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MULTIPATH PACKET TRANSMISSION BASED ON SECURE WIRELESS COMMUNICATIONS PROCESSING IN WIRELESS SENSOR NETWORKS

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ABSTRACT

Wireless sensor networks (WSNs) have become one of the most promising and interesting areas over the past few years. Security is one of the most important properties of wireless sensor networks, which are threatened by varied attacks, to approach practical deployment. Intrusion detection technology is a positive method to defense against security threats in wireless sensor networks. Construct security ontology according to the features of WSN to represent the formal semantics for intrusion detection. The ontology is used to improve the process intrusion detection for WSN. propose an energy efficient routing method in an environment where both Attack detection and prevention schemes are used in WSNs. used to Intrusion Detection Efficient Routing Algorithm (IDER) For success application of ubiquitous WSN it is important to maintain the basic security. Which adopts the distributed architecture to monitor intrusion activities and realize abnormal events processing in local nodes? Wireless Sensor Network (WSN) is a network with large number of tiny sensor devices which are of low cost, and minimum consumption of power called as sensor nodes.

Keywords: Intrusion Detection Efficient Routing Algorithm, Dynamic Route ,Intrusion Detection Verifier

INTRODUCTION

The beauty of unsupervised method is that, it does not require any training data set or any kind of previous knowledge. An outlier is a behavior of data pattern which is significantly different from the remaining behavior of data. According to Hawkins definition the concept of an outlier is as follows: “An outlier is an observation which deviates so much from the other observations as to arouse suspicions that it was generated by a different mechanism.” Outlier detection techniques are becomes a very important technique in the field of computer security and data analysis.

Information Security

However there are many security technologies like information security, unauthorized access prevention, and intrusion prevention, there are still many undetected intrusions. As an intrusion detection system to handle the enormous volume of information, it is also need to update the structure of an effective intrusion detection system is a complex and large projects. Construction of the system staff relies heavily on the experience of their choice for the statistical anomaly detection means.

Detecting Unknown Attacks

It can be a platform for the complete data acquisition, analysis and storage. Pedro Casasa. Which is capable of detecting unknown attacks over the network without using any kind of knowledge, traffic related data, or training data set. The authors use unsupervised approach for outlier detection that is based on Sub-Space Clustering and Multiple Evidence Accumulation techniques to point out the different kinds of network intrusions and attacks, denial of services, activity of worms, unauthorized access to network resources, etc. A role based access control policy

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which bases access control decisions on the functions a user is allowed to perform within an organization. The users cannot pass access permissions on to other users at their discretion.

Cluster based intrusion detection systems

People use the Internet for many purposes such as involvement in social media, currency transactions, exchange of personal information and also storing private data such as passwords, personal media, banking details like credit card credentials. The World Wide Web has advanced to such an extent that it has developed from a set of markup language sites to a place where performing remote actions on a network from anywhere in the world is an easy task. Surveys show that network intrusion crimes have increased drastically over the years and lead to personal privacy theft.

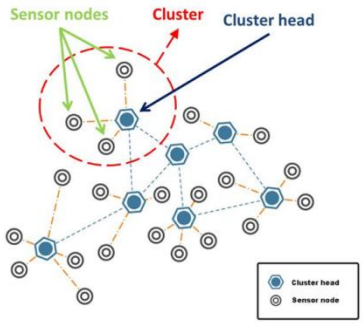


Fig 1: Cluster Intrusions

The system uses clustering to detect the type of spams. Clustering is a type of unsupervised learning that involves the partitioning of a set of data into a set of meaningful sub-classes called as clusters. Most cluster based intrusion detection systems use the traditional k-means algorithm to detect the type of attack.

