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A PATH FOR HORIZING YOUR INNOVATIVE WORK

“REDIRECTION SERVER”

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Abstract: A heavily loaded application can sometimes crash due to transactional overload. An application can be deployed on multiple servers. This application implements a redirection server which analyzes the workload on each server and maintains a load database. Depending on the workload on the servers the new work will be allocated and excess load is avoided for smooth performance, hence the concept of “REQUEST REDIRECTION” is required. To explain the concept of redirection we have choose the example of ATM banking. Here a thin client is making a request which is pass on to the visa server which in turn analyze the request and then redirect it to the particular bank server. The bank server then handle the request and return the processed information back to visa server, which finally sends it to user.

Keywords: Gateway Server, Client, Cryptography



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INTRODUCTION

In today's time everything, every human activity, business activity etc is completely or partially dependent on the computer and on computer network. The most common one we perform is of banking transaction. No one likes to stand in a queue for withdrawing their money. So the concept of ATM was introduced. It eased the work to some extent. But this ease was short lived as the number of ATM users grew exponentially every year. With this their arose the need to open more and more ATM hereby increasing burden on banks. Then came on to develop such a centralized system which can connect various banks throughout the world thereby reducing burden on the banks. With this new functioning arose the need of redirection. The ATM all over the world are now connected to some central servers that redirects the request to particular bank servers and then act as connection link between the banks and clients. This has led to big technological boom in banking sector.[2] If we realize the application of ATM banking system which works on the internet connectivity and request redirection mechanism.

Now if each ATM goes for the dedicated bank connection then this would lead to havoc network, congestion etc. imagining a situation that a server has to maintain billions of connections at any instance of time and processes the requests. This would definitely increase the load on the server and decrease the efficiency on the systems. And its function can be basically explained as:

- To decrease the load on the server.
- To decrease the load on the resources.
- To make it easy for the users, to eliminate the need to have different clients for different banks.[2][3]

The key concept of this project is basically "request redirection". If redirection is considered in abstract sense then it is basically diverting the request to some other location. There are various form of redirection implemented on internet. The various forms of redirection are implemented for various types of applications and various types of needs. It is very powerful tool which is mostly needed to meet the various application requirements, like to maintain load to handle different request types, to optimize resource utilization etc. We are also required to know of the various technology used to implement the redirection concept in project. The various theoretical back ground required to know before concentrating on the project development are described as below i.e., concept of redirection, tools required.

2. Concept of Redirection

The project is basically to implement the concept of redirection. Now to use the redirection it is necessary to understand what is basically redirection? Why exactly do we need it? How I can be done? Etc. This section of the review gives the details of the essential concepts need to understand and implement the redirection process. The various literature need is as follows:

2.1 Need of Redirection

Today we perform various human activities; there are various reasons to do "redirection". On the computer network redirection mechanism is very common and is applied in a number of situations.

- Redirection is primarily needed for the load balancing for popular websites; it is not possible for a single machine to serve all the requests. So several servers are in operation simultaneously, sharing the load.
- Similar domain names, moving a site to a new domain, Logging outgoing links short, meaningful, persistent aliases for long or changing URL's. [3]

2.2 Method of Redirection

Once a server is chosen, this involves how to do the redirection. Redirection can be done at various levels:

1. Application level, using HTTP redirect
2. IP level
3. Using DNS.

1. Client Side Approaches

In this approach, it is the responsibility of client (typically a browser) to choose a server out of the available mirrors. Earlier, Netscape had several server names www1, www2, www3..... And it was responsibility of Netscape browser to randomly chose one of these when user accessed www.netscape.com. This approach is not useful because it is not scalable.

2. DNS- based approaches

There is a single name used for the website. The client will ask DNS server for the IP address of the server. At that time, DNS server can choose an appropriate mirror and return its IP address. All mirrors have different IP addresses.

Disadvantages: The major problem with this approach is caching. The DNS responses are cached by intermediate DNS servers and by the client also. So for the time a response is cached, all the requests using that will go to the same mirror. As a result, that mirror may get overloaded. So this allows only a coarse grained redirection. The authority name server has only a limited control over caching. Another obvious disadvantage is that it increases the load on DNS server.

