USING THE INTERNET FOR DOCUMENT DELIVERY

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ABSTRACT

Electronic systems, national and international, have revolutionised traditional interlibrary loan activities. Various document delivery options available on the Internet will be described including Ariel. The use of File Transfer Protocol (FTP) and World Wide Web (WWW) to locate and access documents will also be covered.

During the past few decades Inter Library Loan services have changed quite dramatically.

More or less four decades ago libraries bought high volumes of journals and then delivered the requested articles from their own stock. They experienced very little financial pressure on their budgets and they were able to subscribe to large numbers of new journals just in case somebody , somewhere might need the information in the articles.They also subscribed to print-format journals only.

The result was that users were able to read the document itself and that document delivery wasn't necessary[6]. So the "traditional" library consisted of rows and rows of shelves packed to full capacity with bound volumes of journals. But things started to change.

The available literature increased at an enormous rate, monetary problems arose and the end user's information needs and expectations changed. This led to the problem that libraries could supply fewer and fewer of the requested documents from their own collections.

TRADITIONAL METHODS

These realities caused librarians to think of other possibilities of collection development and access to information.

They started to make use of other libraries' collections to supply their users' demands.

This was a very time consuming process. At first the requesting library had to complete an Inter Library Loan Request by hand or typewriter. You had to fill in the user's name, the title of the article, the author of the article and then the rest of the bibliographic information. This form was then sent by post to the supplying library. When the supplying library received the request they had to process it and then mail it back to the requesting library. This process led to long delays in document delivery[8].

The same procedures applied for International Interlending.

FAX

In the second half of the 1980's the fax machine enhanced the ILL process[2].

Although the fax machine was developed in 1842 by a Scottish clock maker, Alexander Bain, it was only at this stage that the technology had improved enough to justify the use of fax machines[7].

A fax machine goes through four steps to send an image. The machine scans a page, distinguishing between black and white

areas. It encodes this information into digital signals i.e. series of electrical pulses. This digital signal is then sent over regular voice telephone lines. At the other end the image is then reconstituted. The quality of the fax is determined by the SENDING machine although poor telephone line quality will also distort the image before it reaches the other end. Fax machines can be divided into four groups according to established standards.

Groups I & II	used during 1960 - 1970 very slow - taking about 3 - 6 min/page making use of analog telecommunications technology
Group III	current used group taking about 30 - 60 sec /page making use of digital technology
Group IV	still very expensive taking about 3 sec/ page data being transmitted over high speed data networks

By making use of a fax machine when requesting articles the turnaround time for photocopy requests was dramatically reduced, but the quality of the copies was poor. In cases of urgency the supplying library can be asked to fax the requested article. Although the quality might be poor the information is now available to the user who can use it while the original copy is on its way in the post. Fax machines shrunk the world - information can be sent or received from any part of the world within a few minutes.

SABINET

In South Africa we have a computerised network among libraries called SABINET (South African Bibliographic Information Network). This was established in 1983 on a Western Library Network (WLN) based system. They experienced many problems and difficulties and in the early 1990's they changed to the ERUDITE system. Since 1994 they offer an online requesting service which is being used by most of the larger libraries[3].

This means that your request is immediately received by the supplier via telecommunication lines and the document is then sent by mail/fax/courier to the requestor. The mode of sending is decided by the requestor depending on the urgency of the request. Sabinet also provides access to a number of separate databases such as

Whitaker's Books in Print,
Union Catalogue of Theses and Dissertations
Index to South African Periodicals (ISAP).

BRITISH LIBRARY

For international requests our institution traditionally used the British Library Document Supply Centre (BLDSC). This method also consisted of forms and stamps and mailing the form to the British Library. They photocopied your document and sent it by mail again. In the mean time things got more streamlined and these days you can use Faxline to request the documents by fax, Artel to request documents online or ,the latest addition,E-Mail to request articles by Electronic Mail via the Internet. The documents are then sent by mail with a turnaround time of about 10 days.

But what if the document isn't available from the British Library?

LISTSERVS

In 1992 the leader of the Service Unit Veterinary Science Erica v d Westhuizen who also happens to be the organiser of this conference, attended the First International Conference of Animal Health Information Specialists at Reading University, UK. When she returned she presented us with a handful of E-Mail addresses. At that stage E-Mail or any network communication was completely unknown to me and to most of the Service Unit's personnel as well, because we were not linked to a Local Area Network and therefore didn't have any access to any other networks.

