The Future of Cloud Computing

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Abstract

Cloud computing was and it will be a new way of providing Internet services and computers. This calculation approach is based on many existing services, such as the Internet, grid computing, Web services. Cloud computing as a system aims to provide on demand services more acceptable as price and infrastructure. It is exactly the transition from computer to a service offered to the consumers as a product delivered online.

This represents an advantage for the organization both regarding the cost and the opportunity for the new business. This paper presents the future perspectives in cloud computing. The paper presents some issues of the cloud computing paradigm. It is a theoretical paper.

Keywords: Cloud Computing, Pay-per-use

1. Introduction

The term of cloud computing is defined metaphorically; some analysts and researchers such as Buyya (2008), Forester (2008) see the cloud computing systems as updated virtualized versions, available on the Internet. Others, Youseff (2008), Armbrust (2009), Vaquero (2009) consider cloud computing to be more: it is the increasing capacity and the adding of new capabilities without investing in infrastructure, new human resources and licenses. Cloud computing is a computer system based on a subscription or pay-per-use offering services in real time on the Internet.

Cloud computing is defined as a computer model that enables fast and with minimal effort the access, which is made on demand, from a network to a common storage computing resources (e.g. networks, servers, data storage, applications and services). Cloud computing applications have broadly three areas known as cloud delivery models: Infrastructure as a service (IaaS), Platform as a service (PaaS), Software as a service (SaaS).

So far, there has been little scientific definitions trying to develop a complete definition of the cloud computing phenomenon.

In his view, Armbrust (2009) states: "cloud computing refers not only to the applications delivered as Web services, but also to hardware and software systems that deliver them."

As suggested by Leavitt (2009), cloud computing helps the companies by eliminating the necessity of buying and maintaining the hardware and software infrastructure. Erdogmus (2009) reports that two things are considered essential about cloud computing: saving money and simplified software delivery.

2. The purpose

This paper aims to present the future perspectives of cloud computing. The article addresses those interested in the IT equipment and the users of cloud computing and leads to a series of answers for them. The article provides a hierarchy of perspectives when using cloud computing. This hierarchy highlights the following aspects: the business prospects and opportunities in the network. The business prospects depend on the perspectives of the network.

3. Future perspectives

The increasing of computing resources led to a higher demand of cloud systems, making this concept become one of the topic research themes. Most researchers have concentrated on the technical issues of this concept without pointing out the strengths of cloud systems.

Presenting the advantages of cloud computing implementation is an issue that will arise interest for what lies ahead in this field. The business development using cloud is a topic issue and the future of this system.

The famous physicist Niels Bohr said that "it is very difficult to give predictions about the uncertain and fluid future of the environment surrounding Cloud computing – be it technology, its adoption, structure, industry, regulatory regime." Yet, the economists and the expert discussions on this field evolution will analyze the perspective of business following the use of cloud system. [1]
The benefits, at the business level, can be seen in reducing business costs, in the possibility to pay-per-use and especially, the opportunity to save time. Reducing costs is one of the main concerns in building a cloud system.

It is accepted by consumers, being seen as an effective change in reducing maintenance costs and acquisition of infrastructure. Pay-per-use is the core of this problem. Pay-per-use is the ability to assemble the costs according to the actual consumption of resources, representing a relevant feature of cloud systems.

Creating a typical cloud system involves, particularly, additional costs, whether it is logical adaptation to the host system interfaces or improving local infrastructure. So, when we talk about business perspectives, we also refer to saving time. The cloud system allows SMEs (small companies) to sell their services easily and quickly. This aspect depends on the competitiveness of organizations. Cloud can support that competition between companies by providing infrastructure and potential dedicated to this usage case. That means the cloud system supports supply, thus reducing the market transaction time.

Following the same idea, Leimeister S., Riedl C. and others (2010), in their article "The business perspective of cloud computing: Actors, roles and value networks" point out the most prevalent business needs: flexibility, availability and reliability, and also scale economies and establish the way in which cloud computing can address these business challenges. They see the development of companies using cloud as a way to increase effectiveness and efficiency. Many researchers see this concept as a disruptive innovation label. [2]

Cloud computing will become a true service provider. The employees of the companies using cloud system will be able to use this device to access data from other locations and, even from abroad companies, it will be easier to do business with other organizations and will administrate the activity throughout the company. The problems occurring in data transfer are those related to security and the huge amount of data that need to be transferred.

It is expected that, in the future, by the year 2020, most people will access the online software applications and will have access to the server using remote networks, comparing to the networks based on the tools and information housed in personal computers. It is said that cloud computing will become more popular than desktop in the next decade. (J. Anderson, L. Raine, 2010, June 11) [3]

In the view of Xu Xun (2011) cloud computing is a change model in industries and enterprises, in that the dynamic scalable and virtualized resources are provided online.

Cloud computing is seen as a major facility for the industry and will become a model for business. The cloud computing users may request services varying from product design, manufacturing, testing, management as well as the other stages of the product [4].

As an example, in our country, in Romania, the UPC Business supplier offers the Microsoft Office 365, which is not anything else than more applications grouped in a single cloud. This kind of service offers: email, collaboration on documents, Web conferences and on-line versions of the Office application. UPC Business distributes this cloud to all the IMM, as a solution in business development. [5]

The perspectives offered by cloud can be also perceived at the level of virtualization. Virtualization represents one of the technological aspects. It is the main characteristic of the cloud system that hides the technological complexity of the users and allows a great flexibility by agregation, rooting and translation. It means that virtualization bears the following characteristics:

- The facility of using it by hiding the infrastructure complexity, including the management of configuration.
- The independence from infrastructure; usually the virtualization allows interefectiveness, making code of platform independently.
- Flexibility and adaptability, by displaying a virtual environment of fundamental implementation. The infrastructure becomes more flexible depending on conditions and requirements, meaning that the resources are distributed differently.
- The independence of the placement site; the accessed services are independent of the user's location.

Virtualization always increases the efficiency of the services. Using the cloud systems will make possible the virtualization and the performing of data with high density. A great advantage offered by cloud computing system is linked to the company's expenses, which, instead of confronting itself with high expenses for hardware and software equipment, will pay only a pay-per-use payment.

The companies manage to save a great amount of money from the IT budgets by cutting out the acquisition of equipments or software licenses. Practically, more and more companies prefer to rely more on services suppliers in order to obtain and maintain IT applications than confronting themselves with the costs of acquisition and bringing up-to-date of a personalized application which corresponds to their own needs. [6]

Adopting the cloud computing system means outsourcing the IT, meaning that a company provides for itself the whole IT support part in a different location, even if this location may be in another country, and this means cutting down the expenses for the company.

The perspectives on the level of computing system are emphasized by the rising of the employers' productivity which can be achieved through the maximizing of the IT resources and supporting the employers with the help of the IT services support that eliminates the interruptions of activity which appeared in the old IT system.

4. Conclusion

Cloud computing continues to expand, to dominate the transactions of information because it offers many advantages, allowing the users to have access easily, instantly to any network device. It is to be noted that the rich and up-to-date people in technology will afford the implementation of the cloud systems at home. The future IT systems will undergo great adjustments if big and small companies adopt the cloud computing system. The cloud computing system will become more and more important by the characteristic it offers: having ubiquitous data.

Extending the cloud computing system phenomenon should be the main concern of the service suppliers. The purpose of this phenomenon lies in the development of the quality and efficiency of the organizations' services.

The Internet of the future that is the cloud computing, implies all the efficient activities, making thus an infrastructure network that integrates all types of resources and all types of utility domains.

Thus, the research referring to the cloud technologies forms a virtual part of the future of the Internet.

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