Chapter-II

Internet and World Wide Web

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1. Introduction

In recent years, Internet has emerged as the most powerful medium for storage and retrieval of information. It works round the clock and connects every nook and corner of the globe. With an unprecedented growth in the quantum of knowledge worldwide and the easy accessibility, Internet has become an unavoidable necessity for every institution of higher learning and research. The Internet is a million of computers interconnected through the world wide telecommunication system. All the computers are able to share information with each other because they use common communication protocols. Internet protocols allow many different network technologies from local area networks to wide area networks to be interconnected for information communication and its application. It supports audio and video clips as well as the text and images.

Thus, the Internet is a computer network made up of thousands of networks worldwide. No one knows exactly how many computers are connected to the Internet. However, it is certain that these number in millions and are increasing at a rapid rate. No one is in-charge of the Internet. There are some organisations that develop technical aspects of this network and set standards for creating applications on it, but no governing body has control over it. Private companies own the Internet backbone, through which Internet traffic flows.

All computers on the Internet communicate with one another using the Transmission Control Protocol/Internet Protocol (TCP/IP). Computers on the Internet use client/server architecture. This means that the remote server machine provides files and services to the user's local client machine. Software can be installed on a client computer to take full advantage of the latest access technology. An Internet user has access to a
wide variety of services: electronic mail, file transfer, vast information resources, interest
group membership, interactive collaboration, multimedia displays, real-time
broadcasting, shopping opportunities, breaking news, and many more. Keeping in view,
the multidimensional features and application of Internet in this chapter a comprehensive
attempt has been made to discuss the Internet, its services and also the criteria for
evaluation of Web sources.

2. What is Internet?

The Internet is a network of networks that connects computers all over the world
or worldwide computer network is called as Internet. This is also called as information
super highway. In other words "the Internet is a collection of many networks
communicating with each other by using TCP/IP".

The Internet is a widely successful, rapidly growing, global digital library which
is built on a remarkably flexible communication technology. The Internet digital library
offers a variety of services used to create, browse, access, search, view and communicate
information on a diverse set of topics ranging from results of scientific experiments to
discussions of recreational activities.

Information in the Internet digital library can be recorded in memos, organised in
menus, stored as hypermedia documents, or stored in textual documents. In addition,
information accessible through the digital library can consist of data, including audio, and
video, that is gathered, communicated and delivered instantly without being stored.
Further more, because the services have been integrated and cross-referenced, a user can
move seamlessly from the information on one computer to information on another
computer and from one access service to another.
2.1. History of Internet

The Internet has its roots in the US military, which has founded a network in 1969, called the ARPANET, to connect the computers at some of the colleges and universities where military research work took place. As more and more computers were connected, the ARPANET was replaced by the NSFNET, which was run by the National Science Foundation. By the late 1980s, the Internet had shed its military and research heritage and was available for the use by the general public. Internet Service Providers (ISPs) began offering dial-up Internet accounts for a monthly fee, giving users access to e-mail, discussion groups, and file transfer. In 1989, the World Wide Web was born and in the early 1990s, the combination of e-mail, the Web and online chat propelled the Internet into national and international prominence.

3. Internet Applications

As discussed earlier, the Internet is the name for a vast, worldwide system consisting of people, information and computers. The Internet is so large and complex as to be well beyond the comprehension of a single human being. Not only is there no one, who understands the entire Internet, there is no one who even understands most of the Internet. This is because of its vast applications and services. There are many services and applications of Internet and major services includes e-mail, discussion group, Internet chatting etc.,
3.1 E-mail

Electronic mail or e-mail allows people to send and receive messages using their computers. Each user has an e-mail address on a computer to which messages can be sent and a mailbox file (also on a computer) where the received messages can be stored until read by the recipient. Messages sent through e-mail can arrive within a matter of seconds. It enables one to send information in the form of letters, messages, advertisements, spreadsheets, game programs and binary files across the net to one or more Internet address. E-mail has had a profound influence on the communication patterns of those who use it. It has helped to revolutionise the exchange of information. Prior to widespread use of the Internet, scholarly information was primarily disseminated through books and journal articles or shared at professional conferences. E-mail can be quickly and simultaneously distributed to a large audience. It is an inexpensive, volume
independent and distance independent and thus it is the oldest service on the Internet and
still the most dominant. Some of the major popular e-mail services are
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**Figure 2.4: Hotmail Home Page**

**Figure 2.5: Rediffmail Home Page**
3.2 File Transfer Protocol (FTP)

File Transfer Protocol, more commonly known as FTP, is another Internet application. It is a client server protocol that allows users to transfer files to and from one computer to another via Transmission Control Protocol (TCP/IP) network. TCP/IP is the group of protocols used to connect computers and to send data over a network. FTP uses the TCP/IP protocols to transfer files. It allows users to transfer files between any two or more computers of any type.

It means that anonymous FTP is an option that allows users to transfer files from thousands of host computers on the Internet to their personal computer account. FTP sites contain books, articles, software, games, images, sounds, multimedia, course work, data sets etc. If your computer is directly connected to the Internet via an Ethernet cable, you can use one of several PC software programs, such as WS_FTP for Windows, to conduct a file transfer.

FTP transfers can be performed on the World Wide Web without the need for special software. In this case, the Web browser will suffice. Whenever you download software from a Web site to your local machine, you are using FTP. You can also retrieve FTP files via search engines such as FtpFind, located at http://www.ftpfind.com/ this option is easiest because you do not need to know FTP program commands.

3.3 Telnet

Telnet is another Internet service and is a protocol that allows users to logon to a remote computer. The remote computer is referred to as the 'host'. Telnet is a protocol, or set of rules, that enables one computer to connect to another computer. This process is also referred to as remote login. The user’s computer, which initiates the connect icon,
referred to as the local computer and the machine being connected to, which accepts the connection is referred to as the remote or host computer.

Once connected, the user computer emulates the remote computer. When the user types in commands, they are executed on the remote computer. The users monitor displays what is taking place on the remote computer during the telnet session.

3.4 Internet Relay Chat (IRC)

Internet Relay Chat works because a series of IRC servers band together in a network to share channels of communication, like communicating with someone or a group on a single radio frequency. If you connect to one server in such a network, you have access to all the channels and all the users connected to any of the servers on that network.

There have been chatting on the Internet since Unix users were able to page each other using the talk username @ address command. Unlike e-mail, chatting takes place live and is called as real time, meaning both people participating at the same time. Chat is synchronous (happening for all participants at the same time), and e-mail is asynchronous (taking place at different times).

