PROXY SERVER

EFFICIENT SOLUTION PROVIDERS

PROJECT REPORT

Submitted in partial fulfillment of the
Requirements for the award of the degree of

M.Sc APPLIED SCIENCE- SOFTWARE ENGINEERING
BHARATHIAR UNIVERSITY, COIMBATORE.

Submitted By

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CERTIFICATE

This is to certify that the project work entitled

"PROXY SERVER"

has been submitted by
Mr.D.BALAJI– 9937S0073

in partial fulfillment of the award of the
degree of Master of Science in Applied Science – Software Engineering,
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To Whomsoever It May Concern

This is to acknowledge that Mr. D . Balaji (99se04), final year student of Master of Science (Software Engineering) , Kumaraguru College of Technology, Coimbatore has successfully completed the project "Proxy Server " for the period 15th December 2003 to 6th March 2004.

During the period the conduct of the student was good.

Yours truly,

9.3.04

E. Praveen Kumar,
Technical incharge

DECLARATION

I hereby decleproject work, "Proxy Server" submitted by me **(Balaji.D 9937S0073)** towards fullfillment of the degree of M.Sc Software Engineering from Bharathiar university as not formed the basis for the award of any degree, diploma or association of any similar tiles. The project work done independently by me under the guidance of internal guide (Mr.C.Rajan Krupa) External guide (Praveen Kumar).

Internal guide

BALAJI.D

ACKNOWLEDGEMENT

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Before I present this project, I would like to thank GOD for his abundant blessings and my parents for their constant support and encouragement without whom this venture would ever be possible for me.

I wish to express my sincere and heartfelt gratitude to **Dr.K.K.Padmanabhan**, Bsc.(Engg), MTech ,Ph.D. ,Principal, Kumaraguru College Of Technology, for providing me the needed encouragement in starting this project and carrying it out successfully.

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I am highly indebted to **Mr.Sunil Mathew** ,Project Head,**ONLINE CONSULTANCY SERVICES**, Coimbatore for giving me the permission to undertake this project. I am grateful to my external guide Mr.**E.Praveen Kumar**, **EFFICIENT SOLUTION PROVIDERS**, Coimbatore for the invaluable help rendered by her during this project.

Last but not the least I would like to thank all those who have contributed to the project otherwise with their valuable suggestions and ideas and helped me in making it a successful one.

SYNOPSIS

SYNOPSIS

A PROXY SERVER is the answer for many companies, who are looking for ways of minimizing the costs of giving their employee's access to the Internet, and yet, increasing the access control the company has over its accessible web sites. The www proxy server provides access to the Web for people on closed subnets who can only access the Internet through a firewall machine.

The proxy allows managing the kind of activities that the different users are authorized to do. It can also give reports of user's activity and one very useful thing: providing information using smart cache system, therefore making response time shorter, after the first document fetch.

This document gives the general ideas of proxies and caching-with regard to the major advantages and disadvantages of these ideas.

It should be remembered that the Internet's growth and success is strongly related to its "open" nature. An Internet, which would have been segmented from the start with, firewalls, packet filters, and proxies may not have become what it is today.

ORGANISTION PROFILE

ORGANISATION PROFILE

Efficient Solution Providers was started in the year 2001 by a team of IT Professionals and Engineers. The mission of the company is to provide IT Solutions, which can be applied in every day-to-day life and be used for the betterment of the mankind.

The organisation has so far developed several application projects for clients in India and abroad. Other activities of the organization include web applications, networking solutions, total system integration solutions and customization.

The core field where the organisation stands unique among other peers is that the organisation has got electronics engineers also, thus providing solutions for interfacing the system with machines and other electronic equipment's and gadgets in manufacturing units like Textile Mills, Paper Mills etc and also for other testing laboratories. Production Monitoring, Quality Control, Attendance and timing reports etc.. Are a few systems under development in this field.

Apart from customized solutions, the organisation has currently planned to develop several ready to use software and market them, which the customers can use readily.

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INTRODUCTION

1. INTRODUCTION

1.1 Project Overview

The main reason for using a proxy server is to give access to the Internet from within a firewall. An application-level proxy makes a firewall safely permeable for users in an organization, without creating a potential security hole through which one might get into the subnet.

The proxy can control services for individual methods, host and domain, and more-filtering client transactions. A very important thing about proxies is that even a client without DNS can use the Web: It needs only the IP address of the proxy. Application level proxy facilitates caching at the proxy. Usually, one proxy server is used by all clients connected to a subnet.

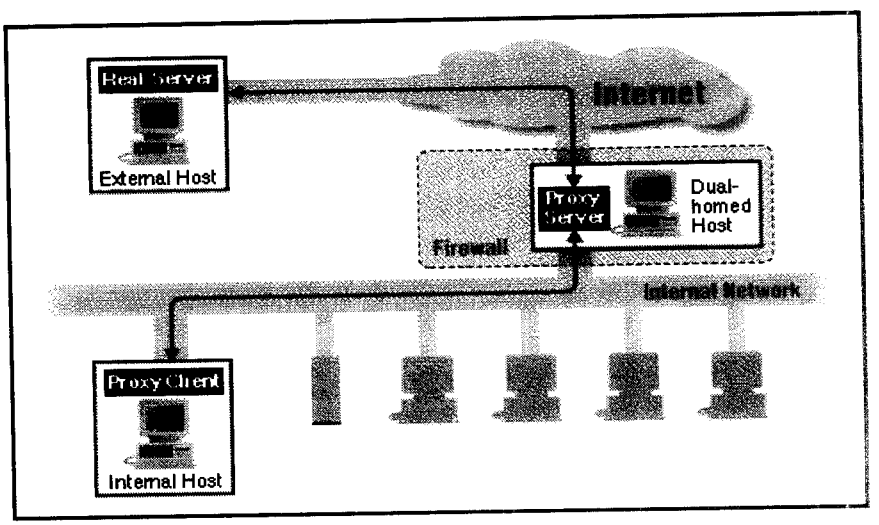
This is why the proxy is able to do efficient caching of documents that are requested by more than one client. The fact that proxies can provide efficient caching makes them useful even when no firewall machine is in order. Configuring a group to use a caching proxy server is easy (Most popular Web client programs already have proxy support built in), and can decrease network traffic costs significantly, because once the first request was made for a certain document, the next ones are retrieved from a local cache.

Proxying is a standard method for getting through firewalls, rather than having each client get customized to support a special firewall product or a method. That is, you don't need to make changes in the source codes of clients, which is impossible in some cases. It can be configured as is to be a proxy client. It is also possible to write clients that only understand HTTP - other protocols are handled by the proxy in a transparent way.

Using proxies allows high level logging of client transactions (data and time, URL, and some other fields in an HTTP transaction) which is not possible in the IP or TCP level. In the usual case, all the clients within a given subnet use the same proxy

server. This makes it possible for the proxy to cache documents efficiently that are requested by a number of clients.

Clients without Domain Name Services (DNS) can still use the Web. The proxy IP address is the only information they need. Organizations using private network address spaces such as the class A net 10.*.*.* can still use the Internet as long as the proxy is visible to both the private internal net and the Internet.



