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Novel-Rule Based Intrusion Detection System

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Abstract — APT (Advanced Persistent Threat) could be a real risk to the web. With the assistance of malware, attackers will remotely management infected machine and steal the private data. Redundant and irrelevant feature in knowledge have caused a semi permanent downside in network traffic classification. These options not solely bog down the method of classification however conjointly forestall a classifier from creating correct selections, particularly once dealing with massive knowledge. The planned novel system placed at the network departure guide that points toward effectively and expeditiously detects APT malware infections. During this paper, we tend to propose a mutual data based mostly rule that analytically selects the best feature for classification. This mutual data based mostly feature choice rule will handle linearly and non linearly dependent knowledge feature .Its effectiveness is evaluated within the cases of network intrusion detection. Associate Intrusion Detection System (IDS), is constructed exploitation the options chosen by our planned feature choice rule. To sight suspicious APT malware the system utilizes malicious DNS analysis technique, and subsequently analyses the traffic of the scrutiny suspicious scientific discipline utilizing anomaly-based and signature based mostly detection innovation.

Keywords- *Intrusion* Detection; Rule-based, Length-Decreasing Support, Association Rules, Data Mining.

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I. INTRODUCTION

The virus attacks are expanding on the web these days. Unfortunately, they are difficult to detect an malware. It is a continuous or persistent hacking processes and set of stealthy focusing on a particular entity with high-value information, for example, government, military and the monetary business. The aim of an virus/malware is to steal the information instead of to make harm the association or system. Once installing so as to hack into the system has been accomplished, malware on the contaminated machine by attacker. For instance, malware is, Trojan horse or backdoor secondary passage, is customized for firewalls and anti-virus software of the target network. It is not just utilized for remotely controlling the traded off machine in the APT assault, additionally to steal touchy information from extended period of time.

II. PROPOSED SYSTEM

The aim of an APT assault is to steal the information instead of to make harm the association or system. Once installing so as to hack into the system has been accomplished, APT malware on the contaminated machine by attacker. For instance, APT malware is, Trojan horse or backdoor secondary passage, is customized for firewalls and anti-virus software of the target network. It is not just utilized for remotely controlling the traded off machine in the APT assault, additionally to steal touchy information from extended period of time

III.LITERATURE REVIEW

SR.NO	YEAR	PAPER NAME	AUTHORS	DESCRIPTION
1.	2012	Signature Based Intrusion Detection System Using SNORT	Vinod Kumar, Dr. Om Prakash Sangwan	Now a day's Intrusion Detection systems plays very important role in Network security. As the use of internet is growing rapidly the possibility of attack is also increasing in that ratio. People are using signature based IDS's. Snort is mostly used signature based IDS because of it is open source software. World widely it is used in intrusion detection and prevention domain.

2.	2010	Detecting algorithmically generated malicious domain names	S .Yadav, A. K. K. Reddy, A. L. N. Reddy, and S. Ranjan,	In this paper, developed a methodology to detect such "domain fluxes" in DNS traffic by looking for patterns inherent to domain names that are generated algorithmically, in contrast to those generated by humans.
3.	2005	Botnet tracking: Exploring a root-cause methodology to prevent distributed denial-of-service attacks,	F. C. Freiling, T. Holz, and G. Wicherski	The paper shows that preventive mechanisms can be as effective with much less effort: Presents an approach to (distributed) DoS attack prevention that is based on the observation that coordinated automated activity by many hosts needs a mechanism to remotely control them.
4.	2011	A framework for DNS based detection and mitigation of malware infections on a network	E. Stalmans and B. Irwin	In this paper a system placed at the network edge is developed with the capability to detect fast-flux domains using DNS queries. Multiple domain features were examined to determine which would be most effective in the classification of domains. This is achieved using a C5.0 decision tree classifier and Bayesian statistics, with positive samples being labelled as potentially malicious and negative samples as legitimate domains.
5.	2013	An Empirical Reexamination of Global DNS Behavior,	HongyuGao, Vinod Yegneswaran, Yan Chen,Phillip Porras,Shalini Ghosh, Jian Jiang, HaixinDuan	In this paper, presented measurement results from a unique dataset containing more than 26 billion DNS query-response pairs collected from more than 600 globally distributed recursive DNS resolvers.