Chat protocol permitted many people to converse with each at once. Finally IRC provide for multiple channels where completely separate conversations, all potentially many-to-many become available to anyone on the Internet. The IRC protocol remains the underlying basic for other forms of real-time communication (such as voice or video conferencing). The standard chat interface, with a big dialogue window, a narrow list of participants and a command-line at the bottom for typing your responses, continues to be used in many real-time collaboration tools.
3.5. **Bulletin Boards**

Bulletin Board Systems (BBS) are another Internet application based on shared electronic messages. A bulletin board consists of a computer and related software that provide an electronic database where users can log-in and leave messages or read messages left by others. Messages are frequently grouped by topic as a BBS gets large enough and any one can submit or read a message. Bulletin boards were first used in the early 1980s and were used as message bases. Users carried on conversations by posting messages to each other, and participation was international.

3.6. **Usenet News**

Usenet news is a worldwide replicated bulletin board network with thousands of topics that individuals around the world discuss constantly. You will find that it is an unparalleled resource for solving technical problems, especially computer and computer networking problems. For any problem you face, you can be assured that someone has probably already faced that problem and found a solution to it. Many progressive companies also provide technical support in newsgroup.

Internet newsgroups are not limited to technical subjects, but they cover all topics ranging from boat building to politics. The subjects of newsgroups are only as limited as the interests and imaginations of the individuals on the Internet.

3.7. **Mailing Lists**

A mailing list is an online publication delivered by e-mail. They are nothing more than topic oriented discussion forums or communities. They come in many varieties and cover many topics, and in fact, there are so many mailing lists available that one could probably not think of a subject not covered by at least one mailing list. It is organised as
list of e-mail addresses used to forward messages to group of peoples. The beauty of mailing lists is that they cover specific topics and come via e-mail straight to the member subscribers, without any extra work. If an individual finds interested in a topic, he can subscribe to the appropriate mailing lists and all the traffic comes directly to his electronic mailbox.

3.8. Internet Talking

This Internet live audio/video service allows a user's computer to connect to other user's computer on the Internet. The messages are exchanged in real-time by these users as soon as they are typed by any of them. A program executing in the background called the talk domain handles the actual information service. This program should be compatible between users desiring to engage in Internet talk. Once the connection is made, the talk domain divides each user screen into two halves by drawing a horizontal line in the middle. The local users keyboard strokes are captured in the upper half, while the typed text of the remote user is displayed in the lower half of the screen. If there are more than two users in the talk mode, they talk program divides each user screen into as many partitions as the number of users. Netscape's cooltalk is one of the better known packages of this service.

Similarly video exchange can also be conducted in real-time over the Internet. Software package includes cincecom and vdo phone.

3.9 Gopher

Gopher is a protocol designed to search, retrieve and display documents from remote sites on the Internet. It accomplishes this using the client/server model of users running client software on their local machines that provide an interface that interacts
with remote servers or computers that have information of their interest. In addition to
document display and document retrieval, it is possible to initiate on-line connections
with other systems via Gopher. Information accessible via Gopher is stored on many
computers all over the Internet. These computers are called Gopher servers.

Users interact with Gopher via a hierarchy of menus and can use full text-
searching capabilities of Gopher to identify desired documents. Once an appropriate item
is selected, Gopher retrieves it from wherever on the network it resides and (if it is text)
displays it. The users may feel as if all the information available to Gopher resides on
their local computer, when in fact, Gopher is interacting with a large number of
independently owned and operated computers around the world. Gopher client software
exists for most computer platforms.

3.10. Archie

These are thousands of anonymous FTP servers around the world offering more
files than you can imagine. The role of Archie is to make the whole system manageable
by helping you find what you need. There are a number of Archie servers around the net,
each of which consist a database of most of the files that are publicly available via
anonymous FTP.

Suppose you want a particular file – for instance, a program but you don’t know
which anonymous FTP server has the file. You use an Archie client to convert to an
Archie server. You can have your client ask the server to search for files that have the
same name as the program you want.

After a short wait, the server will send back a list of addresses of some of the
Internet sites that have files with that name. Once you know where to look, it is a simple
matter to use FTP to download the file. The term Archie was chosen to express the idea of an archive server.

### 3.11. Wide Area Information Service (WAIS)

WAIS is an Internet search tool that is based on a certain protocol and it works on the client/server principles. A WAIS client program enables the user computer to contact a WAIS server, submit a search query and receive a response to that query.

WAIS has the capability of simultaneously searching more than one database. After the search phrase has been typed into the client interface, the user can then choose which databases should be used to complete the search. Depending on the WAIS client software being used, this may be a matter of using a mouse to select database names displayed on a screen, or of typing in the database names using the keyboard. It is very important to know that WAIS indirectly searches the database. The database itself is not being searched for the requested search phrase. Rather, an index for the database is searched. The index is created by people, and can contain all, or a number of words in all of the items contained in the database. Once the search has been executed, all items containing the words appearing in the search phrase will be returned to the user, provided the words in the search phrase appear in the indexes of the selected databases.

### 4. Internet Service Providers

Internet service providers are companies that connect people to the Internet. These companies form backbone of the Internet. In order to access the Internet using telephone line, one will need to establish an account with an Internet service provider. To start service, he has to register with that service provider and once he registers with an Internet service provider, he gets a user name, a password and phone number(s) to dial. He can
change his password whenever he may want to. To establish and get connected to the Internet, his communications programs dial the Internet access number. Once he enters his user name and password, he gets connected to the world of Internet.

Choosing an ISP is an important aspect and there are many factors based on which he chooses his ISP. For example, at present the ISP's are BIINFOTECH, ERNET, UUNET, NICNET, STP (Software Technology Park), BSNL, Mantra online, Satyam and VSNL. ISP's vary in their services, price, hour’s package, etc. One ISP may be offering better services but charging more for each hour of Internet access. Thus here are certain points to be considered before going for a particular ISP.

- Does the service can be accessed with a local phone call?
- Whether the prices are competitive?
- Does the provider have enough phone lines?
- Does the service provider offer full Internet access?
- Does the connection fast enough?
- Does the provider provide him space for launching his own Web page?
4.1. Hardware and Software Requirements for Internet connection

Basically any standard machine with a modem can be configured to connect the Internet. However to get the best result the ideal configuration would be as follows.

