Review on Cloud Computing

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Abstract- **Cloud Computing Technology is an emerging technology used in IT Industries. Cloud computing which depends on Internet has the most dominant architecture of computation. It reckons in of a compilation of integrated and networked hardware, software and internet infrastructure. It has different profits on grid computing and other computing. In this paper, I have given a brief of assessment of cloud computing by checking on in excess of 20 articles on cloud computing. The result of this survey signalizes the essence of the IT businesses when the cloud computing.**

Keywords — ***Cloud, Cloud Computing, IaaS, PaaS, SaaS.***

I. INTRODUCTION

Like real word which are the accumulation of water atoms, the term ‘cloud' in cloud computing is the gathering of network systems. The client can utilize the modalities of cloud computing vastly at whatever point requested. Rather than setting up their own physical framework, the clients customarily lean toward a mediator for the internet in cloud computing. The clients need to pay just for the services they had utilized [2]. The outstanding task at hand can be moved to diminish the remaining burden in cloud computing. A load of services is taken care of by the systems which shape the cloud that is the reason the load on neighborhood PCs isn't overwhelming while at the same time running an application [1]. So the demand of hardware and software at the client side is decreased. All we need an internet browser to utilize cloud computing. All we need an internet browser like chrome to utilize cloud computing.

Following are the key highlights of cloud computing:

I. Resource Pooling and Elasticity

II. Self-Service and On-Demand Services

III. Pricing

IV. Quality of Service

There are three services given by cloud computing that are Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) [1]. The fundamental examples of cloud computing which are utilized by general individuals in everyday life are Facebook, YouTube, Dropbox, and Gmail and so forth. It offers scalability, flexibility, agility, and simplicity that is the reason its utilization is quickly expanding in the enterprises.

Fig 1 Network of Cloud

II. EVOLUTION OF CLOUD COMPUTING

Cloud computing is a way of leveraging the Internet to consume software or other IT services on demand. Users share processing power, storage space, bandwidth, memory, and software. With cloud computing, the resources are shared and so are the costs. Users can pay as they go and only use what they need at any given time, keeping cost to the user down. Cloud computing is very much a business model as well. Providers of cloud computing solutions, whether they are software, hardware, platform, or storage providers, deliver their offerings over the Internet. There are no shrink wrapped boxes containing discs or hardware for you to buy and set up yourself. Cloud providers typically charge monthly recurring fees based on your usage.

In a speech at MIT around in 1960 John McCarthy indicated that like water and electricity, computing can also be sold like a utility. And in 1999, the Salesforce Company started distributing the applications to the customers through a convenient website [3]. Amazon Web Services were started by Amazon in 2002 and they were providing the services of storage and computation. In around 2009 big companies like Google, Microsoft, HP, Oracle had started to provide cloud computing services [4]. Nowadays each and every person is using the services of cloud computing in their daily life. For example Google Photos, Google Drive, and iCloud etc. are used. In future cloud computing will become the basic need of IT Industries. This review paper helps researchers who would like to begin their research career in cloud computing [7].

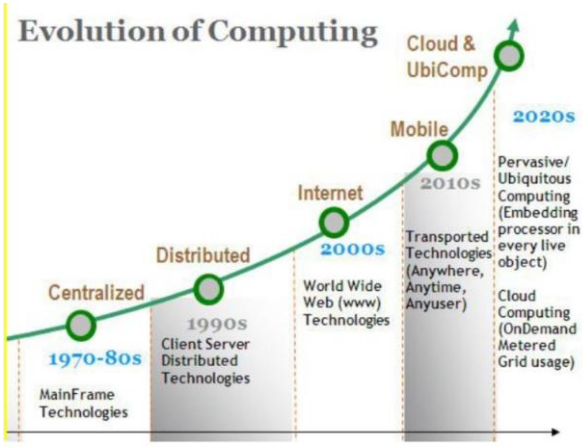

Fig 2 Evolution of Cloud Computing

III. COMPONENTS OF CLOUD COMPUTING

Cloud computing has three fundamental components as follows-

I. **Client Computers:** The end user can interact with the cloud by using the client computers

II. **Distributed Servers:** The servers are distributed among the different places but acts like they as working with each other.

III. **Data Centers:** Data centers are the compilation of servers.

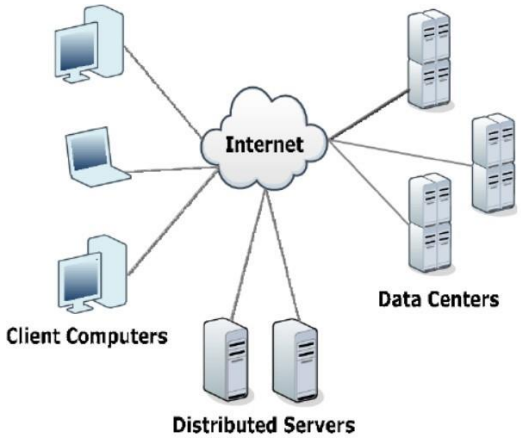

Fig 3 Components of cloud computing

IV. SERVICES OF CLOUD COMPUTING

I. Software as a Service (SaaS): The way of carrying application as a service on the internet is known as software as a service. In place of installing the software on his computer, the user can simply access it via the internet [5]. It makes the user

free from managing the complex software and hardware. The SaaS users do not need to buy software or hardware, maintain, and update. The only thing user must have an internet connection and then access to the application is very easy. Example, Microsoft Office 365, Google Apps etc.