IV.SYSTEM ARCHITECTURE

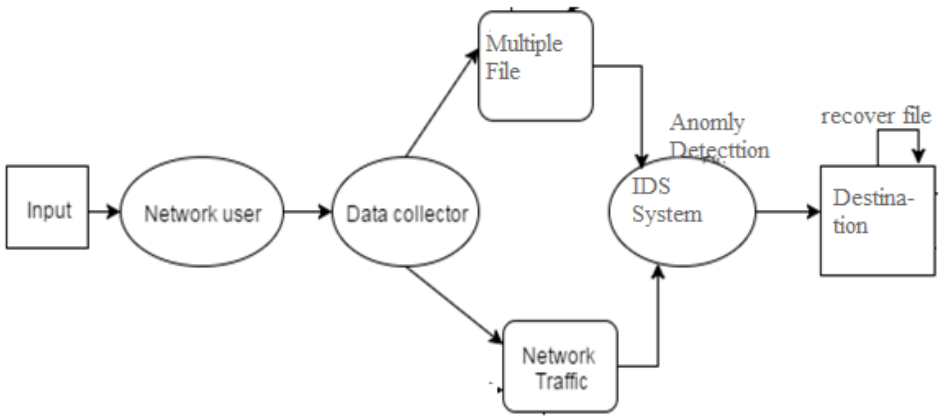


Fig:System Architecture

Sender:
In this stage, the user creates an account which contains a username and a password. The number of files F is decided by the user after successful login.
IDS:
Then the data collector will collect data and send to system for further detection.
Then system will perform anomaly based detection signature based detection from predefined malicious list. After detection, system will recover the data, and send recovered data or file to respected destination.
Receiver:
Receiver receives this file from sender with date and time and download the original file

V. MATHEMATICAL MODEL

Let S be the Whole system which consists:

Let S be the Whole system S= {IP, Pro, OP}

Where,

A. IP is the input of the system.

B. Pro is the procedure applied to the system to process the given input.

C. OP is the output of the system.

Where,

Input:

IP= {u, F}.

Where,

1. u be the user.

2. F be set of files used for sending.

B. Procedure:

1. In this stage, the user creates an account which contains a username and a password.

2. The number of files 'F' is decided by the user after successful login.

3. Then the data collector will collect data and send to system for further detection.

4. Then system will perform anomaly based detection from predefined malicious list.

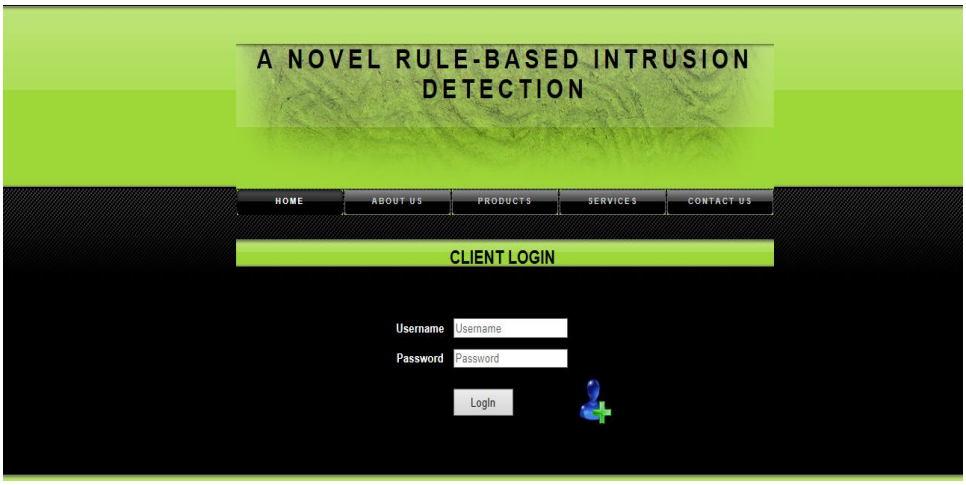
5. After detection, system will recover the data, and send recovered data or file to respected destination.

