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Establishing the Anonymity to Mitigate Identity Based Attacks

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ABSTRACT

Identity information of the devices are the significant factor to establish the adversaries in the network. Sybil attacks are executed by capturing the IP address and Mac address of the victim devices. Location and channel based information are extracted to eliminate these attacks from the network. But the cooperative attacks can able to capture the data information by providing the fake channel and location information. The Location Distinction model is fails to identify the Identity based attacks when the victim and malicious devices are present in same location. The proposed hashing based anonymity approach can able to prevent the identity based attacks.

Keywords : Mac Address, victim devices, identity based attacks, sybil attacks, IDAS, NIDAS, MDM, XML, QoS, BNFA

I. INTRODUCTION

WIRELESS NETWORK

Wireless networks are vulnerable to sybil attacks due to the broadcast nature of the wireless medium. Location distinction can tell whether or not all identities are originated from the same location, and thus detect such attacks. In wireless networks, location distinction aims to detect location changes or facilitate authentication of wireless users. The Sybil attack in computer security is an attack wherein a reputation system is subverted by forging identities in networks.

In networks, the identity is used as an abstraction so that a remote entity can be aware of identities without necessarily knowing the correspondence of identities to local entities. Wireless signals sent from different locations, the receiver can observe different channel characteristics from these signals.

II. METHODS AND MATERIAL

IDENTITY ATTACKS DETECTION

An IDAS is an active process or device that analyzes system and network activity for unauthorized entry or malicious activity. The ultimate aim of any IDAS is to catch perpetrators in the act before they do real damage to resources. An IDAS protects a system from attack, misuse, and compromise. It can also monitor network activity, audit network and system configurations for vulnerabilities, analyze data integrity, and more.

IDAS is software that automates the identity attacks detection process. The primary responsibility of IDAS is to detect unwanted and malicious activities. IPS is software that has all the capabilities of an IDENTITY ATTACKS detection system and can also attempt to stop possible incidents. An IDAS is a type of security software designed to automatically alert administrators when someone or something is trying to compromise information system through malicious activities or through security policy violations. An architectural model of IDENTITY ATTACKS detection system as shown in Figure 1.1.

An IDAS works by monitoring system activity through examining vulnerabilities in the system, the integrity of files and conducting an analysis of patterns based on already known attacks.

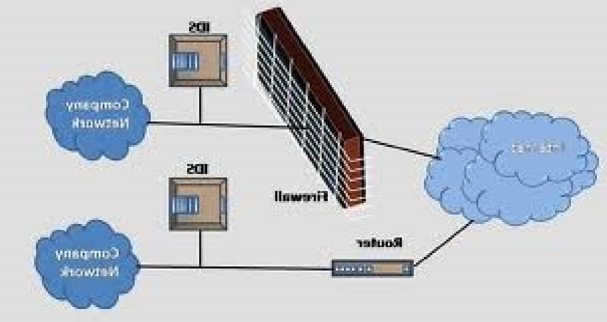

Figure 1. Identity Attacks Detection System

THE NEED FOR IDAS

A computer system should provide,

- Confidentiality
- Integrity
- Assurance

TYPES OF IDENTITY ATTACKS

DETECTION SYSTEM

HOST-BASED IDASS

A host-based IDAS monitor the detailed activity of a particular host in real-time. The system call traces produced by an auditing mechanism such as the Solaris Basic Security Module (BSM) typically provides the IDAS with the data needed to search for attack signatures. When an analysis of the BSM data shows signs of an IDENTITY ATTACK, the IDAS alerts the system administrator of an attack. Host-based detection systems can detect attacks that network-based detection cannot see. Attacks that are made at the keyboard of a critical machine do not travel across the network. More information, including machine and process state, is available for host-based methods enabling coordination of multiple data sources in detection.

Distributed IDASs

A distributed IDAS (DIDAS) consists of multiple IDAS over a large network, all of which communicate with each other, or with a central server that facilitates advanced network monitoring, incident analysis, and instant attack data. By having these co-operative agents distributed across a network, incident analysts, network operations and security personnel are able to get a broader view of what is occurring on their network as a whole.

DIDAS which generalizes the target environment in order to monitor multiple hosts connected via a network as well as the network itself. The DIDAS components include the DIDAS director, a single host monitor per host, and a single LAN monitor for each LAN segment of the monitored network. The information gathered by these distributed components is transported to, and analyzed at, a central location, thus providing the capability to aggregate information from different sources.

NETWORK-BASED IDASS

NIDAS is an IDENTITY ATTACKS detection system that attempts to discover unauthorized access to a computer network by analyzing traffic on the network for signs of malicious activity. IDENTITY ATTACKs are the activities that violate the security policy of system.

A network-based ID may be deployed on a single host to monitor just the network activity of that particular machine. While there have been many different implementations of network-based systems, most are found implemented as penetration identification systems.

