Chapter 3

Library Networks:
The Centres of Resource Sharing

Human networking for sharing of resources has been in operation since the ages when man understood the limitations of survival as an independent entity. The compulsions of interdependence have given birth to the norms for cooperation in different scenarios. So have they done in the case of libraries which had to fulfil the growing demands of their users and to satisfy the legitimate use of their resources. Human networking in libraries had to pave ways for automated networking as day after day controlling and disseminating information was becoming humanly impossible.

The meaning and scope of modern networks has been changing since the 1970s when its applications began. The National Commission on Libraries and Information Science (NCLIS) in its National Programme Document (1975) defines a network as:

"Two or more libraries and/or other organisations engaged in a common pattern of information exchange, through communications, for some functional purpose. A network usually consists of a formal arrangement whereby materials, information, and services provided by a variety of libraries and other organisations are available to all potential users. Libraries may be in different jurisdictions but agree to serve one another on the same basis as each serves its own constituents. Computers
and telecommunications may be among the tools used for facilitating communication among them." [1]

Alphonse F. Trezza defines it as:

"..... a formal organisation among libraries for cooperation and sharing of resources, in which the group as a whole is organised into subgroups with the exception that most of the needs of a library will be satisfied within the subgroups of which it is a member." [2]

Raynard C. Swank defines library networks as a "concept that includes the development of cooperative systems of libraries on geographical, subject, or other lines, each with some kind of centre that not only coordinates the internal activities of the system but also serves as the system's outlet to, and inlet from, the centres of other systems. The concept is also hierarchical..."[3]

1. The Characteristics of Library Networks

Library networks have the following characteristics [4]:

Data: Bibliographic records (MARC) frequently
Retrieval: Author/title/number (Subject) (keyword)
Access: Telecommunication network/Private network/Hard wired network
Users: Librarians (Public)

The above classification shows that library networks have the following features:
Information networks display the following characteristics:

Data: Bibliographic records (text/numeric)
Retrieval: Subject based (Boolean/keywords)
Access: Telecommunication network/Private network
/Hardwired network
Users: Intermediaries (End-users)

Information retrieval (IR) networks contain more bibliographic records, but databases consisting of textual and/or numeric information are rapidly increasing. Retrieval is based largely on Boolean searching besides the other approaches. The purpose of database producers is to capture the end-user market. Thus we see that the IR networks have:

- varying types of data
- unstable user base
- mix of professional/non-professional needs.

The user base which is not stable makes producers work hard and increases the types of databases to suit their users. These IR networks do not include banking networks, airline networks, railway networks, etc. The merger of the two networks—the library network and the information network in parts is considered a possibility in the near future.
The limitations of library networks begin to rise as they open up opportunities of a tremendous nature for resource sharing. Pat Molholt observes:

“Networks enable librarians, faced with clients' information needs beyond their local resources, to identify and obtain materials and services for those clients. Network access is an enfranchising mechanism that cannot be viewed as a luxury. As long as we operate with print-on-paper collections we need to share those collections. As we move increasingly into electronic-based information we can see technology and networks working together to reduce the physical movement of materials.”[5]

2 Essentials of Library Networking

It may be necessary to refer to some of the following basic essentials of a resource sharing library network.

1 Library networking is meant to promote and facilitate sharing of the resources available within a group of libraries in order to provide maximum information to users, to lower operational costs and also to make optimum use of national resources.

2 In order to do so it is necessary to create bibliographic tools like union catalogues and union lists based on the resources available in the participating libraries and these tools have to be in turn used for resource sharing and reference purposes.

3 Rationalisation of acquisitions needs to be undertaken.
Interlibrary loan services should grow and may be interlinked with the search of the union catalogues. Delivery of documents should be fast, either electronically, through fax or through courier or mail.

The libraries selected to join a network should be willing partners, ready to buy hardware, etc. and should be willing to send professional staff for professional training. They should be willing to pool bibliographic records to the Central Host of the network besides adhering to other network obligations.

In-house functions like acquisition, cataloguing, classification, serials control, circulation, SDI, current awareness service, etc. should be undertaken by the individual libraries. The network software may or may not support these operations of the libraries in the beginning but eventually the network software should not only be able to create union catalogues or full text databases, etc. but also get integrated with the in-house operations.

