

DOMAIN REGISTRATION AND HOSTING OF A WEBSITE: THE WAYS AND MEANS

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There are different ways and means by which domain registration and hosting of a website can be done. It involves different steps like finding availability of a domain, registration and hosting of a site through ISP or for free or for price or having own webserver. In the present knowledge based society, it is necessary for library professionals to have a thorough knowledge of different intricacies involved in domain registration and webhosting. This paper attempts to explain all these in detail.

INTRODUCTION

In today's world if an organization/institution wants to rigorously market its information products and services and wishes to be omnipresent, then, their appearance on the Internet is a must. The phenomenal growth of Internet triggered by the growth of personal computers has made seeking information on desktops in minimum cost and time. Therefore there will be no option for information providers but to offer it through their own websites or homepages.

The information one seeks, which is phenomenal, could be from the publishing trade, stock markets, travel and tourism, current news, and many more besides. Library and Information centers which collect, store and disseminate such information should not lag behind in using such an advanced technology as Internet. This necessitates library professionals to develop website/homepage,

which facilitates the information to reach their clientele across the globe.

A library homepage in most of the cases will be a part of the website of its parental body, wherein registration of a domain and its subsequent hosting of website is handled by the Systems Department or webmaster. Keeping in view the fast evolving digital library system it may be predicted that, librarian one day might turn out to be system librarians and they may need to independently handle web services. In anticipation of such a new role to be played by library professionals, an attempt, has been made in this paper to elucidate the process of domain registration and webhosting.

DOMAIN REGISTRATION

To get the address for a new website one has to register the domain name with the domain registrar. The registration could be on a company's or institution's or individual's name. Registration of a domain name is done through InterNic, a body that manages a database of all domains registered so far and is a collaboration between US *National Science Foundation*, AT&T and *Network Solutions*. The *Internet Assigned Numbers Authority* (IANA) and now *Internet Corporation for Assigned Names and Numbers* (ICANN) is the central Internet authority that allocates IP address and domain names through the InterNIC.

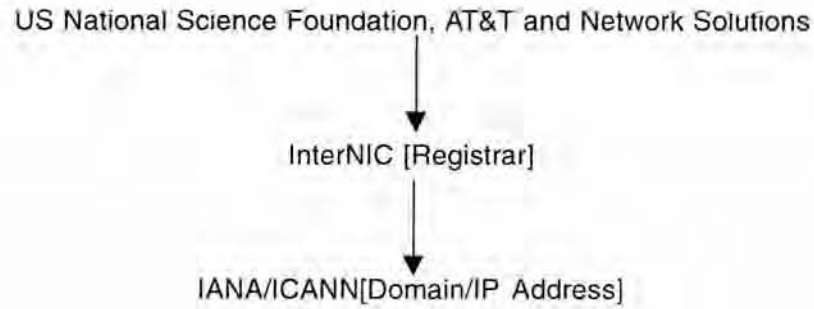


Figure 1

Domain name is unique and cannot be duplicated. The length of the domain name registered can be up to 63 alphanumeric characters, no special symbols are allowed.

Before registration one needs to find out the availability of a domain name which can be verified either through networksolutions.com or through some other registration company such as register.com.

The search for availability will be done by 'whois' database maintained by InterNic or some other agency as in the case of country specific domains. This is the first mandatory step for registering any website.

Registration involves two parts, first choosing and registering of domain name with InterNic directly or through its approved registrars (Table 1). The list of approved registrars can be obtained by writing to InterNic directly. Secondly, selecting an ISP to host a site. In some cases if the client desires, ISP will help in completing the registration formalities and subsequent allocation of the domain name.

The registration with 'Network solutions' has to be for a minimum period of two years with a fee US \$ 70/- and subsequently it will be US \$ 35/- per year. It will be more economical to register the domain name through other companies as the fee for same duration will be half or one fourth that of Network Solutions. To cite an example, the fee will be as low as Rs.798/- for two years if registered with an Indian company known as signdomains.com.

Such a huge difference in fee is due to two reasons. Companies (Registrars) providing registration services will act as 'agents/dealers' by assuring the certain number of registration to the registrar and secondly, a very high competition among such companies.

