

Chapter 3

Cloud Based Secure Data Sharing Algorithm for Health Care

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ABSTRACT

Cloud computing is one of most fast developing technology and many organizations are now offering a wide range of cloud services. Although the services provided are the same there is no common programming language, technology and protocol to access the entirety of the cloud services. Client who use a service provided by a certain organization are often limited and confined to that specific organization its structure and technologies. A Cloud federation is one solution to that interoperability through which computing resources of one Cloud Service Provider is rented or sold to another service provider or the services provided by one Cloud Service Provider is replicated into another Cloud Service Provider without having to lose any functionality and performance. This process is a tedious task and is prone to multiple limitations. In this paper we proposed the architectural framework and algorithm for the possible interoperability between the cloud service providers based on SLA in prospective of health sector as the application of cloud in health sector is highly needed in future.

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INTRODUCTION

The Cloud computing generally is a type of computing that relies upon sharing of computing resources rather than having the local servers or personal devices to handle application or services. Cloud computing may be defined as services accessed by means of Internet. The buzzword cloud transforms the way of storing and accessing the data. Unlike traditional applications the cloud applications are web specific in nature. To access cloud applications one needs to have the web supported device. Thus the cloud applications are platform independent and it can be accessed any time anywhere and any place. The ultimate aim of the cloud computing is to give everything as a service to the customers. In cloud computing generally there are three main services, SaaS (Software as a service), PaaS (Platform as a service) and IaaS the Infrastructure as service respectively. And it consists of three main deployment models public cloud, private and Hybrid cloud. In software as service, the software is being stored in cloud servers and it will be being accessed by the client and charges are being paid by the customer as per usage. The customer need not to install the software at the client end. There are several benefits both for client and the vendors. The client need not to have any knowledge of installation, processor speed, and memory in the host system as the service is being retrieved from the cloud servers. Most importantly the client is being charged as per use. In case of vendors, the usage of pirated software is reduced significantly. The Microsoft is planned to offer its software's everything through cloud. Thus software as a service require minimal amount knowledge to access various services. Whereas the Platform as a service is meant for the developers. It supports the various software development kit and automated testing environment. The infrastructure as a service generally meant for providing the services like hardware and memory support. There are many other services are available including storage as a service e.g. Drop box, security as service, monitoring as service, communication as a service etc. As discussed earlier, the cloud provides every needs of the customers as a service. Coming to deployment models, the public clouds is accessible anyone provided the access credentials and data center nearby the location. The public cloud is considered to be insecure and easily hacked. The private cloud is considered to be highly secure and data can be accessed within the organization environment and maintained by the either the cloud service provider or the local member of organization. The hybrid cloud generally the combination of any two cloud services.

The cloud services are considered to be hit. According to Gartner the revenue of the cloud has been increased gradually. The revenue of cloud computing in 2009 is about 58 billion US dollars where as in 2010 it is nearly 70 billion US dollars. There is 16-17 percent increase in revenue for academic year 2011. The cloud revenue in 2012 is about 111 billion US dollars and in 2013 it's about 130 US dollars. The

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