computing, Related Technologies, Architecture of Cloud

Computing, Types of Clouds, Advantages of Cloud and Disadvantages of Cloud

III. REVIEW OF RELATED WORK

From many years various studies about cloud computing are reported that provides the user's attention on the various services provided by the cloud computing facility and the various issues related to the cloud computing. Following few lines present the various researches that had done on the cloud computing by different authors.

E Kusuma Kumari et al. describes that Cloud computing provides the facility to access shared resources and common infrastructure, offering services on demand over the network to perform operations that meet changing business needs [2]. David C. Wyld describes that Cloud computing encompasses a whole range of services and can be hosted in a variety of manners, depending on the nature of the service involved and the data/security needs of the contracting organization [3]. Yashpalsinh Jadeja and Kirit Modi describes that cloud computing deals with computation, software, data access and storage services that may not require end-user knowledge of the physical location and the configuration of the system that is delivering the services [4].

IV. PROPERTIES OF CLOUD COMPUTING

The cloud computing includes the various properties. These are explained as follows:

A. Powerful Technology

In this technology hundreds or even thousands of computers are connected to work together in such a way that is beyond the processing power of single computer.

B. User-Centric

This property states that after becoming a user of the cloud one can easily access the document, images, videos or other files stored at cloud and he/ she can also able to share their information with the other users.

C. Intelligent

Cloud computing is an intelligent way of computing as all the data and information is stored at the cloud. All the information are able to access from cloud by using data mining techniques such as data cleaning, data integration etc. in an efficient manner.

D. Task-Centric

The cloud computing is task-centric. This means that the cloud computing mainly focuses on what the individual can do with the various resources provided to him/her by cloud, instead on how the application can do his/her task.

E. Programmable

This property states that the cloud computing programming must be automated. For instance when a computer goes offline in the cloud the computer's data is automatically shifted to the other computer by distributing the cloud's programming automatically.

F. Accessibility

This property states that the user can simply access his/her data from any computer in the world at located at different location by simply login to their cloud account.

V. HISTORY OF CLOUD COMPUTING

Cloud computing has it assenters as Client and server computing and peer to peer computing.

A. Client/Server

Client/server model was used in ancient time. This model refers to the scenario where, there is a server which always fulfill the request arises from multiple client. The clients store their files onto the server and submit request for the various resources to the server.

B. Peer-to-Peer

The peer-to-peer model is the network model in which there is no master slave relationship exists between the nodes attached in the network. In this case each device have equal rights and able to store data. Peer-to-Peer (P2P) concept emphasizes more on the decentralized environment.

C. Distributed Computing

In this model, the parts of the software or files are distributed across the network. This is done because of the storage limitation of the single computer.

D. Collaborative Computing

Collaborative computing model emphasizes the working of the people in a group. This type of computing is used when the multiple people want to work on the single project simultaneously. This concept has driven force to the concept named cloud computing.

E. Cloud Computing

The cloud computing is the better technology than that are discussed. This technology provides the unlimited collaboration of the user to work on the computer based project simultaneously over the internet.

VI. APPLICATION AREAS OF CLOUD COMPUTING

This section going to discuss the various benefits of cloud computing provided to different types of users.

A. Centralized Email

The cloud computing offers the benefit by which the user can access his/her email account over internet, instead of accessing the email from MS Outlook at a single site.

B. Collaborative Project

In every field of life the project are created and there may or may not be a need arise to work on a single project by different groups of people collaboratively. The cloud computing helps to collaborate different people at different location to work on project simultaneously.

C. Collaborating Financial Statement

The financial statements are created by collaboration of multiple parties. This collaboration process is both inert-process and intra-process collaboration. In this process multiple parties are involved such as Financial Printer, External Auditor, Tax Accountant, Internal Accounting Team, Investor Relations, Audit Committee etc. these parties can be easily collaborate by cloud computing.

D. Collaborating Event Management

Collaborative Event Management refers to the term that describes how the activities that are conducted between co-operating parties, are managed. Cloud computing offers various efficient way to manage events collaboratively.

VII. RELATED TECHNOLOGIES

The term cloud computing is often related to the different technologies. These technologies provides us the way how to use the various services offered by cloud computing. Some of the technologies are shown as follows:

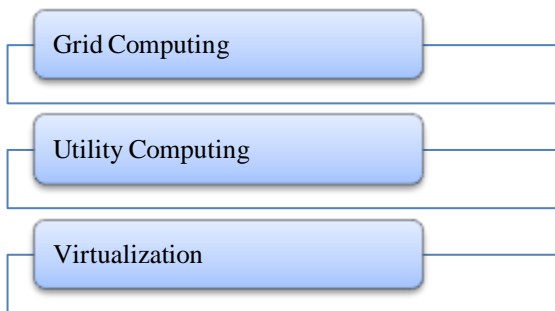


Figure: 1 Related Technology

A. Grid Computing

Grid Computing is the term used to refer to the parallel computing in which the resources are shared among the network and multiple computer work collaboratively in order to model as a super computer.