IDENTITY ATTACKS DETECTION CLASSIFICATION

Tendencies of IDENTITY ATTACKS detection systems development follow the same way as computer systems development. Traditional IDAS are centralized. It means that they are implemented either as a one monolithic module or a number interacting ones, which inherit the overall IDAS functionality. Distributed IDAS consist of entities, which are distributed over a system and each of them carries its own task. One of the promising approaches in this area is based on autonomous agents and involves genetic programming techniques. The IDENTITY ATTACKS detection system characteristics can be classified as shown in Figure 1.3.

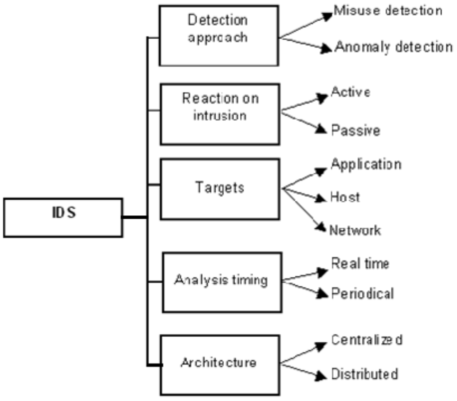

Figure 2. IDAS characteristics classification

AUTOMATA IN IDENTITY ATTACKS DETECTION SYSTEM

Automata theory is one of the longest established areas in computer science. Over the past few years, automata theory has not only developed in many different directions, but has also evolved in an exciting way at several levels, the exploration of specific new models and applications has at the same time stimulated a variety of deep mathematical theories.

The insights developed in automata theory had a strong impact on numerous scientific areas. Standard applications include pattern matching, syntax analysis, foundations of XML, and hardware and software verification. In recent years, novel applications have emerged from biology, physics, cognitive sciences, neurosciences, control, tomography, linguistics, mathematics, etc. The new developments in information technology have increased the need for formally-based design and verification methods to cope with emerging technical challenges in network security, electronic business, mobile intelligent devices, and high performance computing.

SYSTEM ANALYSIS

LITERATURE SURVEY

A general survey is conducted of the recent works related to Packet Inspection by using Automata, methods to assess various aspects of processing searching and populating requirements based on payload.

Cong Liu and Jie Wu in the year 2011, [] proposed and evaluated a dual Finite Automaton. The dual FA consists of a linear finite automaton (LFA) and an extended deterministic finite automaton (EDFA).It focus on deep packet inspection algorithms in network IDENTITY ATTACKS detection and prevention systems. Inspection programs based on regular expressions are typically implemented by two classic finite automata,non-deterministic finite automata (NFA) and deterministic finite automata (DFA)

ArunaJamdagni, Zhiyuan Tan, Xiangjian He, Priyadarsi Nanda , Ren Ping Liu in the year October 2012, [2] propose a 3-Tier Iterative Feature Selection Engine (IFSEng) for feature subspace selection and a novel Real-time Payload-based IDENTITY ATTACKS Detection System (RePIDAS) that integrates a 3-Tier IFSEng and the MDM approach. The traffic for Web-based application is considered for validating our model.

Yi-Hua Edward Yang and Viktor K. Prasanna in the year July 2012, [] presented the design, implementation and evaluation of a high-performance architecture for regular expression matching (REM) on field-programmable gate array (FPGA). Regular expression matching (REM) is an important mechanism used by popular network IDENTITY ATTACKS detection systems (NIDAS) such as Snort to perform deep packet inspection against potential threats.

SangKyun Yun, Member, IEEE Computer Societyin the year February 2012, proposes a state encoding scheme called a covered state encoding for the efficient TCAM-based implementation of the Aho-Corasickmultipattern matching algorithm, which is widely used in network IDENTITY ATTACKS detection systems. System also proposes constructing the modified Aho-Corasick NFA for multicharacter processing, which can be implemented on a TCAM using the covered state encoding.

Rafael Antonello, StenioFernandes, Carlos Kamienski, DjamelSadok and Judith Kelner in the year November 2012, presented a comprehensive literature review on the tools and techniques necessary to develop modern DPI systems.Deep packet inspection (DPI) helps Internet service providers in efforts to profile networked applica- tions. By relying on DPI systems, Internet service providers may apply different charging policies, traffic shaping, or offer quality of service (QoS) guarantees to selected users or applications.

Yi-Hua Edward Yang and Viktor K. Prasanna in the year July 2012 implemented a dictionary-based string pattern matching (SPM) as Aho-Corasick deterministic finite automaton (AC-DFA).It proposed a head-body finite automaton (HBFA) which implements SPM in two parts, a head DFA (H-DFA) and a body NFA (B-NFA).A branch grafting mechanism is proposed to opportunistically advance the state of the H-DFA with the matching progress in the BNFA.

