

# Cloud Computing Overview & Current Research Technologies

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## ABSTRACT

Cloud computing is a technology that allows users to access shared computing resources over the internet on demand, and it is an internet-based model for handling, storing, and processing data. It develops and deploys flexible enterprise-wide operations on the cloud platform. In cloud we store, manage and process data on remote server. Many industries, such as banking, education the cloud due to the efficiency of services provided by the pay-per-use pattern based on the resources such as processing power used, transactions carried out, bandwidth consumed, data transferred, etc in cloud computing No experts required for hardware and software maintenance. Even No server space required. The cloud is provide better data security. Infrastructure as a Service (IaaS), Software as a Service (SaaS), and Platform as a Service (Platform as a Service) are three types of cloud computing services. This research paper analyses the cloud computing Architecture, different Deployment and service model and research technologies.

**Key Words:** Cloud computing, cloud computing building blocks, cloud computing technologies.

*SAMRIDDHI : A Journal of Physical Sciences, Engineering and Technology, (2021); DOI : 10.18090/samriddhi.v13iS1.20*

## INTRODUCTION

The term "cloud" refers to a network or the internet. It is a technology that allows you to store and access data, such as files, audio, and video, over the internet.

The advantages of using cloud computing include:

- i) High Security
- ii) High Performance
- iii) Multi-Sharing
- iv) High Scalability
- v) On-demand self service
- vi) Automatic software updates
- vii) Pay per use

In cloud data can be accessed and shared anywhere over the internet. Cloud provides main three types Private, Public and Hybrid.

## CLOUD COMPUTING BUILDING BLOCKS

### Deployment Models

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**How to cite this article :** Patil, T.R., (2021). Cloud Computing Overview & Current Research Technologies. *SAMRIDDHI : A Journal of Physical Sciences, Engineering and Technology*, Volume 13, Special Issue (1), 89-91.

**Source of support :** Nil

**Conflict of interest :** None

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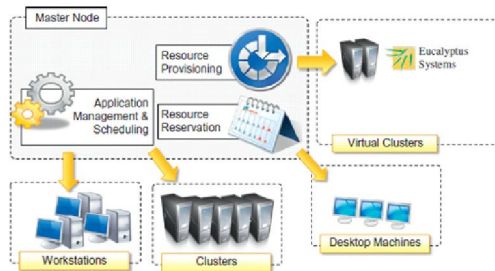
**Private Cloud:** In Private cloud services accessible within an organization it belongs to a specific organization. It can be managed internally by organization itself or by third party.

- High security and privacy
- More control
- Cost and energy Efficiency

**Public Cloud:** In public cloud, the cloud infrastructure is open to all to store and access information via internet. This is the platform which is open for all. For example: google drive, AWS, Microsoft Azure.

The public provides following Advantages:

Easy and inexpensive set: public cloud shares same resources with large number of users so hardware, application and bandwidth costs are shared amongst users.



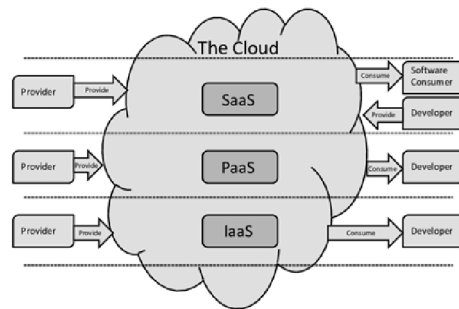
**Hybrid Cloud:** Hybrid clouds combine both public and private clouds. Some advantages of Hybrid cloud. Critical activities performed by private non critical activities by public cloud.