The network should be able to recommend to participating libraries the type of hardware they need for their in-house functions and for networking purposes. Hardware should be selected considering the number of entries the participating libraries can generate within the next 3-5 years. The hardware at the Central Host will have to be upgraded regularly depending upon the speed with which participating libraries generate records and the network pools them into the Central Host.
8 All libraries should follow a standard MARC format, AACR II, a standard thesaurus like Library of Congress Subject Headings (LCSH), etc. uniformly.

9 Electronic mail and INTERNET facilities should be available with the libraries and they should be able to access international databases preferably individually or through the network host to begin with.

10 Although efforts should be made to have one classification scheme in all participating libraries but use of different class numbers should not become a hurdle as search requests are mostly by authors, titles, editors and subject descriptors.

3 Membership Benefits

A resource sharing system should enable any of its users or members to have access to any documents available within or without the system. Library networks have been in operation to develop such a facility, but there have been different factors responsible for their efficient operation:

(a) "Membership in resource sharing networks enhances a library’s ability to provide users with the information they need."[6] Hence, the more the members of a network, the more useful the network becomes to its members.

(b) Resource sharing networks offer[7]:

(i) Document delivery and interlibrary loan service
(ii) Shared cataloguing
(iii) Cooperative collection development
(iv) Reference assistance
(v) Consultation and staff training
(vi) Vendor discounts on major services

c) Special libraries have not been initially interested in resource sharing because:

(i) Networks have been catering more to the needs of academic and public libraries than that of special libraries;
(ii) They have been collecting information through informal arrangements with other libraries;
(iii) Their needs are more specialised;
(iv) They do not have sufficient finances;
(v) The demand from users is less.

d) Special libraries interested in joining a network have been mostly doing so for ILL according to the joint task force of the National Commission on Libraries and Information Science (NCLIS) and the Special Libraries Association (SLA) in 1980 in the U.S. [8]

A library can participate in several library networks for resource sharing purposes depending upon the need of its users and the strength of its resources. In the United States as several library networks are functional, the decision of the institution to join more than one network will depend mainly on its immediate needs. This decision making varies from one type of library to another. For instance, 67 per cent of academic libraries specialising in science and technology are members of state and
regional multitype library networks while only 38 per cent of the special libraries join such networks. On the other hand, 40 per cent are members of regional library networks while only 21 per cent of special libraries are members of regional networks. Also, 28 per cent of government libraries use local networks. OCLC attracts 60 per cent of academic libraries.[9]

4 Network Services

Resource sharing through library networks is performed through various services and it would be appropriate to see which type of services are offered by different types of libraries. In the United States a survey was made among 476 libraries in relation to the following 19 services and the responses are given below. [10] Table A lists current services, while Table B gives the services that are wanted by the members.

Table 6
Current Services by Library Type

<table>
<thead>
<tr>
<th>Service</th>
<th>Corp. (150)</th>
<th>Non-profit (35)</th>
<th>Govt. (85)</th>
<th>Academic (206)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataloguing</td>
<td>48%</td>
<td>44%</td>
<td>68%</td>
<td>73%</td>
</tr>
<tr>
<td>Citation, location services</td>
<td>65%</td>
<td>60%</td>
<td>81%</td>
<td>74%</td>
</tr>
<tr>
<td>Consultation</td>
<td>15%</td>
<td>29%</td>
<td>34%</td>
<td>22%</td>
</tr>
<tr>
<td>Continuing education, staff training</td>
<td>37%</td>
<td>58%</td>
<td>51%</td>
<td>33%</td>
</tr>
<tr>
<td>Cooperative collection development</td>
<td>16%</td>
<td>14%</td>
<td>19%</td>
<td>36%</td>
</tr>
<tr>
<td>Coordinated acquisitions</td>
<td>12%</td>
<td>7%</td>
<td>22%</td>
<td>26%</td>
</tr>
<tr>
<td>Courier, document delivery</td>
<td>42%</td>
<td>33%</td>
<td>38%</td>
<td>50%</td>
</tr>
<tr>
<td>Service</td>
<td>Corp. (150)</td>
<td>Non-profit (35)</td>
<td>Govt. (85)</td>
<td>Academic (206)</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------------</td>
<td>-----------------</td>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Cataloguing</td>
<td>20%</td>
<td>22%</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>Citation, location services</td>
<td>12%</td>
<td>17%</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>Consultation</td>
<td>14%</td>
<td>14%</td>
<td>20%</td>
<td>13%</td>
</tr>
<tr>
<td>Continuing education, staff training</td>
<td>11%</td>
<td>10%</td>
<td>21%</td>
<td>16%</td>
</tr>
<tr>
<td>Cooperative collection development</td>
<td>14%</td>
<td>23%</td>
<td>20%</td>
<td>31%</td>
</tr>
<tr>
<td>Coordinated acquisitions</td>
<td>13%</td>
<td>22%</td>
<td>19%</td>
<td>27%</td>
</tr>
</tbody>
</table>