SYSTEM STUDY AND ANALYSIS

2. SYSTEM STUDY AND ANALYSIS

The system study and analysis includes the study of the study of the system and the basic analysis of the system. The analysis and the study of the system are as follows.

2.1 Source of data

All the data's, which are used in Proxy server, is a primary data. All the data's that is used in the Proxy server is provided by the organization. The primary data provided by the company is highly confidential that it can't be exposed to unauthorized people, Hence We are restricted to publish the data in this document.

2.2 Existing system

This existing system is a LAN of systems connected to the internet individually, in the existing system the systems are connected to the internet individually, here each system uses its own IP address to access to the internet, which is much expensive because each system should have an individual account to connect to the internet. Moreover the process of caching is not possible ie if different users in the lan wish to access the same website, each system downloads the website from the scratch , which results in the wastage of time. Thus a proxy server overcomes these disadvantages.

2.3 Proposed System

The main reason for using a proxy server is to give access to the Internet from within a firewall. An application-level proxy makes a firewall safely permeable for users in an organization, without creating a potential security hole through which one might get into the subnet. The proxy can control services for individual methods, host and domain, and more-filtering client transactions. A very important thing about proxies is that even a client without DNS can use the Web:

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Workstations do not have a direct physical connection to the Internet and therefore it is not possible for them to communicate in a direct way. The proxy server is placed between the physical connection point to the Internet, and the connection point to the local net, delivers the requests from the local net to the Internet as if it was the original requester.

The proxy is a special HTTP server that typically runs on a firewall machine. It waits for requests coming from inside the firewall, and then sends them to the remote server, gets the response and sends it back to the client.

For transactions of a client with the proxy server, the client only uses HTTP, even when accessing a resource served by a remote server using another protocol, like FTP. When sending a request to a proxy, the full URL is specified and not just the pathname along with optional search keywords as with regular HTTP request.

As for caching, it is done by saving copies of retrieved pages and objects (like common graphic and voice files) in a local file on disk for further requests of users. The caching mechanism can survive restarts of the proxy process and also restarts of

the server machine. When a retrieval of an updated document is needed, the remote server should be contacted for the GET request. Using the head information of a document is good for checking if it has been modified.

For more efficiency in these situations, the If-Modified-Since request header was added to the HTTP, which means the header contains the last modification time and date of the object currently in the client. Now, if the object hasn't been changed, than only a new expiry date is sent, otherwise the request is served as a regular HTTP request.

A good proxy system gives suitable tools for managing and controlling the data flow. For instance: user authorization for accessing sites, blocking "strangers" trying to get into the local net, tracing users operations and storing some common information for the benefit of all the net users without the need to bring it again from outside.

SYSTEM REQUIREMENT SPECIFICATION

3. SYSTEM REQUIREMENTS SPECIFICATION

The Software Requirements Specification (SRS) section outlines the characteristics of a good SRS and lists the expected deliverable contents for this document produced during the analysis phase.

3.1 Project Description

About the Project

Workstations do not have a direct physical connection to the Internet and therefore it is not possible for them to communicate in a direct way. To solver this problem, we develop a proxy server that is placed between the physical connection point to the Internet, and the connection point to the local net. It delivers the requests from the local net to the Internet as if it was the original requester. It waits for requests coming from inside the firewall, and then sends them to the remote server, gets the response and sends it back to the client.

Modules

- Proxy servers provide three main functions:
- Firewalling and Filtering
- Connection Sharing
- Caching

The features of proxy servers are especially important on larger networks like corporate intranets and ISP networks. The more users on a LAN and the more critical the need for data privacy, the greater the need for proxy server functionality.

3.1.1. Definitions, Acronym's and Abbreviations

- Packet - A piece of data transmitted over a packet-based network, such as a TCP/IP network. Also called *datagram*.

- PCI - Peripheral Component Interconnect.
- Port - A software-based "hole" for data transmissions going to or from a computer.
- Protocol - Defines rules for the transmission of data.
- Cache- Refers to a file where data is temporarily stored.
- DNS - Domain Name System is a naming scheme for IP addressing.

3.1.2. Module description

Caching

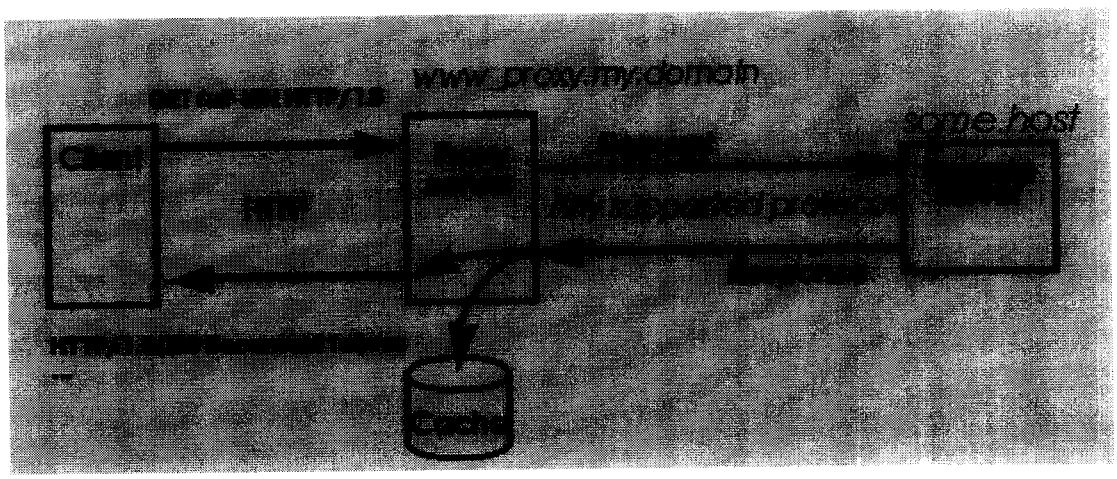
The basic idea in caching is simple: store the retrieved document into a local file for further use so it won't be necessary to connect to the remote server the next time that document is requested. However, there are many problems that need to be coped with once caching is introduced. How long is it possible to keep a document in the cache and still be sure that it is up-to-date? How to decide which documents are worth caching and for how long?

Document expiry has been foreseen in the HTTP protocol which contains an object header specifying the expiry date of an object. However, currently there are very few servers that actually give the expiry information, and until servers start sending it more commonly we will have to rely on other, more heuristic approaches, like only making a rough estimate of the time to live for an object.

