Advance Intrusion Detection and Protection System

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Abstract: *The system proposes a security system, named the Internal Intrusion Detection and Protection System (IIDPS for short) at system call level, which creates personal pro- files for users to keep track of their usage habits as the forensic features. The IIDPS uses a local computational grid to detect malicious behaviors in a real-time manner The proposed work is regarded with Digital forensics technique and intrusion detection mechanism. The number of hacking and intrusion incidents is increasing alarmingly each year as new technology rolls out. The system designed Intrusion Detection Sys- tem (IDS) that implements predefined algorithms for identifying the attacks over a network. Therefore, in this project, a security system, named the Internal Intrusion Detection and Protection System (IIDPS), is proposed to detect insider attacks at SC level by using data mining and forensic techniques. The system can identify a users forensic features by analyzing the corresponding SCs to enhance the accuracy of at- tack detection, and able to port the IIDPS to a parallel system to further shorten its detection response time.*

Keywords: Advance JAVA(J2EE), Android, SQLOG/XAMPP Server, Apache tomcat

1.INTRODUCTION

Introduction

Intrusion means someone penetrate the security of the system without permission. Intrusion Detection System (IDS) can detect the illegal activities performed by the Intruders and can report to the higher authorities. An Intrusion Detection System (IDS) monitors all incoming and outgoing network activity and identifies suspicious patterns that may indicate a network or system attack from attempting to break into or compromise a system.[1] An IDS works by monitoring system activity through ex- amining vulnerabilities in the system, the integrity of files and conducting an analysis of patterns based on already known attacks [2]. IDS is a set of methods and techniques to detect the illegal activities in System level and Network level. IDS can be broadly classified into two, Host Based Intrusion Detection Systems and Network Based In- trusion Detection Systems. Proposed a security system, named the Internal Intrusion Detection System (IIDS) at system call level, which creates personal profiles for users to keep track of their usage habits as the forensic

features. The IIDS uses a local computational grid to detect malicious behaviors in a real-time manner The proposed work is regarded with Digital forensics technique and intrusion detection mechanism. The number of hacking and intrusion incidents is increasing alarmingly each year as new technology rolls out. The system designed Intrusion Detection System (IDS) that implements predefined algorithms for identifying the attacks over a network.[3] There- fore, in this project, a security system, named the Internal Intrusion Detection System (IIDS), is proposed to detect insider attacks at SC level by using data mining and forensic techniques. The system can identify a users forensic features by analyzing the corresponding SCs to enhance the accuracy of attack detection, and able to port the IIDS to a parallel system to further shorten its detection response time. Now a day, to safeguard the organization electronic assets, Intrusion Detection System (IDS) is crucial requirement. To determine whether the traffic is malicious or not Intrusion detection is a process of monitor and analyzes the traffic on a device or network. It can be a software or physical appliance that monitors the traffic which violates organization security policies and standard security practices. To detect the intrusion and respond in timely manner as a result risks of intrusions is diminished it continuously watches the traffic. Based on the deployment.

1.1 Motivation

In current system it is very difficult to identify who the attacker is because attack packets are often issued with forged IPs or attackers may enter a system with valid login patterns. Hence we got motivation to develop a system which detects malicious behaviors launched towards a system at SC level.

1.2 Problem Definition

In this digital age, computer and its subsidies have become so handy that all our day to day life is dependent on it. But due to increased chances of attacks we are asked for authentication at each and every step. We need to login into system or any application or any network, we require and need to successfully pass through authentication step. But in order to remember and store password, we have human tendency to keep a simple or mostly a common password or pattern for every authentication purpose. This in turn increases the chances of intrusion. Security till date remains one of the biggest challenges and continuous efforts are taken to improve it. Still we face with large number of attacks such as DOS attack, phishing attack, eves dropping attack, spa email attack, Trojan horse attack, etc. All these attacks are easy to be detected at system call i.e. operating system level.

1.3 METHODOLOGIES OF PROBLEM SOLVING

• This platform is rapidly growing with user's need which overcomes the issues of secu- rity which lead to the poor efficiency. Software project estimation is form of problem solving.

