

CLOUD COMPUTING: TYPES, SOURCE AND ITS FUTURE

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ABSTRACT

It is a technology that uses the internet and central remote servers to maintain data and applications. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. This technology allows for much more efficient computing by centralizing storage, memory, processing. A simple example of cloud computing is Yahoo email, Gmail, or Hotmail etc. You don't need software or a server to use them. All a consumer would need is just an internet connection and you can start sending emails. The server and email management software is all on the cloud (internet) and is totally managed by the cloud service provider Yahoo , Google etc.

Cloud Computing frequently is taken to be a term that simply renames common technologies and techniques that we have come to know in IT. Cloud computing, made professional and personal lives easier, it is one of the best and effective way to make work be done efficiently and effectively on time each time. Cloud computing emerged from virtualization, this allowed more cost effective and efficient computing solutions that did not only changed how computing is done and how it works. Since computing needs are ever expanding new developments from cloud computing companies are expected with newly improved products and services. In recent years, security is one of the biggest concerns amongst cloud computing consumers but through the collaboration and development by different cloud computing companies, sandboxing is now the most accepted security technology for multi-tenant cloud. This safety measure separates data through a security cloak which can only be accessed by the owner and allowed users through the internet.



With the development of parallel computing, distributed computing, grid computing, a new computing model appeared i.e. cloud computing.

Keywords: CLOUD COMPUTING, CLOUD SERVICES, SECURITY, FUTURE SCOPE, KEY SOURCE

Introduction of 'cloud computing'

Cloud computing is a metaphor used by Technology or IT Services companies for the delivery of computing requirements as a service to a homogeneous community of end-recipients. The term cloud theoretically signifies abstraction of technology, resources and its location that are very vital in building integrated computing infrastructure including networks, systems & applications. All Cloud computing models rely heavily on sharing of resources to achieve coherence and economies of scale similar to a utility like the electricity grid over a network that is the Internet. Many people are confused as to exactly what cloud computing is, especially as the term can be used to mean almost anything. Roughly, it describes highly scalable computing resources provided as an external service via the internet on a pay-as-you-go basis. The cloud is simply a metaphor for the internet, based on the symbol used to represent the worldwide network in computer network diagrams. Economically, the main appeal of cloud computing is that customers only use what they need, and only pay for what they actually use. Resources are available to be accessed from the cloud at any time, and from any location via the internet. There's no need to worry about how things are being maintained behind the scenes – you simply purchase the IT service you require as you would any other utility.

Cloud storage refers to saving data to an off-site storage system maintained by a third party. Instead of storing information to your computer's hard drive or other local storage device, you save it to a remote database. The Internet provides the connection between your computer and the database.

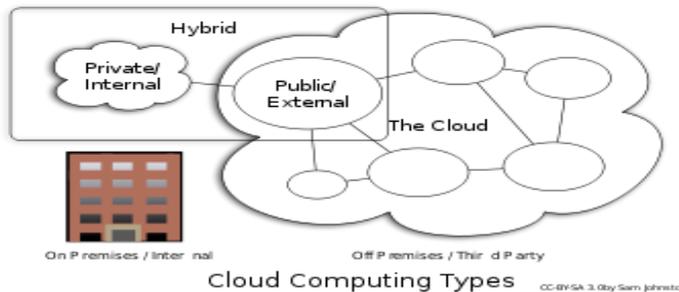
On the surface, cloud storage has several advantages over traditional data storage. If you store your data on a cloud storage system, you'll be able to get to that data from any location that has Internet access. You wouldn't need to carry around a physical storage device or use the same computer to save and retrieve your information. With the right storage system, you could even allow other people to access the data, turning a personal project into a collaborative effort. Cloud computing systems offer users access to not only storage, but also processing power and computer applications installed on a remote network.

Types of Cloud Computing

Cloud Computing can be classified into 4 types on the **basis of location** where the cloud is hosted:

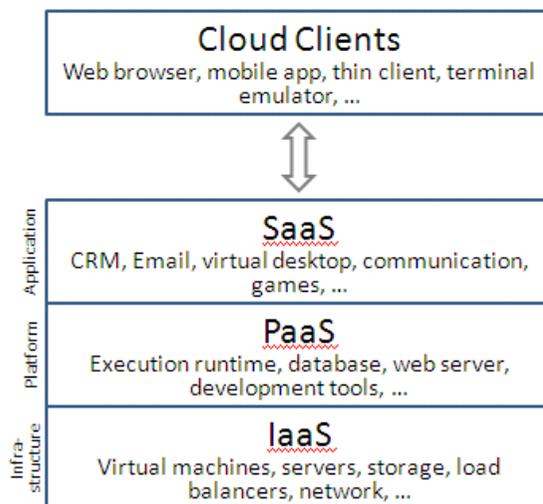
Public Cloud: Computing infrastructure is hosted at the vendor's premises. The customer has no visibility over the location of the cloud computing infrastructure. The computing infrastructure is shared between organizations.

