THE PICA RAPDOC PROJECT: FROM INTERLIBRARY LOAN TO ELECTRONIC DOCUMENT DELIVERY

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Introduction

Some years ago someone introduced the slogan "Holland, more libraries than windmills!". Strange as that might seem, somehow it is true: the Netherlands is a library-intensive country. One recent directory of Dutch libraries and information service organisations lists more than 2,000. Not only is there in our country a strong tradition in public library work, but in addition there is an extensive history of what we now call research libraries, with some of the major university library collections dating back to the 15th and 16th centuries. Moreover there are many important special libraries, some of them connected with well-known multinational industrial concerns.

Besides historical and traditional characteristics, an important feature of our library landscape is the high degree of cooperation - regional as well as national - which exists here. Co-operation is the key word in the recently launched project for rapid document delivery - RAPDOC.

Pica

Pica was founded in 1969 as a cooperative body of the Royal Library together with a number of university libraries in the Netherlands. Since 1986 it has been a private foundation. Pica is a co-operative not-for-profit organisation for the automation of libraries and other information-providing organisations in the Netherlands. It aims to promote cooperation between these institutions and thereby to optimise their management. Pica wants to improve the services to end-users, while promoting the efficiency of the Dutch library and information system as a whole.

The main library systems Pica offers to its members and participants are:

- **Online Shared Cataloguing System** in which bibliographic information is processed for the production of catalogues and catalogue by-products. The central database now contains approximately 8,000,000 title records of books, serials, a-v media and music.
- **Interlibrary Loan System** which serves as a central facility to handle the interlibrary loan of books and periodicals between more than 300 connected organisations. The system contains complete title- and holdings information, regulates the request traffic, and enables its users to process requests, as well as coping with the corresponding administration.
- **Online Retrieval System** by means of which users can search various reference databases.
- **Pica Local Library System** which consists of standard hardware and in-house developed software, including various modules, such as OPAC, acquisition administration and loans.

Open Library Network

During the last two and a half years Pica and its members have been working on the redesign of the technical infrastructure. A major development has been the design and implementation of the Open Library Network (OBN), which links the local library systems of Pica's member libraries and the central Pica system in such a way that a transparent set of services is offered to the user. At the same time the central system has been redesigned. Redesigning the local library facilities is currently taking place. The conversion of the

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datacommunication network into the technology of SURFnet, the Dutch academic research network, was completed in 1992. This will bring together a new network concept and fully revised versions of all Pica library systems. Through these developments Pica will achieve:

- integration of software and systems;
- standardisation of search facilities;
- implementation of intelligent workstations (PCs);
- standardisation of datacommunications (OSI);
- improvement of online public access, based on end-user requirements.

Pica and its members will have access to a state-of-the-art technical infrastructure, on the basis of which new and better services to end-users can be offered. One of these important new services will be a service for rapid document delivery.

RAPDOC: Goals

In March 1991 Pica's Steering Board accepted the project plan *Fast Delivery of Documents*. This was based on several analyses of Pica's automated ILL-system for periodicals, which has been operational for more than 9 years, and which is now handling some 350,000 requests for journal articles per year. Studies pointed out that 85% of these requests refer to some 7,000 periodical titles. Another conclusion was that libraries all too often do not deliver the requested articles fast enough, according to end-user requirements.

As the main goals of the project, the plan points to the realisation of improved access to periodicals at the article level together with an automated service for fast delivery of requested articles. Both the storage of well-indexed data and the speed of delivery which is needed point to electronic end-user oriented solutions as well as to sound organisational and technical infrastructures.

In developing all the necessary facilities, every effort had to be taken to look for possible applications of existing standards and for solutions which were already available. Last but not least, attention had to be paid to connectivity with international developments, both in Europe and in the US.

19 major libraries in the Netherlands (mainly research libraries, some public libraries) are working with Pica on the project, which was named RAPDOC. Together they aim at electronic delivery of requested articles from 7,000 scientific periodicals within 24 hours. The 20 partners are taking responsibility for a major share of the costs of the project, but fortunately the Ministry for Education and Science is sponsoring the project in a generous way.

RAPDOC: Activities

RAPDOC encompasses several groups of activities:

- The first group concerns organisational activities, which are all aimed at obtaining an easily manageable RAPDOC-periodicals collection; good availability in the libraries and streamlining the processing of the flow of requests, not only inside the libraries, but also in a technical sense by building special extensions to the existing inter-library loan system.
- In order to obtain more detailed indexing we are in the process of adding table of contents data to the database of periodical titles. This is a large-scale operation, illustrated by the fact that we estimate that our 7,000 titles will generate some 630,000 article citations on an annual basis.
- Finally, we want to be able to deliver the articles as speedily as possible. To achieve this, the only answer nowadays is electronic full text transfer. Therefore the third group of activities is devoted to network facilites and the telecommunications aspects relating to them.

The following paragraphs describe each of the three groups of activities in more detail:

Organisational aspects

As it was clear that it was not an easy task to design a system through which every request would be electronically fulfilled, it was necessary to establish a selection of journals which would be used in the RAPDOC-project. In order to do this it was agreed that the IBL-system would be used. The IBL-system is the automated Dutch union catalogue for periodicals, on which the automated control of ILL takes place.

