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Cloud Computing: An Outlook

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ABSTRACT

Cloud computing is the new technology which purposes is to provide reliable ,customized computing environments and has come up with a new model for providing information technology services. This technology reduces the cost effectiveness for the implementation of the Hardware, software and License for all. Technologies which enable the Cloud computing are still progressing, for example, Web 2.0. In this paper, we study the various aspects of cloud computing like meanings, special features, and supporting technologies. This paper conveys an introductory outlook on the Cloud computing and provide the advanced Cloud computing technologies.

Keywords:- Cloud Computing, SAAS, Cost effective Cloud

I. INTRODUCTION

The Cloud computing, which was invented in late of 2007, currently arises as a hot topic due to its various features to offer like flexible dynamic IT infrastructures, Quality of service, guaranteed computing environments and configurable software services. Cloud Computing has been one of the most booming technology among the professional of Information Technology and also in the Business, due to its Elasticity in the space occupation. Due to the better support for the software and the Infrastructure it attracts more technology specialist towards it. Cloud computing means the use of the Internet for the tasks a user perform on the computer. The "cloud" represents the Internet. The US National Institute of Standards and Technology (NIST) have developed a working definition for cloud computing as:

A model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud Computing 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 data storage, processing and bandwidth.

The cloud computing is influenced by some rapid-growing Internet companies like Amazon, Google and Yahoo, due to the rapid growth of their user base.

II. CHARACTERISTICS OF CLOUD COMPUTING

Now a days cloud computing has emerged as an important solution offering enterprises a potentially cost effective model to ease their computing needs and accomplish business objective.

Accessible: Cloud computing is available all the time for users.

Resource Pooling and Elasticity: In cloud computing, resources are pooled to serve a large number of customers. The resource allocation should change appropriately and quickly with the demand.

Individual use on request: Resources are always available when a user needs them, from any place and at any time via the global network.

Multi-user: Cloud provider shall responsible the security areas, ensuring that one user won't be able to access other's user data.

Self-service computation and storage resource: If a machine where our service is hosted fails, the cloud provider should be able to failover our service immediately.

Reliability: Cloud provider should be able to provide customer reliability service, committing to uptimes of their service.

Utility-based subscription: You will pay the cloud provider as a utility based subscription, just like paying your electricity bill, phone bills, recharge facility etc. without any straight investment.

Cost effectiveness: The user is billed based on the amount of resources they use which will helps the user to track their usage and ultimately help to reduce cost.

Allocation of resources:

Computer resources of providers are grouped in order to serve a large number of simultaneous users. The mechanism of processing power distribution, or the amount of memory, operates in such a way that the system dynamically allocates these parameters according to customer requirements.

Elasticity and flexibility of the system:

It provides a flexible working environment for the user. For e.g. if our site is in the Cloud and the traffic(the number of visitors) is similar every day. Then, let us suppose that one day, due to some reason, the Web site traffic rises by 100%. If the is site hosted on our own, private server, there is a strong possibility for it to simply "go down" and stop working because of software and hardware limitations. In such cases, Cloud dynamically allocates necessary resources in order to ensure a smooth operation, and when the flow decreases again, resources are automatically restored to its original condition. The user is free to purchase additional resources and opportunities in any quantity and at any time.

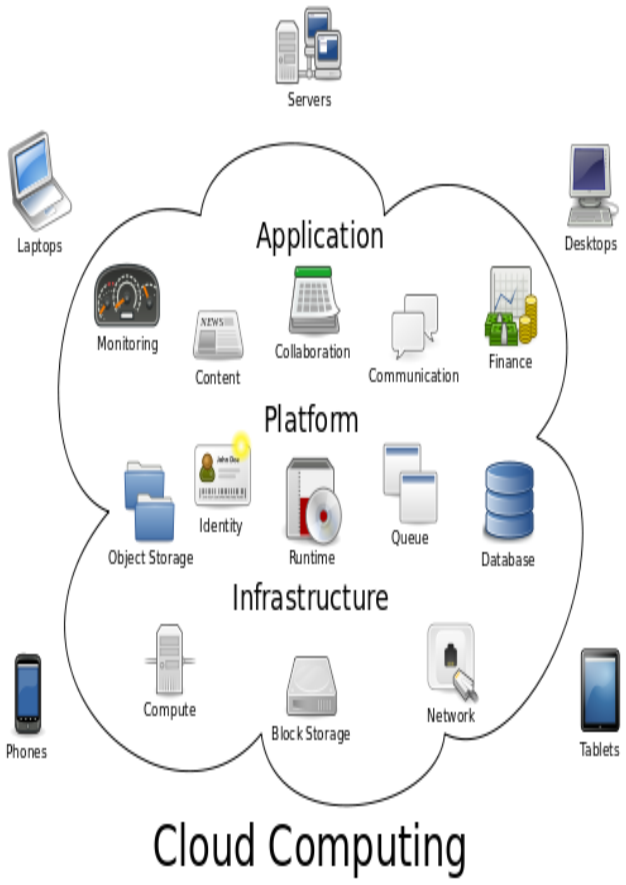
Measurable service : payment pay-per-use