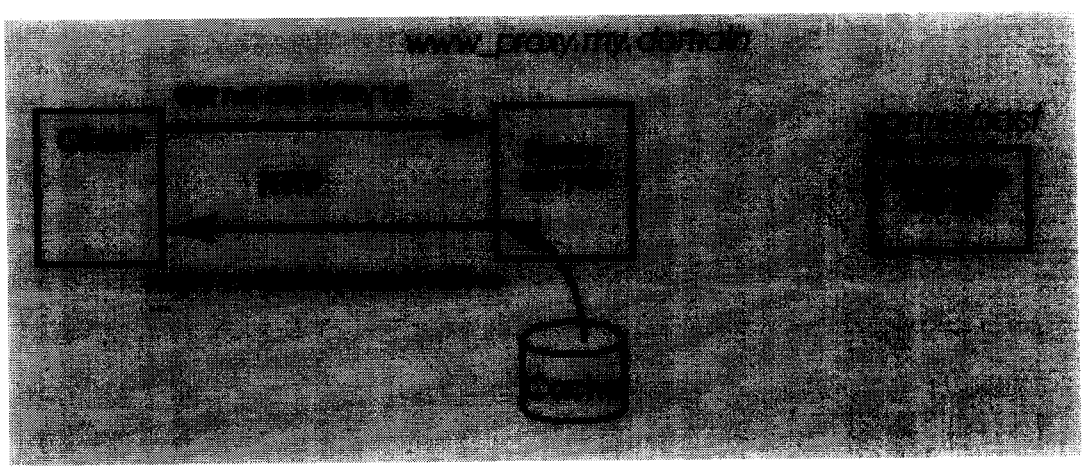
More importantly, since many of the documents in the Web are "living" documents, specifying an expiry date for them is generally a difficult task. A given document may remain unchanged for a relatively long time, then suddenly change. This change may have been unforeseen by the document author and so wouldn't be accurately reflected in the expiry information. The caching mechanism is disk based

and persistent, which means it survives restarts of the proxy process as well as the server machine itself. Because of this feature, caching opens up new possibilities when the caching proxy server and a Web client are on the same machine. The proxy can be configured to use only the local cache, making it possible to give demos without an internet connection.

The requested document is retrieved



Up-to-date version of the requested document



Firewall and Filtering

Packet filtering works at the lower levels of the model and does not provide authentication or security for sessions. The role of packet filtering in a firewall environment is simply to deny or allow packets on the physical network. Four variables control the filtering:

- Source IP
- Source Port
- Destination IP
- Destination Port

A firewall is a structure intended to keep a fire from spreading. Buildings have firewalls made of brick walls completely dividing sections of the building. In a car a firewall is the metal wall separating the engine and passenger compartments. Internet firewalls are intended to keep the flames of Internet hell out of your private LAN. Or, to keep the members of your LAN pure and chaste by denying them access the all the evil Internet temptations.

The first computer firewall was a non-routing Unix host with connections to two different networks. One network card connected to the Internet and the other to the private LAN. To reach the Internet from the private network, you had to logon to the firewall server. You then used the resources of the system to access the Internet. For example, you could use X-windows to run Netscape's browser on the firewall system and have the display on your work station. With the browser running on the firewall it has access to both networks.

Firewall with Proxy Server

If you need to monitor where users of your network are going and your network is small, you can integrate a proxy server into your firewall. ISP's some times do this to create interest list of their users to resell to marketing agencies.

You can put the proxy server on your LAN as will. In this case the firewall should have rules to only allow the proxy server to connect to the Internet services. This way the users can get to the Internet only through the proxy.

3.1.3. General Description

Product Perspective

- Squid version 1.1.10-WWW proxy cache package, implementing ICPv2.
- Harvest version 1.4p12-WWW proxy cache package, implementing ICPv2.
- Microsoft Proxy Server 2.0-recently developed for use with Windows NT 4.0.
- Netscape Proxy Server 2.5-for use with UNIX and Windows NT.

Product Functions

Proxy servers provide three main functions:

- Firewalling And Filtering
- Connection Sharing
- Caching

The features of proxy servers are especially important on larger networks like corporate intranets and ISP networks. The more users on a LAN and the more critical the need for data privacy, the greater the need for proxy server functionality.

3.1.4 Overview of Modules

Description - Proxy Servers, Firewalling and Filtering.

Proxy servers work at the Application layer, layer 7 of the OSI model. They aren't as popular as ordinary firewalls that work at lower layers and support application-independent filtering. Proxy servers are also more difficult to install and maintain than firewalls, as proxy functionality for each application protocol like

HTTP, SMTP must be configured individually. However, a properly configured proxy server improves network security and performance. Proxies have capability that ordinary firewalls simply cannot provide.

Because they function at the OSI Application layer, the filtering capability of proxy servers is relatively intelligent compared to that of ordinary routers. For example, proxy Web servers can check the URL of outgoing requests for Web pages by inspecting HTTP GET and POST messages. Using this feature, network administrators can bar access to illegal domains but allow access to other sites. Ordinary firewalls, in contrast, cannot see Web domain names inside those messages. Likewise for incoming data traffic, ordinary routers can filter by port number or network address, but proxy servers can also filter based on application content inside the messages.

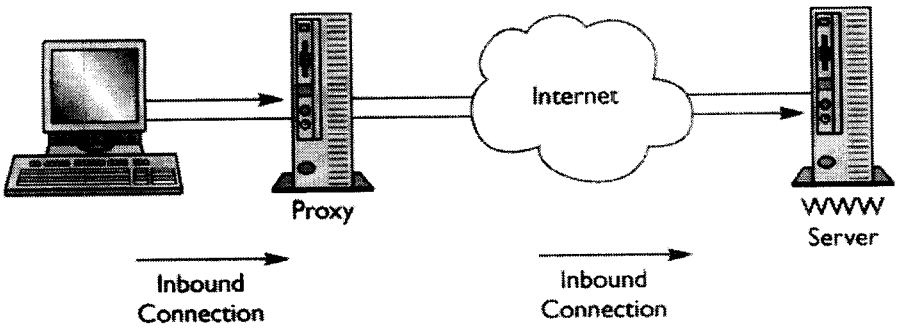
Description - Connection Sharing with Proxy Servers

Various software products for connection sharing on small home networks have appeared in recent years. In medium- and large-sized networks, however, actual proxy servers offer a more scalable and cost-effective alternative for shared Internet access. Rather than give each client computer a direct Internet connection, all internal connections can be funneled through one or more proxies that in turn connect to the outside.

Several things are required of the proxy server:

- Accepting client connections
- Locating the server
- Initiating server connections
- Relaying information

Application-layer proxy servers must be programmed specifically for each different application. For this reason, most proxy servers support only a small set of true application proxies. The most popular of these are HTTP and FTP, with the outdated Gopher protocol occasionally being supported.



A Web browser establishing a connection through a proxy server

Description - Caching

The caching of Web pages by proxy servers can improve a network's "quality of service" in three ways. First, caching may conserve bandwidth on the network, increasing scalability. Next, caching can improve response time experienced by clients. With an HTTP proxy cache, for example, Web pages can load more quickly into the browser. Finally, proxy server caches increase availability. Web pages or other files in the cache remain accessible even if the original source or an intermediate network link goes offline.

Proactive Caching

Passive or on-demand caching is the mechanism proxy servers use to store remote Web pages so that they may be served directly from the cache, speeding response time. This cache eventually ages and expires. Once Web pages have expired, they must be redownloaded from the Internet before being returned to a client. Waiting for a client to request a Web page before reading it into the cache makes the most efficient use of network bandwidth possible but increases latency. Proactive caching helps to reduce the time people spend waiting on pages to be refreshed after expiring.