Output :

Original packet, file, data delivered to respected destination.

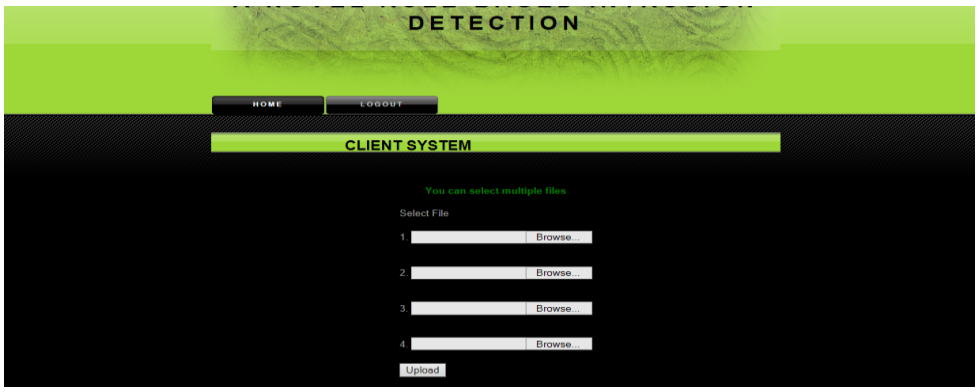
VI.RESULT ANALYSIS

Screenshot1

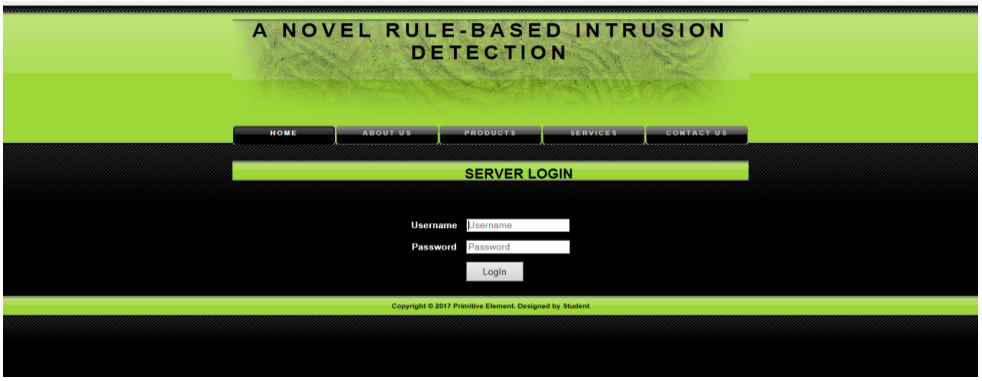


Screenshot2

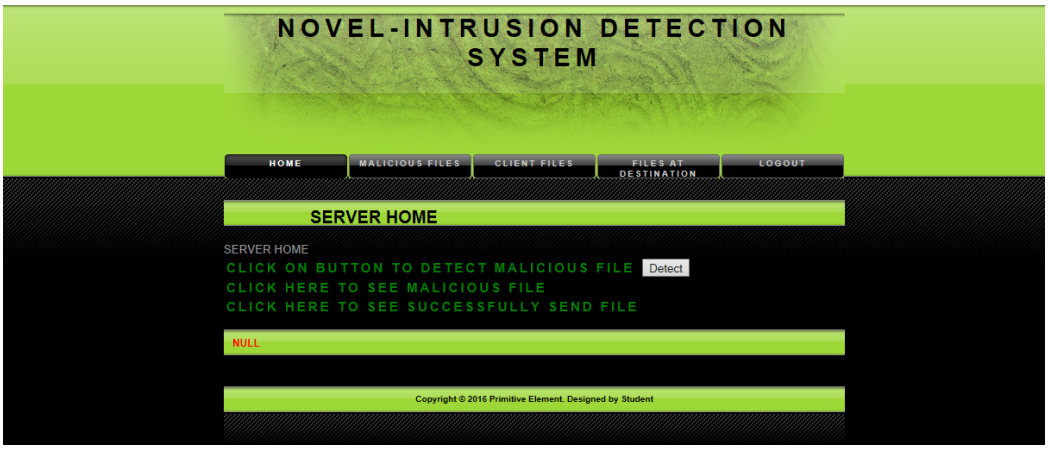
Screenshot3



Screenshot4



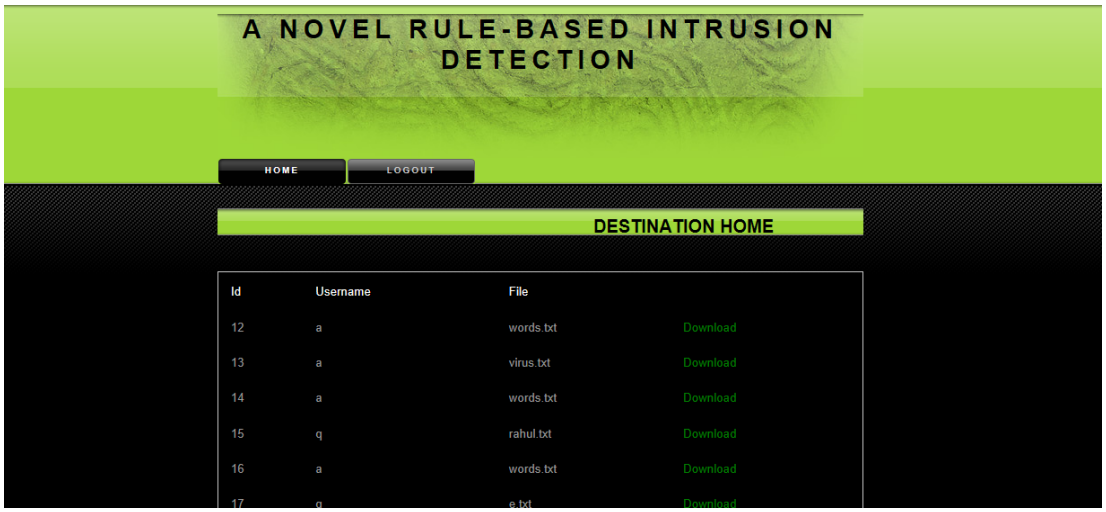
Screenshot5



Screenshot6

Screenshot7

Screenshot8



VIII.CONCLUSION

In this, a projected a system is placed at the network egress points to discover malware infections within the network combined with DNS traffic analysis. Extracted new options and designed name engine supported huge information. The system processes blessings of high potency and accuracy. The experimental results show that this security approach is possible for raising the property of the system and is nice at police investigation virus infections. It's a helpful intrusion system which will facilitate to fight against cyber-crime like felony of knowledge from infected host

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REFERENCES