At a time one can register a domain for a maximum of ten years and may be renewed later on. Once the domain name is assigned, it will be reserved for the specified number of years registered for.

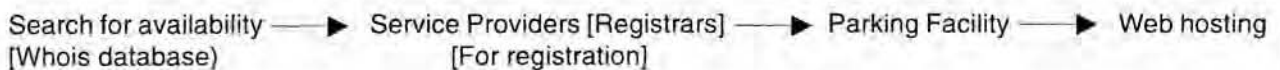


Figure 2

The domain name thus registered will be usually parked on the server of DNS provider through whom registration was done and such a server is called 'Name server' or DNS server. It is a statutory requirement for DNS providers to have two such DNS servers. It is the choice of the domain owner or administrator to move it any time out of the DNS server for webhosting. The parking facility prevents registering some other domains with the same name.

At the time of registration, the registrant has to provide information such as name, address, phone, fax and e-mail. The registrar is also required to provide name and addresses including e-mail for administrative, technical and billing contacts for the domain name.

The administrative contact is the organization or company or individual who is registering the domain name and not the DNS provider or the one who hosts the website. This is important as only the administrative contact is authorized for all kinds of administrative decisions such as sale or shifting of the domain from one webserver to another.

The technical contact could be the registrant or company, which hosts the website and supposed to respond for technical problems.

The billing contact in most of the cases is same as administrative contact. The service provider will contact the billing address for all kinds of payments concerned with the domain or website.

Generic Domains

Generic domains are those name ends with a dot and three letters such as .com, .org, .net, .edu, .mil, etc. These are also called as top-level generic domains (TLDs). Following are the few conventions:

- .gov - Government agencies
- .org - Organizations
- .ac - Academic institutions
- .edu - Educational institutions (usually for universities)
- .res - Research institutes
- .mil - Military agencies

- .com - Commercial organizations
- .net - Major network support centers

ICANN has recently approved seven more conventions such as .biz, .info, .name, .pro, .museum, .aero and .coop. This is being done due to heavy demand for new domain names and also because of nonavailability of most of the common names like doctor, lawyer, mobile, etc. to register as domain. These will be available for use by the end of 2001.

Country Specific Domains

Country specific domain names are those which end with country name. Following are the few existing country codes:

- .in India
- .jp Japan
- .uk United kingdom
- .nl Netherlands
- .sg Singapore
- .au Australia

These country specific domains can be registered with the nodal agency of the respective country appointed by InterNic. NCST (National Center for Software Technology, Mumbai) has been appointed as the registrar in India.

NCST permits only Indian corporations and institutions to register country specific domains. The registration fee for country specific domains varies from country to country, NCST charges Rs.1500/- for first two years and Rs.750/- per year there after. There is also an arrangement with Network Solutions for registering country specific domains other than that of the home country. The fee is US \$ 550.00 for two years.

Domain Registration Service Providers

There are many DNS providers in the market, who undertake the job of registering domain names. The important criteria for selection could be registration fee and promptness in handling further transactions.

Many companies offer free registration for a specific period, usually for a year, if web hosting is done through them. Following table lists few important service providers,

Table 1

Service Provider	Registration Fee	Services Offered
www.networksolutions.com	US \$ 70.00/ 2 years	Just registration
www.register.com	US \$ 70.00/ 2 years	Registration. Also provides space for homepage, up to three pages
www.registerfree.com	US \$ 14.95/ year	Just registration
www.namesecure.com	US \$ 35.00/ 2 years	Just registration
www.verio.com	US \$ 19.00/ year	Just registration
www.signdomains.com	Rs.429/ year	Just registration
www.net4domains.com	Rs.399/ year	Just registration

There are also a few DNS providers who register domains free of cost, for a mutually agreed period of usually one-year, on certain terms and conditions. Also, such agencies use 10% of the screen area for displaying advertisements of their choice. In such cases rights for administrative handling are with those agencies. Some fee is charged if their service is terminated within one year. For further details one may visit the websites <http://www.namezero.com> and <http://www.namedemo.com>.

WEBHOSTING

Webhosting is nothing but hosting one's homepage on the Internet. Webhosting follows registration, which is like finding a good locality for constructing a house. There are two options for hosting the website.

