

A Paper on the Concept of Cloud Computing

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ABSTRACT: Cloud computing is a basic practice of using a network through remote server hosted on the internet to store, access, manages data on demand services. It is pay as per use. Cloud computing provides access to shared resources instead of personal or local server. It saves time and cost for the organisations. This technology is completely dependent on internet where client data is stored on the server and maintain in the data centre by the cloud providers such as Google (Drive), Microsoft (Azure), Amazon (AWS) etc. It comes in emerging domain and it is acclaimed throughout the world. There are some security issues also whenever the data placed on the server or internet. This research paper mainly focuses on the cloud computing concepts, cloud infrastructure and security issues. This research paper also analyses the challenges present in cloud computing. It provides us means by which we can access the applications as utilities over the internet. Through cloud computing Business application can be customize online such as create and configure.

KEYWORDS: Cloud computing, Types of Cloud providers, Google Drive, Microsoft Azure.

INTRODUCTION

Cloud computing provides remote services with a user's data, computation as well as software. Cloud computing provide on demand access to a shared pool computing resource such as servers, storage, networks, applications and services etc. In cloud there are various services provides such as Cloud Service Provider (CSP). CSP offer cloud platform for their customer to use and create their own web services such as Internet Service Provider(ISP). ISP offers high speed broadband services for the customer to that they access the internet. ISP and CPS both offer services to the customer.

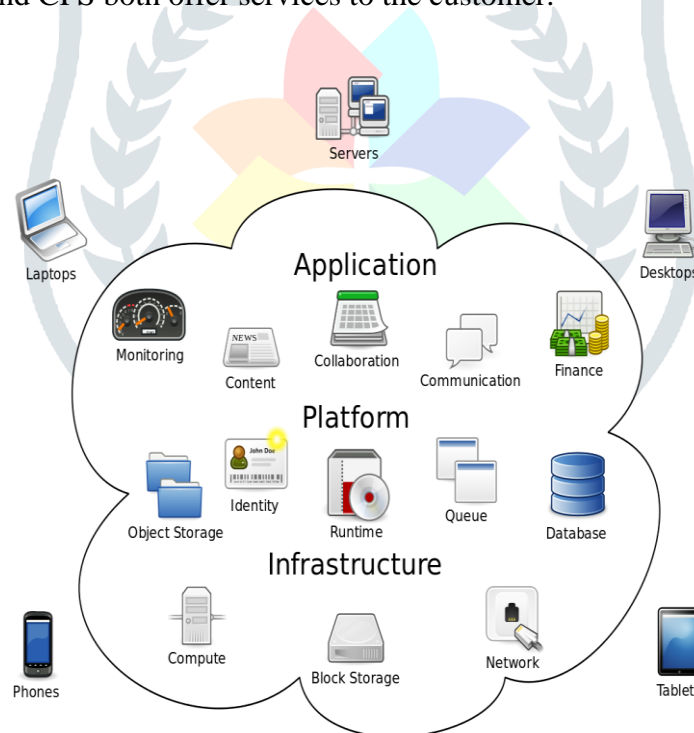


Fig. 1: Cloud Computing

It is a model which provide on demand access to a shared pool computing resource like servers, storage, networks, applications and services [1]. It is new evolution of the distributed system. In cloud computing user do not require from technical knowledge or expertise to handle cloud infrastructure. Cloud depends on sharing of resources to acquire coherence and economy of scale over a network. Cloud computing has become in demanded service because of following reason cheap cost of services, high performance, scalability, accessibility and availability cloud computing has become demanded [2].

WHY CLOUD COMPUTING IS IN DEMAND?

Both Small and large IT companies follow the traditional methods to provide the IT infrastructure. That means for any IT company, we need a Server Room that is the basic need of IT companies. It means Server room is the basic need of every IT company. In Server room there are the requires such as database server, mail server, firewalls, routers, switches, networking, modern, Query Per Second (QPS, means how much queries or load will be handled by the server per second), high speed internet and maintenance engineers. To establish such thing lots of money requires. To overcome this problem and to reduce the IT infrastructure cost cloud computing is the best solution [3].

CHARACTERISTICS OF CLOUD COMPUTING

- *High availability and reliability:* Availability of servers is high .It is More reliable because the chances of infrastructure failure are very less.
- *Agility:* Cloud also work in distributed environment. It speed is very fast and it shares resources among users [4].
- *Cost:* Pay-as-per usage of resources.
- *Maintenance:* Maintenance of cloud computing applications is easier as they do not need to be installed on each user's computer. It can be easily accessed from different places. So, it reduces the cost also [5].
- *High Scalability:* It offers "on-demand" provisioning of resources on a large scale without having engineers for peak loads.
- *Security:* In cloud due to centralization of data security is increased.

