ORIGINAL RESEARCH PAPER

Computer Science

TO STUDY THE IT REVOLUTIONS BY CLOUD COMPUTING

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ABSTRACT

Cloud Computing is basically deals about utility computing and customer oriented services. Heterogeneous Cloud Computing platforms and realizes portability and interoperability. Energy consumption in cloud computing. Cloud computing can enable more energy-efficient use of computing power, especially when the computing tasks are of low intensity or infrequent. However, under some circumstances cloud computing can consume more energy than conventional computing where each user performs all computing As a kind of emerging business computational model, Cloud Computing distribute computation task on the resource pool which consists of massive computers, accordingly ,the application systems can gain the computation strength, the storage space and software service according to its demand. One is about the cloud infrastructure which is the building block for the up layer cloud application. The other is of course the cloud application. By means of three technical methods, cloud computing has achieved two important goals for the distributed computing: high scalability and high availability. Cloud computing provides people the way to share distributed resources and services that belong to different organizations or sites. Since cloud computing share distributed resources via the network in the open environment, thus it makes security problems important for us to develop the cloud computing application. In this paper, we pay attention to the security requirements in cloud computing environment.

INTRODUCTION

Cloud computing is location-independent computing whereby shared servers provide resources, software, and data to computers and other devices on demand, as with the electricity grid Cloud computing is a natural evolution of the widespread adoption of virtualization, service-oriented architecture and utility computing Details are abstracted from consumers, who no longer have need for expertise in, or control over, the technology infrastructure "in the cloud" that supports them Cloud computing describes a new supplement, consumption, and delivery model for IT services based on the Internet, and it typically involves over-the-Internet provision of dynamically scalable and often virtualized resources. It is a byproduct and consequence of the ease-of-access to remote computing sites provided by the Internet. This frequently takes the form of web-based tools or applications that users can access and use through a web browser if it were a program installed locally on their own computer.

The National Institute of Standards and Technology (NIST provides a somewhat more objective and specific definition here The term "cloud" is used as a metaphor for the Internet, based on the cloud drawing used in the past to represent the telephone network, and later to depict the Internet in computer network diagrams as an abstraction of the underlying infrastructure it represents. Typical cloud computing providers deliver common business applications online that are accessed from another Web service or software like a Web browser while the software and data are stored on servers Most cloud computing infrastructures consist of services delivered through common centers and built on servers. Clouds often appear as single points of access for consumers' computing needs. Commercial offerings are generally expected to meet quality of service (QoS) requirements of customers, and typically include service level agreements (SLAs).

PROBLEM DOMAIN

During a video interview, Forrester Research VP Frank Gillett expresses criticism about the nature of and motivations behind the push for cloud computing. He describes what he calls "cloud washing" in the industry whereby companies reliable their products as cloud computing resulting in a lot of marketing innovation on top of real innovation. The result is a lot of overblown hype surrounding cloud computing. Gillett sees cloud computing as revolutionary in the long term but over-hyped and misunderstood in the short term, representing more of a gradual shift in our thinking about computer systems and not a sudden transformational change Larry Ellison CEO of Oracle Corporation has stated that cloud computing has been defined as "everything that we already do" and that it will have no effect except to "change the wording on some of our ads Oracle Corporation has since launched a cloud computing center and worldwide tour. Forrester Research Principal Analyst John Rymer dismisses Ellison's remarks by stating that his "comments are complete nonsense and he knows it" Richard Stallman said that cloud computing was simply a trap aimed at forcing more people to buy into locked, proprietary systems that would cost them more and more over time. "It's stupidity. It's worse than stupidity: it's a marketing hype campaign", he told The Guardian. "Somebody is saying this is inevitable – and whenever you hear somebody saying that, it's very likely to be a set of businesses campaigning to make it true."

SOLUTION DOMAIN

A number of universities, vendors and government organizations are investing in research around the topic of cloud computing. Academic institutions include University of

Melbourne (Australia), Georgia Tech, Yale, Wayne State, Virginia Tech, University of Wisconsin–Madison, Carnegie Mellon, MIT, Indiana University, University of Massachusetts, University of Maryland, IIT Bombay, North Carolina State University, Purdue University, University of California, University of Washington, University of Virginia, University of Utah, University of Minnesota, among others. Joint government, academic and vendor collaborative research projects include the IBM/Google Academic Cloud Computing Initiative (ACCI). In October 2007 IBM and Google announced the multi- university project designed to enhance students' technical knowledge to address the challenges of cloud computing. In April 2009, the National Science Foundation joined the ACCI and awarded approximately $5 million in grants to 14 academic institutions In July 2008, HP Intel Corporation and Yahoo announced the creation of a global, multi-data center, open source test bed, called Open Cirrus, designed to encourage research into all aspects of cloud computing, service and data center management. Open Cirrus partners include the NSF, the University of Illinois (UIUC), Karlsruhe Institute of Technology, the Infocomm Development Authority (IDA) of Singapore, the Electronics and Telecommunications Research Institute (ETRI) in Korea, the Malaysian Institute for Microelectronic Systems (MIMOS), and the Institute for System Programming at the Russian Academy of Sciences (ISPRAS). In Sept. 2010, more researchers joined the HP/Intel/Yahoo Open Cirrus project for cloud computing research. The new researchers are China Mobile Research Institute (CMRI), Spain's Supercomputing Center of Galicia (CESGA by its Spanish acronym), Georgia Tech's Center for Experimental Research in Computer Systems (CERCS) and China Telecom.

SYSTEM DOMAIN

Cloud computing sample architecture

Cloud architecture, the systems architecture of the software systems involved in the delivery of cloud computing, typically involves multiple cloud components communicating with each other over application programming interfaces, usually web services and 3-tier architecture This resembles the Unix philosophy of having multiple programs each doing one thing well and working together over universal interfaces. Complexity is controlled and the resulting systems are more manageable than their monolithic counterparts. The two most significant components of cloud computing architecture are known as the front end and the back end. The front end is the part seen by the client, i.e. the computer user. This includes the client's network (or computer) and the applications used to access the cloud via a user interface such as a web browser. The back end of the cloud computing architecture is the _cloud 'itself, comprising various computers, servers and data storage devices.

APPLICATION DOMAIN

Cloud application services or Software as a Service (SaaS) deliver software as a service over the Internet eliminating the need to install and run the application on the customer's own computers and simplifying maintenance and support. People tend to use the terms SaaS' and ⊡cloud' interchangeably, when in fact they are two different things. Key characteristics include:

CONCLUSION

Cloud engineering is the application of a systematic, disciplined, quantifiable, and interdisciplinary approach to the ideation, conceptualization, development, operation, and maintenance of cloud computing, as well as the study and applied research of the approach, i.e., the application of engineering to cloud. It is a maturing and evolving discipline to facilitate the adoption, strategization, operationalization, industrialization, standardization, productization, commoditization, and governance of cloud solutions, leading towards a cloud ecosystem Cloud engineering is also known as cloud service engineering.

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