The proxy server will watch the files in its cache and, when a file begins to approach its expiration date; will requery the Internet Web server for a newer version of the file. In this way, the cache may receive an updated version of the file without

ever making a user wait for the file to be updated. Because the proxy server is capable of timing these proactive updates during nonpeak hours, the total time users spend waiting for a page is reduced. However, the total amount of network traffic generated is actually increased: Because the proxy server is requesting pages without waiting for a user to request them, it may waste time and bandwidth looking for pages that are never again required.

3.2 Processing Environment

3.2.1 Software profile

- NT Server 4.0 with IIS2.0
- Windows NT Service Pack 4 or 5
- MS Internet Explorer 4.0 or greater with SP1 or greater

3.2.2 Hardware profile

- Minimum of 128MB RAM,
- 4GB hard disk space
- Pentium II (or higher) processor.
- At least two Network Interface Cards (NICs)

The server should be dedicated to Internet Services and should not be used for application serving or file and print sharing. No critical data should be stored on this server and backup implementation can be minimal (primarily for log files). Drives used for caching must be formatted as NTFS and should be prepared before installation. Both network cards must be configured with the TCP/IP protocol and no other protocols if possible.

TCP/IP Configuration

Proxy Server is designed to work with public and private IP addresses by default. Private IP addresses are not routable on the Internet but they follow the same rules of TCP/IP networking. To configure TCP/IP for both cards do so in the Control Panel of the NT Server under Network. The card that is directly connected to the private network should have a private address and no default gateway. The public card should have a default gateway = to the next router on the network. Do not enable routing for TCP/IP protocol.

Connected to the Internet and one private address would be assigned to the NIC directly connected to the Local Area Network. In some cases a third NIC may be added for what is commonly called a "DMZ" or "Demilitarized Zone". The demilitarized zone has public addresses and is typically established for services that cannot be established with server proxying. This will be discussed in more detail later. In the Local Address Table (LAT) all private networks will automatically appear after installation as well as public networks defined by public NICs in the server.

Windows NT

NT refers to the computer's operating system. An operating system dictates how all the parts of your computer work together and how specific tasks are to be performed. Windows NT 4.0 is similar in appearance and style to Windows 95. Windows 3.11 and NT 4.0 share few of the same characteristics. If one is familiar with the Windows 3.11 environment, he may need to spend some extra time adapting to the new look of the NT 4.0 main screens.

Windows 3.11 is a 16-bit operating system and Windows NT is a 32-bit operating system. One big difference between the two systems is that Windows NT processes information twice as fast as the older Windows 3.11 system. This gives Windows NT the power to process higher-end applications, such as Word 7.0 and Access 7.0.

HOW THE WEB SERVER WORKS

When the user tells the browser to go fetch a web page, the browser parcels up this instruction using a protocol called the TCP. TCP ensures that the entire message is correctly packaged up for transmission. Before the packets are sent, the HTTP protocol labels the packets with address so that they can reach wherever they are destined to reach. The message passed from the browser to the web server is known as an *HTTP request.* When the web server receives the request, it checks its stores to find the appropriate page. If the page is found, it parcels up the data using TCP and sends it back to the server. Otherwise an error message is generated. The Response that is generated by the Web server is called *HTTP Response.* This response contains the html content, which will be understood by the browser, and it will be displayed on the client's machine.