3. Server-based approaches

In this approach, one of the mirrors, on getting an HTTP request, may decide to redirect the client to another mirror. Again, the redirection may happen at different levels: IP level with packet rewriting or at HTTP level. But it is generally done at the HTTP level. This approach is used along with another approach like DNS-based redirection. DNS-based redirection provides coarse grained redirection and this approach provides the fine-grained redirection if required. [8]

3. Client Server Model

The most common model for distributing a system is the client server model. The model is fairly simple to explain. Initially when a server is started up its first opens up a particular port through which client can access it. It then sits down and waits until somebody attempts to connect it. This connection takes place using so called sockets.

- Server
- Client

3.1 Client Server procedure call

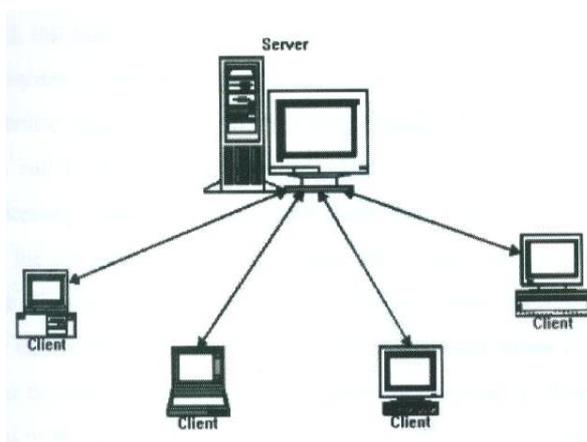


Fig: Client Server Model Diagram

It describes the relationship between two computer programs in which one program, the client makes a service request and from another program the server fulfil the request. It is more important idea when it is used in network. Client server model provides a efficient way to interconnect programs that are distributed across different locations. Various features of .Net framework, the reason for choosing it as the tool and the various points of interests are described below

3.2 Features of .Net Technology

Microsoft .Net is a revolutionary new platform, built on open internet protocol and standards, with tools and services that meld computing and communication in new ways. It is a new environment for developing and running software application, featuring ease of development of web-based services, rich standard run-time services available to components written in a variety of programming languages, and inter-language and inter-machine interoperability.

4. Techniques Used For Multiple Encryptions

1. RSA

2. CUSTOM ENCRYPT

RSA:

This is most widely used public key algorithm. The RSA is a block cipher in which plaintext and cipher text are integers between 0 and $n-1$. This algorithm is specially designed to be performing only on integers. Whatever is the string type of value obtained will be converted by using conversion function. I.e. parse which converts it to the integer value

Now the total data obtained is then divided in block size of 58 bytes, and these block are then taken one by one and algorithm is performed on it . It is asymmetric in nature means two keys are used that is public key and private key, which is used for encryption and decryption

Now after the RSA algorithm is performed. The encrypted message is obtained ,, Now the next step lies is using another encryption technique, which is user defined.

Custom Encrypt:

The encrypted message obtained after applying RSA algorithm, it comes towards custom encrypt. The data is in the form of 256 bytes. The custom encrypts takes one by one value from RSA than it pads 0s to it and form a stream of data.

5. Developing Platform Used: - Visual Studio 2010

Visual Studio is a complete set of development tools for building ASP.NET Web application, XML Web services, desktop applications, and mobile applications. Visual Basic, Visual C# and Visual C++ all use the same integrated development environment (IDE), which enables tool sharing and eases the creation of mixed-language solutions. In addition, these languages use the functionality of the .NET Framework, which provides access to key technologies that simplify the development of ASP Web applications and XML Web Services. It can be used to develop console and graphical user interface application.

6. Working

In multithreading multiple threads are created for each program so that first processing is achieved. Our main focus is on client side. There are multiple clients sending multiple requests which are received by the main server and the main server will create the thread of request and send it to the particular database depending on the request.

The project will be divided into three modules. These modules are:

- Thin client
- Central server
- Bank server

7. CONCLUSION

In our project we have design and implemented the Redirection Server. As the name suggest the project is totally network based. We have implemented this project using the .Net framework and architecture. Also we have used the XML. We have used the XML for defining the packets. Now, the packet is the information which is related to the user and the bank to which the user needs to transact. It means when the first time the ACC NO and PIN is entered from the user, the packets is created from that information and then send it to the Visa server. Likewise then this information forwarded to the bank server to check the information about the user which is sends from the ATM. If the information is correct then further operations are performed by the model. We have successfully implemented the project on the network. In the network the project run successfully using the maximum number of machines. In short the model is designed for the ATM application. That means at a time more than one request can be sent from the ATM machine. And also more than one ATM machine is to be need that can be used in the application.

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