**Table-2.1: Hardware and Software Requirements for Internet Connection**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Minimum</th>
<th>Preferable</th>
<th>Approximate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Computer</td>
<td>-Pentium (100 MHz)</td>
<td>-Pentium-4 (400 MHz)</td>
<td></td>
</tr>
<tr>
<td>- Hard disc</td>
<td>-1 GB</td>
<td>-40 GB</td>
<td></td>
</tr>
<tr>
<td>- RAM</td>
<td>-128 MB</td>
<td>-256 MB</td>
<td></td>
</tr>
<tr>
<td>- VDU</td>
<td>-Color monitor</td>
<td>-Color monitor with 2 MBV RAM</td>
<td>35,000=00</td>
</tr>
<tr>
<td></td>
<td>-Network card</td>
<td>-Network card</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Multimedia Kit</td>
<td>-Multimedia Kit</td>
<td></td>
</tr>
<tr>
<td>- Key board</td>
<td>-104 keys keyboard</td>
<td>-Multimedia keyboard</td>
<td></td>
</tr>
<tr>
<td>2. Modem</td>
<td>-28 KbPS</td>
<td>-56 KbPS</td>
<td>3,000=00</td>
</tr>
<tr>
<td>3. Telephone</td>
<td>Telephone line</td>
<td>Dedicated Line</td>
<td>1,500=00</td>
</tr>
<tr>
<td>4. Software (Browsing)</td>
<td>Internet Explorer</td>
<td>Internet Explorer/</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Netscape Navigator</td>
<td></td>
</tr>
<tr>
<td>5. Network Protocol</td>
<td>TCP/IP</td>
<td>TCP/IP</td>
<td></td>
</tr>
<tr>
<td>6. Internet Connection</td>
<td>From any Internet Service Providers</td>
<td>BSNL</td>
<td></td>
</tr>
<tr>
<td>7. Winproxy</td>
<td>As per the requirements of the Institution and number of users</td>
<td></td>
<td>25,000=00 (for 25 users)</td>
</tr>
</tbody>
</table>
5. World Wide Web

The World Wide Web or simply the Web for short was first proposed by Tim Berners-Lee of the European Particle Physics Laboratory Known as CERN. It was originally planned as a networked hypertext system to transmit documents and to communicate among members of the High-Energy Physics community. The Web has evolved to include sound and video capabilities and the ability to transmit images. The flavor of the Web has changed from that of a vehicle primarily used for the exchange of scholarly information to a multifaceted resource used for the entertainment, travel and general-purpose information. Additionally the Web increasingly commercialised and includes ads (i.e. advertisements) for Internet providers, search engines and software, long distance telephone service providers and even automobiles.

The Web is an example of a client server application. Web browsers or clients request information from Web server. The server sends the appropriate information to the computer, which has made request. The type of information most frequently found on the Web includes:

- Scientific and technical information (current research, abstracts of papers)
- Reference sources, full texts and journals
- Popular entertainment and culture
- Opinions

The Web uses hypertext to provide access to documents and navigation between documents. Hypertext consists of links that allow users to move from one document to another through the use of programs called browsers. Browsers enable users to view the contents of hypertext links. Interestingly some professionals have likened hypertext links
between Web documents to footnotes and bibliographic references. The advantage of these hypertext links over traditional footnotes and references is that they provide direct and immediate access to related documents.

Thus the World Wide Web is a collection of millions of files stored on thousands of computers (called servers) all over the world. These files represent text documents, pictures, videos, sounds, programs, interactive environments and just about any other kind of information that has ever been recorded in computer files. The Web is probably the largest and most diverse collection of information ever assembled.

What unites these files is a system for linking one file to another and transmitting them across the Internet. The HTML (Hypertext Markup Language) allows a file to contain links to related files. Such a link (also called as hyperlink) contains the information necessary to locate the related file on the Internet. When we connect to the Internet and use a Web browser program, we can view, read, hear or otherwise interact with the Web without paying attention to whether the information that we are accessing is stored on a computer down the hall or the other side of the world.

6. Components of World Wide Web

Following are some of the important components of Web, which includes hardware, software and protocols that make up the Web.

6.1. Web Pages and Web Sites

A Web page is an HTML (Hypertext Markup Language) document that is stored on the Web server and that has a URL (Universal Resource Locator) so that it can be accessed via Web.
A Web site is a collection of Web pages belonging to a particular person or organisation. Typically, the URLs of these pages share common prefix, which is the address of the home page of the site. The home page is the front door of the site and is setup to help viewers’ find whatever is of interest to them on that site. The URL of the home page also serves as the URL of the Web site.

The term home page can have a number of different meanings. When you start your browser, it loads whatever Web page you designate as its home page. Most browsers have a home button or command that take you back to the page designated as the browser’s home page. This page may vary according to the browser or access provider which you are using—it could be Netscape’s Netcenter Web site or Microsoft’s Web site if you are using either of their browsers, or it could be the home page of your access provider. However you can specify whichever page you want as your browser’s home page. This is also sometimes referred as a start page.

![Figure 2.6: Relationship between Web Page and Home Page](image)

The term home page can also refer to an entry point or front door to Web site or group of linked and related Web pages. It can also designate any Web page that stands on
its own. The diagram in the figure-2.6 shows the relationship between home and Web pages.

6.2. Client and Server

A Web server is a computer connected to the Internet that runs a program (which is also called a Web server) that takes responsibility for storing, retrieving and distributing some of the Web’s files. A Web client or browser is a computer that requests files from the Web. When a client computer wants access to one of the files on the Web, the network directs the request to the Web server that is responsible for that file. The server then retrieves the file from its storage media and sends it to the client computer that requested it.

Clients/Browsers

Servers/httpd

Documents/HTML

Figure 2.7: How the Web Works

Clients
- User interface
- Listens to users
- Sends requests
- Renders returned information

Server
- Server Interface
- Listens to clients
- reads or creates information
- returns information to client

6.3. The Web’s Languages and Protocols

Thousands of computers that make up the Web represent every conceivable combination of computer hardware and software. When a client computer requests a file from the Web, it can assume very little about the server that stores the file, or the various other computers that might handle the files as it is transmitted from the server to the client. For such a system to work, it must have a well-defined set of languages and protocols that are independent of the hardware or operating systems on which they run.
6.4. **URLs (Universal Resource Locator) and Transfer Protocols**

Universal Resource Locator, which is simply an address of a document on the Web or more accurately, on the Internet. Although a URL can look complex and long, it is made up of four basic parts protocols, host name, folder name and file name each of which has a specific function.

For ex: http://www.webconnect.com/virtual/index.html. All URL follows this format regardless of the service being used or the document being retrieved.