SYSTEM DESIGN AND DEVELOPMENT

4. SYSTEM DESIGN AND DEVELOPMENTS

4.1 Overall Data Flow

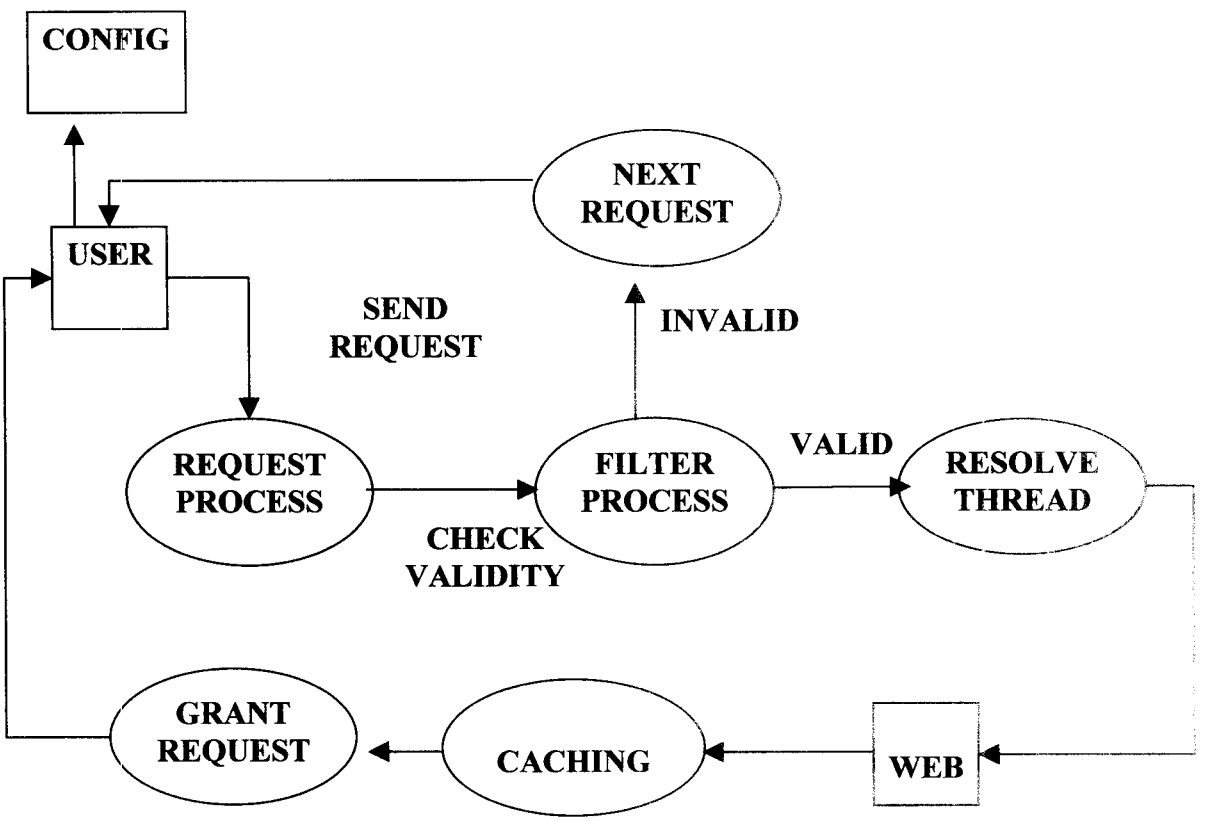


Fig 1 The data flow diagram represents the data flow in the Proxy Server

4.2 Request & Filter Process

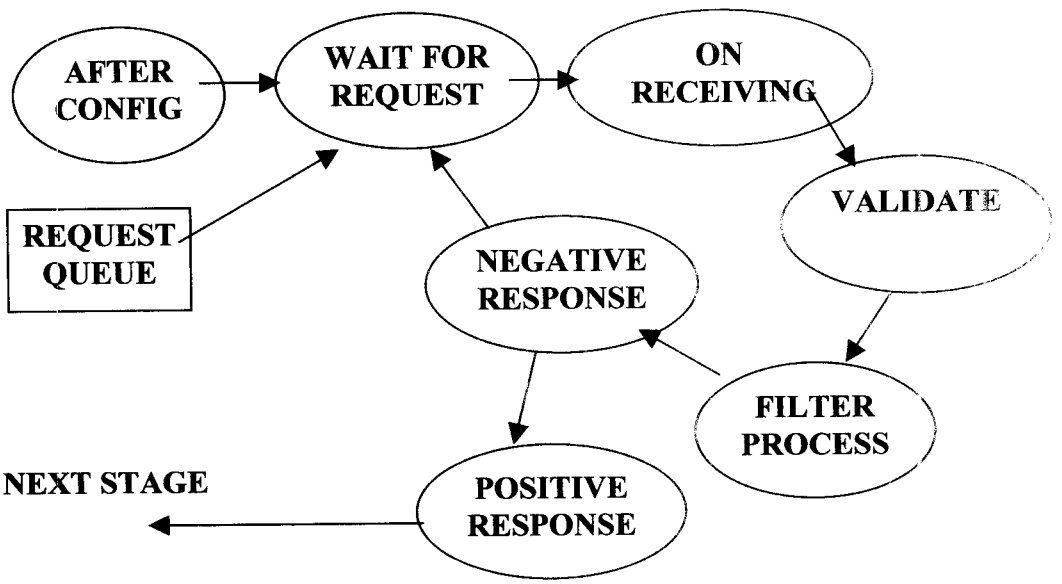


Fig 2 The data flow diagram represents the data request and filter process in Proxy Server.

4.3 Information Granting Process

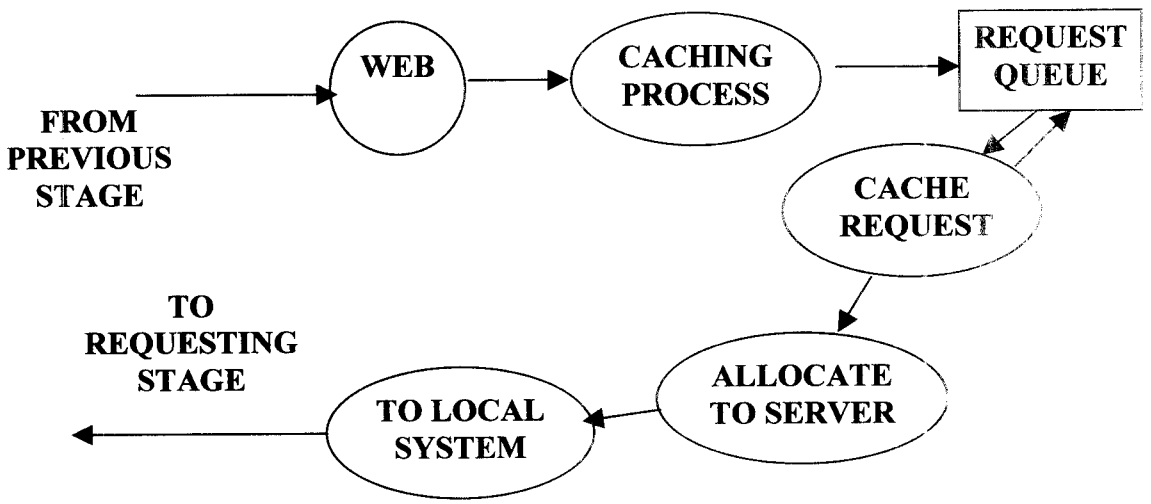


Fig 3 The data flow diagram represents the grant request process in Proxy Server.

4.4 CODE DESIGN

CLASS	METHODS	DESCRIPTION
Proxy	ReadParam()	Proxy reads the config. file specified on the command line and starts the proxy Socket thread.
ProxySocket	ConnectionLost()	Listens port communications
SocketToBase	Cleanup()	Clears present Information
	SetUp()	Lists new requests
	Run()	
	ProcData()	Gets Data
	DumpBuffer	Clears old data
	BytesToHex()	Conversion for transmission
	BytesToChar()	For transmission
Logger		Log information file
AppendFile		New file
Interface		User interface screen

4.4.1 Code Description

Proxy. java contains a set of classes that implement a complete multi-threaded TCP/IP proxy server. It listens at a specified port number and, on accepting a socket connection, will make an outbound socket connection (as specified in proxy.ini).

On establishing the new outbound socket connection, the two sockets are passed to two socket handler threads (that are dynamically created) whose job is simply to read from one socket and write to the other. The proxy goes back to waiting for a connection, it can be seen that this Proxy can handle multiple simultaneous connections.

The socket handler thread that detects a closed socket will close the sockets in its peer thread, then itself, both threads will then terminate.

- Read the local port, remote machine name and remote port as command line arguments (in that order).
- Create a socket and accept TCP requests on the local port.
- Create a socket and connect to the remote machine's remote TCP port.
- Create two threads, one to handle each of the following:
- Read an unknown amount data from the local port and forward it to the remote port
- Read an unknown amount of data from the remote port and forward it to the local port.
- Close the sockets if either closes or an exception occurs.
- Correctly terminate the threads.

- After the sockets are closed, connect more clients without re-starting the proxy.

Each of these tasks was implemented entirely in Java, and can be run on any machine which supports Java. The following is a detailed description of how each was accomplished:

Read the local port, remote machine name and remote port as command line arguments (in that order):

This was done by by parsing the commands entered by the user when the Proxy Server was initailly started, picking off each peice. The local port number was parsed first, followed by the remote host name, and finaly the remote port address. Each of these were checked for legality, and passed to the rest of the program if acceptable. If any were invalid, the program would exit and report the appropriate error.

Create a socket and accept TCP requests on the local port:

This was accomplished by creating a new Server Socket Server, from the ServerSocket Class. The port which it listens on is the one passed by the user on the command line. An Accepting socket was cxreated by using the Accept() method of the Server Socket Class. This port was now ready to begin accepting TCP requests.

Create two threads:

This was done by implementing a new Class, proxyThread which extends the Thread Class, and creating 2 new proxyThreads, which accept Sockets as their parameters. The Sockets that are passed are the Incoming and Outgoing Sockets, in that order. The Run() method of the Thread Class is overwritten, and does the actual data stream transferring, by the use of the OutputStream object, and the IpnutStream object of the Socket Class. The Proxy accepts data on the InputStream with the use of the Read() method, and stores it in a buffer. It then sends this buffer on the OutputStream with the use of the Write() methods of that sream.

One to handle each of the following:

Read an unknown amount data from the local port and forward it to the remote port.

This was done by passing the incoming and outgoing port (in that order) to the proxyThread constructor. This creates a Listening Socket on the Proxy Server, listening on the local port, and a Sending Socket, directed to the Server who is serving the requests. The amount of data read at each instant is printed to the screen where the proxy is running.

Read an unknown amount of data from the remote port and forward it to the local port.

In this case, the proxyThread class was sent the Socket parameters in the reverse order. The Listening Socket (first parameter) was the socket connected to the Server, and the Sending Socket (second parameter) was connected to the local port of the Client. The amount of data read at each instant is printed to the screen where the proxy is running.