CLOUD ARCHITECTURES (SERVICES)



Fig. 2: Cloud Services Model

There are three types of services architecture:

1. Infra-Structure as a Service (IaaS)
2. Platform as a Service (Paas)
3. Software as a Service (Saas)

- *Infra-Structure as a Service:* It provides business access to various web applications. Some examples are storage space, servers, and connections, without purchasing and managing it internet infrastructure themselves. It provides benefit to both those who providing the infrastructure and one who using it. IaaS allows an internet business a way to develop and grow on a pay-per-use basis [6].
- *Platform as a Service:* It provides to use Web-based tools to develop applications so they run on systems software which is provided by another company, like Google App Engine. It delivers

applications over the Internet. Tools are provided by PaaS for software and hardware which are needed for applications developments [7].

- *Software as a Service*: This is also called as “Cloud Application Services”. SaaS applications run directly through the web browser means we do not need to download and install these applications [8]. Some example of SaaS: Google Apps, Salesforce Dropbox, Slack, Hubspot, Cisco WebEx etc.

DEPLOYMENT MODELS

There are 4 different types of models:

1. Private Model
2. Public Model
3. Hybrid Model
4. Community Model

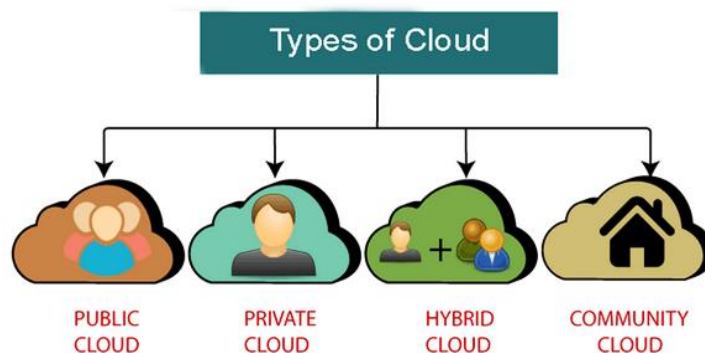


Fig. 3: Types of Deployment Models

- *Public Cloud*: As the name suggests “Public” it is available for everyone from anywhere. It is open to all to store and access information with the Internet using the pay-per-usage method. Public cloud computing resources are managed and operated by the Cloud Service Provider (CSP). It is available to the general public [9].

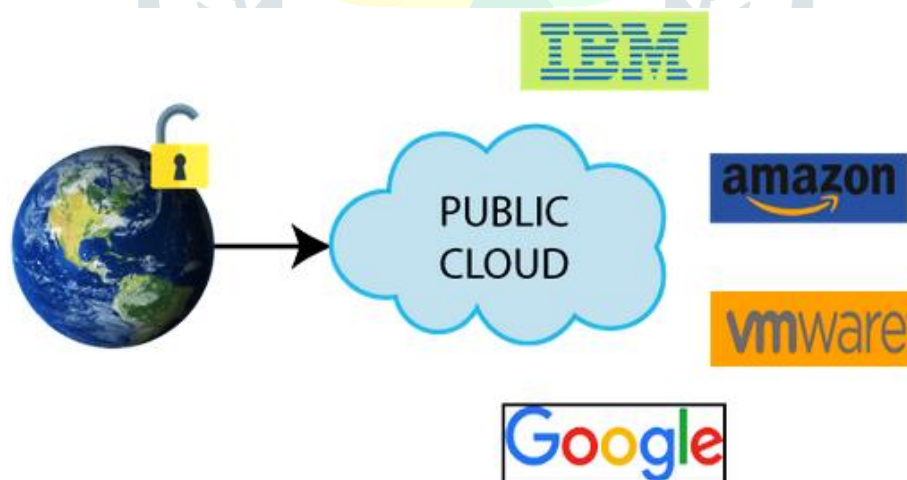


Fig. 4: Public Cloud

- *Private Cloud*: This deployment is developed for private organisation like one house, small organisation and they can use for their own purpose. It is not accessed by everyone.