Masanori Bando, N. SertacArtan and H.Jonathan Chao, in the year 2012, [9] described about deep packet Inspection. Applications ranging from Network IDENTITY ATTACKS detection and prevention systems have been undertaken. Deep packet inspection for NIDPS, have emerged that require RegExpression detection scalable to high quantities of complex Regular expression.

Fang Yu, Zhifeng Chen, YanleiDiao, Lakshman T.V and Randy H. Katz in the year 2006, [3] explained about the payload for packets. DFA compression techniques and explore tradeoffs between the overhead of compression and the savings in memory usage. This system describes about the memory requirements using traditional methods is prohibitively high for many patterns used in packet scanning applications.

Sailesh Kumar, SarangDharmapurikar, Fang Yu, Patrick Crowley and Jonathan Turner in the year 2006, [13] explained about the deep packet ,which requires multiple default transitions to consume a single character .Careful implementation is required to ensure good, deterministic performance. Embedded memories provide ample bandwidth. Further space reductions are possible by splitting the regular expressions into multiple groups.

Martin Roeschin the year 1999 has explained about the IDENTITY ATTACKS Detection for networks. A lightweight IDENTITY ATTACKS detection system can easily be deployed on most any node of a network, with minimal disruption to operations.

AnatBremler-Barr, David Hay and YaronKoral in the year 2010, [1] described about the Generic State Machine Compression for Scalable Pattern Matching technique. Uses IDENTITY ATTACKS Detection Systems (IDAS), making it intrinsic to reduce their speed and memory requirements.Processing a few symbols at a time increases the overall throughput of the pattern matching.

Christopher R. Clark and David E. Schimmel in the year 2003, [2] developed a pattern-matching coprocessor that supports all the pattern matching functions of the regular language.To achieve maximum pattern capacity and throughput, the design focuses on minimizing circuit area while maintaining high clock speed.

KedarNamjoshi andGirijaNarlikar in the year 2010, [5]it which plays a critical role in its effectiveness. It presents an implementation of the IDAS, and experimental results on several packet traces which show substantial improvement over the backtracking algorithm.IDAS works by monitoring system activity through examining vulnerabilities in the system, the integrity of files and conducting an analysis of patterns based on already known attacks.

Lin Tan and Timothy Sherwood in the year 2005,[6] explained about the network IDENTITY ATTACKS detection and prevention systems which have emerged as one of the most effective ways of providing security to those connected to the network, and at the heart of almost every modern IDENTITY ATTACKS detection system is a string matching algorithm.

Mehmet Altinel and Michael J. Franklin in the year 2000,[8] brought about the advent of XML as a standard for information exchange and the development of query languages for XML data enables the development of more sophisticated filtering mechanisms that take structure information into account. An XML document filtering system, called XFilter, for Selective Dissemination of Information (SDI). XFilter allows users to define their interests using the XPath query language.

MichelaBecchi and Patrick Crowley in the year 2007, [9] explained the key characteristics of a hybrid-FA, a modest memory storage requirement comparable to those of an NFA solution, an average case memory bandwidth requirement similar to that of a single DFA solution. Hybrid-FA is capable of evaluating all the regular-expression types found in common NIDAS can be implemented efficiently in practical high-speed systems.

Randy Smith, Cristian Estan, SomeshJha and Shijin Kong in the year 2008, [11] explains the formal characterization of state-space explosion and showed how auxiliary variables can be used to eliminate it. This system has presented XFAs, a formal model that extends standard DFAs with auxiliary variables and instructions for manipulating them.

Salvatore Pontarelli, Giuseppe Bianchi, Simone Teofili in the year May 2012, promoted a different traffic-aware, modular approach in the design of FPGA-based NIDAS. Also described about security of today's networks which heavily rely on Network IDENTITY ATTACKS Detection Systems (NIDASs). The ability to promptly update the supported rule sets and detects new emerging attacks makes Field Programmable Gate Arrays (FPGAs) a very appealing technology.

EXISTING SYSTEM

The key idea of the discovered attack is to create a virtual multipath channel as undetectable camouflage to make the receiver believe a specified channel characteristic chosen by the attacker. Virtual multipath attackers are able to make the receiver believe any channel characteristic the attacker chooses. At the receiver, it seems that there is no way to tell whether the signal goes through real or virtual multipath scenario. The detection technique that utilizes an auxiliary receiver or antenna to identify these fake channel characteristics.

The IDENTITY ATTACKS detection mechanism is implemented in the Security Check blocks while the adaptation of transmission rate according to the instantaneous control performance is performed in the Performance Check block.