Close the sockets if either closes or an exception occurs.

If any type of error is detected while the server is either started or running, it will immediately close all sockets, and terminate itself. If either the Client or the Server close their connections to the other, the Proxy Server will also close all sockets and terminate itself. It knows if either the Client or Server has disconnected because a -1 is sent. The Proxy Server listens, waiting for this to be sent, and when it is encountered, all sockets are closed.

Correctly terminate the threads:

Again, if any type of error is detected while the server is either started or running, it will immediately end all threads, and terminate itself. If either the Client or the Server closes their connections to the other, the Proxy Server will also end all

threads and terminate itself. It knows if either the Client or Server has disconnected because a -1 is sent. The Proxy Server listens, waiting for this to be sent, and when it is encountered, all threads are closed.

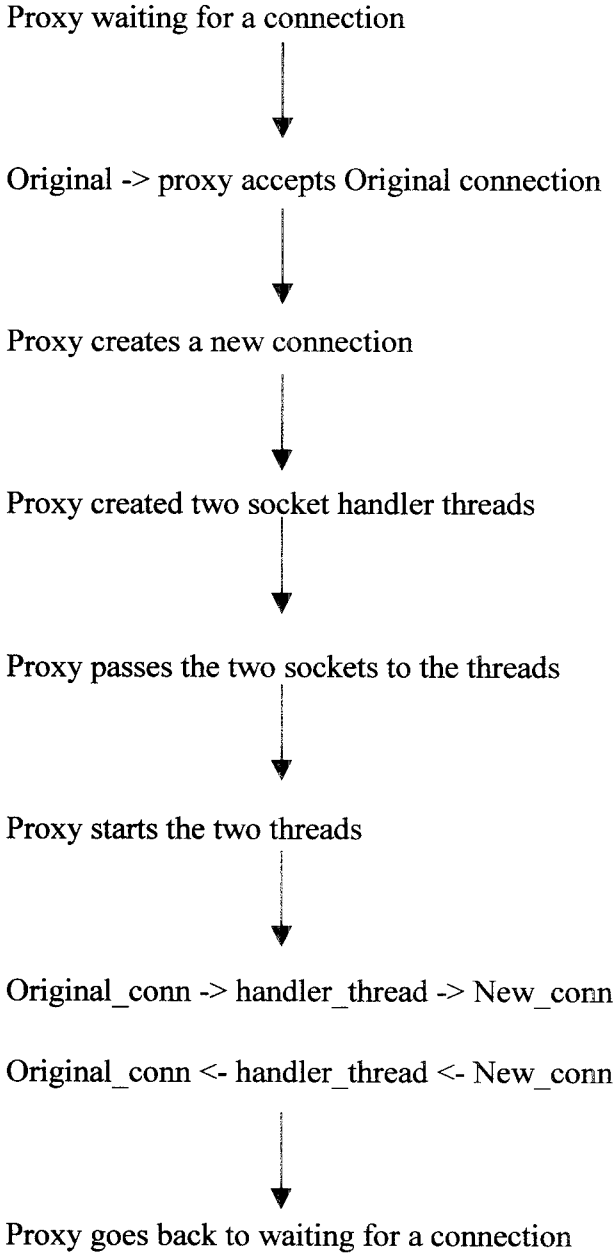
After the sockets are closed, connect more clients without re-starting the proxy:

Once the server is started it will continually listen for new connections on the port it is listening to. Therefore, if one connection is ended, thereby closing the sockets and terminating the threads, the Proxy Server will still be active, listening for more users to connect. It does not need to be restarted in order to be connected to by more clients, because it runs independently, with or without users currently using it.

Complete each of these tasks for multiple concurrent users:

Because the server creates a new pair of threads for each client which attempts to connect to it, it can support multiple concurrent users simultaneously without any problem.

Logical flow of code



SYSTEM TESTING AND IMPLEMENTATION

5.SYSTEM TESTING AND IMPLEMENTATION

Testing is an important phase in development in software development and application development in the world wide web. Testing will lead the error free application to the client.For this Automating Resources Time Scheduling there is a need of six types of testing.

They are

Unit Testing

Validation Testing

Integration Testing

Acceptance Testing

User Acceptance Testing

Unit Testing

Unit testing comprises the set of tests performed by an individual programmer prior to the integration of the unit into the large system. A program unit is usually small enough that the programmer who developed the unit can test it. Then the unit is integrated into the large part of the system. Unit testing is always white-box oriented and the step can be conducted in parallel for modules.

Validation Testing:

Software testing and validation is achieved through a series of black box tests that demonstrate conformity with the requirement. A test plan outlines the classes to test to be conducted and a test procedure defines specific test cases that will be used to demonstrate conformity with the requirements. Both, the planned the procedures are designed to ensure that all functional requirements are achieved, documentation is correct and other requirements are met. After each validation test case has been conducted, one of the two possible conditions exists.They are the function or performance characteristics conform to the specification and are accepted.

A deviation from specification is uncovered and a deficiency list is created.This project is validated under different test conditions.The requirements as per the specification are met.

Integration Testing:

Bottom-up integration is the traditional strategy to integrate the components of the software system into the functional unit. Bottom-up integration consists of unit testing of the entire system. Modules are tested inisolation from one another in an artificial environment, known as a "test hareness",which consist of the driver programs and data necessary to exercise the modules. Moreover Integration testing addresses the issues associated with the dual problem of verification and program construction. After the appplication has been integrated a set of high-order tests were conducted.

Acceptance Testing:

Acceptance testing involves planning and execution of functional tests,performance tests, and stress tests in order to demonstrate that the implemented system satisfies its requirtements.

In addition to the functional performance tests, stress tests are performed to determine the limitations of the system. Tools of special importance during acceptance testing include a test coversge analyzer, a timing analyzer and a coding standard checker.Testing is the process of executing test cases with the intension of exposing the errors.

5.1 System Implementation:

Implementation is the stage where the thoeratical design is converted into working system. It consist of

Testing and Debugging

Error Correction

Change over

Implementation includes equipments installation and user training. For the system to begin operation, a sufficient number of users have been trained to the system. Several hours were sheduled for a number of users so that they were able to fully understand the new system and had an opportunity to familarize themselves with the various input screens and the generation of output.

The change over is another important aspect of the implementation process and had to be handled carefully.The existing system is changed to the new system and the system is found to meet its objectives. Data from the previous system, static contend, is ported to the new system and the result produced are compared with that of the previous system. The new system is found to satisfy the user needs. It alloes the result to the new system to be compared with the old system before acceptance by the user, there by promoting the user confidence.

CONCLUSION

CONCLUSION

Proxy servers enable safer, more efficient Internet access. They can be configured to provide firewall and filtering support, shared connections, and caching. Browsers need to be configured to take advantage of proxy servers, but this configuration can be automated to a large extent.

Although proxies make the Web a somewhat less open place, and can theoretically introduce additional network overhead, they should remain an essential Web technology for years to come.