II Platform as a Service (PaaS): A development environment or platform is given to the consumers as a service in PaaS, upon which user can deploy their own software and coding. The customer has the liberty to construct his own applications that can run on the provider's infrastructure [5]. Product as a service providers offers a predefined composition of operating system and application server to obtain the management capacity of the applications. For example, LAMP (Linux, Apache, MySQL, and PHP), J2EE, Ruby etc.

III Infrastructure as a Service (IaaS): Many computing resources are provided by the IaaS in the form of storage, network, operating system, hardware, and storage devices on demand. IaaS users can access the services using a wide area network, such as the internet [5]. For example, a user can create virtual machines by login to the IaaS platform.

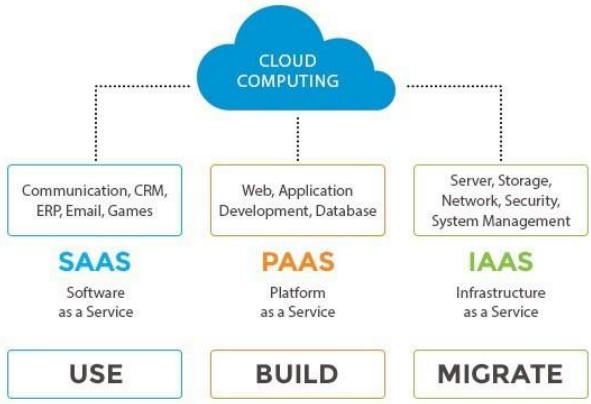

Fig 4 Cloud Computing Services

V. TYPES OF CLOUD

I. Public Cloud: The public cloud is a computing service supplied by the third party providers atop the public internet [6]. These services are available for any user who wants to use them and they have to pay only for the services they consumed.

II. Private Cloud: The computing services provided over the internet or private network come under the private cloud and these services are offered only to the selected users in place of common people [1, 6]. A higher security and privacy is delegated by private clouds through the firewall and internal hosting .

III. Hybrid Cloud: Hybrid cloud is the combination of public cloud and private cloud. In the hybrid cloud, each cloud can be managed independently but data and applications can be shared among the clouds in the hybrid cloud [1, 6].

VI. BENEFITS OF CLOUD COMPUTING

Cloud computing offers your business many benefits. It allows you to set up what is essentially a virtual office to give you the flexibility of connecting to your business anywhere, any time. With the growing number of web-enabled devices used in today's business environment (e.g. smartphones, tablets), access to your data is even easier. There are many benefits to moving your business to the cloud:

A. Reduced IT costs

Moving to cloud computing may reduce the cost of managing and maintaining your IT systems. Rather than purchasing expensive systems and equipment for your business, you can reduce your costs by using the resources of your cloud computing service provider. You may be able to reduce your operating costs because:

- the cost of system upgrades, new hardware and software may be included in your contract
- you no longer need to pay wages for expert staff
- your energy consumption costs may be reduced
- There are fewer time delays.

B. Scalability

Your business can scale up or scale down your operation and storage needs quickly to suit your situation, allowing flexibility as your needs change. Rather than purchasing and installing expensive upgrades yourself, your cloud computer service provider can handle this for you. Cloud frees up your time so you can get on with running your business.

C. Business continuity

Protecting your data and systems is an important part of business continuity planning. Whether you experience a natural disaster, power failure or other crisis, having your data stored in the cloud ensures it is backed up and protected in a secure and safe location. Being able to access your data again quickly allows you to conduct business as usual, minimizing any downtime and loss of productivity.

D. Collaboration efficiency

Collaboration in a cloud environment gives your business the ability to communicate and share more easily outside of the traditional methods. If you are working on a project across different locations, you could use cloud computing to give employees, contractors and third parties access to the same files. You could also choose a cloud computing model that makes it easy for you to share your records with your advisers (e.g. a quick and secure way to share accounting records with your accountant or financial adviser).

E. Flexibility of work practices

Cloud computing allows employees to be more flexible in their work practices. For example, you have the ability to access data from home, on holiday, or via the commute to and from work (providing you have an internet connection). If you need access to your data while you are off-site, you can connect to your virtual office, quickly and easily.

F. Access to automatic updates

Access to automatic updates for your IT requirements may be included in your service fee. Depending on your cloud computing service provider, your system will regularly be updated with the latest technology. This could include up-to-date versions of software, as well as upgrades to servers and computer processing power.

VII. Conclusion

In this review paper we described in short the introduction, evolution, types and components of cloud computing and also different approaches of cloud computing and some of its advantages. The application area of cloud computing will continuously be increasing. Today approximately all small and big industries are using cloud computing to manage storage, traffic, hardware requirements. So, it is clear that there is major impact of cloud computing on society and business.

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