Table 7
Wanted Services by Network Members by Library Type
Library networks have grown with the main purpose of sharing resources so that the unnecessary wastage of limited finances with them can be avoided. In order to achieve this and the satisfaction of users, different types of networks came into existence. The following are some of the models at regional, national and international levels.

The collection-centred cooperative networks were more interested in collection development work based on the present needs and the unpredictable needs of the users in future. They would go in for inter-agency agreements so that sharing of the collection was possible. As a
result, the scope of the collection development is wide and the users have better access to resources. One of the best examples of this type of network has been Triangle Research Libraries Network in North Carolina in the U.S.[11] Robin Downes states: "Studies of this network have been used to illustrate the principle that collection-centred cooperation is most effective among institutions of similar size and mission, typically the largest university libraries. The collections of the university libraries in North Carolina which are not Triangle Network members have many unique items to contribute to the overall pool of library resources in the State, but this is a random result and one which could not be planned."

The other type has been the client-centred cooperative network.[12] In this case one library is used as a central resource and the other libraries would participate in the network. An ideal example of this network has been the Illinois Network with the University of Illinois-Champaign-Urbana Library as a central resource [13]. The network proved to be useful because:

(a) Even the University of Illinois could borrow books from other small libraries which possessed collections based on unplanned collection development policies; and

(b) All libraries benefitted from resource sharing.

However, in this arrangement only a small percentage of user needs were met by resource sharing. It is noticed in this network that overlap of titles among small and medium libraries exceeded 50 per cent occasionally. This network used LCS, the bibliographic system which worked well, but duplicate copies of many books were purchased by the libraries as they found them to be the core items.
In the third scenario [14], the emphasis is on resource sharing and not on collection development. Only core-collections are maintained and nothing else is duplicated.

Another networking model is Detroit Area Library Network (DALNET), a consortium which shares a common online catalogue. This system necessitates cooperation on acquisitions which in effect include changes in vendor file, holdings data, etc. as provisional bibliographic records are created in acquisitions at the time of ordering. The data is later updated.[15]

The fourth type is a multitype library consortium in a geographical area which is generally small. And, cooperation is possible even in building up core collections. One of the best examples has been the Houston Area Research Library Consortium. The membership in this consortium is multitype because each library does not only build collections in one field, but sometimes in more fields. As a result, there is no systematic planning in the development of the collections but cooperation is only in the use of the collections. Each of the larger academic libraries in the consortium subscribes to about 15-20,000 serials and stocks more than 1.5 million volumes. The cumulative data of the eight participating libraries which comes to over seven million volumes [16] is available on CDs.

The fifth type, Irving library network which began in 1978 as a loose-knit cooperative in Denver has become a successful online tool for resource sharing. [17] The network provides mechanism for accessing
incompatible databases of participating libraries, including determining circulation status, and processing of interlibrary loan transactions.

6 Network Scenario in the U.S.

The growth of library networks in the United States from the mid 1960s could be traced to the establishment of Ohio College Library Centre (OCLC), later renamed the Online Computer Library Centre, which not only became in the 1970s the de facto national network[18] but also in the 1990s as the international library network. These network activities were supplemented by library networks such as the Washington Library Network (WLN) and the Research Libraries Group (RLG). Their approaches were different but served the users well. OCLC has grown from 54 libraries in 1971 to 26,540 libraries in March 1998, which includes all types of libraries — academic, government, public and special. [19] It has developed its own telecommunications network, besides various products and services.