**i) Protocols:** The first element in the URL is the protocol. This is the service that provides the resource, followed by a colon. The default taken is http: if you do not specify other service. The protocol specifies the computer language used to transfer information. Specifically, a protocol tells the browser where the information is located (for example, on a Web server, FTP server, a local hard drive and so on). The protocol tells the browser what to expect from the document retrieval process.

**ii) Host name:** Host name is the server that contains the resource, preceded by two slashes (either in the form of a domain name or an IP address). In other words the hostname is the name of the server that holds HTML documents and related files.

**iii) Folder Name:** Folder names give document on the servers file system. Folders perform the same function on a Web server that they perform on your PC. There is virtually no limit to how deep you can nest folders and there is no limit as to what files the folder can contain.

**iv) File Name:** File names are the names of specific documents. It identifies the file (an HTML document, an image, a text file and so on) to be displayed. In the above example the file index.html is displayed and this file is kept in the folder virtual.
Table 2.2: Common Protocols

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>http://</td>
<td>For HTML documents and associated files on the web</td>
</tr>
<tr>
<td>ftp://</td>
<td>For documents on the ftp server</td>
</tr>
<tr>
<td>Gopher://</td>
<td>For documents on the Gopher server</td>
</tr>
<tr>
<td>Telnet://</td>
<td>To open a telnet, connect to a specific host</td>
</tr>
</tbody>
</table>

6.5. Domain Name

A domain name is a way to identify and locate computers connected to the Internet. No two organisations can have the same domain name. A domain name always contains two or more components separated by periods, called "dots".

The top-level portion of a domain name describes the type of organisations holding that name. The major categories for top level domains are:

- .com: For commercial and industrial organisations, such as randomhose.com
- .net: For network organisations, such as internic.net
- .gov: For non-military government affiliated, such as nasa.gov
- .mil: For military such as army.mil
- .edu: For organisations of higher education, such as princeton.edu
- .org: for other organisations such as biosis.org

6.6. Hyper Text Markup Language (HTML)

The Hypertext Markup Language is the universal language of the Web. It is a language that you use to layout pages that are capable of displaying all the diverse kinds of information that the Web contains.

While various software companies own and sell HTML-reading and HTML-writing programs, no one owns the language HTML itself. It is an International standard, maintained and updated by a complicated political process that has worked remarkably
well so far. The World Wide Web Consortium (W3C), at http://www.w3c.org, manages the HTML standard.

6.7. Java and Java Script

Java is a language for sending small applications (called applets) over the Web, so that they can be executed by the computer. Java Script is a language for extending HTML to embed small programs called scripts in the Web pages. The main purpose of applets and scripts is to speed up the interactivity of Web pages; you interact with an applet or script that the Web server runs on your computer, instead of interacting with a distant Web server. Java and Java script are also used for animation; the Web server sends an animation-constructing applet or script that runs on your computer, instead of transmitting the frames of animation over the Internet. Typically, this process is invisible to the user - the interaction or the animation just happens, without calling your attention to how it happens.

6.8. XML (Extendable Markup Language)

It is a very powerful language that may replace HTML as the language of the Web. XML gives document designers a greatly increased capability to attach explanatory tags to data. For example, where as an HTML document might contain a few columns of numbers, the corresponding XML document might contain tags explaining what the numbers represent— that some are prices, for example, while others are quantities, times or batting averages. The XML-enabled browsers can read those tags and offer you choices of ways to view the data that are consistent with what the data represents.
6.9. Virtual Reality Modeling Language (VRML)

The Virtual Reality Modeling Language is the Web’s way of describing three dimensional scenes and objects. Given a VRML file, a browser can display a scene or object, as it would appear from any particular viewing location. One can rotate object or move through a scene, using the controls that a browser provides.

6.10. Web Browsers

Web browsers are applications that retrieve content in the form of HTML from Web Servers. Browsers keep track of the users input actions, for example; clicking buttons or selecting links and executing those actions. Web browsers are powerful tools, performing many different functions. There is no standard way of viewing or navigating the Web. A variety of Web browsers exist. Netscape communicator (initially called as Netscape Navigator) and Internet explorer are two browsers that are most popular. Regardless of which browser one can use Web browsers may support some or all of these features.

- Bookmarks for favorite Web site
- Multiple browsing windows
- Frames or multiple views within a window
- Secure data transfer
- Java and other language support
- Web interface to FTP and Gopher Internet sites.

6.11. TCP/IP

The Internet is built on a collection of networks covering the world. These networks contain many different types of computers and somehow, something must hold the whole thing together. That common characteristic is TCP/IP. To ensure that different
types of computers can work together, programmers write their programs using standard
protocols.

A protocol is a set of rules describing in technical terms, how something should
be done on a computer. For example, there is a protocol describing exactly what format
should be used for sending a mail message.

TCP/IP is a common name for collection of more than 100 protocols used to
connect computers and networks. The actual name, ‘TCP/IP’, comes from the two most
important protocols: TCP (Transmission Control Protocols) and IP (Internet Protocols).

Within the Internet, information is not transmitted as a constant stream from host
to host. Rather, data is bound into small packages called packets. For example, say you
send a mail message to a friend on the other side of a country. TCP will divide the
message into a member of packets. Each packet is marked with a sequence number, the
address of the recipient and the address of the sender. In addition, TCP inserts some error
control information. The packets are then sent over the network, where it is the job of IP
to transport them to the remote host. At the other end, TCP receives the packets and
checks for errors. If an error has occurred, TCP can ask for that particular packet to be
resent. Once all packets are received correctly, TCP will use the sequence members to
reconstruct the original message. In other words, the job of IP is to get the raw data-the
packets from one place to another. The job of TCP is to manage the flow and ensure that
data converted properly.

So TCP/IP is large family of protocols used to organise computers and
communication devices into a whole network. The two most important protocols are TCP
and IP, IP transmits data from place to place while the TCP makes sure it all works correctly.

7. World Wide Web Resources

The availability and growth of the Internet offers all of us, an opportunity to find information and data from all over the world. Internet resources, in particular World Wide Web resources, continue to proliferate at an astonishing rate. Some experts say that a new site is placed online for every 3 seconds. It is possible for almost any one to place anything on the Internet. Companies, organizations, educational institutions, communities and individuals serve as information providers for the electronic Internet community. This sharing of resources and information is an example of societal cooperation on a grand scale and has fostered professional and personal communications throughout the world.