Literature survey

Equalizing energy consumption

FeiGao et al., (2013) Wireless Sensor Network (WSN) have emerged as an important area for research and development because of their application such as in e-healthcare monitoring system. Presents and discusses the performance of slotted and unslotted Carrier Sense Multiple Access with Collision Avoidance protocol WSN for medical system, with a few additions to the protocol and adequate tuning parameters. Increasing rapidly in size and complexity due to recent advances in radio frequency, computing, and sensing technology. This technology is used to allow applications utilize hundreds or thousands of sensor nodes. Application of WSN are used in various ways, for example at the military is used to make observations on the battlefield, or used to monitor the health state of a patient in a room.

Duplicate Address Detection

Hyung-Sin et al., (2012) However, when applied to a large scale WSN, it may not provide desirable node connectivity mainly due to the waste of network depth and networking bias. we consider the design of network joining algorithms that can construct a large scale cluster-tree structured WSN with maximal node connectivity. A new node willing to join as a router selects its parent node among neighbor routers which are closer to the network coordinator than itself, reducing the waste of network depth. The parent node selects isolated nodes first as its child routers, alleviating the networking bias problem. Finally, the performance of the proposed networking mechanism is verified by computer simulation, showing remarkable performance improvement over conventional ZigBee in a large scale WSN.

Potential Repeater Node

Achim Berger et al., (2012) — A major task of wireless sensor networks (WSNs) is to collect data under a range of ambient conditions and with many different dynamics from a variety of sensors which are distributed, for instance, around an industrial plant. Focusing on real-time data collection for control applications, we present a spatial extension to our previously published self-organized TDMA-based WSN with star topology implemented on low-complexity commercial off-the-shelf hardware. Employing repeater nodes for two hop neighbors retains both the real-time behavior and self-organization of the initial protocol. Technological progress in low-power microelectronics has enabled the use of battery-powered sensor nodes with acceptable battery life in areas ranging from consumer electronics to industrial applications.

System study

Existing system

Unsupervised outlier detection techniques are playing big role in a various application domains such as network

intrusion detection, fault detection and fraud detection. The beauty of unsupervised method is that, it does not require any training data set or any kind of previous knowledge. This technique can help to detect accurate and novel attacks without any previous knowledge the rapid proliferation of the Computer based system and Internet technologies, the most of the problems arises in data privacy, information security and network security has become very prominent.

Disadvantages

- Cost Effective of Intrusion Detection
- Attack Detection Slow
- Easily intrusion and transmission delay
- Maintenance difficult

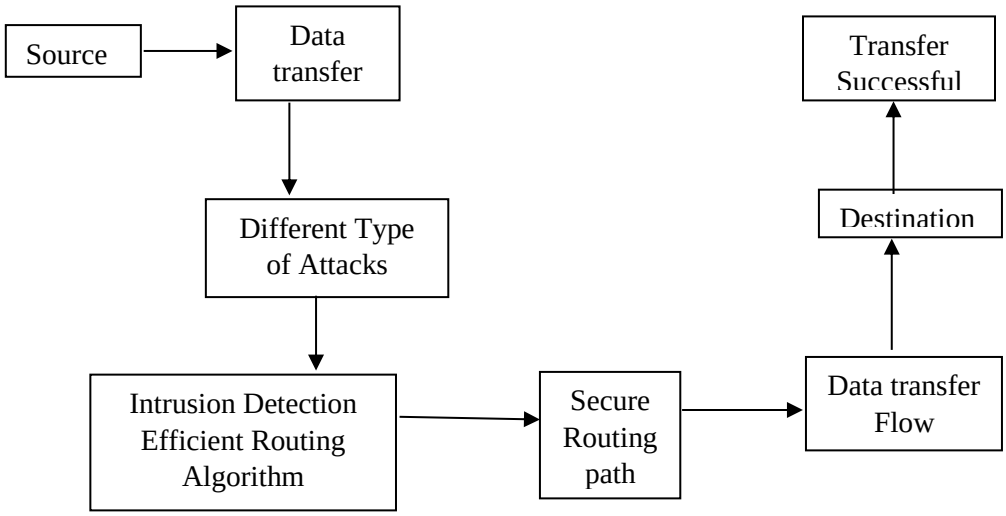
Proposed System

Intrusion crimes is increasing day by day. Hence there is need to find the optimal intrusion detection system whencompared to the intrusion detection systems that use the traditional Intrusion Detection Efficient Routing Algorithm (IDER). With the network intrusion attacks is becoming more frequent and diverse, the intrusion detection system with a more diverse approach is needed.