The system was designed by Pica, has been operational since 1983 and is run by Pica and the Royal Library together. From the IBL-database those periodical titles were selected, for which

most requests were received through IBL for inter-library loan. Studies proved that approximately 7,000 titles from a total of 27,000 titles requested in 1991 were able to supply 85% of all 1991's requests (350,000).

After the execution of further in-depth analysis of the availability, distribution, and levels of requests, these 7,000 periodical titles are now called the core collection. It must be emphasised that this is a physically distributed collection, dispersed over 19 locations, with some libraries having more than others, while some of the titles are only held by one library. Nevertheless, a good proportion of the core collection titles is held by a number of libraries. The participating libraries have all taken on responsibility for delivering an agreed quota of requests from a certain number of titles, guaranteeing fast delivery of articles.

In order to cut down further on the elapsed time for processing and handling, the linking of central and local loan facilities is to be extended. In the main, these links refer to central and local Pica functionality, but to a certain extent links between central Pica and other local systems will also be developed. Furthermore, special enhancements to the existing IBL-system have been provided for, after which the available holdings of core collection titles can be registered. These special modifications include those needed for management information, statistics and various administrative functions.

Building a periodical articles database

In order to improve the search functionality, a special database with bibliographical information on articles from the core collection periodicals will be set up as a separate file on the central RAPDOC-database. To minimise the amount of work involved in cataloguing the tables-of-contents, Pica has investigated the possibility of buying, exchanging or otherwise obtaining such data from external sources, as well as having data produced by participating libraries.

Pica has recently reached an agreement with Swets & Zeitlinger, the well-known serials subscription agent based in Lisse (NL). Pica and Swets have drawn up a contract according to which the supply of machine-readable article references is regulated. Pica will store these data on its central system, where they will be linked to the appropriate titles. The whole core collection of 7,000 titles will be covered. The creation of the article database began in 1992 and will be operationally available in early 1993.

Not only will the article-level information be mounted on Pica's central system, but the data will also be distributed by downloading to the local library systems of the RAPDOC-libraries the locally held periodical holdings information. In this way these libraries will be able to add contents information to their OPACs. Through OPACs and LANs, end-users will be given search facilities. Articles can be requested locally (if locally available) or through OLN for non-locally available material that forms part of the core collection.

Possibilities for Selective Dissemination of Information (SDI) services from RAPDOC are currently being investigated.

Electronic transfer

In order to reduce even further the time between request and delivery of articles, alternatives to normal PTT-mail have to be found. A number of alternatives to the existing ILL software is necessary to create a technical infrastructure which will enable the transmission of documents in electronic form, both to libraries and directly to end-users.

In the context of RAPDOC, a distinction can be made between the local and the national level. Periodical articles will be scanned and compressed on workstations, and will then be stored temporarily on document servers in the supplying libraries at the local level. The interconnection of the local library systems makes up the national level.

The proposed model for the electronic delivery service will be as follows:

Local delivery service

In this case identification and ordering of documents will take place through the loan function which is an integrated part of the Online Public Access Catalogue. In the local library system the location of items is known, enabling the system to route a request to a specific department or location.

There, if the request is for a photocopy of an article and an electronic delivery is possible and

required, the specified volume will be taken to the scanner which is part of the supplying workstation configuration. The image of the article will be scanned and stored on a special document server, in a temporary end-user mail-box. In the meantime the end-user will be notified through the local mail-box that the document is available and waiting for him or her in the temporary mail-box for which the identification-number is given. The end-user can subsequently contact the document server and transfer the contents of the temporary mail-box to the appropriate workstation. The document is stored on the receiving workstation's temporary storage (the "receive store") and printed immediately or later on the laser printer that is part of the receiving workstation configuration.

After completion of the transfer, the workstation informs the document server and the document is removed from temporary storage.

Remote delivery service

The identification and ordering of documents will take place through the national centralised automated interlibrary loan facility, IBL, running on the central Pica computer. Requests can be generated through the national OPAC-linking network service OBN. Within that environment, the requesting user and the corresponding document server are registered at the time the request is generated. The central facility will use its normal routing procedures to deliver the request to the appropriate supplying library.

In the library system at the supplying library, the request is registered through the same procedure as the one used for the local delivery service, but with an extra indication that it is a request from a remote library. The scanning and storage then proceed as for the local service.

The local sending server notifies the central system that the document ordered through the ILL facility is now ready for remote delivery. The central system then schedules the transfer of the document at a convenient time as part of a management process scheduling the transfer of electronic interlibrary loan deliveries on a national scale. Documents will be transferred overnight to servers in the receiving libraries, over the X.25 SURFnet-network at speeds up to 64 kbps for the short term; in the near future the use of the new SURFnet-3 based on TCP/IP over Megabit speed lines will be an option to consider. The file transfer mechanism will preferably be FTAM.

When the document is received by the requesting library system, the image is temporarily stored on the document server, which then performs the same activities as if the document came from the scanning-workstation. The document is stored in a temporary mail-box, and the end-user is notified and can transfer the document to his or her own workstation.

RAPDOC: Character of the project

It must be stressed that RAPDOC is a 3-year, closed-user-group project, which is aiming to develop in the first instance efficient organisational and technical structures for the participating organisations. All the activities described, should - within the next few years - establish a system for fast mutual document delivery, intended to fulfil the demands of the various user groups of the participating libraries. If the project proves to be successful, we will consider the possibility of offering the document delivery services to other user groups outside the circles of the current participants.