If we look at the enormous progress made by OCLC, we can just say that if INTERNET is enveloping the world through its telecommunication networks, OCLC is its counterpart on the library side, which brings in more and more libraries into its fold the world over. It has 30 million bibliographic records with 520 million holdings locations in its union catalogue. The database increases at the rate of 400,000 records every month.

Some of the other important library networks established in the United States include Research Libraries Information Network (RLIN) in 1978, Western Library Network (WLN) and Southeastern Library
Network (SOLINET). Metropolitan Libraries Network of Central Oklahoma established in 1987 is a multitype library network and even indulges in cooperative buying besides creation of union catalogues and document delivery services.[20]

The Oakland Library Consortium (OLC) was started as a local cooperative of three research libraries in Oakland community of Pittsburgh, Pennsylvania.[21] In this consortium the member libraries do not share an automated system but perform a number of resource sharing activities such as collection management, storage, preservation, staff development, etc. Like other networks, OLC grew out of a deep felt need for resource sharing. Another model of resource sharing is the Peninsula Library System. It is a consortium of public and community college libraries in San Mateo County, California. In this consortium the services which could not be attended to alone such as reciprocal borrowing, system-wide delivery, system reference centre, video centre, community information programme, etc are undertaken. These services are promoted in a cooperative spirit and joint activities are greatly preferred. [22]

With regard to a fast growing resource sharing network, reference may also be made to the Panhandle Library Access Network, Inc. (PLAN). PLAN is a multitype library consortium. It was conceptualised in 1992 as a not-for-profit corporation. In a short time it developed a union list of serials, organised workshops, equipment loans and arranged tape loading of non-OCLC MARC records. It provides retrospective conversion services, provides Internet access and creates databases of monographs and serials to mount on a CD-ROM tower. [23]
USA is the birthplace of library networking and by now libraries in each state are networked to local, regional and national networks. Sometimes a library participates in several networks simultaneously. The major US library networks include AMIGOS (Dallas); BCR (Bibliographic Centre for Research), Aurora; CAPCON, Washington; ILLINET, Springfield; INCOLSA (Indianapolis Library Cooperative Services Authority), Indianapolis; MINITEX Library Information Network, Minneapolis; MLC (Michigan Library Consortium), Lansing; MLNC (Missouri Library Network Corporation), St. Louis; NEBASE (Nebraska Library Commission), Lincoln, Ne; NELINET, Newton, MA; OCLC, Rancho Cucamonga, Ca; OHIONET, Columbus, Oh; PALINET, Philadelphia and PRLC, Pittsburg, PA.

It may be important to note that the US Department of Education has been advocating a vigorous policy of promoting library networking. It offers networking grants, supports interlibrary loan projects, automation and retro-conversion projects, resource sharing schemes, etc. besides providing regular federal grants annually to the public and academic libraries. For instance, the Department supports the public libraries for using INTERNET in a big way. According to the final report of the National Commission on Libraries and Information Science published in June 1994, 20.9 per cent of the public libraries were connected to INTERNET. It recommended more federal grants to let all public libraries join INTERNET.

It is worth noting that the Library of Congress, one of the major and advanced libraries in the world does not create a union catalogue of books as for instance the National Library of Canada does. The reason may be that the Library of Congress is an important national library but
not a network. Thus the public, scholars and members of the Congress make use of its resources without its network functions. On the other hand, OCLC which is not a national library, works as the major national resource for the libraries in the U.S. in general. This could be enumerated by referring to a few library networks that are operational in Washington and the neighbouring areas.

VALNET (Veterans Affairs Library Network) which is a system of 163 libraries in Veterans Affairs and Health Care facilities depends on its creation of data on OCLC through a contracting agency that creates its union catalogue on CDs. These CDs are updated twice a year and distributed to the libraries. There are about 700,000 books, 60,000 periodicals and 104,000 audio visual programmes in its databases. Similarly, FEDLINK Network Operations (FNO) functions as a regional library network for 825 federal libraries that are members of OCLC. Created in 1978, it offers to federal agencies cost-effective access to information. FEDLINK which has its office at the Library of Congress makes liberal use of OCLC data and does not envisage creating another network database to avoid duplication of efforts. It organises training programmes and provides procurement and accounting services as well. However, in the strict sense, FEDLINK may be regarded as a regional network which besides supporting federal libraries, also promotes and uses OCLC to the maximum.[24]

Maryland, which adjoins D.C., has two important network projects going on simultaneously. The first one, LIMS (Library Management Information System) operates at the University of Maryland. Besides INTERNET connections, it holds the union catalogue of its 13 participating libraries which is called VICTOR. The libraries are also
members of OCLC. They download the bibliographic data and maintain their own catalogues. The software of LIMS supports both in-house operations of libraries and the union catalogue and ILL operations. With OPAC, access to national and international databases, gopher LIMS provides excellent service to nearly 35000 students and faculty members of the university.