Advantages

- Optimize the quality of routing the data between Source and Destination
- All Attacks Detection and Remove this process
- Security is achieved with the help of Routing path
- This performance are reliability of Detection.
- Low Cost of this Detection Process
- Flexible Data Access

System Architecture



METHODOLOGY

Intrusion detection efficiency algorithm

Common network information security techniques include firewall technology, intrusion detection technology, anti-virus technology, internal and external network isolation technology and email security, among which intrusion detection technology is undoubtedly the last line of defense of network security.Such as cutting off the network connection or notifying the firewall system to adjust the access control policy and filter out the intrusive packets.

Modules description

Dynamic node generation

Source-location privacy protections have lower safety periods, source location privacy protection algorithm based on expected phantom source node is proposed. With coordinates of source node and sink node, the algorithm establishes an ellipse and selects a node randomly on the ellipse as expected phantom source node which providing direction for phantom source node.

Dynamic Routing Path Generation

Routing is one of the most essential problems in the telecommunications network. As one of the essential characteristic of both mobile wireless and fixed networks. The underwater communication network can realize the centralized command, overall attack and defense, and resource sharing.

Intrusion Detection Efficiency Algorithm

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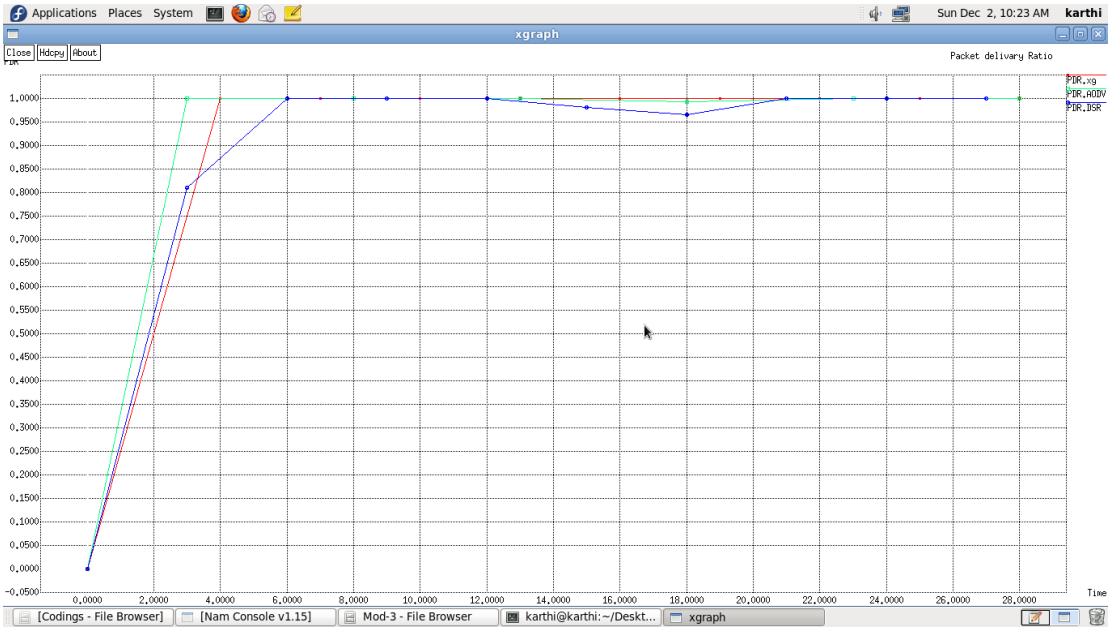
Secure Node Communication Model

