INTERNET: EMERGING TECHNOLOGY FOR INFORMATION GENERATION AND ITS SERVICES TO USERS

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Internet has emerged as a powerful tool for modern libraries and information centres in providing information services. Discusses information generation from the Internet and access to a wide range of services from e-mail to electronic publishing available to a user. The basic requirements for availing these services, along with the approximate costs for the introduction and maintenance of the facilities, are explained. The extension of the traditional role of the information specialist in providing up-to-the-minute information is elaborated, be it for research or technical purposes, for corporate use, or for the general reader.

INTRODUCTION

Information touches all human activity and is communicated in a multitude of ways which includes speech, pictures, video, text, etc. Access to information is generally recognized as contributing significantly to the efficiency of any organization. Recent developments in computer, communication and networking technology have given new meaning to information retrieval systems. Today information sharing is achieved through networks. The network of networks on the global scale is known as the Internet, the information super highway, and it is growing at the rate of ten percent monthly, connecting 1,300,000 domains having about 40 million users [1].

CONNECTING TO THE INTERNET

Internet is a network of distant, local, regional and national networks, people, and computers, all linked together via cables, telephones, and satellite (Fig. 1) [2]. In India VSNL is the sole agency providing Internet access. Its high-speed Internet backbone network, known as VSNL’s Gateway, accesses the Internet (Fig. 2). The Gateway Internet Access Service (GIAS) has VSNL as Internet host and an Internet protocol (IP) route.

VSNL introduced the GIAS (Gateway Internet Access Service) to make Internet Services available in India on commercial basis. Users in India can use any of the three types of connections to operate the Internet services, which are direct connection, SLIP/PPP account, and shell account.

Direct connection involves the user’s system getting connected to Internet directly or to another server that is in turn connected to Internet and runs TCP/IP (Transmission Control Protocol/Internet Protocol) and other web browsing software.

Serial Line Internet Protocol (SLIP) accounts are through Internet Service Providers (ISP). Point-to-Point (PPP) is a better protocol than SLIP and is widely used.

Using Dial-up access to GIAS host, shell account can be accessed using terminal emulation from PCs. This access mode is primarily limited to text-based services. A shell account can be operated with common communications software with a modem and dial-up line as prerequisites. The shell indirectly uses software installed on the VSNL end [3].
To Internet

Ethernet

IP Packets

hub at Delhi

VSAT dish

Satellite Modem

Router

Packet Switch

PAD

RS 232 bit stream

X.25 Packets

internet Host

M

M

PC with Terminal Software

Shell a/c

IP Packets

IP Packets

X.25 Packets

IP Packets

PC with browser & TCP/IP stack

TCP/IP account

Fig. 1 Internet connection through satellite
EMERGING TECHNOLOGY FOR INFORMATION GENERATION AND ITS SERVICES TO USERS

Services and Tools

The primary purpose of the Internet is communication, whether it is scientific research, current news, database searching, entertainment, conferences, electronic publishing or simple chat. At the same time, being connected to the Internet can mean anything from sending email messages to company branch offices across the country or fellow researchers around the world, to logging onto another computer system to search and retrieve files, music, graphics, or video clips.

Usually the following can be done on the Internet:

i) Communication
ii) Document or file transfer
iii) Interactive browsing
iv) Reading and posting to bulletin boards

The basic tools that are used for these activities are:

a) E-mail
The electronic message exchange referred to as e-mail or electronic mail is a simple service which enables messages to be sent in a near-real-time manner. As long as the message can be digitized, or converted to a computer-readable format, it can be sent by e-mail. This includes text, pictures, audio or video formats. In India, e-mail can be sent through ERNET, NICNET or commercial e-mail vendors such as Sprint RPG (Sprintmail), DART (Dartmail), or Datapro Information Technology Ltd. (Xeemail), etc.

b) FTP (File Transfer Protocol)
It is the movement of whole electronic documents, images or sounds. FTP refers to the Internet tool which allows the movement of a file from one place to another. Here 'file' means any digital entity such as document, image, graphics, move, sound or software. Several public access files exist on computers on the Internet as anonymous FTP archives which you can download on your computer.
c) Telnet

It is directly accessing another computer system's databases or archives. Telnet basically means remote login. This is the ability to access and control another computer on the Internet somewhere. Telnet can be used to search an archive such as a library resource or even to access your own computer from another geographical location.

d) Usernet

It is a global bulletin board messaging system consisting of various interest groupings. A message posted to the newsgroup may be read, forwarded, or followed-up by a public response. Several newsgroups are well organized and discussion format is frequently used by science and technology professionals.

Over the years, other tools or services have emerged which greatly expand the scope of these activities. Of these, the most widely used are Gopher, which displays organized resources; Archie, which searches FTP archives; Veronica, which allows conducting of key-word searches in gopher space; WAIS (wide area information servers); IRC (Internet relay chat) or MUDs (Multiuser domains). Then there is the World Wide Web (WWW), currently the most widely used of the facilities, the hypertext interface to the information on the Internet.

WAIS are one of the several categories of on-line databases on computers on the Internet which may be free or provide fee-based access, generally using Telnet. Similar to WAIS and equally useful to information professionals are campus-wide information services (CWIS), on-line public access catalogs (OPAC) and commercial on-line services.