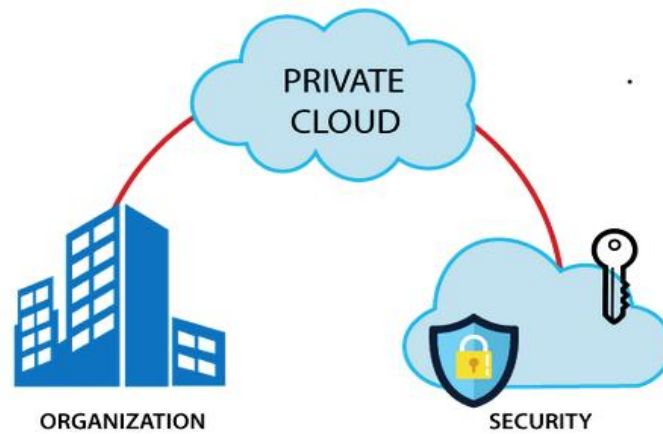


Fig. 5: Private Cloud

- *Hybrid Cloud:* It is the combination of public and private cloud. It can be done if private cloud needs some important services from the public cloud [10]. Private cloud can store some information on their private cloud and we can use that information on public cloud. Many organisations do so for the security purposes.

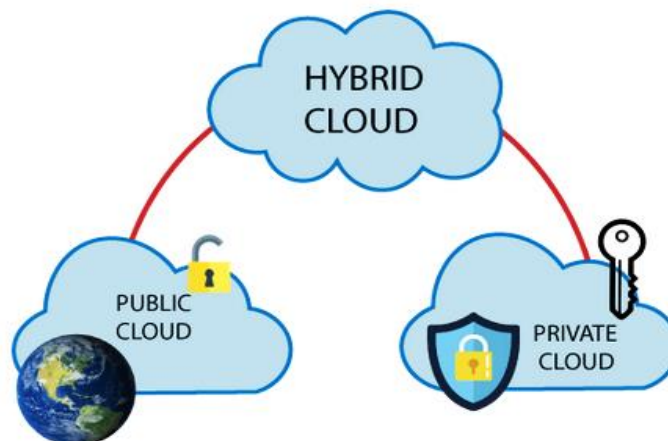


Fig. 6: Hybrid Cloud

- *Community Cloud:* It allows systems and services to be accessible by a group of several organizations to share the information between the organization and a specific community. It is owned, managed, and operated by one or more organizations in the community or a third party or a combination of them. Health Care community cloud is the example of community cloud.

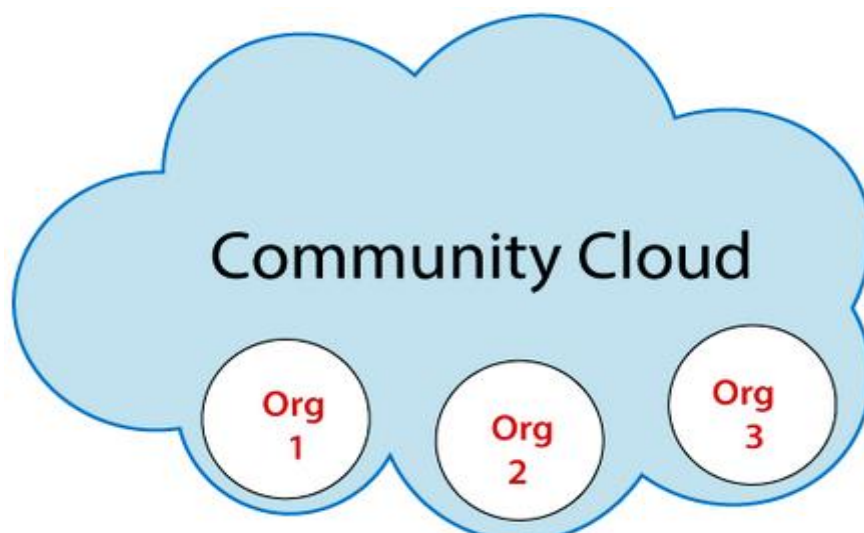


Fig. 7: Community Cloud**CONCLUSION**

This research paper tells about various models of cloud computing, types of cloud, cloud architecture etc. Cloud computing is recently new technological development that has the potential to have a great impact on the world. It has many benefits that it provides to its users and businesses e.g. some of the benefits that it provides to business that it reduces operating cost by spending less on maintenance and software upgrades and focus more on the businesses itself. But there are other challenges the cloud computing must overcome. People are worried about whether their data is secure and private. There are no standards or regulations worldwide provided data through cloud computing. Users also worry about who can disclose their data and have ownership of their data. Once there are standards and regulation worldwide, cloud computing will revolutionize the future. Cloud computing will be the best technology in the future. Cloud computing has enormous prospects, but have equal number of security threats also.

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