First option is to opt for a service provider. This option in turn allows three choices: Hosting it

- (i) through Internet Service Provider [ISP],
- (ii) through webhosting service provider free of charge; and
- (iii) by making use of paid webhost. The second option is to have one's own web server.

Choosing any option depends on factors such as price, space, services, access speed, server-side programming support.

Each of the option has been discussed in detail below. While making a deal with the service providers one has to first make a threadbare analysis of pricing policy for each of the services.

The amount of space needed under any of the above mentioned web hosting options depends on the content of the homepage, its exhaustiveness and interactiveness. Before choosing the options one has to look into scalability consideration in terms of technology and service provided. Scalability considerations become imperative, as there is ever increasing quality consciousness and need for space.

Webhosting With An ISP

Internet Service Provider [ISP] usually provides space to host a small site as part of its subscription fee. Therefore ISP could be the first choice to consider. In this case the major drawback will be the URL (Unified Resource Locator) which will be the subdomain of the ISP. For example the URL address of an educational site hosted on Videsh Sanchar Nigam Ltd. (VSNL) will be <http://education.vsnl.com.library>. The ISP tied address will prove to be a big liability when one changes the ISP or if ISP is out of business.

A better alternative to avoid a subdomain is to make use of paid service offered by the same ISP to host a domain, even though the hosting charges are higher compared to other service providers.

Webhosting For Free

Free hosting is something, which everyone looks for. But all free webhosting service providers do not allow using one's own domain name on their server; instead they assign their own subdomain. For example Geocities assigns URL address as <http://www.geocities.com/library/index.htm>.

However, there are few service providers who host the domains. Some offer this service with advertisements (ads) and some without. The space provided by such providers varies from one to another. For example, a site <http://www.freewebsites.com> provides webspace with ads. They also provide e-mail services with one's own domain name. Once again the number of e-mail accounts vary from one to another. Usually e-mails received on the domain name will be forwarded to the other e-mail account provided by the user at the time of registration.

There are also few service providers who redirect the domains. To register for such services one has to own a domain and host it through any free webspace provider. By using the redirection service one can have their own domain name redirected to a hosted site.

Webhosting For Price

Webhosting for price is also known as professional hosting. Here one needs to select a good service provider for webhosting. It is not so easy task. Here the service provider will take care of hosting a site, provides technical support and takes back-up of files for a fee, which may be paid monthly or yearly. The cost of webhosting starts as low as US \$ 5.00 p.m. to US \$ 50.00 p.m. It depends on the type of website and amount of space required, Some service providers do charge one time setup fee. Here one needs to make careful analysis of services of different webhosting companies and seek opinion of experts and references from the existing clients for their service quality. Sites mentioned below provide comparative analysis of various service providers giving information on price, space provided, services, setup fee etc.

<http://webservices.cnet.com>
<http://www.hostspot.com>
<http://www.hostindex.com>

Webhosting for a price will be a better option compared to ISP or free service. The reasons being stiff competition and better customer service; the high bandwidth used by them ensures fast loading of sites on the net.

Webhosting on Inhouse Webserver

The crucial decision of having in-house web based services depends on certain factors such as availability of funds, technical expertise and scope of the services.

Here one has to decide whether the webserver is meant for users within the organization or for the entire Internet community. Based on these factors certain pre-requisites and scope have to be worked out. These are :

- (a) High bandwidth Internet connection, at least 64 kbps, leased line or Integrated Service Digital Network (ISDN) or Very Small Apparatus Terminal (VSAT) connection.
- (b) Server accessibility round the clock throughout a week, month and the year.
- (c) Owning a domain name with a set of IP-addresses, so that the web server can have a permanent IP-address from INTERNIC (www.internic.com) or to sign up for a Dynamic DNS [DomainName System] service.

All the machines connected to the net interact through their IP addresses assigned along with their domains.

SETTING UP OF AN INHOUSE WEB SERVER

After deciding the scope of the webservices, certain hardware and software requirements need to be met. Hardware includes telephone link, dedicated computer, router (and/or firewall) and modern (RAD modems).

