

A Case Performance of User Authentication and Access Control Using Squid Proxy Server

Shafiqur Rehman¹, Safdar Tanweer², Kavita Bhatnagar³

M.Tech Student, Faculty of Engineering & Technology, Jamia Hamdard University, New Delhi, India¹

Assistant Professor, Faculty of Engineering & Technology, Jamia Hamdard University, New Delhi, India²

Assistant Professor, Faculty of Engineering & Technology, Jamia Millia Islamia, New Delhi, India³

ABSTRACT: As the Internet has become central aspect for information technology and has been used everywhere like small and big enterprises or at home, in this regard the authentication of internet by legitimate users is a mandatory. In order to protect the network by any unknown user, to achieve this, squid proxy server is being implemented here. In this paper the case performance of user's login and access control list has been configured on squid proxy server, which includes the allowed and restricted websites. Authenticate users are given login id and passwords to verify their self on the network, in order to access allowed websites only, this creates a secure network and precise bandwidth usage.

KEYWORDS: Squid Proxy server, Authentication, restricted websites, allowed websites, ACL.

1. INTRODUCTION

1.1 Squid Proxy Server

In today's Internet growing world there is part of individuals or numerous instructive foundations, organizations; associations began to build up the web office in their offices and working spot. So the interest for the web suppliers is high they need to give the web association for everybody except the real issues they are confronting are the Bandwidth designation and confinement or control of web gets to. [1] A squid proxy server is a proxy server essentially a system that acknowledges demands from clients for URLs, brings them for the benefit of the client, and returns the outcomes to the client. Proxies are utilized on systems where clients don't have direct access to the Internet yet at the same time should have the capacity to view website pages. A proxy is additionally utilized for reserving generally asked for pages so that if more than one client needs to see the same page it just must be downloaded once.

Numerous organizations and associations have their firewalls set up to square all approaching and active movement by frameworks on inner LANs. This might be accomplished for security reasons, or to point of confinement what representatives can access on the Internet. Since having the capacity to view pages is to a great degree helpful, a proxy is frequently set up with the goal that sites can be gotten to through it [2].

Squid proxy server is submissive to the High Cache Architecture. What's more, uses the Inter Cache Protocol (ICP) to transmit the information between two clients and parent-child server, Squid proxy can enhance definitely and ready to quick the activity from within LAN to the internet or it can be utilized to go about as a front-end quickening agent for a Web server, expanding access to the sites on the server. Taking after points of interest give you the Squid can do: [1]

- Quicker Internet Connections for Internal LAN
- Secure the Internal LAN When scanning the Internet
- Stores the log of User Activity on the www
- Hinders the undesirable movement by clients on the www
- Permit the web access to the authentic clients
- Continuously watch and channel the delicate information
- Do the increasing speed of website pages.

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1.2 Authentication

Present day computer systems give administrations to various clients and require the capacity to precisely distinguish the client making demand. In conventional frameworks, the client's identity is confirmed by checking a secret word wrote amid the login; the framework records the character and utilizes it to figure out what operations might be performed. The procedure of confirming the client's character is called validation. Password based verification is not reasonable for use on PC systems. Password send over the systems can be caught and hence utilized by busybodies to imitate the client. Notwithstanding the security concern, secret key based verification is awkward; client does not have any desire to enter password every time they get to the system administration. This has prompted the utilization of the much weaker confirmation on PC systems. To overcome these issues we require a more grounded authentication strategies in view of cryptography are required. At the point when utilizing validation in view of cryptography, an assailant inclining to the system pick up no data that would empower it to dishonestly claim another's identity.

1.3 Access control

The motivation behind access control is to restrain the activities or operations that an authentic client of a computer system can perform. Access control compels what a client can do straightforwardly, and additionally what programs executing for the benefit of the clients are permitted to do. Along these lines access control looks to avoid movement that could prompt a break of security. Here we used ACL to define that which client is using which service and specially websites.

A focal worry in securing a computer system is access control: choosing whether to allow a specific type of access to a portion of the system's assets or information. Traditionally, the system controls access by utilizing a "reference screen": a trusted bit of code that is utilized to settle on all entrance choices [3].

II. RELATED WORK

Numerous authors (and a few writers ordinarily) have proposed authentication schemes that go well beyond the essential thought of signed in client [4, 5, 6, 7]. Generally, such schemes permit a principal to embrace a "role" on the other hand "restricted context" with the aim of decreasing or improving the key's benefits. Some plans turned out to be very intricate, incorporating into the subsequent compound principals such detail elements as the foremost that marked the endorsement demonstrating the identity of an executing program. Such outlines give extraordinary force, however with a great deal of complexity.