The OPACs came into being as many libraries converted the traditional card catalogue to computerized database which could be accessed on-line. The OPACs of large or specialized libraries are useful for compiling bibliographies, and since they offer an interactive searching environment, the results are more relevant and useful. Libraries may sometimes be allowed access to proprietary database of fee-based use of commercial systems such as Dialog or Medline. The commercially operating database services also offer document delivery services.

The tidal wave of interest in the Internet came with the use of WWW, or simply the web, the fastest growing Internet function. It uses the concept of hypertext to link information. Hypertext refers to the system of direct connections among information sources displayed to the user by allowing jumping from one source to another by pointing and clicking. The web operates using an Internet protocol called HTTP (Hyper Text Transport Protocol). The language used is called HTML (Hypertext Markup Language) which is a subset of the powerful SGML (Standard Generalized Markup Language).

The WWW was originally developed at CERN, the European laboratory for particle physics, and what started as a means for scientists to exchange data (text, graphics, figures), come to be universally used with the introduction of the graphical browser. Mosaic was the earliest such browser, developed at the University of Illinois and distributed freely on the Internet. The last two years have seen several other web browsers, each having their own capabilities and features. The most widely used of these are Netscape Navigator and Microsoft Explorer.

**INFORMATION GENERATION**

The present trends in the field of information generation and transmission are due to the developments in communication networks and accessibility of data stores extensively distributed on the electronic media. The WWW and electronic publishing on the Internet open up a major area which may be exploited, generating information which is continuously up-to-date and which is universally accessible.

Though the web is considered a distributed documents store and/or digital reference library, it is a dynamic, interactive and evolving environment that supports communication, where users are active participants. In a very short period, the web has matured into a globally distributed multimedia information retrieval system of impressive dimensions. It is speculated that five years from now, 80% of publicly available information will be on the web. Institutions and communities with
shared interests are creating web sites, and scholars, learned societies and professional associations with home pages continue to proliferate. The web is set to evolve into a knowledge diffusion environment for all disciplines [5].

Here for instance, the Steelweb index at http://www.indconneX.com/steelweb/is a Hepworth-sponsored site which is UK-based and contains numbers of steel contacts, news and information. Cordis, the European Commission’s R&D programmes are now accessible at http://WWW/Cordis.lu/ [6].

The information and library professionals are finding that their role is increasingly changing to that of intermediary. While assisting and sometimes training users to access the vast store of information available on the Internet, they are also interacting to produce, organise, and process information to make it available on the web.

The various kinds of information that they can generate on the web is:

- On-line public access catalogues (OPACs), ranging from complete library collections to ones restricted to disciplines or subject fields. Examples of these are OCLC and the Library of Congress Catalogue.

- Databases, bibliographic or specialized may be prepared for general or fee-based usage.

- Notices, announcements of seminars or conferences, or calls for paper etc.

- Reports of summaries of research or academic activities, projects.

- In-house publications, catalogues, brochures, schedules.

- Electronic publishing of papers, reviews, etc.

- Home page, which is a format most commonly used for a variety of information. Companies use it for commercial purposes and as an advertising tool.

The homepage which is produced as a hypertext document, can be designed using the HTML tags, which allow authors to define structural features and to locate the hypertext buttons [7]. Authors can thus establish links between separate documents or files stored in different locations.

An interesting example of creative use of a company's home page is seen in the site of Kobe Steel Company at http://www/kobelco.co.jp/indexe.htm/. In addition to the general information on the company and its products, it also features interesting pictures of the great Hanshin earthquake damage to its headquarters and the subsequent replacements [8].

HOW MUCH DOES IT COST?

For an Internet connection, one needs hardware/software peripherals and connectivity through a nodal agency. The basic requirements are: 486PC, 60 MHz, having at least 8 MB RAM, network card, at least 14.4 kbps modem, a telephone line, and networking software like TCP/IP.

VSNL's new tariff structure states that both the terminal dial-up (text only) services and the "TCP/IP graphics service" will be split into components, which are, an annual account maintenance charge, and an hourly-usage charge, to be billed quarterly to the subscriber. There will also be a separate non-interest bearing "Security deposit" which is refundable to the user at the time of termination of the service. Each user pays Rs. 6000/- as annual account maintenance charge, Rs. 500/- as security deposit and Rs. 30/- for every hour spent on the net.

New tariff structure

<table>
<thead>
<tr>
<th>Service</th>
<th>TCP/IP Account</th>
<th>Dial up Account</th>
<th>Student Account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Fee</td>
<td>Rs. 6,000/-</td>
<td>Rs. 3,000/-</td>
<td>Rs. 500/-</td>
</tr>
<tr>
<td>Hourly usage</td>
<td>Rs. 30/-</td>
<td>Rs. 15/-</td>
<td>Rs. 5/-</td>
</tr>
</tbody>
</table>

The tariff for leased line services is also revised to Rs. 10 lakhs for 64 kbps line [9].
CONCLUSION

The Internet is an ever-evolving phenomenon. Many areas are still in the experimental stage and others are fast changing to keep pace with users' requirements and the sheer size and variety of information that is generated world wide. For the information or documentation professional there is enormous scope for further work. In a world where every information consumer can become an information service provider, the library not only assumes the role of an information management organisation, designing and redefining its activities to serve the immediate needs of its members, but also takes on the responsibility of providing a proactive link between the parent organisation and its external or potential customers, or indeed, the rest of the world.

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