The software includes Operating System and webserver software such as Linux with Apache, NT server etc. Linux O/S is widely used, as this is available free of cost.

One of the most important aspects of a webserver is security. It is a must for running own server and especially for running own mail servers and other servers like Database servers. To avoid hackers attacking and damaging the network, one has to adopt certain security measures. Firewall of some sort will provide the needed security. Firewalls have become a security "must have", now that so many organizations are connecting their internal networks to external networks.

Proxy server can also be set up, which acts as an intermediary between a workstation user and

the Internet so that the enterprise can ensure security, administrative control, and caching service.

On a webserver, apart from website, one can host multiple domains and services viz., ftp, telnet, gopher, WAIS, etc, on a single webserver. These can also be hosted on separate computers depending on either number of IP addresses one receives from DNS service or by way of subnetting.

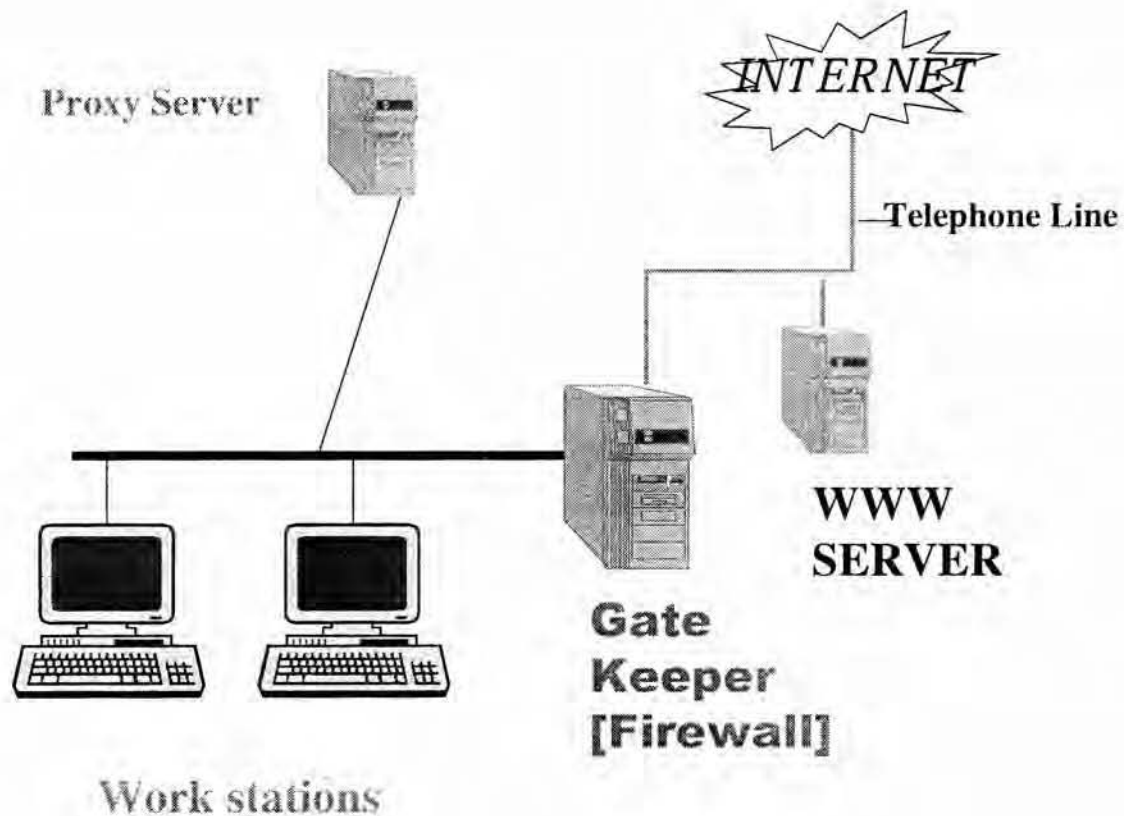


Figure 3

CONCLUSION

In view of the re-engineering of library services it may be predicted that webdesigning and webhosting are going to be part and parcel of library's work in the near future. Therefore, it is best for library professionals to equip themselves with the required knowledge and techniques. Here an attempt has been made to explain the available techniques and procedures in a limited way. However, this article is not a foolproof answer to the whole of Internet technology. Like any other area, frequent interaction with the specialists in the field and constant exposure to the literature will go a long way in providing reliable and effective webservices.