Users of the Internet were initially impressed that they found useful information of any kind. However now, anyone with access to a server and passing knowledge of HTML (HyperText Markup Language) can put information on the Internet. The problem has become one of the sifting through a mass of advertising material and vanity publications in order to find information of high quality. The existing World Wide Web has become a platform where one finds information of his/her interest ranging from household to serious scientific literature. But finding information on the Web is a matter of luck, often it is like one puts a hand in the heap of garbage to find a gold coin.

Thus the librarians and library users need evaluation criteria to make effective use of qualitative Web resources.
7.1. Need for Evaluation of Web Resources

When we use a research or academic library, the books, journals and other resources have already been evaluated by a librarian or by a mechanism set up by a librarian. When we use an index or a database to find information on any given topic, the index or database is often produced by a professional or scholarly organisation that selects the journals to be indexed on the basis of their quality. Every resource we find has been evaluated in one way or another, before we ever see it. When we use the World Wide Web, none of this applies because there are no filters in between the user of information and Internet resources.

Information can be spread over the Internet by anyone without regard to accuracy, validity, or bias. Due to its global structure, which encompasses a variety of legal systems and cultures, it is like that any individual or nation is able to significantly influence, regulate, or change the chaotic state of flux that characterises the World Wide Web. So using and citing information found over the Web is a little like swimming on the beach without lifeguard. Hence there is a need to evaluate Internet information sources for following reasons:

- Information published on the net may not be authentic and author may not be qualified for writing the article and thus evaluation is necessary to decide these issues.
- Information found on the Web may not be current, reliable, and may not be filtered. Every information is meant for a specific group of audience and depending on the purpose or target audience the relevancy or accuracy of information can be judged. It is really necessary to know the target audience of the Web source and to decide whether that is useful to them or not.
To decide whether an Internet information source should be linked to a resource
guide or library Web site.

To judge the quality or appropriateness of information for a particular query or user.

It is part of the job of each librarians or information managers- to select what our
users will find useful from this mass of information.

To know what criteria should we use when recommended an Internet resource to an
individual or a class?

Many libraries now maintain Web sites that have lists of Internet information sources.
Without explicit for selection of these sources, librarians wasting their user’s time
with tools of dubious value 11.

To summarise the foregoing issues like unevenness of quality, lack of peer-review
or accountability, the increasing number of sites on the same topic, and the potential
degradation of popular Web directories and search engines continue to create difficulties
in finding and using quality resources on the Internet. Users including librarians, who are
creating simple or extensive collections of links to Internet sites, are doing a grave
disservice. So these issues demand evaluation of Web based sources.

8. World Wide Web Resources: Criteria for Evaluation

This section attempts to amalgamate and assimilate criteria from publications
listed in the references and other sources into a toolbox of criteria that can be applied by
librarians in selecting Internet information sources for a resources guide, or for a
particular user or a query. Not all these criteria will be appropriate for all-purpose, but the
intention of a toolbox approach can choose those criteria appropriate for their needs.
8.1. Authority

8.1.1. Institution

In order to evaluate authority of an institution site the following criteria can be applied in the Internet environment.

- Is this official site of an organisation or association?
- Is the resource sponsored in any way or funded by grants?
- Is this publisher a recognised one?
- On which server is the site mounted? Is it reputable?
- Is the address, specifically the domain, suggest the perspective from which the site was designed and does this suit user purpose?

8.1.2. Publisher

It also helps to evaluate any kind of document that the user may be reading. In the print universe, this generally means that the author's manuscript has undergone screening in order to verify that whether it meets the standards or aims of the organisation that serves as a publisher? This may include peer review.

To assess the authenticity on the Internet, ask the following questions to assess the role and authority of the publisher.

- Is the name of any organisation given on the document you are reading? Are there headers, footers, or a distinctive watermark that show the document to be part of an official, academic or scholarly Web site? Can you contact the site Webmaster from this document?
- If not, can you link to a page where such information is listed? Can you tell that it's on the same server and in the same directory (by looking at the URL)?
Is this organisation recognized in the field in which you are studying? Is this organisation suitable to address the topic at hand?

Can you ascertain the relationship of the author and the publisher? Whether the document that you are viewing prepared as part of the author’s professional duties (and, by extension, within his or her area of expertise)? Or is the relationship of a casual or for-fee nature, telling you nothing about the author’s credentials within an institution?

Can user verify the identity of the server where the document resides? Does this Web page actually reside in an individual’s personal Internet accounts, rather than being part of an official Web site?

This type of information resource should be approached with the greatest caution.

8.13. Author

This can be considered in the same manner as printed sources and the following criteria may be used for evaluating authoritativeness of author.

Authorship is perhaps the major criterion used in evaluating information. Who wrote this? When we look for information with some type of critical value, we want to know the basis of the authority with which the author speaks.

Is the author or producer identifiable? Does the author or producer have expertise on the subject as indicated on a credentials page?

What are the author’s professional affiliations?

Does the resource have some reputable organisation or expert behind it? Are sources of information stated? Is the information verifiable? Can the author be contacted for clarification or to be informed of new information?12
Brandt has given following possible filters for identifying authors credibility.

- Is the author a well-known and well-regarded name in your subject?
- Is the author mentioned in a positive fashion by another author or another person you trust as an authority?
- Is the author's Web document linked from another document you trust?
- Is the Web document you are reading gives biographical information, including the author's position, institutional affiliation and address?
- Is biographical information available by linking to another document? This enables you to judge whether the author's credentials allow him or her to speak with authority on a given topic?
- If none of the above is available, at least the address and the telephone number as well as an e-mail address for the author is given in order to request further information on his or her work and professional background.

In addition to the above-mentioned points the following points should also be considered while evaluating the Web sources.

- Is the information credible and of high quality? Is the information objective?
- Is there an obvious bias? Is this site designed for promotional purpose?
- How long has a resource been available on the Web?
- Is the information verifiable? Is the material available in other forms, such as CD-ROM or print? If so, does the Internet resource offer the same content, or more, or less? This issue has become increasingly important in electronic environment.
- The site should have the confidence to offer a feedback facility such as a form, preferably with e-mail and postal address as well.
Figure 3.8: A Model for Ascertaining Credible Authority to Internet

Input (Assessment of Credible Authority)

Combine assessments for identity, authority, and credibility of input information

Assess identity, authority, and affiliation

Input from the Internet

Assess identity, authority, and affiliation

Verify identity, affiliation, and reputation of individual, institution, organization, and entity

Entity, individual, and affiliation

Verify identity, affiliation, and reputation of

Assess entity, individual, and affiliation

Verify identity, affiliation, and reputation of

Assess entity, individual, and affiliation

Verify identity, affiliation, and reputation of

Entity, individual, and affiliation

Verify identity, affiliation, and reputation of

Entity, individual, and affiliation

Verify identity, affiliation, and reputation of

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Verify identity, affiliation, and reputation of

Entity, individual, and affiliation

Verify identity, affiliation, and reputation of

Entity, individual, and affiliation
If copyright is an issue for the particular resource, the site should include the name of the copyright holder.

