Chapter 18
Enhanced Trust Path Between Two Entities in Cloud Computing Environment

Usha Divakarla
National Institute of Technology Karnataka, India

K. Chandrasekaran
National Institute of Technology Karnataka, India

ABSTRACT

Trust is the common factor of any network security. In cloud, trust is the major factor as this trust develops a relation between the user and resource of the service provider. To develop a strong trust there has to be a strong trust path between two entities. The model proposed builds a strong trust path between two important entities in cloud namely user and resources of the service provider. The trust path thus built strengthens the security of the resources as well as the authentication of the user. The implementation proved that trust model developed is more efficient in terms of computation time.

INTRODUCTION

The major influence of any human interaction is Trust. In technology trust has no definite meaning. It is defined as the degree of trustworthiness. The lesser the degree of trustworthiness the more is the risk to the system. Trust is often measured/related to terms like cooperation, confidence and predictability. According to (Gambetta, D. G., 1988) trust is the probability that an entity will perform an action that is beneficial or at least not detrimental to us is high enough for us to consider engaging in some form of co-operation with it.

The basic principle for any successful relationship is the base value of trust among the entities involved. Trust is one of the obligatory qualities in any relationship. It is due to this trust that any entity could cooperate beyond a system of formal and legal rules.

The basic nature of trust is found as the tension between depending upon another and instituting controls to make sure that other performs. The higher the risk the higher would be the loss. In human

science or information technology the trust plays a vital role in reconciling away fears and the willingness to become vulnerable to the other without controlling the other (Habib, S. M., Ries, S., & Mühlhäuser, M., 2011, November).

TRUST IN CLOUD ENVIRONMENT

Cloud is the emerging technology for the users to easily work with minimum effort and minimized cost. In every cloud, service is tendered with as pay-as-use term. So users can use the cloud technology to maximize their profit with minimum cost and effort. To ensure proper and efficient secured usage of resource users as well as cloud providers need to trust each other.

Trust being belief of human interaction has many definitions to it. Several researchers have studied the role of trust and reputation in e-commerce, peer to peer networks, grid computing, semantic web, web services, and mobile networks. The valuable information available on trust in various fields is of great benefit to computer scientists and it also has the drawback of presenting a complex notion for trust as there is no common agreement on a single definition of trust. Various researchers have defined trust as attitude, belief, probability, expectation, and honesty and so on. Due to the adoption of cloud computing in the industry, a significant challenge is being raised in managing trust among cloud service providers and cloud service consumers. Several solutions have been proposed to assess and manage trust feedbacks collected from participants (Conner, W., Iyengar, A., Mikalsen, T., Rouvellou, I., & Nahrstedt, K., 2009, April) (Hwang, K., & Li, D., 2010) due to high significance to the trust management. Due to malicious behavior of user's Trust management experience a setback. Due to confusion in trust definition, trust has been evaluated in very different ways. Some schemes employ linguistic descriptions of the trust relationship, such as Policy Maker, distributed trust model, trust policy language and public-key infrastructure. On the other hand, the quality of trust feedbacks differ from one person to another, depending on how experienced he/she is.

Various models are developed to ensure quality of trust with respect to the domain. The drawbacks like centralized architecture concept, private cloud for security of data, problems with keys due to changed configuration, problems in integration of the proposed layer with the existing configuration likewise. Though these models address security aspects, an improvement with respect to trust models is desirable.

LITERATURE REVIEW

In any network Trust is the eminent factor that plays a vital role in the security of the network. The more the degree of trustworthiness the less is the risk. Though extensive research has taken place on this trust factor, trust is still the most concentrated factor for any research in distributed networks.

EXISTING TRUST MODELS

Trust is an eminent factor in any network. Trust management comprises collecting the information necessary to establish a trust relationship and to dynamically supervise the existing trust relationship. The various models for describing trust and trust establishment in Cloud Environment are listed below.

Related Content

Novel Taxonomy to Select Fog Products and Challenges Faced in Fog Environments
Akashdeep Bhardwaj (2018). *International Journal of Fog Computing (pp. 35-49).*
www.irma-international.org/article/novel-taxonomy-to-select-fog-products-and-challenges-faced-in-fog-environments/198411

Organizational and Management Aspects of Cloud Computing Application in Scientific Research
Mladen udanovand Jovan Krivokapi (2014). *Handbook of Research on High Performance and Cloud Computing in Scientific Research and Education (pp. 31-55).*
www.irma-international.org/chapter/organizational-and-management-aspects-of-cloud-computing-application-in-scientific-research/102403

Secure Identity-Based Proxy Signature With Computational Diffie-Hellman for Cloud Data Management
Dharavath Ramesh, Rahul Mishra, Damodar Reddy Edlaand Madhu Sake (2020). *Modern Principles, Practices, and Algorithms for Cloud Security (pp. 79-106).*
www.irma-international.org/chapter/secure-identity-based-proxy-signature-with-computational-diffie-hellman-for-cloud-data-management/238903

Development of Community Based Intelligent Modules Using IoT to Make Cities Smarter
Jagadish S. Kallimani, Chekuri Sailusha, Pankaj Latharand Srinivasa K.G. (2019). *International Journal of Fog Computing (pp. 1-12).*
www.irma-international.org/article/development-of-community-based-intelligent-modules-using-iot-to-make-cities-smarter/228127

A Study on the Performance and Scalability of Apache Flink Over Hadoop MapReduce
Pankaj Latharand K. G. Srinivasa (2019). *International Journal of Fog Computing (pp. 61-73).*
www.irma-international.org/article/a-study-on-the-performance-and-scalability-of-apache-flink-over-hadoop-mapreduce/219361