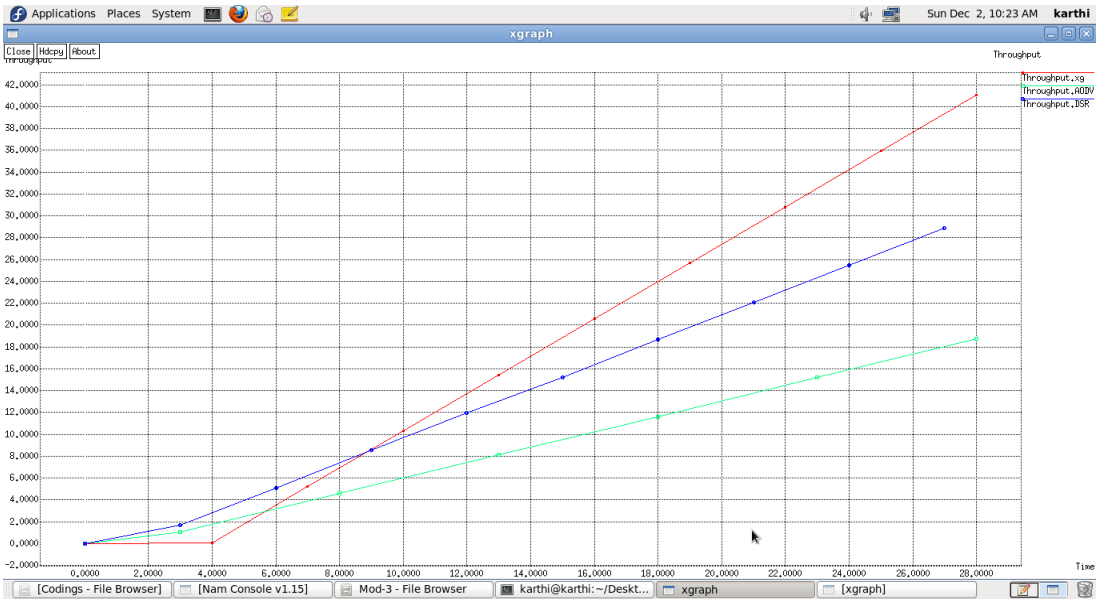
The above algorithm decomposes the analytical model of stream transmission time series in wireless networks into statistics with multiple nonlinear components to extract intrusion anomaly features, but the accuracy of detection is not high. The types and detection principles of wireless network intrusion detection is analyzed method.

Intrusion Detection and Prevention Model

Destination node does not have sufficient resources commonly to encode and decode. Furthermore, many terminal destination nodes have a limited arithmetic capability and storage capacity. The simulation results show that the improved decoding scheme can effectively reduce the load of decoding in the destination node. The possession of resource in all nodes is not equivalent.

RESULT AND DISCUSSION





CONCLUSION

Most sensitive field of security that is emerging with its immediate needs is database security. Propose an energy efficient routing method in an environment where both Attack detection and prevention schemes are used in WSNs. Security is one of the most important properties of wireless sensor networks, which are threatened by varied attacks, to approach practical deployment. Database security concerns the use of a broad range of information security controls to protect databases against compromises of their confidentiality, integrity and availability. The data that is taken as part of personal privacy theft is sold in black markets. Hence there is a need to develop an effective and efficient network intrusion detection system for detecting the type of attacks.

Future enhancement

Aims at selecting the optimal transmission route and guaranteeing the effective and reliable Deep Packet Inspection techniques can help to classify flows, but are currently implemented in electronic hardware, which imposes limitations in terms of speed the algorithm Multi-hop transmission link constructed by wireless relay nodes is a feasible solution to long range.

Security is an important issue for routing in WSNs, because many applications will effect life-or-death decisions and prohibited tampering can have devastating consequences.

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