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IIDS

‘[1] Prof. Deepak Gupta,[2]Kajal Gade,[3] Kalyani Gade, [4] Payal Yelwande’

Deepak_gpt@yahoo.com

Gadekajal1997@gmail.com kgade485@gmail.com payalyelwande427@gmail.com

Department Of Computer Engineering, Pune

Abstract — The most computer systems use user IDs and passwords as the login patterns to authenticate users. However, many people share their login patterns with coworkers and request these coworkers to assist co-tasks, thereby making the pattern as one of the weakest points of computer security. Insider attackers, the valid users of a system who attack the system internally, are hard to detect since most intrusion detection systems and firewalls identify and isolate malicious behaviors launched from the outside world of the system only. In addition, some studies claimed that analyzing system calls (SCs) generated by commands can identify these commands, with which to accurately detect attacks, and attack patterns are the features of an attack. 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. 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 user’s forensic features by analyzing the corresponding SCs to enhance the accuracy of attack detection, and able to port the IIDPS to a parallel system to further shorten its detection response time.

I. INTRODUCTION

In the past decades, laptop systems are wide utilized to produce users with easier and additional convenient lives. However, once folks exploit powerful capabilities and process power of laptop systems, security has been one in every of the intense issues within the laptop domain since attackers terribly sometimes attempt to penetrate laptop systems and behave maliciously, e.g., stealing important knowledge of an organization, creating the systems out of labor or maybe destroying the systems. Generally, among all well-known attacks like pharming attack, distributed denial-of-service (DDoS), eavesdropping attack, and spear-phishing attack, corporate executive attack is one in every of he most troublesome ones to be detected as a result of firewalls and intrusion detection systems (IDSs) sometimes defend against outside attacks. To evidence users, currently, most systems check user ID and word as a login pattern. However, attackers could install Trojans to filch victims’ login patterns or issue an oversized scale of trials with the help of a lexicon to amass users’ passwords. once flourishing, they'll then log in to the system, access users’ non-public files, or modify or destroy system settings. fortuitously, most current host-based security systems and network-based IDSs ,can discover a acknowledged intrusion during a time period manner. However, it's terribly troublesome to spot WHO the aggressor is as a result of attack packets area unit usually issued with cast IPs or attackers could enter a system with valid login patterns. though OS-level system calls (SCs) are rather more useful in detection attackers and distinctive users, process an oversized volume of SCs, mining malicious behaviors from them, associate degreed distinctive attainable attackers for an intrusion area unit still engineering challenges.

II. PROBLEM STATEMENT

security has been one of the serious problems in the computer domain since attackers very usually try to penetrate computer systems and behave maliciously to authenticate users. To solve these issue we propose a security system, named Internal Intrusion Detection and Protection System (IIDPS), which detects malicious behaviors launched toward a system

III. LITERATURE REVIEW

Paper Name: Network anomaly detection with the restricted Boltzmann machine
Authors: U. Fiore, F. Palmieri, A. Castiglione, and A. D. Santis
Description: With the rapid growth and the increasing complexity of network infrastructures and the evolution of attacks, identifying and preventing network abuses is getting more and more strategic to ensure an adequate degree of protection from both external and internal menaces. In this scenario many techniques are emerging for inspecting network traffic and discriminating between anomalous and normal behaviors to detect undesired or suspicious activities. Unfortunately, the concept of normal or abnormal network behavior depends on several factors and its recognition requires the availability of a model aiming at characterizing current behavior, based on a statistical idealization of past events. There are two main challenges when generating the training data needed for effective modeling. First, network traffic is very complex and unpredictable, and second, the model is subject to changes over time, since anomalies are continuously evolving
Paper name: Data-streambased intrusion detection system for advanced metering infrastructure in smart grid: A feasibility study
Authors: M. A. Faisal, Z. Aung, J. R. Williams, and A. Sanchez

Description: As advanced metering infrastructure (AMI) is responsible for collecting, measuring, and analyzing energy usage data, as well as transmitting this information from a smart meter to a data concentrator and then to a headend system in the utility side, the security of AMI is of great concern in the deployment of smart grid. In this paper, we analyze the possibility of using data stream mining for enhancing the security of AMI through an intrusion detection system (IDS), which is a second line of defense after the primary security methods of encryption, authentication, authorization, etc. We propose a realistic and reliable IDS architecture for the whole AMI system, which consists of individual IDSs for three different levels of AMI's components: smart meter, data concentrator, and AMI headend.
Paper name: Biometric Authentication Using Mouse,Gesture Dynamics
Authors: Bassam Sayed, Issa Traor´e, Isaac Woungang, and Mohammad S. Obaidat
Description: The mouse dynamics biometric is a behavioral biometric technology that extracts and analyzes the movement characteristics of the mouse input device when a computer user interacts with a graphical user interface for identification purposes. Most of the existing studies on mouse dynamics analysis have targeted primarily continuous authentication or user re-authentication for which promising results have been achieved. Static authentication (at login time) using mouse dynamics, however, appears to face some challenges due to the limited amount of data that can reasonably be captured during such a process. In this paper, we present a new mouse dynamics analysis framework that uses mouse gesture dynamics for static authentication. The captured gestures are analyzed using a learning vector quantization neural network classifier. We conduct an experimental evaluation of our framework with 39 users, in which we achieve a false acceptance ratio of 5.26% and a false rejection ratio of 4.59% when four gestures were combined, with a test session length of 26.9 s. This is an improvement both in the accuracy and validation sample, compared to the existing mouse dynamics approaches that could be considered adequate for static authentication. Furthermore, to our knowledge, our work is the first to present a relatively accurate static authentication scheme based on mouse gesture dynamics.
Paper Name: Securing an alerting subsystem for a keystroke-based user identification system
Authors: S. C. Arseni, E. C. Popovici, L. A. Stancu, O. G. Guta, and S. V. Halunga
Description: Our keystroke-based user identification system represents a minimal implementation of a software system that can be used for continuous authentication of users, based on their keystroke dynamics. This paper brings into evidence the role of an alerting subsystem as a part of the software system mentioned above. Also, the paper presents a basic implementation of such a subsystem, based on the existing Syslog protocol, and a combined method for securing the protocol.

