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A Survey Paper on Role Based Security System Using IP Whitelist

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Abstract
In this paper, we propose the literature review based on authentication using IP white-list. Earlier various types of attacks like phishing, eavesdrop and dictionary attacks were introduced by adversaries to compromise the system. Automated Turing Tests (ATTs) were designed to resist the online dictionary attacks earlier, to secure them from attacks. In this paper, we introduced Robust Authentication Management Framework to resist password attacks. The robustness of this framework forces more complex ATTs to improve the hardness of cracking passwords. We use IP blacklist and white-list technique to prevent from unauthorized access.

Keywords-*Security, ATTs, White list.*

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I.Introduction

Authentication is most common mechanism for online or offline applications. Authentication for web services can be done using three techniques: password based, blacklist and white-list.

Passwords become most popular technology for authenticated users those are trying to access confidential data stored in computers [1].Thus, majority of online applications completely depends on password based authentication. Blacklistis a basic access control mechanism that allows through all elements (email addresses, users, URLs, etc.), which are not explicitly mentioned and those items on the list are denied access. In addition to software, people, devices and Web sites can also be blacklisted. A whitelist is a list or register of those that are being provided a particular privilege, service, mobility, access or recognition[9]. Login IP Whitelist is a range of IP addresses that indicates what IP addresses are authorized to access your account and how it can prevent unauthorized IP addresses from logging in. In this paper we are defining different roles for the IP available in white-list and those that are not available in white-list. The user IP that is available in white-list will be allowed full access to the website while the IP that is not is white-list will be either redirected to deny page or will be given limited functionality.

II.Overview of Blacklist and Whitelist

A Blacklist is a type of testing that is desired to give input against a list of negative inputs. Basically to do such things, you would like to compile a listing of all the negative or bad conditions, then verify that all the input received is not one of the bad or one of the negative conditions [2].

A Whitelist is type of testing that is desired to input against a list of possible correct inputs. Basically to do such things, you would compile a list of all the good input values/conditions, then verify that the input received IS one of this correct conditions [4].

Thus, a Whitelist is the best way to validate input. You know exactly what is desired and that there is not any bad types accepted. And the best way to create a whitelist is the use of regular expressions. Using regular expressions is a great way to abstract the whitelisting, instead of manually listing every possible correct value [4].

III. Literature Review

There are certain issues related to various attacks like phishing, eavesdrop and dictionary attacks. To resist such attacks Automated Turing Tests (ATTs) were designed earlier, but they become too hard to identify by legitimate human-users, because to secure them from attacks [1].

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The frequency of phishing attacks are dramatically increasing every day. Phishing is becoming more popular and unstoppable. Phishing has resulted in lot websites frauds, now the condition is that people are going to do important transactions by using websites. For achieving the lost trust from naive users, capability must have improve to effectively fight out phishing attack [2]. In this the author focuses on types of phishing attacks, its issues, and countermeasures and a phishing detection approach is also based on analysis of page rank, reputation and the source code of the webpage. Our approach can detect the phishing website based on analysis of page rank, reputation and phishing characteristics of the webpage's source code. To overcome the intricacy and complexity in detecting and predicting phishing websites this new approach is presented [3].

The password guessing resistant protocol overcomes the online guessing attacks mainly brute force and dictionary attacks. This is achieved by limiting the number of attempts made during login. An authentication system must provide adequate security forits intended environment, otherwise it fails to meet its primarygoal. A proposed system should at minimum be evaluatedagainst common attacks to determine if it satisfies securityrequirements [10].

High-rate flooding attacks (aka Distributed Denial of Service or DDoS attacks) continue toconstitute a pernicious threat within the Internet domain. Using a proof of concept implementation we have shown how pre-onset IP addresses can be efficiently represented using a bit vector and used to modify a "white list" filter in a firewall as part of the mitigation strategy. For eg, Dong Ho Kang and Byoung Koo Kim proposed a multiple filtering technique based on whitelists to detect illegitimate packets. The proposed system detects the traffic of network and application protocol attacks with a set of whitelists collected from normal traffic [4].