The other experiment in Maryland being conducted by the Maryland State Department of Education is quite different. It provides INTERNET access to the users free of charge through the non-commercial service SAILOR. Citizens of Maryland can access information on all subjects including arts and entertainment, music, health and medicine, legal matters, federal government, historical documents, national issues, etc. With nearly 200 incoming lines, SAILOR is already providing free INTERNET services including TELNET and USENET. Maryland State Library Network Coordinating Council is electronically connecting Maryland’s libraries and providing service to users.

7 Other Networks

It may not be possible to refer to all the library networks in the world in this thesis, but reference may be made to a few representative ones. Libraries in UK, USA and Canada have taken separate approaches to networking though their goals are similar. We therefore get different patterns of growth. BLCMP in Birmingham has now 13 million bibliographic records of books, serials, music, AV, maps, etc. in its database and its catalogues get a hit rate of above 90 per cent with more than 60 libraries comprising public libraries, college libraries, university libraries and national and special libraries. BLCMP has introduced EDI
clearing house service in about 25 libraries. Its new software TALIS now has a Z39.50 interface which enables its members to download data from INTERNET databases that are available in the public domain. It is on the move.

LASER (London and South Eastern Library Region), an independent company under the University of London, promotes library cooperation among 80 libraries in London and South East England and has more than three million records in its databases. It does not allow online cataloguing, but the participating libraries can add their location codes in the union catalogue. Using a system called Bookmark, they have developed a good authority file system. For Indian languages materials they have developed CILLA (Cooperative of Indic Language Literature Authorities). Subject approach to its database is being introduced on the CDs. LASER does not process interlending requests of its members but indirectly supports it. It also supports file transfers on Janet and Kermit.

The British Library, though, not a network has nearly 21 databases (including BNB) holding 15 million bibliographic records. Blaiseline, the automated information service of the British Library Services offers search service to its users. It may be added that the British Library holds one of the largest patents database in its Patents Information Network. About forty million patents are held and the database is growing at the rate of one million patents per year. Known as Patents Express and Patents Online, the services are extremely popular around the world. The British Library is also developing the Business Information Network which is rapidly growing. BIDS (Bath Information and Data Services) offers several services in the fields of Public Health, Medicine and also provides access to British Library databases. For medicine alone, BIDS covers 3300
journals from 110 countries and includes abstracts for 70 per cent of its records. Its database is growing at the rate of one million articles per year.

The network scene of libraries in Canada is somewhat different than we notice in UK and USA. CISTI (Canadian Institute for Scientific and Technical Information) which holds books and conference proceedings, over 50,000 serials and millions of technical reports from around the world, offers a number of services including CAN/OLE (Canadian Online Enquiry Service) and document delivery. About 2500 users use CAN/OLE every day. On my visit to CISTI, I was much impressed by its services. CISTI maintains a union catalogue of 50,000 serial titles with over 20,000 current titles. There is no union catalogue of books made by CISTI but DOBIS and UTLAS are two main union catalogues of books with location details. Though DOBIS is mostly handled by the National Library of Canada, UTLAS is a commercial library network. The National Library of Canada promotes decentralised networking through the use of protocols conforming to the Open System Interconnection (OSI) reference model. It has nearly ten million bibliographic records in its online database. It adds 800,000 to 1,200,000 records per year to its database and holds 1 million authority records. Besides its 275 concurrent users, it has 600 external institutions across Canada that use its union catalogue. Depending upon the query, the response time is 2 seconds to 20 seconds. It provides an indepth ILL service to non-Canadians who need Canadian publications. It may be of interest to Indian users that CISTI provides Canadian Scientific Numeric Database Service (CAN/SND) Online at a very cheap rate to users outside Canada on several scientific subjects. It is an SDI facility. It is worth trying, especially when we cannot afford to subscribe to every journal in the fields of our interest. It may be mentioned that the automation of libraries
is advanced even among the public libraries in Canada. Ottawa Public Library which has an online database of more than 1 million volumes offers highly advanced service to the general public.