A Network based IDENTITY ATTACKS Detection System (NIDAS) is an IDENTITY ATTACKS detection system that tries to detect malicious activity such as DoS attacks, port scans or even attempts to crack into computers by monitoring network traffic. The information collected from network is compared with known attacks for IDENTITY ATTACKS detection. NIDAS has stronger detection mechanism to detect network intruders by comparing current behaviour with already observed behaviour in real time. NIDAS mostly monitors IP and transport layer headers of individual packet and detects IDENTITY ATTACKS activity. NIDAS uses signature based and anomaly based IDENTITY ATTACKS detection techniques. NIDAS has very limited visibility inside the host machines. If the network traffic is encrypted, there is really no effective way for the NIDAS to decrypt the traffic for analysis.

A Distributed IDAS (DIDAS) consists of several IDAS (E.g. HIDAS, NIDAS etc.) over a large network, all of which communicate with each other, or with a central server that enables network monitoring. The IDENTITY ATTACKS detection components collect the system information and convert it into a standardized form to be passed to central analyzer. Central analyzer is machine that aggregates information from multiple IDAS and analyzes the same. Combination of anomaly and signature based detection approaches are used for the analysis purpose.

IDAS System has following modules

A .Packet Decoder:. The packet decoder takes packets from different types of network interfaces and prepares the packets to be preprocessed or to be sent to the detection engine. The interfaces may be Ethernet, SLIP, PPP and so on.

B. **Preprocessors or Input Plug-ins:** Preprocessors are components or plug-ins that can be used with Snort to arrange or modify data packets before the detection engine does some operation to find out if the packet is being used by an intruder. They are also used to normalize protocol headers, detect anomalies, packet reassembly and TCP stream re-assembly.

C. Detection Engine: The detection engine is the most important part of Snort. Its responsibility is to detect if any IDENTITY ATTACKS activity exists in a packet. The detection engine employs Snort rules for this purpose. The rules are read into internal data structures or chains where they are matched against all packets. If a packet matches any rule, appropriate action is taken; otherwise the packet is dropped. Appropriate actions may be logging the packet or generating alerts.

D. Logging and Alerting System: It generates alert and log messages depending upon what the detection engine finds inside a packet.

E. Output Modules : Output modules or plug-ins process alerts and logs and generate final output.

Event Engine

It captures the packets from the libpcap and puts them together to become events explaining the performed actions.

Policy Script Interpreter: The Policy Script Interpreter takes the high-level events generated by the Event Engine and compares these with the policy scripts in the system. The events are sorted in a FIFO list which means the first that comes along are the first that is processes. Policy Script Interpreter takes action if it detects any suspicious and dangerous actions or it discards other events not defined in the policy scripts. Traffic that seems like attacks but aren't (false negatives), can be detected at this point, but if the policy scripts are good, this will be minimal. It is written in Bro language.

Based on the network infrastructures, the MANET can be configured to either flat or multi-layer. The optimal IDAS architecture for the MANET may depend on the network infrastructure itself. There are four main architectures on the network as follows:

1) Standalone IDAS,
2) Distributed and Collaborative IDAS,
3) Hierarchical IDAS, and
4) Mobile Agent for IDENTITY ATTACKS Detection Systems.

In the standalone architecture, the IDAS runs on each node to determine IDENTITY ATTACKs independently. There is no cooperation and no data exchanged among the IDAS on the network. This architecture is also more suitable for flat network infrastructure than for multilayered network infrastructure.

The distributed and collaborative architecturehas a rule that every node in the MANET must participate in IDENTITY ATTACKS detection and response by having an IDAS agent running on them. The IDAS agent is responsible for detecting and collecting local events and data to identify possible IDENTITY ATTACKs, as well as initiating a response independently.

The hierarchical architectureis an extended version of the distributed and collaborative IDAS architecture. This architecture proposes using multi-layered network infrastructures where the network is divided into clusters. The architecture has cluster heads, in some sense, act as control points which are similar to switches, routers, or gate ways in wired networks.

The mobile agent for IDASarchitectureuses mobile agents to perform specific task on a nodes behalf the owner of the agents. This architecture allows the distribution of the IDENTITY ATTACKS detection tasks. There are several advantages using mobile agents for IDENTITY ATTACKS detection.

IDAS Agent Model

The proposed "IDENTITY ATTACKS detection (ID) and response system" should follow both the natures. In this proposed architecture model, each node is responsible for detecting signs of IDENTITY ATTACKS locally and independently, but neighboring nodes can collaboratively investigate in a broader range. Individual IDAS agents are placed on each and every node. Each the IDASagent runs independently and monitors local activities (user and systems activities, and Communication activities within the radio range). The agent detects IDENTITY ATTACKS from local traces and initiates response. If anomaly is detected in the local data, or if the evidence is inconclusive and a broader search is warranted, neighboring IDAS agents will cooperatively participate in global IDENTITY ATTACKS detection actions. These individual IDAS agents collectively form the IDAS system to defend the wireless ad-hoc network.