Spam emails are the emails receiver does not wish to receive; it is also called unsolicited bulk email.For avoiding spam there are various traditional anti-spam techniques includes Bayesian based filters, rule based system, IP blacklist, Heuristic based filter, White list and DNS black holes. These methods are based on content of the mail or links of the mail.

Thus, to improve security we can communicate only with trusted sites using a whitelist (list of trustedsites). We present here a pattern for whitelisting firewalls that complements existing patterns for blacklisting firewalls [5].

IV. Graphical Passwords (Existing)

Most graphical password systems are based on either recognition or cued recall. In recognition-based systems the user must recognize previously chosen images from a larger group of distractor images. The

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decision is binary: either the image isknown (recognized) or not known [6]. In cued recall password systems users must click on several previously chosen areas in an image, cued by viewing the image. Both types of systems may have memory advantages over alphanumeric passwords. Alphanumeric passwords are based onpure recall (presuming the user has not written the password down). It is known that recognition memory is better than unaided recall [7].

Furthermore, psychological studies show that images are recognized with very high accuracy (up to 98 percent) after a two hour delay, which is much higher than accuracy for words and sentences [8]. In addition, it has been found that error in recognition of images is only 17 percent after viewing 10,000 pictures [3]. Studies of recall also confirm that pictures are recalled well than words and this has led to the tag "picturesuperiority effect" [7].

Cued recall, as used in graphical password systems, seems to be intermediate between recognition and pure recall. The decision isnot binary based on recognition of the image as a whole. The user has to recall his or her click areas within the image. But scanning the image helps the user identify the correct areas [5].

Other psychological research on images has shown that people can remember detailed visual information in natural scenes [3] and that the content, affect, and organization of images influence the ability to remember an image. In terms of choice of memorable images, psychologists have found that coherent images are more memorable than jumbled ones [3]. Also, LTM stores the meaning of an image, not a replica of it therefore, concrete scenes are likely to be remembered well because of their semantically meaningful content, as opposed to abstract images.

V. Proposed System

The proposed work is planned to be carried out in the following manner.

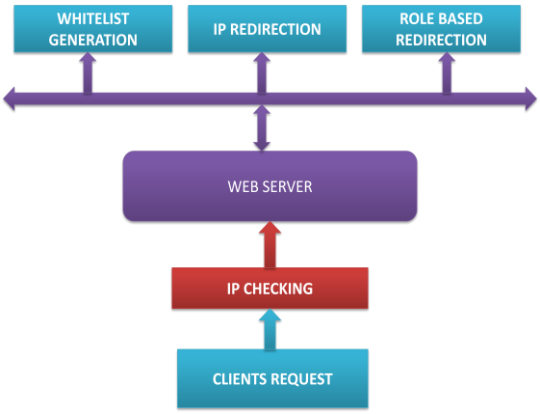

Figure: Basic System Architecture

Use Login IP Whitelist to improve system security and help prevent unauthorized access to your account. The Login IP Whitelist functionality allows you to keep track of which non- whitelisted users are accessing your account whenever they try to access the system. The above architecture consist of a web server and a IP checker that will check the given IP with list of diffrent IP available in

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blacklist or whitelist and the user will be redirected to proper page according to its privilege.

VI. Conclusion

In this paper, we demonstrate various attacks based on password authentication, blacklist and whitelist techniques. We covered the various types of attacks on password based system and their prominent solutions also. But the solutions against theseattacks also become difficult for the legitimate users. The framework will help to reduce the ATTs burden on legitimate users and dramatically improves the complexity for compromising the authentication with the aid of user IP address and cookies information by maintaining at server logs. To improve system security and help prevent unauthorized access to your account we use Login IP Whitelist. The Login IP Whitelist functionality allows you to keep track of which non-whitelisted users are accessing your account.

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