ACKNOWLEDGEMENTS

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8. <http://www.whatis.com>

APPENDIX

FIREWALL

The network firewall is typically defined as a system or group of systems that enforces an access-control policy between two networks. It may also be defined as a mechanism used to protect a trusted network from an untrusted network.

DYNAMIC DNS SERVICES

Dynamic DNS services provide a way to keep domain name tied to a changing IP address. This is being usually done by running a small programme [client] on any of the computer, preferably on server connected to the Internet. Whenever ISP changes and the corresponding IP addresses will also change. The DNS servers will update the new IP address issued by the new ISP, so the local server updates DNS entry, keeping domain name tied to new IP address. With this service, the only data that changes when IP address changes is the DNS database at the dynamic DNS provider. Since the rest of the DNS servers across the Internet point your domain to the static IP address that the dynamic DNS service gave when one signed up for the service, the change occurs very quickly. The DNS service is available for free and also for price. To have a best service, it is advised to have a paid service. For example NCST, Mumbai charges Rs. 1500/-p.a. for this service for domains registered with it having in country specification.

INTERNET NETWORK ADDRESSING SCHEME

Class A

Class A comprises networks 1.0.0.0 through 127.0.0.0

Class B

Class B comprises networks 128.0.0.0 through 191.255.0.0

Class C

Class C comprises networks 192.0.0.0 through 223.255.255.0

PROXY SERVER

In an enterprise that uses the Internet, a proxy server is a server that acts as an intermediary between a workstation user and the Internet so that the enterprise can ensure security, administrative control, and caching service. A proxy server is associated with or part of a gateway server that separates the enterprise network from the outside network and a firewall server that protects the enterprise network from outside intrusion.

A proxy server receives a request for an Internet service (such as a Web page request) from a user. If it passes filtering requirements, the proxy server, assuming it is also a cache server, looks in its local cache of previously downloaded Web pages. If it finds the page, it returns it to the user without needing to forward the request to the Internet. If the page is not in the cache, the proxy server, acting as a client on behalf of the user, uses one of its own IP addresses to request the page from the server out on the Internet. When the page is returned, the proxy server relates it to the original request and forwards it on to the user.

To the user, the proxy server is invisible; all Internet requests and returned responses appear to be directly with the addressed Internet server. (The proxy is not quite invisible; its IP address has to be specified as a configuration option to the browser or other protocol program.)

An advantage of a proxy server is that its cache can serve all users. If one or more Internet sites are frequently requested, these are likely to be in the proxy's cache, which will improve user response time. In fact, there are special servers called cache servers. A proxy can also do logging.

The functions of proxy, firewall, and caching can be in separate server programs or combined in a single package. Different server programs can be in different computers. For example, a proxy server may in the same machine with a firewall server or it may be on a separate server and forward requests through the firewall.

SUBNET

A subnet (short for "subnetwork") is an identifiably separate part of an organization's network. Typically, a subnet may represent all the machines at one geographic location, in one building, or on the same local area network (LAN). Having an organization's network divided into subnets allows it to be connected to the Internet with a single shared network address. Without subnets, an organization could get multiple connections to the Internet, one for each of its physically separate subnetworks, but this would require an unnecessary use of the limited number of network numbers the Internet has to assign. It would also require that Internet routing tables on gateways outside the organization would need to know about and have to manage routing that could and should be handled within an organization.

The Internet is a collection of networks whose users communicate with each other. Each communication carries the address of the source and destination networks and the particular machine within the network associated with the user or host computer at each end. This address is called the IP address (Internet Protocol address). This 32-bit IP address has two parts: one part identifies the network (with the network number) and the other part identifies the specific machine or host within the network (with the host number). An organization can use some of the bits in the machine or host part of address to identify a specific subnet. Effectively, the IP address then contains three parts: the network number, the subnet number, and the machine number.

[P.S: Above information provided in the appendix have been taken from various Internet sites and these have been cited in the reference.]