REFERENCES

REFERENCES

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http://www.zdwebopedia.com/TERM/p/proxy_server.html

http://muffin.doit.org/doc/rfc/tunneling_ssl.html

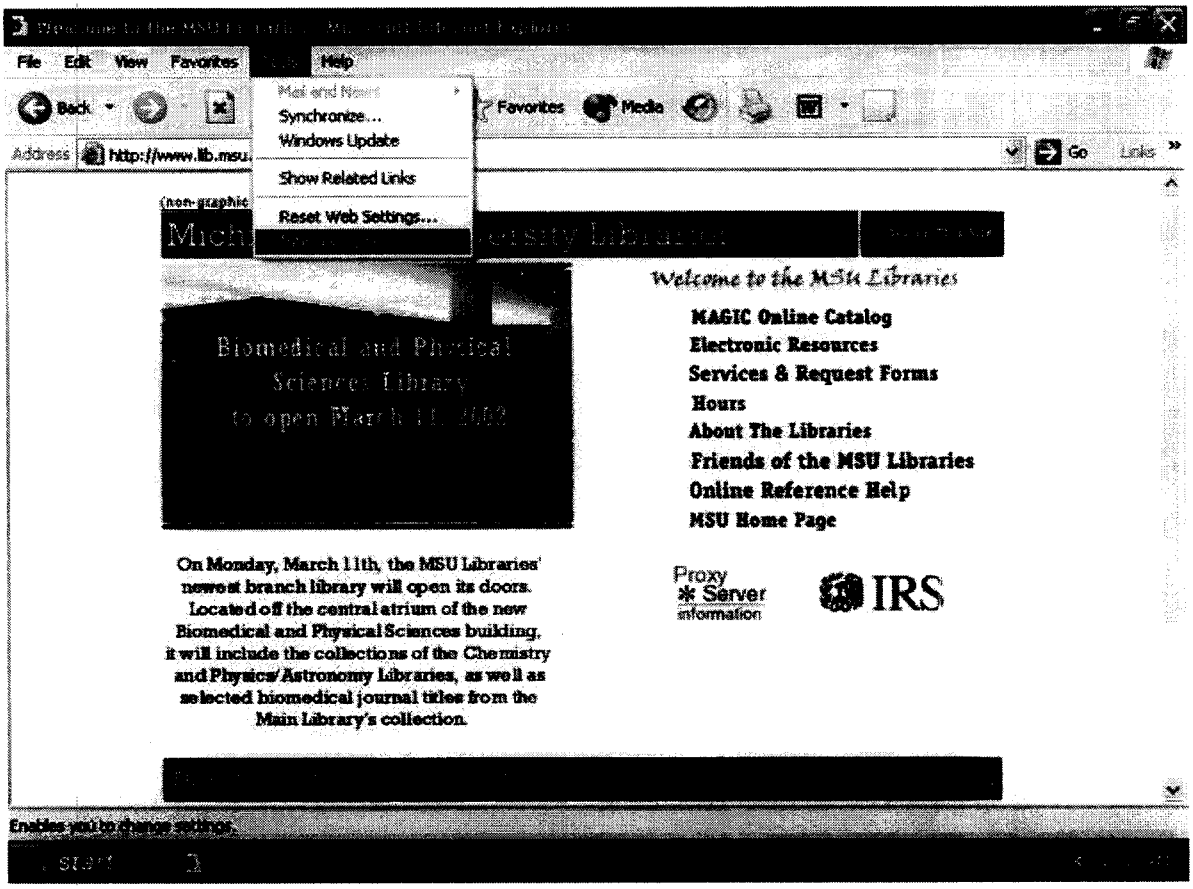
http://www.udel.edu/topics/connect/proxy.html

