Chapter 78
Trust Relationship Establishment Among Multiple Cloud Service Provider

Abhishek Majumder
Tripura University, India

Samir Nath
Tripura University, India

Arpita Bhattacharjee
Tripura University, India

Ranjita Choudhury
Tripura University, India

ABSTRACT

Trust relationships among multiple Cloud Service Providers is a concept in which multiple cloud service providers from multiple distributed Identity Provider can access resources of each other, only if they are trusted with their Identity Provider. In this chapter a scheme has been proposed to enhance the security of data in a multi-cloud environment by improving trust relationships among multiple clouds. The scheme is also designed to overcome interoperability problem between different clouds. In the proposed scheme concept of proxy is used. Client organization tries to communicate with multiple cloud service providers through proxy. Client organization send resource request to cloud service providers. On receiving the resource request the cloud service provider collect the authentication confirmation from proxy. Then it sends the reply and data to requested client organization. Numerical analysis and comparative study of the proposed scheme with some of the existing scheme has been carried out.

DOI: 10.4018/978-1-5225-8176-5.ch078

INTRODUCTION

Cloud computing (Armbrust et. al., 2010) is known as a distributing computing, which is used to store client data and application in scattered data centre around the world, so that, client can access their data or grant applications from anywhere just with an internet connection. User's data and information is stored in the cloud data centre. Cloud service provider allows access to applications, operating systems and hardware.

For example, e-mail service like Gmail and Hotmail are type of cloud computing services. In the cloud, users can easily access their email from different browsers and computers just with the help of an internet connection. The emails are hosted in servers, but not stored locally on the client computer.

The cloud service provided to the user may be provided by a single cloud service provider. But the problem with single cloud service provider is the problem of availability. For overcoming this problem, the concept of multiple CSP (AlZain et al., 2012) has come into picture. Though multi cloud computing environment overcomes some of the security problems encountered in single cloud computing environment, but introduction of multi-cloud environment creates some new problems. One of these important issues is lack of trust relationships in Interoperability among multiple cloud service providers. Trust relationship among multiple Cloud Service Providers (CSPs) is a concept in which multiple CSPs from multiple distributed Identity Provider's (IdP) can access resources of each other, only if they are trusted with the Identity Provider's (IdP).

Figure 1. Cloud computing