• The complex software is hard to estimate hence it is divided into smaller pieces. The estimation of project will be correct only when the estimation of size of the project is

correct. In the context of project planning size refers to quant able outcome of project.
• Here, the direct approach is selected and hence, the size is estimated in Line of Codes.
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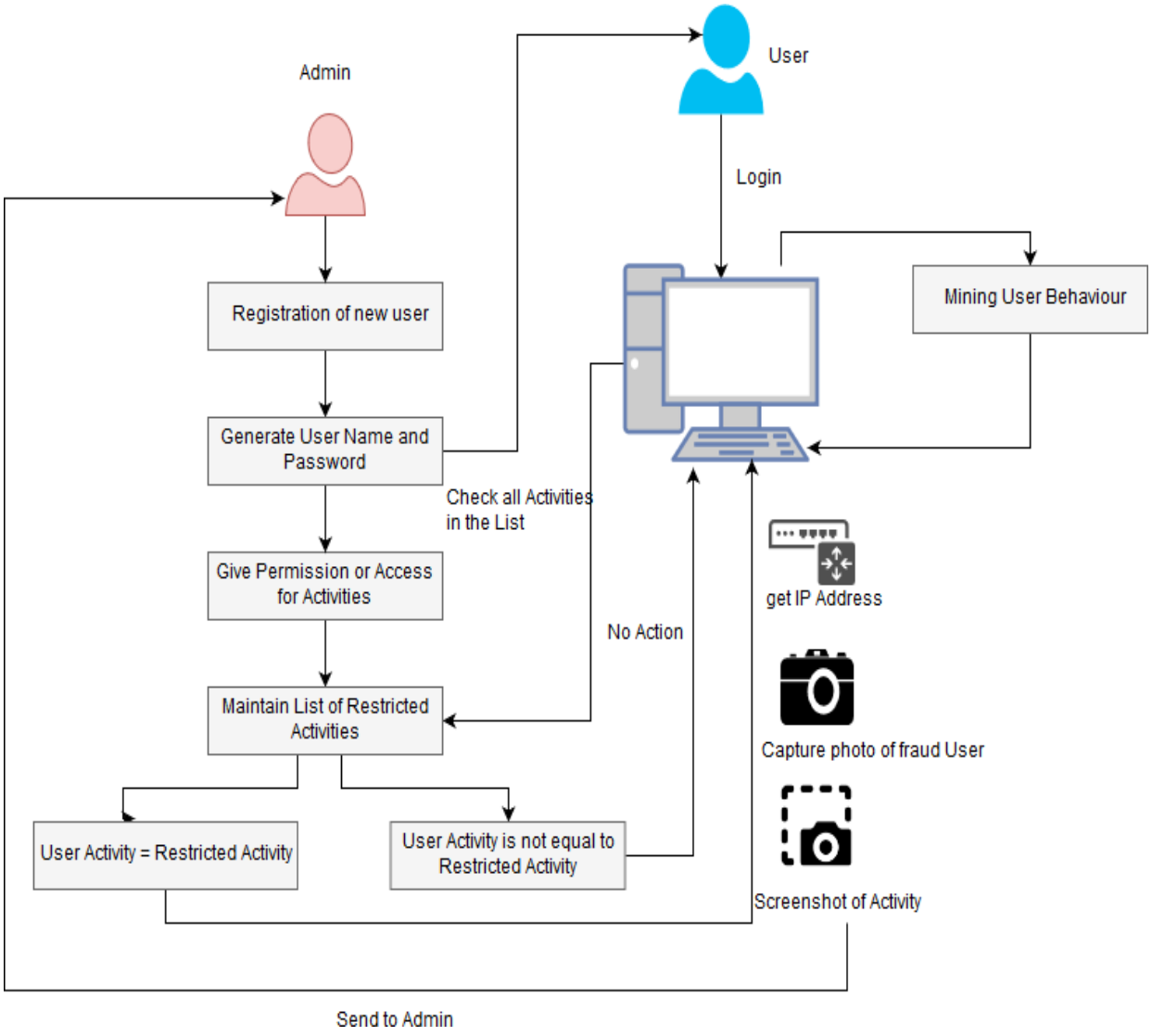
The feasibility study comprise of an initial investigation into personnel will be required. Feasibility study will enable us to make informed and straightforward choice at crucial points while developing phase.
• All projects are feasible given unlimited times and resources. But, the development of

computer-based system is more likely to be plagued to scarcity of resources. It is both essential and prudent to evaluate the feasibility of project at earliest possible time.
• We propose a system of efficient categorization technique for identifying whether a

post generated by a third party application is malicious or not. Detecting malicious URLs is now an essential task in network security intelligence. To maintain efficiency of web security, these malicious URLs have to be detected, identified as well as their corresponding links should be found out.