Erica subscribed to the VETLIB-L (Veterinary Librarians) listserv on recommendation of some of the conference attendants from the USA , and this is how we were introduced to the Internet. Through VETLIB-L we are able to obtain documents unobtainable through the more conventional document delivery channels, or when articles are needed in a hurry.

INTERNET

The Internet[7] developed out of the need to interconnect institutions who worked on federally sponsored military research in the USA in the early 1970's. This was during the Cold War and the idea was to supply connection structures that could not be destroyed by Nuclear weapons.

In the mean time in the early 1980's the National Science[10] Foundation (NSF) in the USA installed a few computers and tried to link up with this military network for the use of researchers. This wasn't successful and so they started their own network. At the end of the Cold War the American army gave up the control of their network and the two networks were linked. The Internet is thus a collection of networks all over the world (estimated at about 11 000 networks at this stage.) We have now reached the stage where we must stop thinking about document supply. We must start to think about information supply rather than document supply. Access to information has become rapid and it is now possible to search hundreds of databases with the help of the Internet.

But how do you retrieve all this readily available information?

RETRIEVAL TOOLS

You need some network information retrieval tools[9] i.e.

I File Transfer Protocol (FTP)

This tool allows files to be copied via the Internet using File Transfer Protocol from those institutions making files available using this method.

With valid ftp-commands you can open up various ftp sites eg. Australian National University with a databank of Social science papers National Institutes of Health, Maryland, Princeton University, New Jersey with a Behavioural Brain Sciences Archive. With the help of FTP we often find information difficult to obtain or even completely unavailable in the conventional publication forms.

II TELNET

TELNET allows a user to login to a remote computer and use its applications. It is a program that lets you use the power of the Internet to connect you to databases, library catalogues and other information resources around the world.

III HYTELNET

Gives access to libraries world-wide. It is designed to assist users in reaching all of the Internet-accessible libraries, Free-nets and other information sites. The library resources you can access are divided into 3 groups

The America	<site 1A>
Europe & Scandinavia	<site 1B>
Asia, South Africa & Pacific	<site 1C>

Now that you know about the tools to retrieve the information you are looking for ways to make it easier to find all the data.

EXPLORING THE INTERNET

Two programs that make the exploring of the Internet a lot more convenient are GOPHER and WORLD WIDE WEB (WWW)

I GOPHER

This is a program that lets you search for and retrieve information stored on other computers, known as "Gopher Servers". All you have to do is to put your request in and it will scan the Internet for the relevant information. On this Gopher program there is an index and retrieval system which enables us to locate items

on most of the Gopher Servers in the Internet.

It is called VERONICA (Very Easy Rodent-Oriented Net-wide Index to Computerised Archives)

II WORLD WIDE WEB (WWW)

This program is designed on a system known as hypertext. This means that words in one document are linked to the same word in other documents. The WWW world consists of documents and links.

Many of the information services or nets are for free. That means you may enter the network, take what you need and leave eg. Elseviers "Contents Alert" Others are Commercial services and must be paid for eg. EMDOCS and DIALOG

All these networks and information services cannot alone solve the problems of document delivery. They must be combined with technology that can convert the printed matter into electronic format.

ELECTRONIC DELIVERY

In the past few years different organisations started exploring methods for delivering copies of journal articles in electronic format.

Two systems that I will mention briefly are North Carolina State University's Digitized Document Transmission Project (DDTP) and Ohio State Network Fax Project[2,5] - this project combines Group III fax machines with PC's to transmit articles over the Internet. The third system is a project from the Research Libraries Group ARIEL[1,6,7,8] named after the servant of Prospero in *The Tempest* of Shakespeare because "ARIEL delivers as fast and faithfully as his master requires" Ariel is software that links together a computer, a scanner and a laser printer. With the scanner a bit-mapped image of a page is made. It is then compressed to less than 8% of its original size for faster transmission and stored in the PC. Transmission then takes place over the Internet by high-speed digital communications lines. On receiving the article at the receiving site the PC decompresses the article and either prints it immediately or stores it for later printing. An error free transmission is guaranteed because Ariel counts the number of bits received and compares it with the scanned count.

Ariel can operate as a send-and-receive station , a send-only station or a receive-only station depending on what hardware is available.

Among the significant advantages of ARIEL are improved image quality, simultaneous send/receive capability and lower telecommunications cost.

The biggest disadvantage is that ARIEL is a dedicated system and thus can only send to another ARIEL system.

Another disadvantage is that only users with access to the Internet are able to use ARIEL.

I think it is clear that the Internet has the potential to make rapid, high quality document delivery available to all its users worldwide[4]. Maybe future libraries will consist of rows of computers
rather than shelves of books.

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