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CLOUD COMPUTING: HISTORY, PRESENT STATUS AND PERSPECTIVES

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Abstract

This paper examines the issues of cloud computing ("cloud"). Tells the story of a "cloud", a "cloud" is described, as well as providing cloud services. Giving analysis of the advantages and disadvantages of "cloud".

The modern world has a lot of services, without which it is difficult to imagine today. These technologies include the well-known e-mail GMAIL, a large collection of online documents GOOGLE DOCS and etc. All of these technologies belong to the "cloud computing"("cloud") [1,2]. What's new in this, and why everyone is talking about the "cloud"? What is the cause of the growing popularity of the term? As in many matters, and in this case, significant space is devoted to the question of economy, IT-costs [3]. The fact that the use of computing "clouds the consumers of information technology can significantly reduce capital expenditure on construction of data centers, purchase of server and network equipment, hardware and software solutions to ensure the continuity and efficiency, as these costs takes provider of cloud services. In addition, long-term construction and commissioning of major projects of IT-infrastructure and high initial costs limit the ability of consumers to respond flexibly to market demands, while the cloud technology provide the ability to instantly respond to the increasing demand for computing power. First of all, consider the history of a "cloud".

In the first idea of what we now call cloud computing was announced by JCR Licklider, in 1970. In the years created ARPANET (Advanced Research Projects Agency Network). The idea was that every person on earth will be connected to the network, from which he will receive not only the data on and the software. Unfortunately a number of factors to a certain point does not allow the development of "cloud."This moment has come to growing of the bandwidth Internet in the 90 years that allowed us to obtain a significant leap in the development of cloud technology. One of the most significant developments in this field was the emergence of Salesforce.com in 1999. This company became the first company granted access to applications via the website, in fact, this company became the first company to provide its software on the principle - software as a service.The next step was the development of cloud web service by Amazon in 2002. This service allows to store, information and perform calculations. In 2006, Amazon launched a service called Elastic Compute cloud (EC2), a web service that allowed users to run their own applications. Services Amazon EC2 and Amazon S3 are the first available cloud computing services. Another milestone in the development of the cloud occurred after the establishment by Google, Google Apps platform for web applications in the business sector.

Today, the "cloud"is very much developed and has three models [4]:

1. There is "Private Cloud", the infrastructure for use by one organization, which includes several units of the consumer, perhaps even customers and suppliers. Of course - this is not a strong innovation, since this model was in the beginning of the creation of computer networks in different organizations.

2. The next model is a relatively new and it's called "Public Cloud" - infrastructure, designed for free public use. A public "cloud"can be owned, management and operation of commercial, academic and government organizations.

3. On the same wave of "cloud"acquired its hybrid variant called as "Hybrid Cloud", implying a combination of two or more different cloud infrastructures (private, public or public) that remain unique entities but linked together by standardized or private data technologies and applications.

Turn the top of the listed models of clouds are divided among themselves by the services that they provide.

a) Thus there is a service "Software as a Service» (SaaS, ie Software-as-a-Service), in which the consumer the opportunity to use application software provider, operating in the cloud. This software is usually available from a variety of client applications, for example, from

any browser. An example of such a service can provide a well-known Internet service Gmail.

b) Another variation is "Platform as a Service» (PaaS, that is, Platform-as-a-Service), which involves providing a platform on which you can install any software that is supported by the platform. The consumer is able to use cloud infrastructure to accommodate the basic software and then adding to it new applications. Examples include well-known and highly developed web hosting.

c) It remains the last type of cloud services, called "Infrastructure as a Service» (IaaS, that is, Infrastructure-as-a-Service). The service is available in this case as an opportunity to use cloud infrastructure for self-management of resources, processing, storage, networking and other fundamental computing resources. For example, a client can install and run arbitrary software, which can include both operating systems and application software platform. That is, the client is given a platform on which a client that wants to be set up and handle.

Consider the advantages and disadvantages of "clouds."The advantage of "cloud"should include the following:

Availability – the cloud accessible to all, from any location where there is Internet access from any computer with a browser. This allows users (businesses) to save on the purchase of high-performance, expensive computers.

Low cost due to reduced expenditure on maintenance of virtual infrastructure caused by the development of virtualization technologies at the expense of requiring a smaller staff to service the entire IT infrastructure. Using a cloud on loan allows users to reduce costs for the purchase of expensive equipment, and to focus on investing funds in setting up the business processes of the enterprise.

Flexible – unlimited computational resources (memory, processor, disks), through the use of virtualization, scalability, and administration process "cloud"becomes quite an easy task, as the "cloud"itself can give you the resources you need, and you only pay for actual use.

Disadvantages include the following:

A permanent connection to the network – to get access to "cloud"should be a permanent connection to the Internet.

Software and its customization – there are restrictions on software that can be deployed on the "clouds"and give it to the end users.

Confidentiality – the confidentiality of data stored on the public "clouds"are causing a lot of controversy, but in most cases, experts agree that it is not recommended to store the most valuable to the company documents to the public "cloud."

Safety – the "cloud"itself is a fairly reliable system, but it penetrates the attacker gains access to a vast data store.

In this paper we investigate in more detail the issues of cloud computing. Analyze the problems of reliability, security, fault tolerance, distributed processing in the clouds. In this paper, these issues were discussed on the basis of banking systems.

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