Paper Name: Validity of the single processor approach to achieving large scale computing capabilities
Authors: G. M. Amdahl and Pankoo Kim

Description: For over a decade prophets have voiced the contention that the organization of a single computer has reached its limits and that truly significant advances can be made only by interconnection of a multiplicity of computers in such a manner as to permit cooperative solution. Variously the proper direction has been pointed out as general purpose computers with a generalized interconnection of memories, or as specialized computers with geometrically related memory interconnections and controlled by one or more instruction streams.

IV. BLOCK DEIAGRAM OF SYSTEM

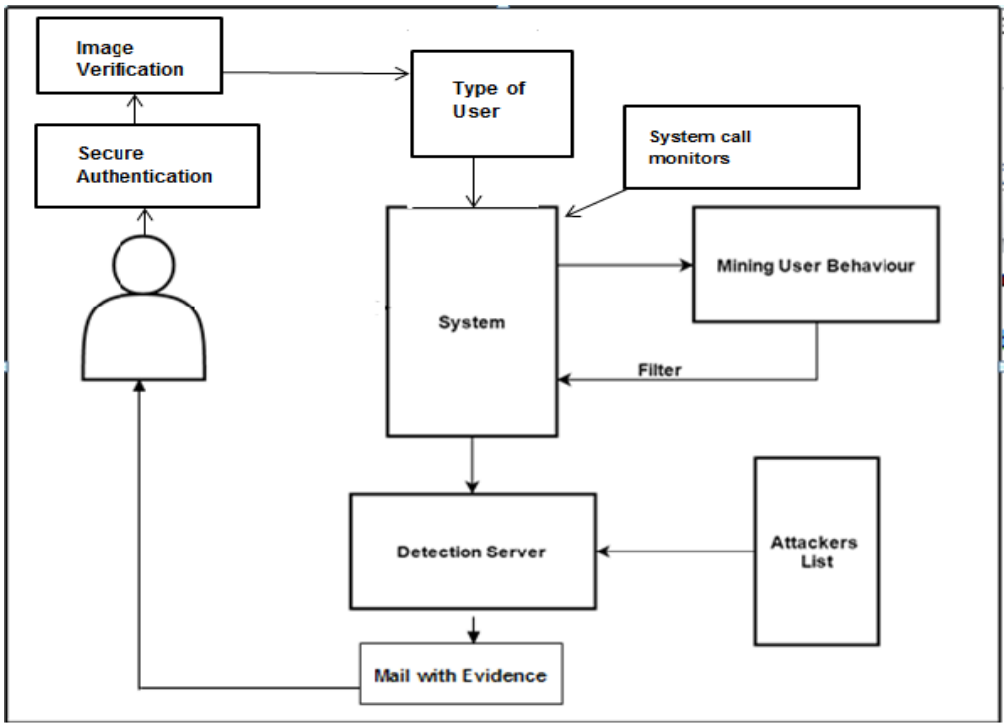

Figure 4.1 Block diagram of system

System Architecture provide a security system, named Internal Intrusion Detection and Protection System (IIDPS), which detects malicious behaviors launched toward a system at SC level. The IIDPS uses data mining and forensic profiling techniques to mine system call patterns (SC patterns) defined as the longest system call sequence that has repeatedly appear several times in a user's log file for the user. The user's forensic features defined as an SC pattern frequently appearing in a user's submitted SC sequence but rarely being used by other users, are retrieved from the user's computer usage history.

V. APPLICATION

1. bank
2. hospital
3. laboratories

VI. CONCLUSION AND FUTURE SCOPE

The IIDPS (Internal Intrusion Detection and Protection 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 user's log file is counted, the most commonly used patterns are filtered out, and then a user's profile is established. By identifying a user's behavior patterns as his/her computer usage habits from the user's current input, the IIDPS 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.

The IIDPS uses data processing and rhetorical profiling techniques to mine call patterns (SC patterns) defined because the longest call sequence that has repeatedly seem many times during the users log file for the user.

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