

PRINCIPLES OF WORK AND BASIC POSSIBILITY OF USE PROXY SERVERS FOR BUSINESS AND EVERYDAY LIFE

AHNIYA VAITSIAKHOVICH, AKSANA GOLUBEVA
Polotsk State University, Belarus

The article reveals the meaning of the concept "proxy server" on a simple example, describes classification of proxy, capabilities and features of each type of proxy, as well as interaction between servers of different types.

Introduction. Nowadays, the proxy servers are becoming more and more popular. They are used in large firms, small businesses, and even by housewives. Proxy has a number of ways and reasons for applying. We will enclose what a proxy server is, its work principle and features of its application.

The notion of a proxy server. A proxy server - a server (set of programs), computer networks, allowing customers to perform indirect requests to other network services. Firstly, a client connects to the proxy server and requests a resource (e.g., e-mail), located on another server. Then the proxy server either connects to a specified server and obtains the resource from it, or returns the resource from its own cache (in case if the proxy has its own cache). In some cases, a client's request or a server's response can be modified by the proxy server for specific purposes. The proxy server helps to protect a client computer from some network attacks, and helps to maintain the anonymity of a client [1].

In other words, the proxy is a resource, which intentionally intercepts all traffic between a recipient and a source itself, sends it to a recipient by specifying his/her ip-address as a source. Between the stage of intercepting and the stage of forwarding can appear an intermediate stage, such as filtration. At the stage of filtering, a part of traffic is removed or is made unavailable. Thanks to filtering, computer users are protected from viruses, spam and advertising, as well as it also limits user's access to some resources. For example, most companies treat communication in social networks by the staff during working hours badly, so the resources of such a plan are blocked. In its turn, computer classes of educational institutions are blocked with the limit rating 18+, as well as most entertainment and game resources.

To better visualization of the proxy server operating principle, consider the diagram in Figure 1. It gives the opportunity to analyze desires of a computer user in order to get data from a remote resource. If the proxy server is not used, information will be sent between points a and b directly, that is represented by a dotted line. If a computer A previously connected to the proxy server S, the request will be sent to the proxy firstly, and ip-address of this computer in the query will be changed to ip-address of the proxy server S. Then, a changed request will be sent to a computer B. When the computer B sends the answer, this answer will be received by the proxy server and, after filtration, it will sent it to the computer A.

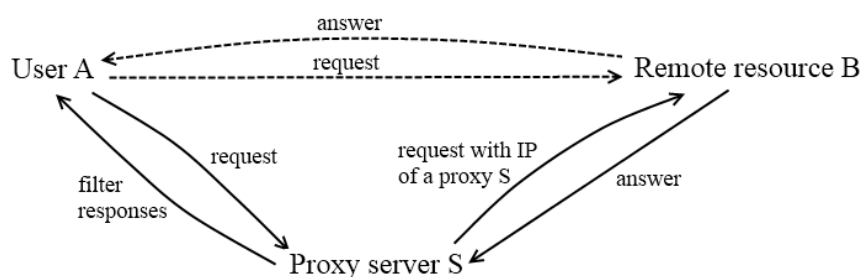


Fig. 1. Scheme work of Proxy

Possibilities and use of proxy servers. Proxy servers are divided into few categories according to their appointment. Basic types of proxy servers:

- proxy servers for speeding of the Internet work;
- proxy servers for making anonymous access;
- proxy for getting access to restricted resources (for example, restrictions which exist in specific countries and regions);
- proxy for restrictions of access to specified resources (often it is used on business and in public networks);
- proxy for defending from viruses and banners;
- proxy for work around other proxy servers.

Speeding of the Internet work with the help of proxy servers is reached with the help of redistribution streams of sending data. If a user needs access to foreign resources, he/she finds the closest proxy for connection, and only then sends a query to a specific address. The main factor influencing the speed of data transfer is a network bandwidth. If the proxy is not used, then the data will be forwarded through many routers until they reach the destination. In this case, the speed of those routers is limited and the path through which data is sent, is not always the shortest. In its turn, the proxy server has more powerful communication channels with other servers and sites than a user's computer, so data transmission occurs faster and only bandwidth between your computer and the proxy server is severely restricted. In addition, the server can cache data, and if a large number of users require accessing to one site, then the proxy server can give the answer to a client with data from cache.

Testers often use the proxy anonymizer for reliability testing of the developed software. In addition, ordinary users can use the proxy anonymizer if they do not want their internet activity to be tracked from any software or by the computer service. And also, some sites do not allow you to run multiple versions of their pages on one computer. Proxy anonymizers are used to circumvent such restrictions. With their help, a user can log in from multiple computer accounts, which is very useful for developers and testers of such systems, as well as administrators, already working with systems of this type.

The proxy, for access-restricted resources, works on the same principle as the proxy for anonymity. Their idea is - the ip-address of a user is changed to the ip of another country or another region. In this case, blocking installed on the territorial principle, is not applied. In the same way, users can access to a site even if they were in "black list".

The proxy for access restrictions, usually simultaneously perform the protecting function from viruses and ads. Usually, this kind of software is installed on a primary server. This proxy server performs several functions: organizes work of a local area network of a company, distributes employees' access to official data that are stored on the server, and also provides access from a local network to the Internet. Given peculiarities of such process organization of data transmission and processing, as well as the use of proxy servers for access restriction and protection from viruses and ads is a very profitable decision. The proxy server provides security of a primary server and a local network of organization. In addition, system administrators can control external traffic, block access to malicious and banned sites in this company (very often the list of sites includes social sites and the remote proxy server for bypassing locks). Also, if the proxy server is configured well, it may present the activity log of each user of the system. It helps to manage and determine how effectively employees spend their working time. Also, based on log records, the system sifts the most useless, resource-intensive, as well as dangerous in terms of virus infection sites. Log entries may even lead to dismissal of an employee, if he spends most part of his working hours on entertainment, gaming or suspicious sites. It is worth to mention that all parental control systems that provide the Internet access to children, also include local proxy for limiting and filtering of traffic.

The proxy server for crawling other proxies are typically used by employees of businesses that need to get access to the restricted resources. The most popular sites of this kind are blocked by administrators, but every day there are new "mirrors" websites with not employed earlier ip-addresses. Because of this close access to such resources, administrators have to update the "black list" regularly, or rely on the conscientiousness of the organization's staff.

Conclusion. In conclusion it is worth saying that the proxy server is a very powerful tool that can either open a user's access to all information on the Internet, regardless of its territorial or personal qualities, which sometimes provoke moderators of sites to block certain ip-addresses, or vice versa, severely restrict the ability of users; the proxy server helps in organization of total control over their activities. The same can be said about computer security system in conjunction with a proxy. On the one hand, if the proxy filters out at least half of the malware, antivirus can "catch" the rest from the half easier. On the other hand, attackers often use connection through the chain of multiple remote proxy servers in different parts of the world in order to hide their whereabouts.

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