B. Utility Computing

Utility computing is also refers to as “On-Demand computing”. In Utility computing the customers access the computer provided by the datacenter service providers over the internet via private lines according to pay-per usage basis.

C. Virtualization

Virtualization refers to the technologies that manages computing resources by the layer know as Abstraction Layer. It converts the physical present resources to the logical resources.

VIII. ARCHITECTURE OF CLOUD COMPUTING

The cloud computing architecture is divided into two parts, such as:

A. Front End

The front end in the cloud computing architecture is the client that uses the services of the cloud over the internet. The front end client’s computer uses the application required to access the services of cloud.

B. Back End

The Back End layer of the cloud computing architecture is the cloud service provider administration. This layer is responsible to manage the different number of activate users at the cloud. This is also responsible to make record about which services of clouds are provided to which user.

IX. TYPES OF CLOUD

The clouds are divided into parts where each part is categorized according to the services provided to the different user.

A. Public Cloud

Public Cloud is refers to the cloud services that are provided to the general public. It is a cloud in which the cloud service provides services of the various resources to the general public. This reduces the client’s burden to invest initial capital investment to buy infrastructure and management of the resources required to establish an infrastructure [5].

B. Private Cloud

Private Cloud refers to situate the cloud internal the organizations. In other words, private clouds are the cloud that are established within the organization’s LAN or WAN. It generally resembles to network intranet.

C. Hybrid Clouds

Hybrid clouds referred to the technique of using the services of private as well as public cloud within an organization. By using these types of cloud one can share the document or resources to the other organization and can maintain the security while saving the documents over the cloud.

D. Community Cloud

This type of cloud refers to the technique by which the cloud infrastructure is shared by the number of organizations. These clouds are managed by the third party provider that can be inside the organization or can be outside the organization.

X. ADVANTAGES

Cloud computing provides various benefits to the user. Some of the benefits that the cloud computing provides to the user are given as follows.

A. Easy Maintenance

With the help of cloud computing services the user can easily maintain its software or documents or other files over the cloud without taken any burden to update the software and store the files efficiently.

B. Reducing Cost

The cloud computing reduces the cost require to maintain the hardware or software resources required in an organization. This also reduces the manpower required to maintain the servers and the computers onto the network.

C. Continues Provision of Services

By using the cloud user can access to the various services an uninterrupted fashion. For eg. User can access the Email services from the cloud at any time or at any place.

D. Green Computing

Green computing refers to the pc that are made for power saving. In the bigger organizations harmful emission is generated in a large extent as time passes and large amount of energy consumes. The cloud services remove this drawback and also reduce the e-waste at maximum extent.

E. Unlimited Storage Capacity

User can access the unlimited cloud storage over the internet by providing some amount to the cloud service providers.

F. Latest Certification of the Software

By using the cloud services the user can access the latest software certification over the internet. He/ she does not require maintaining the software certification at their own level, this is the responsibility of the cloud service providers.

XI. DISADVANTAGES

There are several disadvantages related to cloud computing. Some of them are given as follows:

A. Large Downtime

The organization when setup the cloud, it becomes dependent on the cloud services. But when the internet connection of the organization becomes slow then it faces many problems. So in this case the organization faces the problem of downtime of the cloud server in case of slow internet connection.

B. Security Issues

Cloud computing services have various security issues. In case of public clouds the data can be theft by the intruder that is the person outside the organization because the private cloud available to the general public.

C. Cost

The bigger disadvantage of cloud computing is that for using the cloud services provided by any organization the user required to pay some amount in the form of pay-per usage.

D. Technical Issues

Sometimes due to technical reasons the data that is stored on the cloud can be lost. This can happen due to some malfunctioning enters into the cloud computers that leads to degrade the performance of the cloud.

XII. Conclusion

In nutshell, the cloud computing is the technology in which the user can able to use the various resources, provide by the different organization over the internet. It offers the several benefit like cost reduction, management burden reduction, availability of data etc to the user. It also provides the various benefits to the cloud service providers such as user can access the resources by paying some amount of money in the form of rent to the cloud service provider.

XIII. REFERENCES

- [1] Veerawali Behal, Anil Kumar: "Comparative Study of Load Balancing Algorithms in Cloud Environment using Cloud Analyst", IJCA, Volume 97- No.1, July 2014.
- [2] E Kusuma Kumari et al."Cloud Computing: An Overview", Journal of Theoretical and Applied Information Technology.
- [3] David C. Wylid, "The Cloudy Future of Government IT: Cloud Computing and the Public Sector around the World", International Journal of Web and Technology & Semantic technology, Jan 2010.
- [4] Yashpalsinh Jadeja and Kirti Modi,"Cloud Computing-Concepts, Architecture and Challenges", International Conference on Computing, Electronics and Electrical Technologies, 2012.
- [5] Rydhm Beri, Veerawali Behal," Cloud Computing: A Survey on Cloud Computing", International Journal of Computer Application, Volume 111 No-16, February