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Secure Software Rollback System

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Abstract:
Users can utilize powerful computing resources in cloud computing, which brings users great convenience. However, cloud computing is also facing many challenges for data security as the users outsource their sensitive data to clouds, which are generally beyond the same trusted domain as data owners. To address this problem, access control, which grants access permissions to an authorized user, is considered as one of critical security mechanisms for data protection in cloud computing environment. However, due to the unpredictability of user identities and access behavior, access control in cloud computing has become a key security problem. In this project, we propose a self-adaptive access control model based on secure cloud computing environment. The secure cloud computing environment includes analyzer Engine, Detection Engine, Rollback Engine, execute parts and knowledge base, and the knowledge base is used to make decisions on access requests. We also propose our own algorithm to create the Secure Engine. The self-adaptive access control model based on Secure Cloud Computing Environment we proposed can be applied to cloud computing environment.

Keywords**:** Intrusion detection system (IDS),Cloud computing environment, security information and event management (SIEM) system, Analyzer Engine , Detection Engine ,Rollback Engine

Introduction

An online shopping website is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser. So, data security plays an important role when it comes to managing all Internet shopper's data including personal information, banking information etc. Situation is when user register & complete its shopping process & log out. Attacker access database & modify data. So, to overcome this problem, we are using a 3-layer system such as Analyzer Engine, Secured Layer, Rollback Engine. In which analyzer engine will trace the database & changes made by an attacker will be visible on a front end. Id, password,

IP address of attacker will be display on Screen. Then Secured layer act as a middleware, where a request made by user or attacker will go this layer. The last one is Rollback Engine will revert all modification & give original data.

In tradition websites security measures are very low resulting easily hack able server systems. We are proposing a new All in One architecture that will guard our system from various attacks. We are using a 3-layer system such as Analyzer Engine, Secured Layer, Rollback Engine. Every time a hacker tries to launch any of these attacks our system will generate a log into database. Analyzer engine will trace the database & changes made by an attacker and rollback Engine will revert all modification & give original data

Problem Definition

To secure the system after providing access to a trustworthy user in a secure cloud computing environment in such way that the intruder can be tracked and identified instantly and the modification made by intruder can be rollback to the safe state simultaneously.

Scope

The website for shopping having at least 5 to 8 products→select→buys→finish→payment.

The user register→login→buyproduct→finish Update information, Update password. Analyzer engine→analyzer engine will track the database and changes made by the attacker.

The secured layer→secured layer will acts as a middleware, request made by user or attacker will go through secured layer. Attacker→ directly access database and will be traced by analyzer engine. Name, password and other information will get displays on the screen.The admin→ add product, update info, update the password.

System Implementation

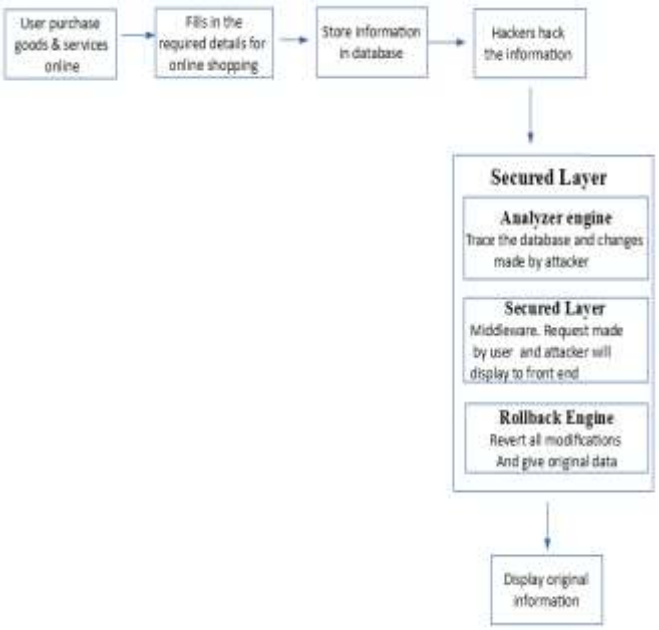

Figure 1: System Architecture

An online shopping is form of electronic commerce in which if the user want to access the website then firstly user have to register required information of website.

