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# IATUL AND THE ACADEMIC NETWORKS

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## Abstract

This paper will give an overview of the academic networks and discuss the practical and potential applications for their use in improving communication in an international organisation such as IATUL. This overview will include a presentation of navigational tools such as Gopher, WAIS (Wide Area Information Server), World Wide Web, Archie, WHOIS etc. Aspects that will be presented include:

Electronic mail for rapid communication in an international environment.

File transfer used in the production of the *IATUL News*.

The possibility of starting an IATUL News Conference or Bulletin Board.

Collaborative projects in information provision making use of WAIS.

The development of flexible and transferable courses on the use of information sources.

Electronic publishing and its possible effects on our member libraries.

The paper will be directed towards seeing how IATUL as an organisation can benefit from the academic networks.

## 1. Introduction

Computer networks have been in existence for some twenty-five years. Now suddenly we are experiencing a phenomenal growth in the last few years. The 1990s is the age of global networking. Academic researchers and librarians are at the forefront in realising the exciting potentials of network communication as can be seen by the various papers on this theme that have been presented at the Hamburg conference. This paper will take up the question of how IATUL as an organisation can make use of the academic networks.

Many if not most, members of our association have access to the Internet - the net of networks. This provides us with an excellent means for data - communication.<sup>1,2,3</sup> How can we use it today and in the future? Fortunately many of the most useful tools are those that are fairly simple to use.

## **2. Use of the Internet**

The Internet can be used for a number of purposes:

### **2.1 Electronic mail**

Electronic mail is almost a standard tool for research workers today. This provides an excellent means of communication for many of our members. As editor of the IATUL News I really appreciate receiving contributions and news items in the form of e-mail. This means that the message can be sent from any type of computer over the Internet to my e-mail address. I can capture the mail and transfer it directly into the text-processing program Word 5.1 and the "item" can be processed in PageMaker for the Desk Top Publishing. The good thing about all this is that we do not have to retype something which has already been input by somebody else. This saves a great deal of time. An item can be processed, checked for possible spelling errors (which can occur during transmission!) and put into the correct format for the printed journal. This is much better than receiving diskettes in a wide variety of formats. It is however important if you are using some form of compression or encryption to supply the receiver with the key. We once spent rather a long time trying to decode a message from the Netherlands. Please note that members who do not have access to a network can still send in items by fax or by post. I look forward to having the e-mail addresses of members in the IATUL Membership List.

### **2.2 Electronic conferences and bulletin boards**

Another very useful tool is the ability to carry out group communication - point-to-multi-point - by means of electronic mailing list servers and conference systems. There are already many such mailing lists available today covering many aspects of library work. The Secretary, Michael Breaks and I have discussed the possibility of setting up an IATUL electronic conference to facilitate communication between members. We are already a widespread organisation and our President has expressed the wish that we become even more truly international with members from all the continents. The problem is that we are on different time-schedules. One way to avoid this is the use of fax machines. The electronic discussion group offers, however,

many advantages - it is independent of time and can really promote useful discussions in an informal way. Useful tips can be passed on to colleagues and news items transmitted rapidly. For those members that do not have access to the academic networks, it might be possible to download an IATUL electronic conference and distribute it with the IATUL News.

### 2.3 Remote access

We can use remote access to programs such as TELNET or X.Windows to access the online **library catalogues (OPACs)**. I must confess to enjoying being able to look at the holdings of other IATUL members! Of course one has favourites. Communication with Australian libraries is nearly always straightforward. It all started when one of our researchers at Chalmers asked if eucalyptus trees could grow in cold (nordic) climates. We just happened to have a visitor from the Royal Melbourne Institute of Technology, so we looked it up. We continued with "snow-gums" and most of our postgraduate students are now familiar with this concept!

It is also possible to access OPACS of specific types, such as LIBERTAS, GEAC or VILS catalogues. It is of course much easier to use a catalogue with which one is familiar. If, however, you are in the process of choosing a library system, it is extremely useful to be able to evaluate the various types of OPACS at your leisure and in your own library.

