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Research Analysis of Cyber Security

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Received: 12 February 2015 Accepted: 3 March 2015 Published: 15 March 2015

Abstract

In an age of cyber technology with it fast pacing and ever evolving, securing data in cyber space is a major enigmawhich needs to be resolved.With vulnerabilities everywhere, data security and privacy is always at risk. This specially comes in play when services of third party are used knowingly or unknowingly. Government and business organizations are testing and implementing security and monitoring techniques to stand a better chance in raging war against cyber-crimes. Moreover, the formulation of new methods also poses new limitations of the systems as well as the users like lack of efficiency or complexity which need to be resolved in order to get better results. In this research paper some of those limitations and their solutions are discussed.

Index terms— cybercrime, security, complexity, usage, efficiency.

1 Introduction

ne of the major issues of today's ever updating technology dependent world is the safety of their private data. Whether it is data of the major organizations launching a new product or secret military operation details, the safety and protection of that data is the most important enigma.

In present time, the ratio of cybercrimes is increasing by each day. In a recent list presented by FBI, it is very clear that cybercrimes now are not only limited to small data theft or simple hacks through malware, but their scope is expanding way behind that horizon. Some of the recent cases of FBI (Cyber Crime branch) areRansom-ware, more than 2000 ATM hits at once, Phishing attacks and more crimes of same nature.

Even though research is being done in cyber security field and practices are also being updated but the problem of cyber-crimes is far from being solved. According to recent researches, the main limitation seems to be the approach used. The methods used are not evolving fast enough to combat the problem. While many approaches have been implemented, there are limitations that arise with their use. Major limitations are complexity for local user, if more than one different security infrastructures used. Some of other known limitations are decrease in resolved, more work needs to be done especially in field of research. Research needs to be done starting at institution level. For this purpose, usage is also needed to be monitored to study the user habits and patterns.

Another issue that needs attention is validation of software used and methods and standards used to test or validate them. This is the issue that calls out for attention desperately. As with the ever growing trend of third-party applications and new launch of software every day, there is no telling which one is safe and which is not. So to check their validity and to declare them safe or non-safe, old methods are not enough.

New methods should be built based on International Society of Automation (ISA) standards. The importance of organizational level security is also discussed.

Through this work the importance of cyber security in the modern world has been conveyed. It has also been discussed as to which limitations need to be resolved for it to be effective.

2 II.

3 Related Work

Even though research is being done in cyber security field and practices are also being updated but the problem of cyber-crimes is far from being solved. According to recent researches, the main limitation seems to be the approach used. The methods used are not evolving fast enough to combat the problem. While many approaches have been implemented, there are limitations that arise with their use. Major limitations are complexity for local user, if more than one different security infrastructures used. Some of other known limitations are decrease in efficiency, data collection, need for monitoring of usage, etc.

In order for these limitations to be resolved, more work needs to be done especially in field of research. Research needs to be done starting at institution level. For this purpose, usage is also needed to be monitored to study the user habits and patterns.

Another issue that needs attention is validation of software used and methods and standards used to test or validate them. This is the issue that calls out for attention desperately. As with the ever growing trend of third-party applications and new launch of software every day, there is no telling which one is safe and which is not. So to check their validity and to declare them safe or non-safe, old methods are not enough.

4 Conclusion

From the above work, the importance of cyber security is emphasized. It is also concludedthat closely monitoring systems and users provide and insight on the attacks and user reaction to them. Also monitored systems are less vulnerable to threats, data theft, phishing, frauds and other cyber-crimes.

Since the validation of software is necessary, so ISA standardized systems should be developed to validate them. Also one of the major roles should be played by Government. It should take hold of every bit of events that occur in cyber space including formulation of new algorithms and techniques to prevent unauthorized access to any intruder.

In future, work would be done on monitoring techniques, their shortcomings and role play. Also, further research will include methods of secure authorizations.

5 a) Analysis

While analyzing the data, the first keen thing observed was the possibility of System being noncomplex as well as vulnerability free very narrow. If a system is to be secure to the highest level, userfriendliness or ease of access especially to users with basic knowledge cannot be provided. Also the fault tolerance of currently existing systems is very low, even in the high-end computers. It could only be increased by closely monitoring the capabilities of existing systems in their ability to treat vulnerabilities. The systems with higher level of robustness have more reliability rate. Some other components related to cyber security are as follows:

6 b) Security

The most important and most basic requirement of any system is security. In order for any system to qualify as reliable, at least basic level of security need to be provided. With passing time, the need better cyber security seems to be the basic one.

7 c) Efficiency d) Ease of use

The user being able to operate even with basic skill is important. With increase in level of security comes the implementation of complex infrastructures, which makes it difficult to keep the system difficulty free for a basic skilled user. Open source development and other such methodologies are being used to achieve this.

8 e) Robustness f) Case study

Analyses not only at organization level but at much larger level are being conducted. To make comparisons using these studies, surveys and volunteer research are being conducted.

9 g) Testability

Testing plays extremely important role to check functionality of the systems. The security techniques before massive or global level implementation are tested several times on smaller networks.

10 h) System availability

The system availability to perform the necessary immunization steps before connecting to networks are to be done.

11 i) Fault tolerance

User participation in detecting vulnerabilities, phishing attacks and other such threats play an important role in increase of fault tolerance.

12 j) Monitoring

By closely monitoring the habits of users and keeping a close watch at young user habits can reduce the number of vulnerabilities at immense level.

13 IV.

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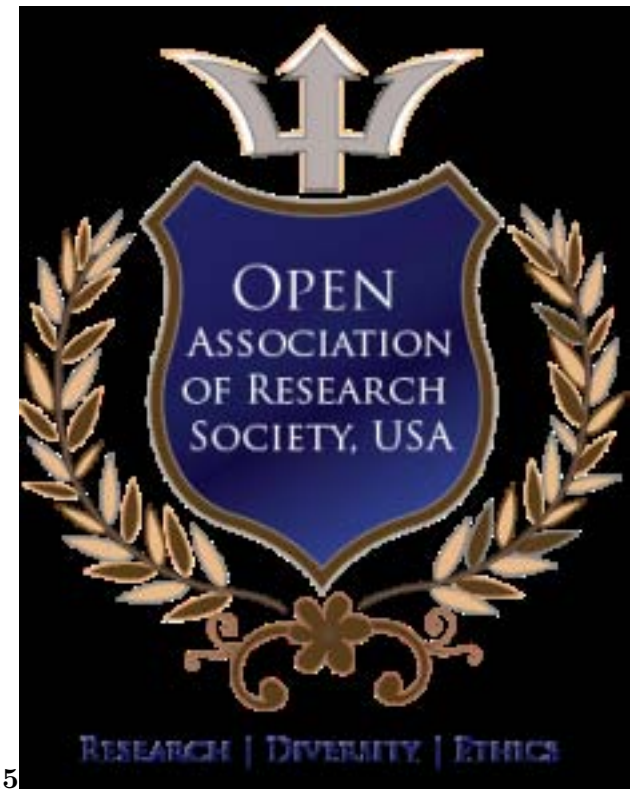

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.1 Acknowledgements

We wish to acknowledge the guidelines and effort provided by designated professors.

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