- Has the site been favorably reviewed by a browser or other Internet reviewing agency?

- If the resource includes e-mail discussion list or newsgroup or e-journal, have they been moderated, refereed or indexed?

- Does a recognised professional association or a specialist information service link to the resource?

8.2. Scope

What items are included in the resource? Is the scope only implied, or is it stated through meta information such as an introduction? Does the actual scope of the resource match expectations? What subject is covered? Does the resource cover a subject adequately? Scope of the source includes the following points:

**Breadth:** What aspects of the subject are covered? Is the resource focused on a narrow area or does it includes related topics?

**Depth:** What are the levels of details provided about the subject? Is this related to the level of audience for which the resource has been designed?

**Time:** Is the information in the resource limited to certain time periods?

**Format:** It speaks about the classes of resources like Telnet, Gopher, and FTP.

- Is coverage integral, or is the resource part of a greater whole?

- Does the resource contain substantive information or is it simply a list of links?

- Is the site intended to be comprehensive or selective?

- Does the actual scope of the resource match expectation?
8.3. Information Content

- Is the information fact or opinion? Does the site contain original information or simply links?

Sites can be useful both as information resource in themselves and as links to other information. However, users can be frustrated by list of resources, which look promising, but turn out to simply contain more links.

- Does the resource stand alone, or has it been abstracted from another source, perhaps losing meaning or links in the process?

Specific factors related to the content include the accuracy, currency and uniqueness of a resource.

8.31. Accuracy

- Is the information in the resource accurate? – You may wish to check this against resource, or by checking some information about which you have special knowledge.

- Are there political or ideological or other biases?

- Is the origin of the content documented? Are facts verifiable and accurate?

- Is the information factual, or opinion? – Can its objectivity be assessed?

- Is a subject specialist available who could advice as to the accuracy of information content?

8.32. Currency

- Is the source updated or static? If updated, how frequently does this occur? Are dates of update stated, and do these correspond to the information in the resource? Does the organisation or person hosting the resource appear to have a commitment to its ongoing maintenance and stability?
Can you rely on this source over time to provide up-to-date information? Can the currency of the information be ascertained? Is it possible to assess the currency relative to another source?

- In case of a document, is the date given?
- For software, is there a version number?

- Is a policy for maintenance stated (e.g., frequency of updates)?
- How current is the material included in each update.
- If a resource is to be updated regularly, how reliable is the updating?

Different parts of a web site may be updated at different times. For example, e-journals, news sections, bulletin boards, and any section dedicated to new information should be updated frequently. Fast moving fields produce more new information and need more frequent updates. A six-month interval is the minimum acceptable period between updates regardless of discipline.

8.3.3. Uniqueness

- Is the resource original, or has it been derived from another source?
- Is the information in this resource available in other forms (for example other sites, print, CD-ROM)? What advantages does this particular resource have?
- If the resource is derived from another format, for example print, does it have all the features of the original?
  - Have extra features been added?
  - Does it compliment another resource, for instance by providing updates to a printed source?
Does the Internet site contain comparable and complete information? For example, some newspapers have partial but not full text information on the Internet.

What do the other reviewing services say about the site?

On the Internet, an information may be available from a number of different sources. For example, the world fact book is available widely at various locations, in different editions, and HTML formats. This kind of redundancy may be available – a particular site may not be available when required and an alternative mirror site may have to be used. Some of the users may not be able to access certain types of resources, for example Telnet or image-based web site, so the availability of alternative formats may be useful.

Thus Librarians in the Internet environment will need to become familiar with the strengths and weakness of the range of resources while reviewing Internet resources.

8.4. Purpose and Audience

What is the purpose of the resource? Is it clearly stated? Does the resource fulfill the stated purpose? The purpose needs to fit the intended audience for the resource.

Who are the intended users of this resource? At what level is the resource pitched: towards a subject expert, a layperson, or a school student? Will the resource satisfy the needs of the intended users? Does the user group at which the site is aimed to have the connectivity to access the resource.
8.5. Hyperlinks and Navigation

- If the value of the site lies in its links to other resources, are the links kept up-to-date and made to appropriate resources?
- Can you find your way around and easily locate a particular page from any other page? Are there enough internal links?
- If the value of the site lies in its links to other resources, are the links kept up-to-date, and made appropriate resource.
- Is navigation through the site logical? A good resource should encourage seamless movement between sections of data.
- Are there good back and forward links between pages? Are links relevant to the topic or category?

![Diagram of hyperlinks and navigation](image)

*Figure. 2.9: Back and Forward Contrasted With Previous and Next*
Are there any essential instructions that appear before links and interactive portions?

Is it obvious when you move to a new site, or does an outside link appear internal?

Can you “back” out of the site, or do you get stuck looping between pages?

Is an indication of size provided in kilobytes where a link leads to large volumes of data (text, images, video, or voice)?

8.6. Quality of Writing

Is the text well written? While hypertext linking and multimedia are important elements of the web, the bulk of the information content on the web still lies in text, and quality of writing is important for the content to be communicated clearly.

Does the text follow basic rules of grammar, spelling and literary composition?

8.7. Style and Functionality

Functionality is of primary importance – Is the general layout of a resource functional?

Is overall design of the site aesthetically pleasing? Is a choice of display formats available? A very simple, classic design can appeal as much as a clever, graphically innovative one.

8.8. Organisation

Is the organisational scheme appropriate? For example chronological for an historical source, or geographical for a regional resource.

Are menus, headings and formatting used effectively?

Is the balance of links and text good? – A web document that has a vast tree of links is difficult to navigate and overwhelming to the eye.
Chapter-II Internet and World Wide Web

- Is there a consistent look and feel from one page to another? – Visual similarities in all sections
- Are the resources well organised and logically presented? Are the individual web pages concise, or do you have to scroll forever?
- How big is the resource? – If a resource is particularly large, it should really be sensibly and logically into unique and separate segments of information with good navigation links between each segment.
- Does the design promote understanding of the content? Is a text version only available?

