# A Review Paper on Cloud Computing

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**Abstract—**

The era of cloud computing technology in the IT industries is currently. The most advanced computational architecture is seen in cloud computing, which is based on the Internet. It makes use of a collection of networked, integrated, and software-and hardware-based systems. It has a number of benefits on top of grid computing and othercomputing. I've reviewed more than 30 papers on cloud computing to provide a concise appraisal of the technology in this essay. The outcome of this review indicates how the IT sectors have changed over time, both before and after cloud computing.

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

## INTRODUCTION

The phrase "cloud" in cloud computing refers to a collection of networks, much like actual clouds, which are collections of water molecules. The user has limitless access to cloud computing capabilities whenever needed. Users typically prefer a middleman provider for the internet service in cloud computing rather than setting up their own physical infrastructure. Only the services that the users really used must be paid for [2]. To lessen the workload in cloud computing, the workload can be moved. Because the networks that make up the cloud carry a lot of the service load, running an application on local computers does not put a lot of strain on them [1]. As a result, there is a reduction in the user's need for hardware and software.All we need to use cloud computing is a web browser like Chrome. The key characteristics of cloud computing are as follows:

I.I Resource Pooling and Elasticity

I.II Self-Service and On-Demand Services

I.III Pricing I.IV Quality of Service

Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) are the three services offered by cloud computing [1]. Facebook, YouTube, Dropbox, and Gmail are just a few of the common cloud computing applications that regular people use on a daily basis. Because of its scalability, flexibility, agility, and simplicity, businesses are using it more and more frequently.



**FIG– NETWORK OF CLOUD**

## EVOLUTION OF CLOUD COMPUTING

John McCarthy once suggested that, similar to water and electricity, computers can likewise be offered as a utility in a speech at MIT somewhere around 1960. And in 1999, the Salesforce Company began providing its clients with access to the applications via an easy-to-use website [3]. In 2002, Amazon

launched Amazon Web Capabilities, which offered storage and compute services. Large corporations including Google, Microsoft, HP, and Oracle began offering cloud computing services about 2009 [4]. These days, everyone uses cloud computing in some capacity in their daily lives. For instance, iCloud, Google Photos, and Google Drive. Cloud computing will eventually become a necessity for the IT sector.
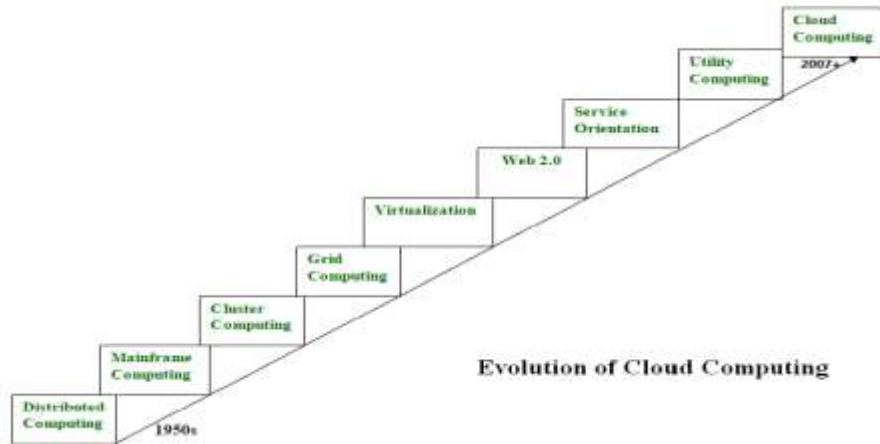


**FIG - EVOLUTION OF CLOUD COMPUTING**

## COMPONENTS OF CLOUD COMPUTING

Cloud computing has three basic components as follows

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

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

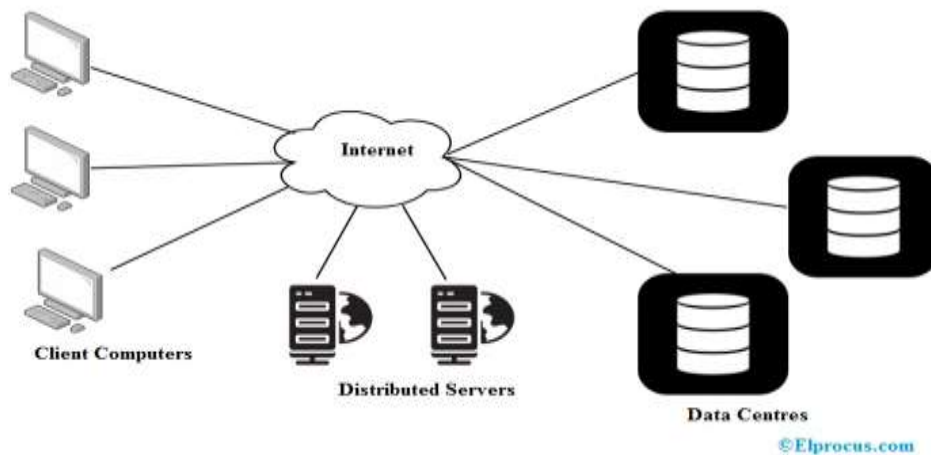**Data Centres:** Data centres are the compilation of servers.