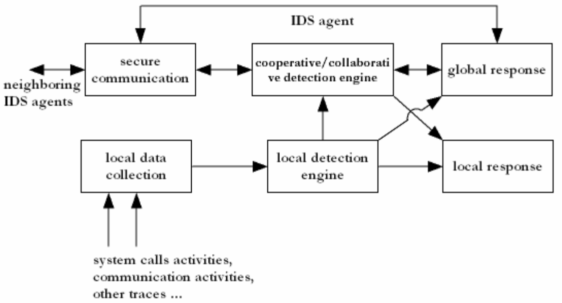

Figure 3. IDAS Agent Model

LIDAS Architecture in a Mobile Node

A Local IDENTITY ATTACKS Detection System (LIDAS) is implemented on every node for local concern, which can be extended for global concern by cooperating with other LIDAS. Two types of data are exchanged among LIDAS: security data (to obtain complementary information from collaborating nodes) and IDENTITY ATTACKS alerts (to inform others of locally detected IDENTITY ATTACK). In order to analyze the possible IDENTITY ATTACK, data must be obtained from what the LIDAS detect on, along with additional information from other nodes. Other LIDAS might be run on different operating systems or use data from different activities such as system, application, or network activities; therefore, the format of this raw data might be different, which makes it hard for LIDAS to analyze. However, such difficulties can be solved by using Simple Network Management Protocol (SNMP) data located in Management Information Base (MIBs) as an audit data source. Such a data source not only eliminates those difficulties, but also reduces the increase in using additional resources to collect audit data if an SNMP agent is already run on each node. For the methodology of detection, Local IDAS Agent can use either anomaly or misuse detection. However, the combination of two mechanisms will offer the better model. Once the local IDENTITY ATTACKS is detected, the LIDAS initiate a response and inform the other nodes in the network. Upon receiving an alert,the LIDAS can protect itself against the IDENTITY ATTACK.

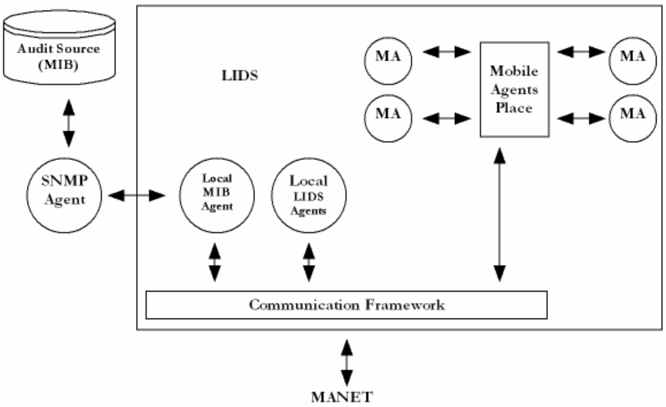

Figure 4. LIDAS Architecture in a Mobile Node

Dynamic IDENTITY ATTACKS Detection Hierarchy

A dynamic IDENTITY ATTACKS detection hierarchy that is potentially scalable to large networks use clustering. Thus, nodes on first level are cluster heads, while nodes on the second level are leaf nodes. In this model, every node has the task to monitor, log, analyze, Respond, and alert or report to cluster heads. The Cluster heads, in addition, must also perform:1) Data fusion/integration and data filtering, 2) Computations of IDENTITY ATTACK, and 3) Security Management.

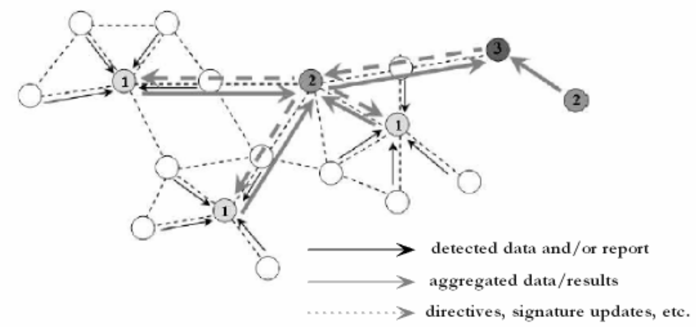
1
2
3
2
1
1
detected data and/or report
aggregated data/results
directives, signature updates, etc.

Figure 5. Dynamic IDENTITY ATTACKS Detection Hierarchy

III. RESULTS AND DISCUSSION

PROPOSED SYSTEM:

The key idea of the discovered attack is to create a virtual multipath channel as undetectable camouflage to make the receiver believe a specified channel characteristic chosen by the attacker. Virtual multipath attackers are able to make the receiver believe any channel characteristic the attacker chooses. At the receiver, it seems that there is no way to tell whether the signal goes through real or virtual multipath scenario. The detection technique that utilizes an auxiliary receiver or antenna to identify these fake channel characteristics.