8.9. Colour

- Are the texts and background colour choices contrasting enough for the text to be read?
- Is the background plain enough for the text to be easily read? Are backgrounds or other visual elements distracting or cluttered?
- Is the page cluttered? Or does it include too much blank space, which makes printing costly?

8.10. Multimedia

- Is the resource interesting to look at? Do the visual effects enhance the resource, distract from the content, or substitute for content?
- If the site has multimedia, consider creativity, quality of the image and sound, and interactivity.
- If audio, video, virtual reality modeling or other effects are used, are they appropriate to the purpose of the source?
Good web sites weave together relevant text, audio, video, and images to give users a rich experience.

**World Wide Web**

![Multimedia Components](image)

**Figure 2.10: Multimedia Components**

8.11. **Graphics**

Too many graphics or too few, depending on the site’s topic, may influence the evaluation of a site. Too many graphics may also significantly affect on load time of a page. Besides possibly giving you a headache if you look at it for too long, color scheme can also affect the printability of the document.

Here the following points are to be considered to evaluate the graphics used in the site.

- Does the document follow good graphic design principles? Are the graphics clear and representative? Are the graphics functional or decorative?
- Do the icons clearly represent what is intended? Are the graphics too complex and make the page frustratingly slow to load up or to print? Are images used appropriately (e.g., are thumbnail images used)?

8.12. **Workability**

- Is the resource convenient, and can it be used effectively? This is the area where criteria for Internet resources differ most from print resources. An issue in providing access to electronic documents is whether a library should provide links to the
organising site or “acquire” the publication for local access. Poor workability may indicate that the library should store the data locally, if intellectual property considerations allow this.

Major aspect of workability or accessibility falls in to a variety of areas and they are as follows:

8.12.1 Ease of Use or User Friendliness

☐ Are there a site map or table of contents? Does it has an easy-to-use search facility? Is it easy for the intended audience to connect to the site? Is the site user friendly with an effective interface?

☐ Is the resource easy to use? Are any necessary special commands given? Is help information available? Have user interface issues been addressed, such as menu design and readability of screen.

☐ Is the design of the site linear enough?

☐ Is attention paid to the needs of the disabled—e.g. large print and graphics options; audio; alternative text for graphics?

☐ How usable is the site? Can visitors get the information they need within a reasonable number of links- preferably 3 or fewer clicks.

☐ Does it encourage surfer to explore further? – A good resource should encourage exploration. Users are likely to visit site again only if they enjoy using it.

☐ In case of compressed files, is it clear how to gain access to the files? An issue in providing access to electronic documents is whether a library should just provide links to the originating site, or acquire the publication for local access.
8.12.2 Interactivity and Connectivity

- Where interactive features such as forms and CGI (Common Gate Interface) scripts are provided, do they work? Do they add value to the site?

- Can the resource be accessed reliably, or is it frequently overloaded or offline? Is the connection one of limited bandwidth? In such cases pages take a long time to load or keystrokes a long time to echo. If more than one user will need to access a site, consider each user’s access and functionality.

- How do users connect to the Internet and what kind of connection does the assigned resource require?

- Does the access to the resource require a graphical user interface? If it is a popular (busy) resource, will it be accessible in the time frame needed?

- Is it accessible by more than one Internet tool? Do user have access to the same Internet tools and applications? Are users familiar with the tools and applications?

- How long does it take to download? – Particularly one which heavily relies on graphics, or long textual documents, or large piece of software. In such cases it should provide a warning to indicate its size and potential transfer time.

8.12.3. Searchability or Site Search Engine

In most cases a search engine is essential for all site. Search engine must be helpful and it should have instructions on usage of search engine, its Boolean capabilities, keyword searching both in subject and titles field, speed, and completeness. The output should be well formatted and easily understood. Relevance-ranked searches are particularly helpful at sites with large databases.
Thus the following points are to be noted regarding search engines.

- Is the simple search facility available? How effectively can information be retrieved from the resource?
- Is a full compliment of search options available? – e.g. use of Boolean logic for search terms combination, truncation, adjacency and proximity searching, field searching, keyword searching and case sensitivity.
- Is any special search features available? E.g. – access to a thesaurus of terms to choose from.
- For a database resource
  - Can a search session be maintained?
  - Can search sets be created and combined?
  - Is the search interface resilient?
  - Is the search speed acceptable?
- What operators and ranking features are available? Is the search engine interface intuitive?
- Does the search engine interface index the whole resource? Where interactive features such as forms, CGI scripts are provided, do these work?
- Are there links to search engines or is a search engine attached to (embedded in) the web site?
8.12.4 Required Computer Environment

- Can the resource be accessed with standard equipment and software, or are there special software, password, or network requirement is essential?

- Has the resource been designed to work well with one software and user interface? Is it difficult to use with other? Is it useful to test resources with a variety of browsers and connections?

Telnet resources may pose problems to users who have not installed a Telnet client. Images and other multimedia may create problems if users have not installed the correct helper application. While the extent to which older browsers are currently used is a source of argument, there are still Lynux-only, frames-challenged, and visually impaired users, and sites should attempt to meet their needs. This criterion is less important where users are in a defined computing environment, such as that provided by workstation in a particular library.

- Is the resource viewable effectively (i.e. without loss of essential information and navigability) in non-graphical browsers- Lynux.

- If Java or active X, extensions like frames, or plug-ins are employed, do they actually improve the site? How do they affect users with older browsers? A good resource should be compatible with all Internet browsers.

- Are there alternative options for those WWW resources, which contain Netscape specific features such as tables? The information may be significantly altered or affected when viewed in a non- Netscape browser.
8.13. Cost or Charging Policy

Currently, Internet information resources are perceived as being “free” however cost do exists, and likely to become more important. For example, users may have to pay for Internet service providers (ISP) connection costs, which would be higher for sites which are slow to access. Some commercial sites require users to register and pay via credit card to the subscribing members. Other sites require user registration, make no change for this, but nevertheless create an overhead for the user in keeping track of user IDs and password 19.

☐ How do charges compare with alternative sources? If a resource is freeware, is there also a shareware or full cost version?

☐ If a data set is available for free, is there a fuller superset available for a fee?

Librarians have a role in negotiating subscriptions and site licenses for organisational access to charged services.

Internet users paying tariff charges already have to consider the costs of connection, and they may want to include this in criteria for selection. For example, they may favour text-based rather than image-intensive sites, if the information content is the same.