[1] S. Yadav, A. K. K. Reddy, A. L. N. Reddy, and S. Ranjan, ``Detecting algorithmically generated malicious domain names,'' in *Proc. ACMSIGCOMM Conf. Internet Meas.*, 2010, pp. 48_61.

[2] F. C. Freiling, T. Holz, and G. Wicherski, ``Botnet tracking: Exploring a root-cause methodology to prevent distributed denial-of-service attacks,'' *Lect. Notes Comput. Sci.*, vol. 10, no. 2, pp. 319_335, 2005.

[3] E. Stalmans and B. Irwin, ``A framework for DNS based detection and mitigation of malware infections on a network,'' in *Proc. Inf. Secur. South Africa (ISSA)*, Aug. 2011, pp. 1_8.

[4] HongyuGao, Vinod Yegneswaran, Yan Chen, Phillip Porras, Shalini Ghosh, Jian Jiang, HaixinDuan,An Empirical Reexamination of Global DNS Behavior, *SIGCOMM'13,* August 12–16, 2013

[5] Vinod Kumar, Dr. Om Prakash Sangwan, `` Signature Based Intrusion Detection System Using SNORT," International Journal of Computer Applications & Information Technology Vol. I, Issue III, November 2012

[6] Ibrahim Ghafir and Vaclav Prenosil, `` Advanced Persistent Threat Attack Detection: An Overview,'' Faculty of Informatics, Masaryk University Brno, Czech Republic., pp. 219_228.