Architectural Design



Architecture Description:

• Admin Module:

Admin will be holding rights to register the user and restrict the activities of user.

• User Module:

User will be able to login in system and getting the valid credential from admin after getting registered.

• System Module:

System keeps the track of restricted activities and triggers the alert if any activities are caught of users.

• System after malicious attack

It will capture the screenshot of screen, capture the picture of user, and will capture the IP address of system from where the attack took place.

• Sending mail and required details Module:

As soon as the malicious attack takes place .i.e. user tries to access the restricted activities. System generate the alert and send the details of attack.

4.1.1 Feasibility Analysis

1. Technical Feasibility:

Project ANONYMOUS ACTIVITY DETECTION USING INTERNAL INTRUSION DETECTION SYSTEM is web and android based application. The main technology and tools that are associated with IIDS are:

• Advance JAVA(J2EE), Android

• JSP, PHP

• SQLOG/XAMPP Server

• Apache tomcat

• Internet Explorer, Firefox, Chrome.

• Diagram drawing tool Draw.IO

Each of the technology is easily available and technical skills required are manageable. Time limitation of the product development and ease of implementation using these technologies are synchronized.

Initially website will be hosted in a free web hosting space, but for later implementation will be hosted in a paid hosting space with a sufficient bandwidth. Bandwidth required in this application is very low, since it does not incorporate any multimedia aspect.

2. Risk Feasibility:

Estimated size of the product in line of codes:
Being a web application with much number of stakeholders, Application will contain significant amount of code lines. As system does not contain any multimedia aspect, the file size and the complete project size will not exceed 200MB.
User of the product:
• Social Media Users

Number of users should be well identified earlier, so that thorough load testing can be carried out. Estimated size of product in number of programs:
Though the application supports many stakeholders, it will construct as a single web application with single login page rather having many number of sites for different users. Depending on access rights, the content will shown or hidden.
3. Operational Feasibility.

People are inherently resistant to change and computer has been known to facilitate changes. An estimate should be made of how strong the user is likely to move towards the development of computerized system. These are various levels of the user in order to ensure proper authentication and authorization and security of sensitive data of the organization.

4.2 System Overview

In this section, we are going to provide a brief introduction about Our proposed system aims at providing highly efficient and robust intrusion detection system. The self analysis method continuously monitors and provides details of user activities for detecting unauthorized entities. As internal system calls (SC) are used to detect the intrusion attacks, this can be implemented using data mining and forensic techniques. It would help to identify and provide detailed information about a user and its SC patterns. IPS can be configured to monitor log and report activities. Here time of user activities is counted as it appears in the user's log file. After which the most commonly used SC patterns are filtered. These are then compared with user's daily habits and if any deviation is found then the reason for that needs to be identified. If the user has an exception condition at that instance than it can be ignored as a warning. But if no exceptional instance is found then it needs to be alarmed/informed and reported to the right authorities. Thus this would help in any harmful anonymous intrusion effect and prevent from any type of attacks. This helps to stop threat of attacks and is typically located between companies firewall and rest of network.

I. CONCLUSION

The IIDS (Internal Intrusion Detection System) employs data mining and forensic techniques to identify the user behavioral patterns for a user. The time that a habitual behavior pattern appears in the users log file is counted, the most commonly used patterns are filtered out, and then a users profile is

established. By identifying a users behavior patterns as his/her computer usage habits from the users current input, the IIDS resists suspected attackers. The future work of insider attack detection research will be about collecting the real data in order to study general solutions and models. It is hard to collect data from normal users in many different environments. It is especially hard to acquire real data from a masquerader or traitor while performing their malicious actions. Even if such data were available, it is more likely to be out of reach and controlled under the rules of evidence, rather than being a source of valuable information for research purposes.

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