Private Cloud: Computing architecture is dedicated to the customer and is not shared with other organisations. They are expensive and are considered more secure than Public Clouds. Private clouds may be externally hosted ones as well as in premise hosted clouds.



Hybrid Cloud: Organisations host some critical, secure applications in private clouds. The not so critical applications are hosted in the public cloud. The combination is known as Hybrid Cloud. **Cloud bursting** is the term used to define a system where the organisation uses its own infrastructure for normal usage, but cloud is used for peak loads.

Community Cloud: The cloud infrastructure is shared between the organizations of the same community. For example, all the government agencies in a city can share the same cloud but not the non government agencies.



Infrastructure as a Service (IAAS): Infrastructure-as-a-Service like Amazon Web Services provides virtual server instance API to start stop, access and configure their virtual servers and storage. In the enterprise, cloud computing allows a company to pay for only as much capacity as is needed, and bring more online as

soon as required. Because this pay-for-what-you-use model resembles the way electricity, fuel and water are consumed, it's sometimes referred to as utility computing.

Platform as a service(PAAS): Platform-as-a-service in the cloud is defined as a set of software and product development tools hosted on the provider's infrastructure. Developers create applications on the provider's platform over the Internet. PaaS providers may use APIs, website portals or gateway software installed on the customer's computer. Force.com, and GoogleApps are examples of PaaS. Developers need to know that currently, there are not standards for interoperability or data portability in the cloud. Some providers will not allow software created by their customers to be moved off the provider's platform.

Software as a service (SAAS): : With SaaS we can help to select and implement a single application through the browser for thousands of users using a multitenant architecture. It means no upfront investment in servers or software licensing. In the software-as-a-service cloud model, the vendor supplies the hardware infrastructure, the software product and interacts with the user through a front-end portal. SaaS is a very broad market. Services can be anything from Web-based email to inventory control and database processing. Because the service provider hosts both the application and the data, the end user is free to use the service from anywhere.

Key source of Cloud Computing:-

1. Dynamism: It's quite simple, something like the way you use your mobile phone connection. If you want to talk more, you'll buy a top-up card (if you are a pre-paid customer like me). If you are a post-paid customer you'll change your plan to meet your requirement. Your need is dynamic, so should be your infrastructure to support the changing needs.
2. Abstraction: From an end user's perspective, they don't need to care for the OS, the plug-ins, web security or the software platform. Everything should be in place without any worry. The business/consumer should focus more on its core competency rather than worrying about the OS and Software.
3. Resource Sharing: The whole architecture should be implemented in such a way that provides you the flexibility to share applications as well as other network resources (hardware etc). This will lead to a need based flexible architecture where the resources will expand or contract without any major configuration changes

Future of cloud computing:

The cloud computing still in its infancy and its future will be highly considered by businesses and for any industry. At the foundation of cloud computing is the broader concept of infrastructure and shared services. This type of data centre environment allows enterprises to get their applications up and running faster, with easier manageability and less maintenance, and enables IT to more rapidly adjust IT resources such as servers, storage, and networking to meet fluctuating and unpredictable business demand.

The adaptation of cloud computing by almost any industry is slowly starting to happen and make it very popular name among users. If a business will not consider their future in cloud computing, the challenges as well as the advantages of cloud computing may not be addressed and fully harnessed.

Conclusion:

In a nutshell, it can be concluded that when a business grows, its IT needs also grow. The scalability and speed of deployment offered by cloud computing provides with an option to expand IT provision instantly in the organization in order to meet increased requirements and also scale it down again whenever it is not required. Under cloud computing security is greatly enhanced, along with resilience, flexibility and responsiveness of cloud-based IT services so that the companies can switch quickly to the changing business environment. Wastage of both time and resources is reduced, allowing the IT service providers to effectively do more with less with cloud computing. This provides with a leaner & more efficient IT model which is available only on demand .A Cloud computing model can help an organization to survive in a tough economic climate, equipping the business with the latest business tools and giving access to advanced technologies at a fraction of the cost of purchasing and running the same systems in-house. It also offers Security check that provider can deliver the type/s and quality of service the organization requires and will be able to enjoy the advantages of cloud computing as well.

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