Inour proposed system we model a new robust approach based on physical layer security. In our system periodically monitors nodes behavior and elect leader based on rating value of each node. The selected leader nodes are become monitor node. These nodes start maintaining database about nodes behavior, and verify its rating value with the fixed threshold value. If the rating value is become very low compare to threshold than nodes are classified as malicious misbehavior nodes.

Leader nodes send periodical announcement about the malicious nodes. The leader node maintains blacklist about the misbehavior nodes. The misbehavior nodes eliminated from network once it identified as an attacker nodes.

It is very important that the security mechanisms of a system are designed so as to *prevent* unauthorized access to system resources and data. However, completely preventing breaches of security appear, at present, unrealistic. We can, however, try to detect these IDENTITY ATTACKS attempts so that action may be taken to repair the damage later. This field of research is called **IDENTITY ATTACKS Detection**

A simple firewall can no longer provide enough security as in the past. Today's corporations are drafting intricate security policies whose enforcement requires the use of multiple systems, both proactive and reactive (and often multi-layered and highly redundant). The premise behind IDENTITY ATTACKS detection systems is simple: Deploy a set of agents to inspect network traffic and look for the "signatures" of known network attacks. However, the evolution of network computing and the awesome availability of the Internet have complicated this concept somewhat. With the advent of Distributed Denial of Service (DDOS) attacks, which are often launched from hundreds of separate sources, the traffic source no longer provides reliable temporal clues that an attack is in progress. Worse yet, the task of responding to such attacks is further complicated by the diversity of the source systems, and especially by the geographically distributed nature of most attacks.

IDENTITY ATTACKS detection techniques while often regarded as grossly experimental, the field of IDENTITY ATTACKS detection has matured a great deal to the point where it has secured a space in the network defense landscape alongside firewalls and virus protection systems. While the actual implementations tend to be fairly complex, and often proprietary, the concept behind IDENTITY ATTACKS detection is a surprisingly simple one: Inspect all network activity (both inbound and outbound) and identify suspicious patterns that could be evidence of a network or system attack.

These systems are modeled in such a way as to separate the rule matching phase from the action phase. The matching is done according to audit trail events. IDES follows a hybrid IDENTITY ATTACKS detection technique consisting of a misuse detection component as well as an anomaly detection component. The anomaly detector is based on the statistical approach, and it flags events as intrusive if they are largely deviant from the expected behavior. To do this, it builds user profiles based on many different criteria (more than 30 criteria, including CPU and I/O usage, commands used, local network activity, system errors etc.). These profiles are updated at periodic intervals. The expert system misuse detection component encodes known IDENTITY ATTACKS scenarios and attack patterns (bugs in old versions of send mail could be one vulnerability). The rule database can be changed for different systems.

Advantages:

One advantage of the IDES approach is that it has a statistical component as well as an expert system component. This means that the chances of one system catching IDENTITY ATTACKs missed by the other increase.

Another advantage is the problem's control reasoning is cleanly separated from the formulation of the solution.

PROBLEM STATEMENT

The wireless nodes face the security problem due to limited resource availability and due to shared channel access and it is equipped with security routers with non-overlapping channels that can increase the overall capacity of the network as well as it handles the security issues. Secured communication protocol requires the dedicated hardware and software that makes the unsecured communication as secured communication. Misbehavior nodes disrupt the packets from reaching the destination through malicious behavior at an intermediate node. The main focus of a malicious detection using IDAS algorithm in shared wireless network is to select secured channel with less interference and to distribute the load evenly among all the available channels. Most of all wireless links are constantly established and broken, thus the link quality would fluctuate owing to channel fading and interference from other transmitting device

FEASIBILITY STUDY

The development of a computer-based system is more likely plagued by scarcity of resources and difficult in delivery dates. It is both necessary and prudent to evaluate the feasibility of a project at the earliest possible time.

The feasibility studies are:

- ✓ Economic feasibility
- ✓ Operational feasibility
- ✓ Technical feasibility

Every project is feasible with unlimited resources and infinite time. Feasibility study is an evaluation of the proposed system regarding its workability, impact on the organization, ability to meet user needs and effective use of resources. Thus when a new application is proposed it normally has to go through a feasibility study, before it is approved for further development.

ECONOMICAL FEASIBILITY

In economic feasibility whether the resources and human power apply for the purpose make enough returns have to be considered. Any system developed must be good investment for the organization. One of the most important information contained in feasibility study is economic analysis- an assessment of the economic justification for a computer based system project. Economic analysis reduces the costs for the project development and weighs them against tangible and intangible benefits of the system. Additional costs incurred in the system construction, maintenance and mobilizing manpower to work on puts forward a very big challenge to the organization. Especially in the present scenario the objective is towards centralization, reduced cost of software and hardware and cutting exponential growth of the size of the organization. Cost of the proposed system is not very high when compared to the operating cost of the existing system. In the system human power is for data entry. Since the system provides very fast accurate and access and retrieval data it is economically feasible.