http://futon.sfsu.edu/~rrussell/spfvprox.htm

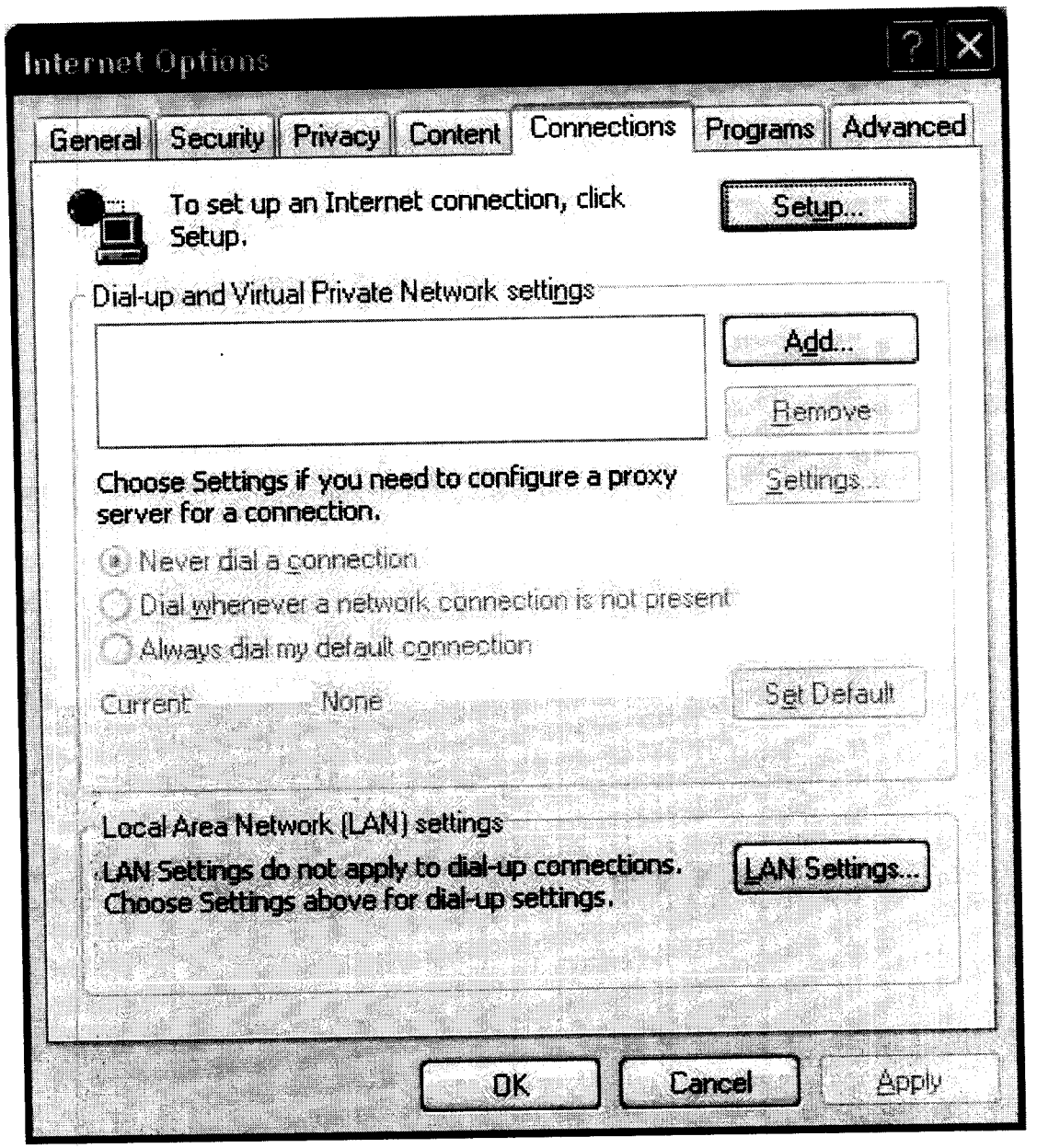
ANNEXURE

ANNEXURE

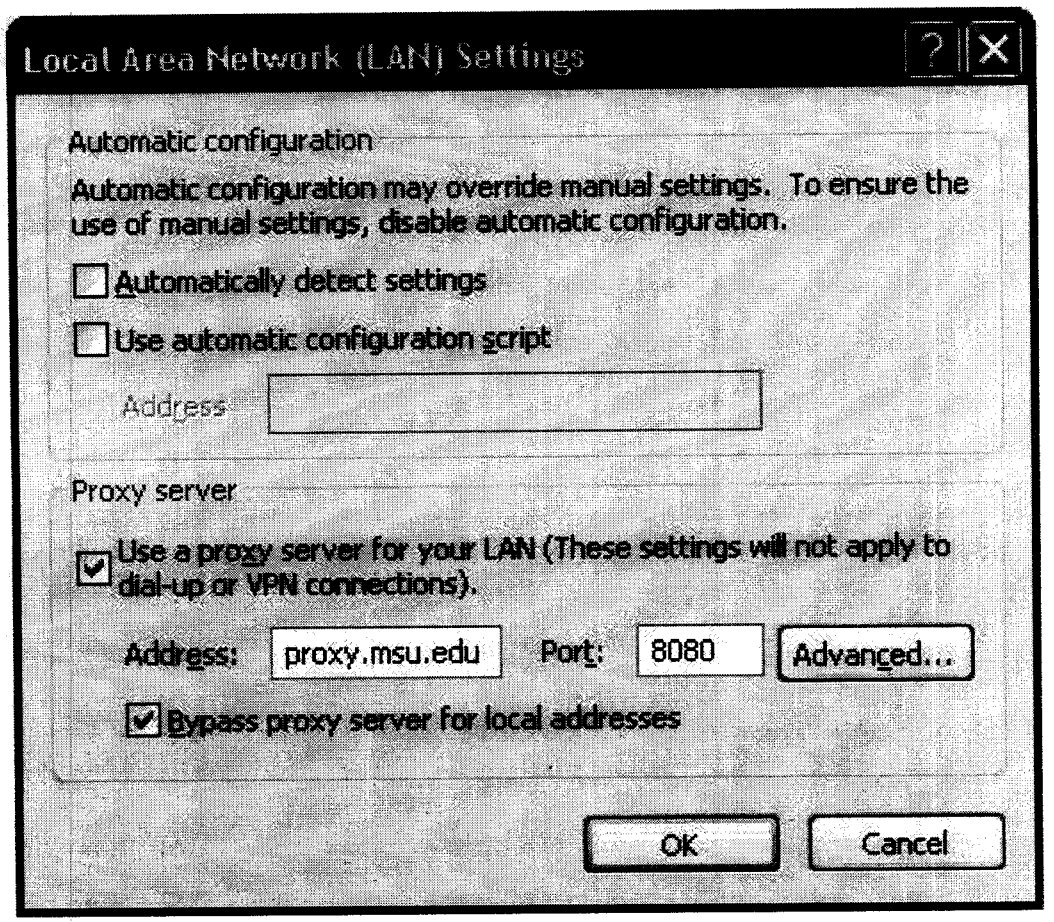
CONFIGURATION SETTING



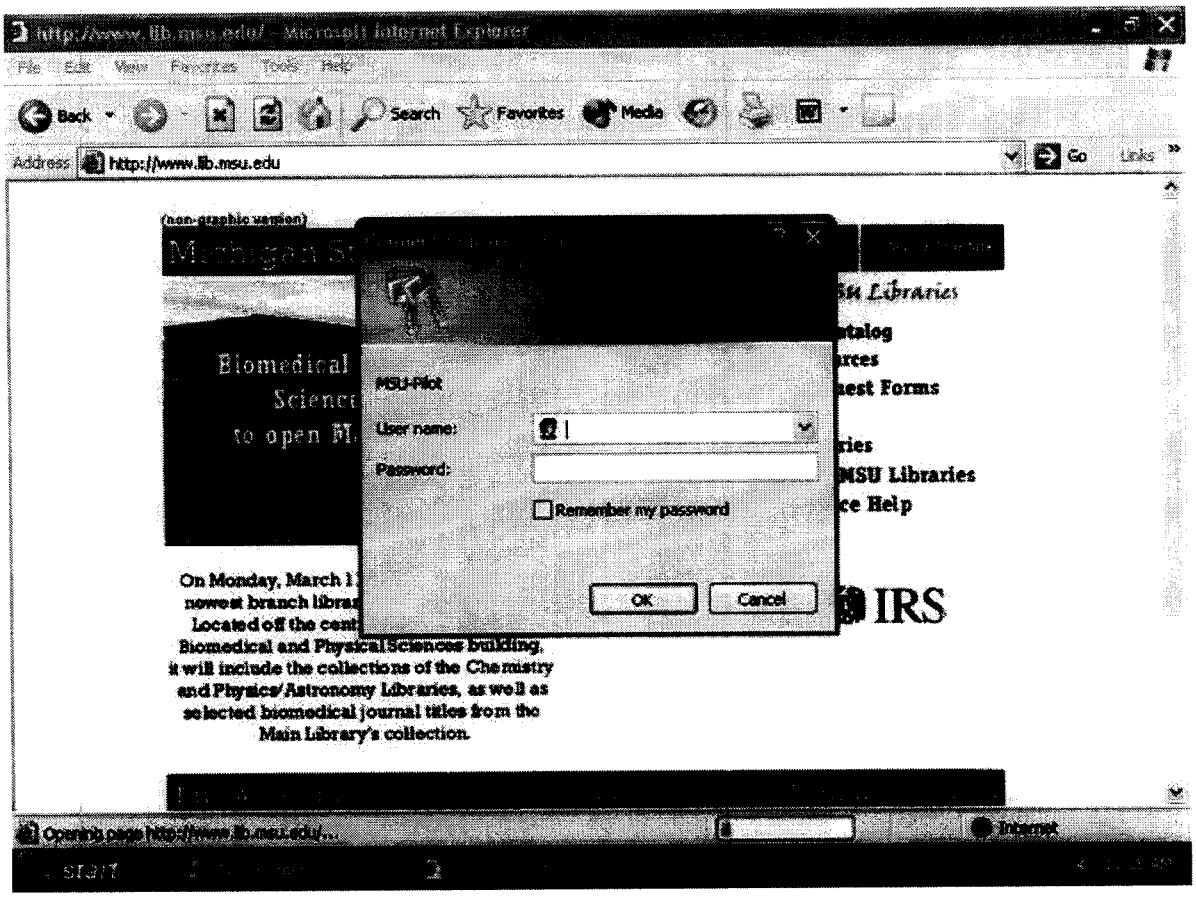
LAN SETTINGS



PROXY SETTINGS



LOGIN FORM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Password:
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and Physics/Astronomy Libraries, as well as
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