**FIG – COMPONENTS**

## SERVICES OF CLOUD COMPUTING

**Software as a Service (SaaS):** Software as a service is a method of delivering applications as a service over the internet. The user can simply access the software online rather than installing it on his computer [5]. The user is liberated from having to manage complicated hardware and software. Users of SaaS do not have to purchase, maintain, and update software or hardware. Access to the application is simple and only requires the user to have an internet connection. For instance, Google Apps, Microsoft Office 365, etc.

**Platform as a Service (PaaS):**In PaaS, a platform or development environment is made available to users as a service so they can deploy their own software and coding. The customer is free to create his own apps that can utilise the infrastructure of the supplier [5]. To get the ability to manage the applications, product as a service providers offer an operating system and application server combination that is preset. For instance, J2EE, Ruby, LAMP (Linux, Apache, MySQL, and PHP), etc.

**Infrastructure as a Service (IaaS):**The IaaS offers a variety of computing resources, including storage, networks, operating systems, hardware, and storage devices, on demand. IaaS users can use a wide-area network, such as the internet, to access the services [5]. For instance, after logging into the IaaS platform, a user can create virtual machines.
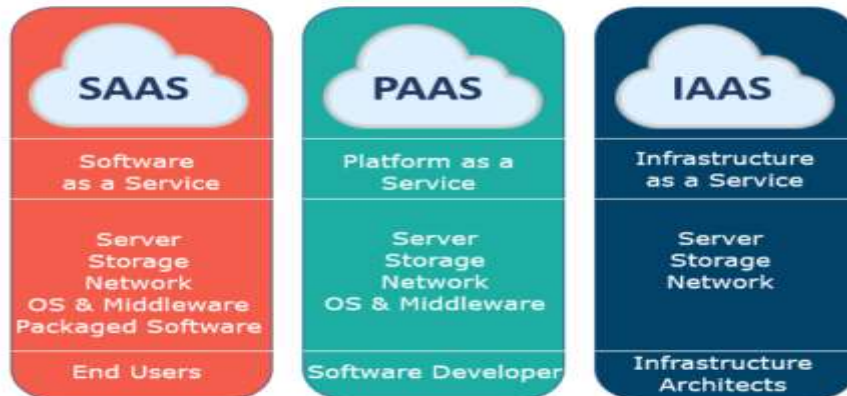


**Fig - Cloud Computing Services**

## TYPES OF CLOUD COMPUTING

**Public Cloud:** On top of the open internet, third-party providers offer a computing service known as the public cloud [6]. Any user who wants to use these services can do so, and they only have to pay for the services they really use.

**Private Cloud:** The computing services delivered via a private network or the internet fall under the category of the private cloud and are only made available to a select group of customers rather than the general public [1,6]. Through the firewall and internal hosting, private clouds provide a better level of security and anonymity.

**Hybrid Cloud:** A hybrid cloud combines both private and public clouds. Each cloud in the hybrid cloud can be managed separately, but data and applications can be shared between the clouds [1, 6].

## ADVANTAGES OF CLOUD COMPUTING

**Cost Saving:** Users of cloud computing only have to pay for the services they actually use. Because the user does not have to buy the infrastructure, maintenance costs are low [2].

**Flexibility:** Scalable cloud computing exists. Your company's activities may need to scale up or down quickly, necessitating a swift change of hardware and resources. Cloud computing offers flexibility to handle these variances.

**Enhanced Security:** Utilizing data encryption, strict access controls, key management, and security intelligence, cloud computing offers high levels of security.

## CONCLUSION

In this review paper, we provide a brief overview of cloud computing's history, types, and components, as well as its many methodologies and some of its benefits. The range of applications for cloud computing will keep expanding. Almost all sectors, small and large, are embracing cloud computing today to manage hardware requirements, traffic, and storage. Therefore, it is evident that cloud computing has a significant impact on both society and industry.

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