- o Scalability
- o Security
- o Flexibility
- o Reduce cost

**Service Models**

- 1) Infrastructure as a Service (IaaS) – It provides customers access to basic tools including physical and virtual machines, virtual storage among others. This is a kind of cloud computing service that system administrators use. It simply provides the underlying operating system, security, networking for developing the application.
- 2) Software as service (SaaS). Maintenance of software and hardware done by the vendor so we need not install the software in our machine so it reduces the cost of hardware and software maintenance Some benefits of Software as a service
  - o Platform independence to the users
  - o Scale up and scale down
  - o Accessible anytime, anywhere.
- 3) Platform as service (Paas) - Platform-as-a-Service (PaaS) is a service that offers a platform and environment (runtime) for developers to

develop web-based applications and services. PaaS includes infrastructure servers, storage and networking but also middleware, development tools, and business intelligence (BI) services, database management systems and more. It allows software developers to deploy applications without requiring all the related infrastructure



**COMPUTING PLATFORMS AND TECHNOLOGIES**

**Amazon Web Services (AWS)**

Amazon’s AWS (Amazon Web Services) is a secure cloud service network. It provides services including database storage, processing resources, content delivery, Simple Queue, Simple Email, Relational Database and other features to allow the company expand.

**Google AppEngine**

Google AppEngine is a scalable runtime environmet. Google app engine is an example of platform as service (PaaS). Google app engine provides web app developers and enterprises with access to google’s scalable hosting and tire 1 internet service. The google app engine supports applications which are written in java or python.

**Windows Azure**

is another name for Microsoft Azure. It supports a broad range of programming languages, databases, operating systems and frameworks, allowing IT professionals to rapidly develop, deploy, and manage applications on a global network. It also helps users to organise their services into various classes.

- o o Microsoft Azure is a scalable, versatile, and cost-effective cloud computing platform.

- o o It allows you to start for free and also offers a pay-per-use model.
- o o It supports a variety of programming languages, including C#, Node.JS, Java, and others.
- o o Its IaaS architecture enables us to start a general-purpose virtual machine on a variety of platforms, including Windows and Linux.

### Aneka

Aneka provides Programming application interface (API) and virtual execution environment. Aneka provides a set of application for expressing business logic of application.

- o It combines with multiple virtual machines
- o It multiple programming language
- o Aneka implementation of PaaS model.
- o Aneka acts as a private, public, and Hybrid cloud.

Aneka Container- Aneka is a middleware and also represents runtime event for executing application. They are provide three types of services

- 1) Execution Services
- 2) Foundation Services
- 3) Fabric Services

### CONCLUSION

Cloud computing refers to the "servers" that are accessed over the internet (present at remote location). Cloud computing is a storing, Managing, and accessing the data & programs on the remote servers that are hosted on internet instead of

computers hard device. Cloud computing provides on-demand network access to a broad range of tools in the cloud from a variety of service providers, such as Google Cloud, Microsoft Azure, IBM Cloud, Amazon Web Services, and Aneka. It saves money, but it can also lead to risk issues and resource suspension when used in large quantities. This research paper effort presents an overview of Cloud Computing and Furthermore, research cloud computing technologies which are currently faced in the Cloud computing were also highlighted.

### REFERENCES

- [1] [https://en.wikipedia.org/wiki/Cloud\\_computing](https://en.wikipedia.org/wiki/Cloud_computing)
- [2] Mastering Cloud Computing Foundations and Applications Programming pdf.
- [3] [https //en.wikipedia.org/wiki/cloud\\_computing technologies](https://en.wikipedia.org/wiki/cloud_computing_technologies)
- [4] OpenStack in Action, V. K. CODY BUMGARDNER, Manning Publications Co, 2016.
- [5] <http://aws.amazon.com/ec2/>
- [6] What cloud computing really means. InfoWorld. <http://www.infoworld.com/d/cloudcomputing/what-cloud-computing-really-means031?page=0,0>
- [7] Amazon Web Services, Case Study. Application Hosting. <http://aws.amazon.com/solutions/case-studies/>
- [8] Google Apps Education Edition: communication, collaboration, and security in the cloud. <http://www.google.com/a/edu/>