Remote access can also be used to access **databases** over the Internet. Most of the IATUL members in the United Kingdom are taking part in the BIDS - (Bath Information and Data Service) which provides access via JANET to a number of online databases which can be accessed directly from end-user terminals.<sup>4</sup> The libraries are in many cases now closely engaged in administration and in education and training of the BIDS users. OCLC's First Search service provides access to some thirty databases over the Internet and most commercial hosts now offer Internet access. Smaller databases, sometimes of particular local interest, are being mounted on Wide Area Information Servers (WAIS) for remote access.

There are many other information sources available from some of our members - electronic fulltext sources, databases, campus information, information on grants and fellowships and JOBS available!. I really enjoyed the period when I could login to the MIT libraries and reach OCLC's First Search. I sent a grateful thought to Jay Lucker and his colleagues. When the food at Chalmers restaurant seemed particularly poor, I showed the students how to key in to MIT's "Potluck" and we experienced mouth-

watering over the menus at Legal Seafoods. (shades of the 1991 IATUL Conference)!  
.For several weeks we could take part in the University of Minnesota's trial of ISI's  
Current Contents online - a service that now requires a password.

#### **2.4 Document ordering and delivery**

One of the obvious applications of the academic networks is for the transfer of documents - document delivery between document suppliers and other libraries and/or end-users. Many of our IATUL libraries are involved in document delivery projects via the Internet. The Research Libraries Group (RLG) in the USA has developed a document transmission system ARIEL. Between October 1990 and November 1991, six RLG libraries: University of Pennsylvania, Colorado State University, Dartmouth College, University of Michigan, UC Berkeley and UC Davies beta -tested the ARIEL system.<sup>5</sup> This resulted in a commercial release of the software. This is now being tested in the Nordic countries (see paper given by Mickos at this conference) and in the United Kingdom over the phase one of the SuperJANET network at six sites. There are a number of other Internet document delivery projects such as the North Carolina State University Digitised Document Transmission Project (DDTP) and the OHIO State network fax project. Commercial document suppliers such as CARL's Uncover2 and Engineering Information Inc. are beginning to offer as one of their alternatives Internet document ordering and delivery. The British Library Document Supply Centre is also involved in delivering scanned images of journal articles by FTP over the 2Mbit/s network to Nottingham University.<sup>6</sup> Another interesting project is the European Document Interchange between Libraries (EDIL) supported by the European Commission and running from March 1993 to 1995, with partners from the UK, France, Germany, Portugal and the Netherlands.<sup>7</sup> At the IATUL seminar held in Tallinn in 1992, Van Marle gave a detailed account of the Dutch PICA RAPDOC project which has been designed to improve the quality and speed of interlibrary journal article delivery. Within this project it is hoped to make use of SURFnet-3 digital transmission based on TCP/IP over lines of megabit capacity.<sup>8</sup>

#### **2.5 Electronic publishing**

There are already many electronic journals available over the Internet. Perhaps the most common area for these is in the Arts and Humanities, where the information is mostly text-based rather than containing graphics and pictures. Nevertheless important experiments are being carried out by the Institute of Physics and in the TULIP project - both in the area of materials science.<sup>9, 10, 11</sup> For IATUL electronic

publishing offers an attractive possible means of distributing the IATUL News much faster to those members who are situated far from Gothenburg, but who do have access to the Internet. I am thinking in particular of members such as those in Australia, South Africa, Hong Kong and the USA, where surface mail takes some weeks. I would like to establish an IATUL project for the trial production and distribution of the IATUL News to a number of sites world-wide. This would be based on the use of a WAIS server at Chalmers University Library. This does not, however, mean that we have to scrap the paper copy. One problem with electronic network distribution is that you can easily end up with a lot of rather boring-looking black and white print-outs which look like all your other print-outs. They easily get lost! Furthermore we do not have network capacities for pictures and graphics, so I think that we could try parallel production, rather like that used in the Institute of Physics project.

## **2.6 Distribution of education and training materials**

The Internet provides an excellent communication medium for the end-user training. One of the second round proposals for European Commission projects is EDUCATE - EnD-User Courses in Information Access through communication Technology. Six members of IATUL from France, Ireland, Spain, Sweden and the United Kingdom are involved in the EDUCATE project. The aim of this project is to produce model end-user education courses in the selection and use of information tools within the science and engineering disciplines. Other members of IATUL might be interested in co-operating in the development and distribution of educational material.