Cloud systems automatically control and optimize necessary resources depending on the needs of users and required types of services (disk space, power of processor, amount of RAM and so on). All these services are measurable and their usage is transparent, both for the provider and clients.

Cloud computing shares characteristics with Client-Server model, Grid computing, Mainframe computer, Distributed computing Peer to Peer etc. The above characteristics apply to all clouds but each cloud provides users with services at a different level of abstraction, which is referred to as a service model in the NIST definition.

Cloud computing describes the three service models:

- Infrastructure as a Service in Cloud computing – With IaaS, users freely create their own virtual computer cluster and are therefore responsible for the selection, installation, operation and functioning of their own software.
- Platform as a Service in Cloud computing - With PaaS users develop their own software applications or have them perform here, within a software environment that is the service provider provided and maintained.
- Software as a Service in Cloud computing – SaaS Cloud computing offer access using collections of software and application programs. It is also known as software on demand.



III. LATEST TECHNOLOGIES OF CLOUD COMPUTING

Since then, a combination of technologies has emerged which have further powered the demand for cloud computing.

Server virtualization: Various hardware and software resources are pooled together and users are offered access. Virtualization is a key enabling technology for cloud computing environments. In datacenters, the number of physical machines can be reduced using virtualization by consolidating virtual appliances onto shared servers. This can help to improve the efficiency of IT systems. It gives the same appearance and capabilities of a dedicated server, but without the cost. Virtual network advances, such as VPN (2), support users with a customized network environment to access Cloud resources.

Service-oriented architecture (SOA): It is a software architecture design pattern based on discrete pieces of software that provide application functionality as services, known as service orientation. The purpose of SOA is to allow easy cooperation of a large number of computers that are connected over a network. Every computer can run an arbitrary number of services, and each service is built in a way that ensures that the service can exchange information with any other service within the reach of the network without human interaction and without the need to make changes to the underlying program itself.

Open source software: A product's source code is made available to the public with little to no copyright restrictions through cloud computing.

Mashups: Application programming interfaces (APIs) request services from other software sources and websites. APIs play a key role in enabling mashups, which are websites made up of data from multiple sources. A Mashup is a Web application that combines data from more than one source into a single integrated storage tool.

Web development: Basic website development services have driven down the cost and made updating possible for less technically skilled workers.

Web 2.0:

It is bringing a new change in Computer in the Cloud, SaaS, Web 2.0 etc. Now, Cloud computing is a trend which is integral to Web 2.0 to bring all sorts of user data as well as operating systems online. This makes it unnecessary to use storage devices enabling content sharing platform with web access. The use of Web 2.0 is to improve the interconnectivity and interactivity of Web applications. In most cases the user does not have to worry about the operating system and hardware that is being used. The file sharing become easier, since all the information is in the same "place", or the "cloud computing solutions. Web 2.0 is an emerging technology describing the innovative trends of using World Wide Web technology and Web design. It aims to enhance creativity, information sharing, collaboration and functionality of the Web. The Internet has made all of these new technologies possible and available to the masses.

IV. CONCLUSION

This paper shown the recent developments of Cloud computing; definition, key features and enabling technologies. It focused on creating standards and allowing interoperability. This outlook study purposes to contribute the evolution of the Cloud computing and its related technologies. Although this review cannot claim to be exhaustive, it provides some understandings into the modern cloud computing. It can provide a snapshot for the users with an interest in cloud computing.

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