Now if the user want to purchase the goods then he will select the goods and go to payment option for purchasing

In the purchase option the user have to fill all the authentic details for further processing. All the authentic details of user will be stored in the database. As the user fill all its authentic details, the hacker on other side may try to capture all the information of user for illegal use or modify it.

So,it is used to provide the secure online shopping websites as well as provide secured layer system for electronic commerce website which allows consumers to directly buy goods or service.

The system providing data security using a 3-layer system such as :

Analyzer Engine
Secured Layer
Rollback Engine

Engines of the System

Analyzer Engine

The software is going to maintain the database base of all the user who is going to use the software. There should be one module which will analye the database of the user. Analyzer engine will trace the database &information; changes made by an attacker will be visible on a front end. Id, password, IP address of attacker will be display on Screen.

Secure Engine

This engine is the middleware module of the system. This engine is positioned between analyzer engine and the third engine(Rollback engine). All the process of analyze engine will going to pass by this engine. All therequest made by user or attacker will go this layer.

Rollback Engine

This is the main engine in the system. If the attacker attain to access the private information of user and try to modify it then analyzer engine will identify the attacker and all the information which is modify by the attacker is reverted i.e the rollback engine will revert all modification and give original data.

Experimental Result Of The System

Identification of user

Rollback the secure data to safe state by using rollback engine.

The message or notification will be given to user regarding the attack and information which is being rollback.

Software Requirement And Tools

Hardware Interfaces:
System Requirements:
RAM : 512 MB or higher
Processor : 1 GHz or higher
Memory : 200 MB

Software Interface:
JDK 7
Android studio 1.5
Eclipse Kepler,
Tomcat 7
Mysql 5.2 and Workbench 6

Algorithm

Encryption is the process of converting a plaintext message into ciphertext which can be decoded back into the original message. An encryption algorithm along with a key is used in the encryption and decryption of data. There are several types of data encryptions which form the basis of network security. Encryption schemes are based on block or stream ciphers. The two encryption algorithm used are AES(Advanced Encryption Standard) and DES(Data Encryption Standard).

The **Advanced Encryption Standard (AES)** is the algorithm trusted as the standard by the U.S. Government and numerous organizations. Although it is extremely efficient in 128-bit form, AES also uses keys of 192 and 256 bits for heavy duty encryption purposes. AES is largely considered impervious to all attacks, with the exception of brute force, which attempts to decipher messages using all possible combinations in the 128, 192, or 256-bit cipher. Still, security experts believe that AES will eventually be hailed the de facto standard for encrypting data in the private sector.

LSB is represented with a pixel. Each pixel is eight bits. Each value of a byte is a pixel and indicates the gray color value of the picture. The bits in the byte are arranged from MSB to LSB. That means most significant bit value is 128, whereas LSB bit value is 1.

Message Digest(**MD5**) is widely used hash function producing a 128 bits hash value. It can be used as a checksum to verify data integrity.

Advantages

To provide secure online shopping website.

To provide secure layer system for electronic commerce website which allows consumers to directly buy goods or services from a seller.

To develop a 3-layer system such as Analyzer Engine, Secured Layer, Rollback Engine.

Conclusion

So, We conclude, The system bring you in a revolution in the online shopping website which allows consumers to directly buy goods or services. In this analyzer, the engine will trace the database & changes made by an attacker will be visible on a front end. Id, password, IP address of attacker will be display on Screen. Then Secured layer act as a middleware, where a request made by user or attacker will go this layer. The last one is Rollback Engine will revert all modification & give original data.This system prevents unauthorized access**.**

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