

Cloud Computing & Its Deployment Models

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Abstract: Cloud computing is a rapidly developing information technology concept. Within a few years, cloud computing has become the fastest emerging technology. It is internet based computing software and resources are shared and information is provided to computers on demand. It is a low cost computing entity that uses the advanced business or service models such as SaaS(Software as Service), PaaS (Platform as Service), IaaS (Infrastructure as Service) and deployment models such as Public, Private , Hybrid and Community cloud to distribute the powerful computing capability to end user. This paper highlights the emergence of cloud computing from a style of computing to a on demand full fledged service model. Comparative study of various service and deployment models for cloud computing is also presented

Keywords: Cloud Computing, Characteristics, Types of clouds, Architecture, Models.

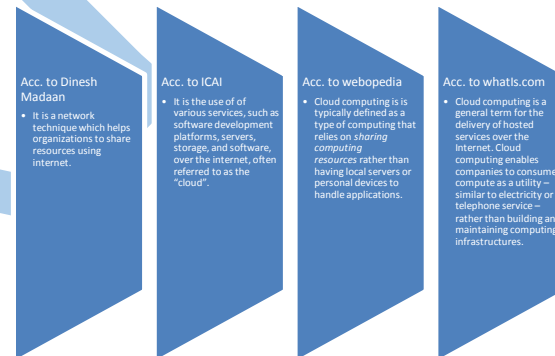
I. INTRODUCTION

Before we start with the concept of cloud computing, we must know about cloud and computing separately. Cloud---It's a collection of servers, applications, databases, documents, agreements, spreadsheets, storage capacity etc, which allows organizations to share these resources from anywhere. Or

It is normally setup by a big information technology company such as Google, Microsoft, Oracle, IBM, Amazon etc for providing cloud based services to their users. Computing---Any goal-oriented activity requiring, benefiting from or creating computers. Or

It includes designing and building hardware & software systems for a wide range of purposes like processing, structuring, and managing various kinds of information. So, Cloud computing=Cloud + computing

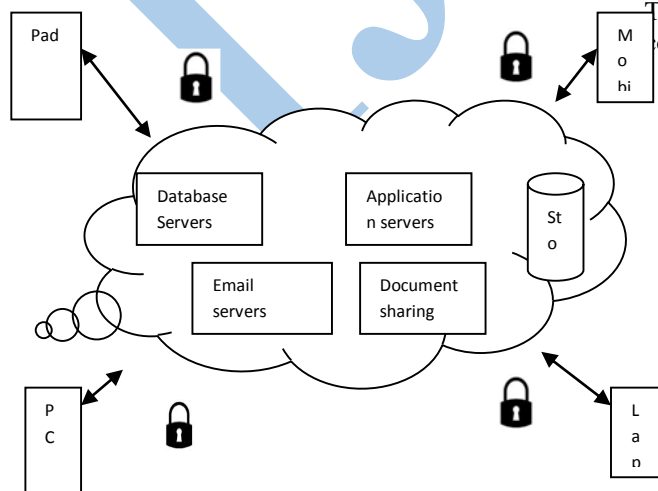
It is the delivery of computing services over the internet. Indicates secured communication of information
Definition of cloud computing according to different views.....



Characteristics of Cloud Computing

The following is a list of characteristics of a cloud computing environment.

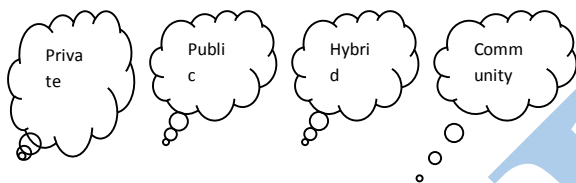
- Pay-per-use: we pay for cloud services only when we use them, either for short term period or a long term period.
- Multisharing: Allows sharing of resources to multiple users from anywhere and thus reduces costs.
- High availability and reliability: Provides services on 24 * 7 basis with high reliability.
- On-Demand: Because we invoke cloud services only when we need them, they are not permanent parts if IT infrastructure.
- Maintenance: easy to maintain due to centralized management .



- Elasticity and scalability: it gives us the ability to expand and reduce resources according to the specific service requirement.
- Agility: provides high responsiveness for services in distributed environment.
- Virtualization: it allows sharing multiple servers on the fly i.e. without permanent storage and processing allocation.
- Performance: provides high performance services using multiple clouds and web services interface like browsers.

II. TYPES OF CLOUDS

The cloud computing environment consists of multiple types of clouds based on their deployment and use.



Public cloud- A cloud is called “Public Cloud” when the services are provided over a network that is open for public use. they are administrated by third parties or vendors over the internet, and services are offered on pay-per-use basis.

Providers of public cloud- Amazon AWS & Microsoft Azure.