OPERATIONAL FEASIBILITY

This feasibility determines whether there are any major barriers in the implementation of the software and how much effort will be spend in selling and training the user staff about the proposed system. People are inherently resistant top changes and computers have been known to facilitate changes. An estimate should be made regarding the reaction the user staff is likely to have towards the development of a computerized system. Operational feasibility involves the capability of the infrastructures of a process to achieve and sustain process improvement. Management support, employee involvement and commitment are the key element required to ascertain operational feasibility.
As far as the project is concerned it means all the operation requirements of the organization and so it is perfectly operational one.

TECHNICAL FEASIBILITY

During technical feasibility, the analyst evaluates the technical merits if the system concept, at the same time collects additional information about performance, reliability, maintainability and predictability.

Technical analysis begins with an assessment of the technical viability of the proposed system. The tools available for technical analysis are derived from mathematical modeling and optimization techniques, probability and statistics, queuing theory and control theory. Modeling is an effective mechanism for technical analysis of computer-based system.

This system can hold and manipulate data to perform all the required function and so it is technically feasible one.

PROPOSED WORK

ARCHITECTURE

It is important to understand that most IDAS architectural models are based on static, wired networks. These models alone are insufficient to help design an IDAS in a mobile, ad hoc network environment.

The architecture addressed is a distributed IDAS, where each node on the network will have an IDAS agent running on it. The IDAS agents on each node in the network work together via a cooperative IDENTITY ATTACKS detection algorithm to decide when and how the network is being attacked.

The architecture is divided into parts: the Mobile IDAS Agents, which reside on each node in the network, and the Stationary Secure Database, which contains global signatures of known misuse attacks and stores patterns of each users normal activity in a non-hostile environment.

Mobile IDAS Agents

Each node in the network will have an IDAS agent running on it all times. This agent is responsible for detecting IDENTITY ATTACKs based on local audit data and participating in cooperative algorithms with other IDAS agents to decide if the network is being attacked. Each agent has five parts : the Local Audit Trial, the Local IDENTITY ATTACKS Database (LID), the Secure Communication Module, the Anomaly Detection Modules (ADM s), and the Misuse Detection Modules (MDM s).

a. The Local Audit Trial

Each agent must constantly check the audit data to decide that an IDENTITY ATTACKS is not taking place. The Local Audit Trial will consist of specific items out of the network traffic as well as user commands to the node. The Local Audit Trial is responsible for selecting only the items it needs out of the network traffic and system audit data in order to minimize the size of the audit data collected.

A audit data is collected by the Local Audit Trial, it is passed to the Misuse Detection Modules and the Anomaly Detection Modules for further analysis. The Local Audit Trial is only responsible for gathering and storing audit data, not processing it.

b. The Local IDENTITY ATTACKS Database (LID)

The LID is a local database that warehouses all information necessary for the IDAS agent, such as the signature files of known attacks, the established patterns of users on the network, and the normal traffic flow of the network. The Anomaly Detection Modules and Misuse Detection Modules communicate directly with the LID to determine if an IDENTITY ATTACKS is taking place.

c. The Secure Communication Module

The Secure Communication Module is necessary to enable an IDAS agent to communicate with other IDAS agents on other nodes. It will allow the MDM s and ADM s to use cooperative algorithms to detect IDENTITY ATTACKs. It may also be used to initiate a global response when an IDAS agent or a group of IDAS agents detects an IDENTITY ATTACK. Basically, any communication that needs to occur from one IDAS agent to another will use the Secure Communication Module.

Data communicated via the Secure Communication Module will need to be encrypted in order to ensure that the data received by an IDAS agent is accurate and has not been tampered with. The Secure Communication module is only used by IDAS agents and does not communicate any other type of information between nodes. It must share the bandwidth that the mobile device uses for normal data transmission, so it is required to be efficient, and can only use the amount of bandwidth in needs.

Also, the Secure Communication module must process information coming to the IDAS agent from other agents in the network. For this reason, it must be fast and efficient, so as not to take away from the processing time of the mobile unit.

Mobile nodes are deployed in the network area. Nodes try to communicate with neighbour nodes and identifies, neighbour by using hello message. Source node start sending data, initially it doesn't have path to forward data packet. Then, It initiates route discovery process. Source node sending route request with initial path trust value as zero. Neighbor nodes receive route request and calculate the trust value for previous hop node and update path trust value in packet. if current node is destination then it send route reply by constructing reverse path. If Intermediate node has route to destination then, send reply constructing reverse path, and calculated trust value in reply message. Route reply message is unicasted thrw reverse path, each intermediate node update path trust value. Once reply message reaches source node then, it update the route in routing table and start sending the data packet.