Smith also identified cost for Internet in the following ways:

- Tariff charges: Cost for connecting to the resource and

- Cost associated with the use of the intellectual property contained in the resource
8.14. Software Reliability

- Is installation of software trouble free? Does the software function correctly, once installed? Are features available as advertised? Does the resource require any special software for viewing of full use?
- Can the resource be accessed with standard equipment and software, or are there special software, password, or network requirement?
- Has the resource been designed to work well with one software and user interface?

8.15. Reviews

- What do reviewing services say about the site? The use of reviewing journals has been a mainstay of the development of printed collections. Librarians in the Internet environment will need to become familiar with the strengths and weaknesses of the reviewing tools of Internet resources.

8.16. Copyright

- Does your institution, has any restrictions to use Internet resources?
- Is the information in the public domain and free from copyright restrictions? A special mention should be made if resources are freely available for reuse.
- Is there any restriction for further use or reuse? When it is necessary to send confidential information out over the Internet, is encryption (i.e. a secure coding system) available? How secure is it?

Even if the copyright notice does not appear prominently, some one wrote, or is responsible for, the creation of a document, graphic, sound or image, and the material falls under the copyright conventions.

- Are interactions secured if they involve private information?
Internet users, as users of printed media, must respect copyright and should consider censorship and privacy issues.

8.17. **Language**

- Is the standard of HTML coding indicated?
- In what language is the site written? Is the resource entirely in English? Is a significant part of the resource available in English? Is it available in other language as well? If the site is offered in translation, is the translation accurate?
- Is a special character set in use? If particular fonts are required to read a resource, then this should be mentioned in the resource description.

8.18. **User Support**

- Does any introductory or explanatory material (e.g. home page or parent document, or FAQs) accompany the resource?
- Is screen help available? — Is it context sensitive? Is there a contact name and e-mail address for further advice and information?
- Is online or print documentation available? Is it accurate and clear? Is it available free of cost or a nominal cost? Are search aids available?
- Does news items point to useful features, as well as to temporary available problems? Is there a user group, which can take forward user suggestions? Is there a user discussion list, which can provide support?

8.19. **Vendor Support**

- Is level of tech support available? Is there ease of access to vendor support, online support and toll-free telephone support? What is the vendor's customer support track record?
8.20. Metainformation

Metainformation is information about the information. Information workers (sometimes-called knowledge workers) all over the world are constantly poring over, processing, and evaluating information-and making notes. As the challenges produced by the increasing quality of information continue, access to high quality metainformation will become increasingly important. Metainformation can take many forms, but there are two basic types i.e., summary and evaluative.

Summary metainformation includes all the shortened forms of information, such as abstracts, content summaries, or even tables of contents. This type of metainformation gives a quick glance at what a work is about and allows us to consider many different sources without having to go through them completely.

Evaluative metainformation includes all the types of forms that provide some judgement or analysis of content. This type includes recommendations, ratings, reviews, and commentaries. And, of course, these two types can be combined, resulting in the best form of metainformation, providing us with a quick overview and some evaluation of the value. An example would describe each selected site and provides evaluation of its content.

8.21. Credibility

Is it possible to identify the author or organisation? Is there any indication of the author's qualification or reputation? Are contact details given? Is the information peer reviewed? Are there links to the site from recognised authorities such as reputable subject guides? Are there signs of a commitment to quality control with regard to selecting links and weeding them out again? Sometimes you can verify credibility by following a link to
the author's home page. Other techniques include searching the author's name using a search engine or using the link facility in Alta Vista to see what sites link to the document in question. Sometimes lack of credibility is obvious.21

8.22. Source Documentation or Bibliography or Reference

Where did this information come from? What source did the information creator use? Are the sources listed? Is there a bibliography or other documentation? Does the author provide contact information in case you wish to discuss an issue or request further clarification? What kind of support for the information is given? How does the writer know this? It is especially important for statistics to be documented. Otherwise, someone may be just making up numbers. Note that some information from corporate sites consists of description of products, techniques, technologies, or processes with which the corporation is involved. If you are careful to distinguish between facts and advertising, then such description should be reliable.22

8.23. Contact Information

Typically contact information will be in the form of an e-mail address, since we are dealing with the Internet resources, it is very essential to provide contact address in home page so that anyone can contact the author for further information.

8.24. Load Time

One Web site may be fast in loading page another may be slow. There are many things that an author of a page can do to decrease the load time of a page, but it ultimately comes to the speed of the user's Internet connection. What the user must decide is whether the site's information is worth, however long you wait must endure to get the information. If the site is the best available you might be willing to wait a little longer. If
there is another site that is just as good, but loads in less time, then you may end up using
that one instead.

8.25. Advertisements

Advertisements may bother more to the user of the web site. One should consider
that whether the advertisements detract from the information or are just a general
annoyance. In some cases, one of the central purposes of the site is to advertise a product
or service. But does that fact necessarily invalidate the information.

8.26. Printing

This criterion can be considered in certain circumstances. If a site gives long
answers to questions, one may need to print out the document and let the patron walk off
with it. If the document does not print correctly or needs additional steps on your part to
make it print correctly you might consider this as insufficient use of your time thus
causing to look for another resource which does not present these problems.

8.27. Hit Counter

Hit counter is also one of the most important criterion to evaluate the Web page. It
indicates how many times the Web page has been visited by the users. What a hit counter
does is increment itself every time a user loads the page. This does not mean that the user
hung around or was able to find what they were looking for, just that the user loaded
page. You might question the number. It is technically possible to program a counter to
increment by five whenever the page is loaded.

Since the counters are unreliable, people who run professional Web sites now feel
that their site's counter should speak for itself and that they should not have to prove how
popular their Web site may or may not be through the use of a hit counter. The other
reason for the decline in the use of hit counter is that the visitor information is available through the server logs, so the lack of a counter does not eliminate marketing information from a webmaster’s data collection.

9. Conclusion

The World Wide Web has become an important medium for communication, recreation and information provision. It offers new opportunities for libraries to move from being mainly providers of information on demand for clients to the active dissemination of information through publishing on the Internet. Now-a-days many libraries are establishing home pages and they are providing subject gateways on the World Wide Web, some simply to be ‘on the Internet’ but some with a specific aim or client/program focus.

Thus evaluation of World Wide Web based information resources by library professionals and other related authorities play a very important role in providing right information to the right user. In this regard this chapter highlights on evaluation criteria which can be effectively used by librarian in selecting information from the Internet and also to decide to include it on the library home page or not.
References


7. Ibid. p 20.


12. Ibid.


   Available at: http://thorplus.lib.purdue.edu/~techman/evaluate.htm


15. Ibid.