The New Pica Library Network in Leiden, Netherlands offers three different ways for a library to participate in a network: [25]

A: A library can use the Pica central services and have no local library system
B: A library can use both Pica’s central services and the Pica Local Library System, and
C: A library can use Pica’s Central services and use a commercial non-Pica Local Library System.

It is not possible to describe in some detail the above networks but as an example I may refer to the special features of the major network in Japan.

I had an opportunity to visit the National Centre for Science and Information Systems (NACSIS) in Tokyo. The visit exposed me to the programmes and activities of the National Centre for Science Information Systems (NACSIS) in Tokyo which is a well established library network in Japan.

NACSIS celebrated its 10th Anniversary in November, 1996. Its roots go back to 1976 when the Research Centre for Libraries and Information Science (RCLS), its predecessor, was established at the University of Tokyo.
During the last decade, NACSIS has made tremendous progress in creating Union Catalogues, Databases and Information Systems for the users in Japan and outside Japan.

The Objects

The major functions and services of NACSIS are as follows:

1. To collect and provide all-inclusive academic journals published throughout the world.

2. To construct and provide access to online cataloguing databases which may include 200 million books and 2.7 million journals held by more than 500 university libraries.

3. To construct and provide access to numeric, graphic and other types of information reflecting the research activities at universities and research institutions.

4. To promote research and development of computer hardware and software applications, database construction, information management, and to disseminate scholarly information efficiently.

5. To provide access to creative and advanced information resources produced in universities for researchers outside universities through links with other information systems.

6. To promote international access to achievements of Japanese researchers through links with foreign information networks.

Cataloguing Information Service (NACSIS-CAT):

NACSIS-CAT is a system comprising Union Catalogue Databases of monographs and serials available in the libraries in Japan. The standard bibliographic databases such as Japan MARC and
USMARC are referred to and cataloguing is mostly done in shared form to avoid duplication. The NACSIS cataloguing system achieves saving of labour and the system works fast. [26]

**Main Features**

The main features of the cataloguing system are:

1. Cataloguing work is done with the libraries that are connected online. There is a great deal of saving achieved in cataloguing work.

2. Preparation of standard data is made possible by using MARC online.

3. Authority control is provided for authors' names and other details online in order to maintain uniform standards.

4. A member-library can extract its own data, whenever needed, from the union catalogues and databases. This data can also be provided on a CD-ROM to the member-libraries and used on online Public Access Catalogue (OPAC).

**Union Catalogue and Databases**

NACSIS provides access to 52 databases including the Union Catalogues of monographs and serials, catalogues, and bibliographies.

**NACSIS - ILL**

The interlibrary loan facility of a growing network has to be efficient. NACSIS has taken a keen interest in developing an efficient automated ILL facility which has the following features:

1. ILL facility is mostly connected with the Union Catalogue
Databases.

2. The ILL facility is integrated.

3. ILL requests reach the ordering destinations. It has automatic forwarding facilities.

4. Each library looks up and updates its interlending policy.

5. Each library looks up its own status.

6. Client request via NACSIS-IR is available.

7. Request for transfer to British Library Document Supply Centre (BLDC) is possible.

8. Requests can be transferred to the National Diet Library.

9. ILL statistics are available on display.

10. ILL transactions average per day: 70,000 orders.

Participating Libraries

The following are the types of libraries that participate in the network. Their number is growing every year.

<table>
<thead>
<tr>
<th>Type of Library</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Universities</td>
<td>98</td>
</tr>
<tr>
<td>Municipal Universities</td>
<td>36</td>
</tr>
<tr>
<td>Private Universities</td>
<td>255</td>
</tr>
<tr>
<td>Inter-University Research Institutes</td>
<td>12</td>
</tr>
<tr>
<td>Junior Colleges and Colleges of Technology</td>
<td>61</td>
</tr>
<tr>
<td>Others</td>
<td>54</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>516</strong></td>
</tr>
</tbody>
</table>
Library Network Connection

Two types of network communication protocols are being operated by NACSIS. The first protocol N-1, connects libraries using mainframe computers. This protocol includes Kanji (Sino-Japanese) characters and Western alphabetical characters with diacritical marks. The record network communication protocol VTSS (Virtual Screen Transfer on TSS link) is designed to connect small computers. On both these protocols UIP (User Interface Programme) provides users with a full-screen man-machine interface.