The appreciated research work 'Improving the Performance of Squid Proxy Server by using SCSI HDD and Blocking the Media Streaming' [1] Kadam, Sanjay S., and Y. C. Kulkarni have mainly focused on cache module of Squid Proxy Server in which the access of web pages and video becomes feasible. It make the clients to cache file directly without going to www (World Wide Web) , this work can be modified by introducing access control and authentication module of our research to make the system and the network more secure.

III. IMPLEMENTATION

Squid proxy server has been installed on Ubuntu 15.04 which is a Linux based operating system, as it takes less physical memory and gives better performance. After installing Squid3 version with GUI support of Webmin the authentication and access control is configured can be shown in Fig 1.

3.1 Password Authentication:

1) Creating the password file. The name of the password file should be /etc/squid3/squid_passwd, and it's universally readable.

```
touch /etc/squid3/squid_passwd  
chmod o+r /etc/squid/squid_passwd
```

2) Using the htpasswd program to add users to the password file. In this case, we added a username called shafiq

```
htpasswd /etc/squid/squid_passwd shafiq
```

3) Edit squid.conf; specifically, we define the authentication program in squid.conf, which is in this case auth_users.

```
auth_param basic program /etc/webmin/squid/squid-auth.pl /etc/webmin/squid/users  
acl auth_users proxy_auth REQUIRED
```

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http_access allow auth_users

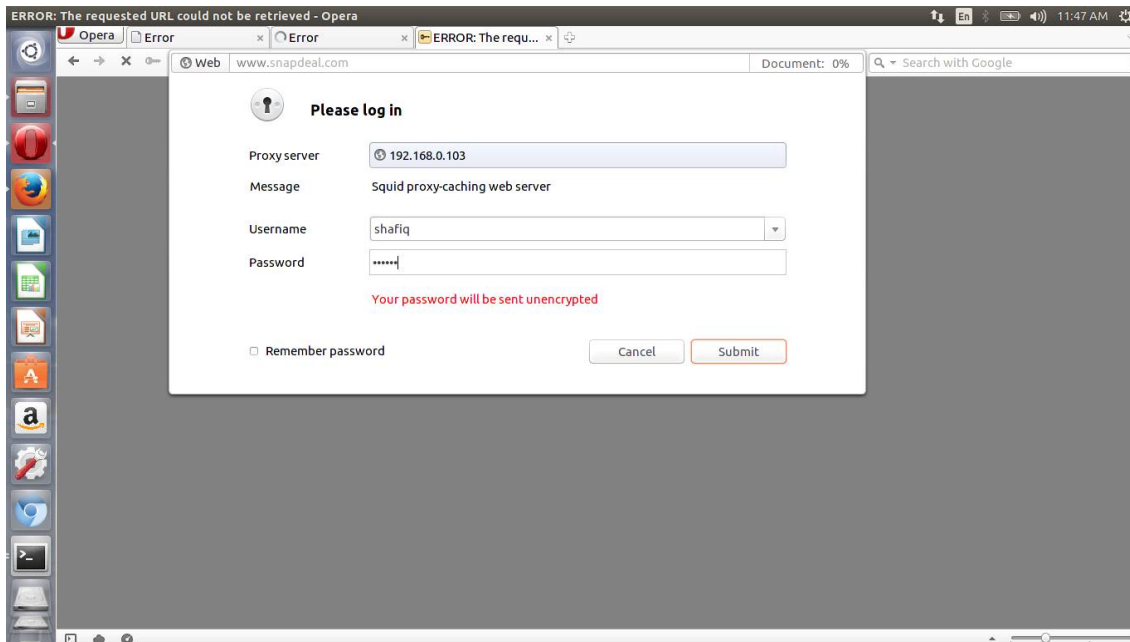


Fig: 1 Password Authentication

3.2 Access Control Lists (ACL)

Squid coordinates every Web access demand it gets by checking the http_access list from top to bottom represented in Fig. 2. If it finds a match, it implements allow or deny statement and quits perusing further. It should be mindful so as not to put a deny explanation in the rundown that hinders a comparable permit statement below it. We consider an order of the client devices on the premise of their capacities of consuming diverse assets and connecting to the assigned proxy node [8, 9].