If attacker node is present in the network, it receives the route construction message and forms the fake route to capture the packet by sending the fake route reply as generated like from actual destination. If greyhole node is present in the network it calculates the probability and based on probability, it receives the route construction message and forms the fake route to capture the packet by sending the fake route reply as generated like from actual destination. If data dropper is present the data transmission path, it captures the packet and drop the packet without forwarding. If other ddos attacker present in the network then it generates the invalid route request message continuously to perform the resource consumption process.

IDAS nodes performes the channel overhearing and estimates the packet forwarding and receiving count. Based on this value dropping ratio is estimated and the dropping ratio is greater than the threshold then the node is detected as malicious nodes. And also node monitors the incoming outgoing traffic rate of the nodes. This value is greater than maximum level of traffic forwarding then the node is detected as dos and ddos attacker. Once the attacker node is identified then the nodes performs the isolation process by sending the attack intimation message to all nodes in the network, These nodes are removed from routing and forwarding tables as well as if in case any packets received from the malicious nodes packets are discarded.

Public Key Infrastructure: Each node initially has a pair of public/private keys issued by a public key infrastructure (PKI) using CSP.

It can provide authentications without disturbing the anonymity. Every member under the controller may have a pair of group public and private keys issued by the group trust authority.

The wireless can generate its own signature by its own private key, and such signature can be verified by other members in the group without revealing the signer's identity.

Only the group trust authority can trace the signer's identity and revoke the group keys.

Only certain devices, such as the source and destination devices can unlock and retrieve the elements using pre-established secret keys.

Node Secrecy Maintenance

The mechanism of hiding the information is used to provide private communications over a public network. The source node sets up the core of an secret with a specific route message. During a route request phase, each forwarding node adds an enciphered layer to the route request message. The source and destination devices do not necessarily know the ID of a forwarding node. The destination node receives the secret and delivers it along the route back to the source. The intermediate node can verify its role by deciphering and deleting the outer layer of the secret. Eventually an anonymous route can be established.

Security process is initiated by creating the public and private secret key during the deployment of the wireless devices.

During the neighbors communication, Secret key sharing process executed by merging the secret key parameters of the devices.

Whenever any two new devices are communicated then secret key sharing message is exchanged between the devices with the public secret key information baout the sender device.

Secret key sharing process is done by taking the public secret key of the sender and private secret key information of the receiver in both side.

The same process of secret key generation is done between the wireless and base station device in either single hop or multihop.

After completion of secret key generation, data is transmitted by performing the data encipherion process by including the generated shared secret key.

At the receiver end, data is deciphered using the generated shared secret key and the original data is retrieved.

This encipherion and decipherion process is done in end-to-end process.

Anonymous Routing

During route discovery, a source node broadcasts an RREQ packet without enclose its identity.

If an intermediate node receives the RREQ packet, it verifies the RREQ by using its group public key, and adds one layer on top of the key-enciphered secret. This process is repeated until the RREQ packet reaches the destination or expired.

Once the RREQ is received and verified by the destination node, the destination node assembles an RREP packet, and broadcasts it back to the source node. On the reverse path back to the source, each intermediate node validates the RREP packet and updates its routing and forwarding tables. Then it removes one layer on the top of the key-enciphered secret, and continues broadcasting the updated RREP. When the source node receives the RREP packet, it verifies the packet, and updates its routing and forwarding tables. The route discovery phase is completed.

The source node starts data transmissions in the established route. Every intermediate node forwards the data packets by using the route pseudonym.

IV.CONCLUSION

Encryption-based packet protection is energy consuming for battery-powered devices. The showed scheme that selective encryption allows to save energy and to detect attack begin and end. We also showed how the number of encrypted packets can be adapted according to the presence of the attack so that more energy is used only when needed. Since packet transmission consumes energy, adapt transmission rate to instantaneous control performance.The IMPROVED IDENTITY ATTACKS DETECTION SYSTEM using payload and rate mechanism identifies misbehavior nodes and isolates it from the network. In the scheme the IDASvalue is estimated are constructed to identify the malicious misbehavior node from the network. Once the misbehavior classification is success then these nodes are isolated from the network.

V. FUTURE WORK

For both centralized and distributed algorithms, it utilizes the digital signatures to ensure every report is undeniable and cannot be forged by any attackers. IDENTITY ATTACKS detection can complement IDENTITY ATTACKS prevention technique (such as encryption, authentication, secure message authentication code, secure routing, etc...) to improve the network IDENTITY ATTACKS detection it can modeled for load behavior instead of payload to identify the malicious misbehavior of a node in the future.

VI. REFERENCES

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