Information Retrieval Service

The Information Retrieval Service of NACSIS (NACSIS-IR) provides access to 62 million records through 52 online databases in all fields of the humanities, social sciences and sciences. The services are offered to all types of users, including students, faculty members and researchers.

NACSIS - Mail

NACSIS members use Inter-University Electronic Mail Network (SIMAIL) and it is operated in cooperation with NACSIS. NACSIS-Mail provides E-mail, INTERNET and Electronic Bulletin Board facilities.

Average traffic of NACSIS mail:
About 43,000 mails per month.

Host Computer Systems

System for NACSIS-AT/NACSIS-IR/Database Construction
The system consists of two mainframes (HITAC MP5800/310 and MP5000H) and several UNIX servers and offers high performance computing, large amount of disk storage for diverse databases and various client computing environments. Two mainframes coupled loosely share disk storage and peripheral units. MP5800/310 is a multi-processor system of 3 CPUs and each CPU is equipped with IDP (Integrated Database Processor). MP5000H is the same type of system with 2 CPUs and 2 IDPs. The total amount of magnetic disk space is 3,500 GB, 1,000 GB for mainframes and 2,500 GB for servers. NACSIS-CAT/ILL and NACSIS-IR are being transferred to the UNIX based system.

System for NACSIS-MAIL and BBS

The ACOS system 3700/8 is used for providing NACSIS-MAIL and BBS. Magnetic disks of total capacity 61.3 GB are installed in order to accumulate messages, the directory of mail addresses and the others. The communication control system provides several communication protocols for access for international connection of electronic mail which has been developed and is operated on the ACOS system, provides protocol conversation between NACSIS-MAIL and INTERNET.

Other Activities

NACSIS offers training programmes and maintains an Electronic Library System for providing access to electronic journals through INTERNET. Researchers can browse through the journals on their workstation monitors. They can also retrieve journal articles by accessing through key words and authors' names. The latest information on this is available on http://www.nacsis.ac.jp/dl/dl-e.html
Summary and Conclusions

Library networks have grown mostly during the last thirty years in different geographical environments in order to cater to the specific needs of users. In the United States there has been a proliferation of them. Library networks in other countries are also growing. Several models have emerged that provided specific services. Not all networks conform to the essential functions of library networks. However, the essential functions should include the promotion of resource sharing, creation of resource sharing tools like union catalogues, rationalisation of acquisitions and maintenance of international standards for creation of records uniformly. Libraries should be able to join different types of networks depending upon the need and select a model which conforms to its requirements. The chapter also outlines a brief scenario of important library networks. We get a picture of the services being offered by library networks.

The following are the conclusions:

1. Library networks may be established for cooperation and resource sharing among libraries of all types covering all subjects in a city, state, region, or a country.

2. Specialised library networks among one type of libraries or among the libraries in one discipline may also be established.

3. Necessary databases and bibliographic tools like union catalogues and union lists should be created.

4. Rationalisation of acquisitions should be done primarily in libraries specialising in one discipline.
5. Networks should be engaged with efficient ILL and document delivery services.

6. Networks should aim at developing online access among member-libraries to each other’s specialised collections and services either through the network or directly.

7. All libraries should follow a standard MARC format, AACR 2 cataloguing code, a standard thesaurus like LCSH uniformly.

8. E-mail and INTERNET facilities should be available with the libraries.

9. Library networks should also offer shared cataloguing, cooperative collection development, reference service, training, contribution, etc.

10. A network model should be selected keeping in mind the purpose for which the sharing is to be done by the participating libraries.

11. The network scenarios discussed in the dissertation reveal that networks that offer services on all subjects and serve all types of users and libraries will progress as they will attract a large number of users that will make them sustain their services.

References:

2. Ibid.
3. Ibid.

Ibid.


Ibid. pp. 70-71.


Ibid.


Downes, op. cit.


Downes, op. cit., p. 119.