Restricting Access to specific Web sites:

Squid is also capable of reading files containing lists of web sites and/or domains for use in ACLs. In this example we create to lists in files named /usr/local/etc/restricted-sites.squid3 and /usr/local/etc/allowed-sites.squid3 [10]

```
acl home_network src 192.168.1.1/24
acl allowed_sites dstdomain "/usr/local/etc/allowed-sites.squid3"
acl restricted_sites dstdomain "/usr/local/etc/restricted-sites.squid3"
http_access deny restricted_sites
```

here we restrict some domain which cannot be accessed by the clients under the proxy server.

www.google.com
www.facebook.com
www.youtube.com

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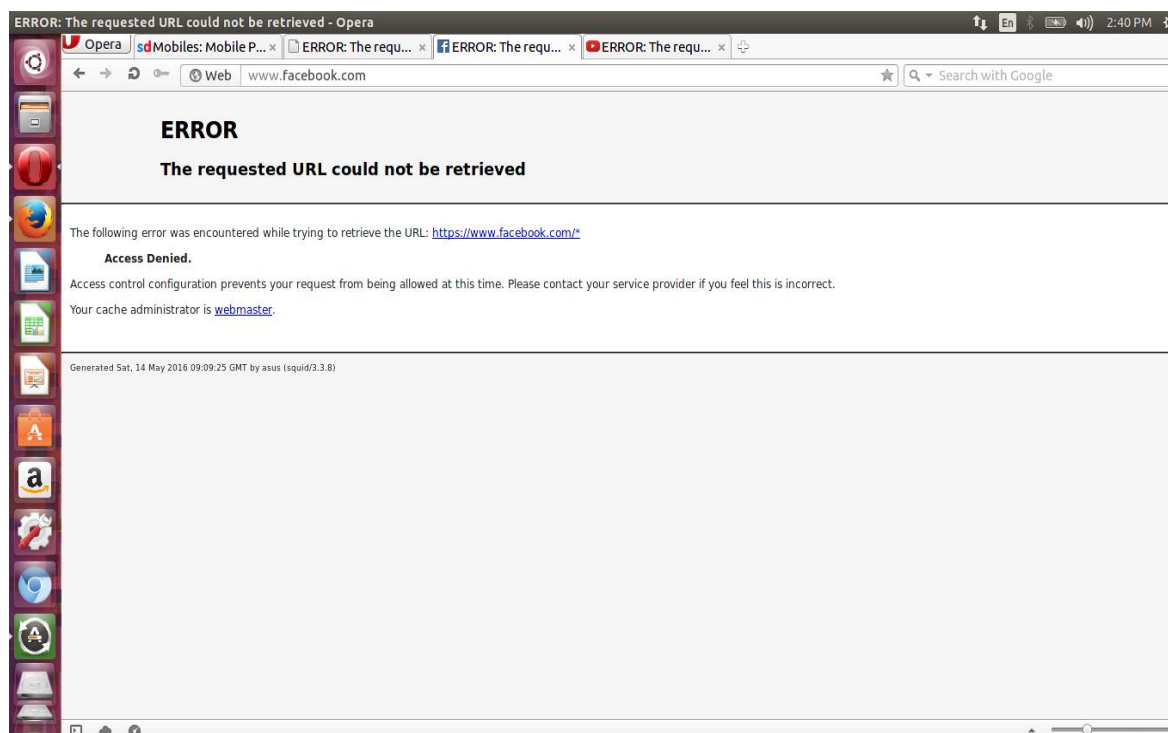


Fig. 2 Website Access Control

IV. RESULTS AND CONCLUSION

Implementation of Squid proxy server on Ubuntu 15.04 which is a Linux based operating system has successfully done using Webmin, it authenticates users to access the proxy. We have set clients to access control list (ACL) and websites which they can use in the network; all can be done at personal computer to work as a server. It is cost efficient to install this server at home or any small and medium enterprises, browsers are configured to use the internet using proxy server which controls their access and the users cannot be available restricted websites. It saves bandwidth usage and gives better and fast output allowing the specific work at working hours. The case performance of squid proxy server is very good under this task. Squid proxy server which is open source and part of head effectively utilize it rather than costly switches and equipment's so it need parcel of backing from the server equipment framework which is crucial for running the squid appropriately and reliably and the experience demonstrates that user authentication is completely versatile and adaptability in access control arrangement.

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