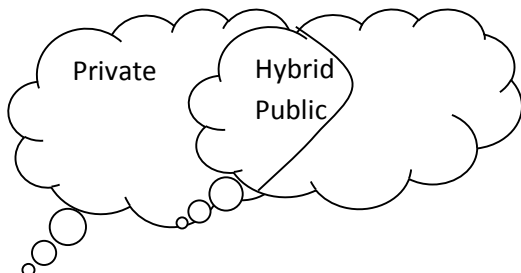
Benefits-

- Provides deployment, development and management of enterprise applications at affordable costs.
- Provides highly scalable and reliable applications rapidly and at more affordable costs.

Private cloud- This environment resides within the boundaries of an organization and is used exclusively for the organization’s benefits. These are normally built by IT department within the organization and it requires a high level of efforts and expertise to manage such clouds within the organization. Providers of private cloud- Google & Microsoft.

Benefits-

- Better security
- Controls of services

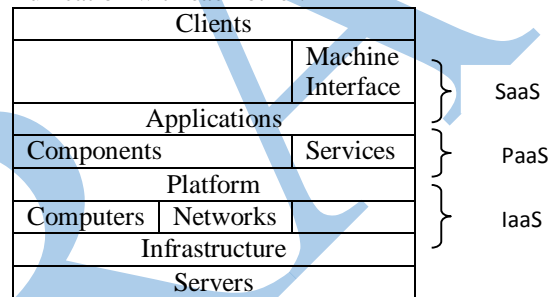


Hybrid cloud- It is a combination of private and public clouds. This cloud computing service typically provides as either an organization having private cloud makes a partnership with public cloud for extended services or organization providing public cloud service from a partnership with private cloud platform for extended services.

Community cloud- This cloud allows sharing of infrastructure between organization of same community.

III. ARCHITECTURE OF CLOUD COMPUTING

Cloud architecture used in the delivery of cloud computing, typically involves multiple cloud components communication with each other.



This architecture consists of two parts:- Front End and a Back End that connect to each other through a network, usually the internet.

- Front end-it is the side of computer user, or clients.
- Back end-it is the side of cloud section of the system from where the browsers browse the information. This side is known as server side.

Models of Cloud Computing

Cloud computing providers offer their services according to several fundamental models. they are known as cloud computing models which are classified as follows:-

Software as Service(SaaS)-It includes a complete software offering on the cloud. Users can access a software application hosted by the cloud vendor on pay-per-use basis.

This is a well established sector. Without installing the software on user’s system, the user can run an application on their own computers.

Examples-

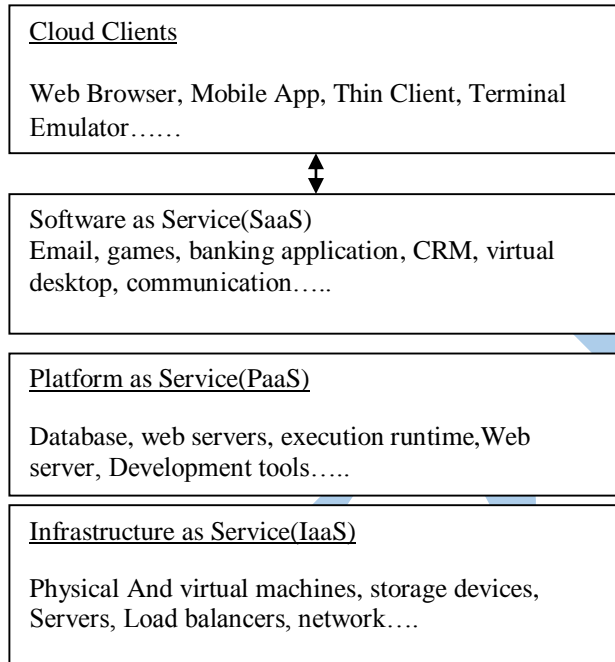
- Google docs online-user can make his/her own document by using this software.
- Pixlr.com-user can edit a photo by using this software.

Platform as Service(PaaS)-In this model, cloud providers deliver a computing platform which includes operating system, programming language execution environment, database, and web server. Software developers can develop and run their software solutions on a cloud platform without the cost and complexity of buying and managing the underlying hardware and software layers.

Examples-

- Google App Engine-it allows clients to run their web applications on google infrastructure.

Infrastructure as Service(IaaS)-it is the foundation of cloud services. It provides clients with access to server hardware, storage, bandwidth and other fundamental computing resources. The service is typically paid for on a usage basis.it provides access to shared resources on need basis, without revealing details like location and hardware to clients.



Examples-

- Amazon EC2
- HP Cloud
- Google compute Engine
- Azure service platform

IV. CONCLUSION

So, Cloud Computing is in a period of strong growth, but this technology is still has some issues of security and somewhat it is immature. Government Technology Research Alliance (GTRA) research showed that the most common concern about implementing Cloud Computing technology was security.

It holds some strong promises like highly available, dynamically allocate resources & last but not the least is pay only for those resources that a user want to use..

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