## **3. Finding out what is available**

One of the problems about using the Internet is how to find out what is available. Fortunately a number of global navigational tools have been developed in a remarkably short space of time. These are all distributed information systems based on a client-server architecture. The server is used for the administration of the data whereas the client machines access the servers across the Internet and act as a presentation to the user, who is thereby spared having to know about a lot of networking details.

One of the most widely used tools today is the **Gopher**. The Internet Gopher was developed at the University of Minnesota. The Gopher makes use of a simple protocol using networked hierarchical directories. It is possible to access files, directories, servers (including Archie and WAIS servers), USENET-NEWS servers,

and Telnet to other computers all round the world by entering simple commands or pointing to menus. It is fast, easy to use and easy to install, so it has spread very rapidly amongst Internet users. There are in June 1993 well over 1000 Gopher servers round the world. Many of these are in use at IATUL members' universities. Gopher runs on most computers including Macintosh, IBM-PCs and compatibles and UNIX machines.

A particularly useful accessory tool for searching in Gopherspace is **Veronica** (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives) which was created at the University of Nevada. Veronica maintains an index of titles of Gopher items and provides the facilities to carry out simple keyword searches of those titles. Note that these are not full-text searches, but only on names of the various stored Gopher files. Other Global information systems such as WAIS and WWW can be accessed by means of Gopher systems.

The next navigational tool is **WAIS** - the Wide Area Information Server system - conceived by Brewster Kahle and developed by Thinking Machines corporation, Apple Computer, Dow Jones and KPMG Peat Marwick. WAIS is a tool for full-text information retrieval over wide area networks (WANs). WAIS servers administer their data by means of affiliated index files. Client and server communicate via a Z39.50 protocol. WAIS can be considered to be an electronic publishing software which facilitates the searching and retrieval of multimedia information. The information is accessible whatever its format: text, formatted documents, graphics, spreadsheets pictures, video or sound. WAIS searches can be expressed in natural language in either English, French, Italian or Latin. Much WAIS software is public domain that is freely available.

The **World-Wide Web** (**WWW** or **W3** or **W<sup>3</sup>**) project, which was initiated at CERN (one of our IATUL members) is based on the philosophy that much academic information should be freely available. WWW combines the techniques of information and hypertext which allows links to be set up between objects. WWW was originally aimed at the High Energy Physics sector but has now spread to other academic areas. The WWW is a distributed system which contains of documents and links. Searching gives a special type of document - the anchor - which contains links, or pointers, to the documents found. Communication between the client and the server is by means of the Hypertext Transfer Protocol (HTTP). WWW allows access to other global systems such as the Gopher or WAIS via their respective protocols or via HTTP.

If you want to search for, and download, Internet files, then **Archie** (from archives) is the best tool to use<sup>12</sup>. This online file-finding utility was developed at McGill University School of Computer Science. A large number of public sites (over 1,500) are providing access to files via anonymous File Transfer Protocol (FTP). Archie maintains a database to most of the public files on the Internet. It also provides access to text descriptions for software, data and other information in the anonymous FTP archives. Archie clients are freely available for most operating systems and there are gateways to the Archie systems from Gopher, WAIS and WWW.

**X.500** is the international standard designed to provide a distributed global directory device. Users connect to a local X.500 service which in its turn connects to remote servers round the globe. The problem here is that the X.500 directories vary in availability and content. It may be said that the global X.500 directory is evolving.

Another name directory for the Internet is **WHOIS** (or WHOIS++ now in beta-testing). WHOIS is maintained by the Defense Data Network (DDN) Network Information Center (NIC) and contains entries primarily about people responsible for the operation of the Internet and people doing network research.

#### 4. Discussion

Many of the members of IATUL are already actively using the academic computer networks, as we have seen by many of the contributions to this conference. All will be affected by such issues as electronic publishing and digital delivery of documents. Many strategic issues will have to be discussed and resolved, not least among these are the issues of copyright, standards and the training and continuing education of librarians and information specialists. We, the members of IATUL, are working in organisations where there is a high level of technical competence. Perhaps there is a need to establish a working group to examine the ways in which we can work together internationally to achieve the maximum benefits from our networking tools and to help those members who do not as yet have access to obtain this.

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