

Complex net structures in the University Library Essen

Pedro Hastedt
Essen University Library

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1. The technical status 1990-93

The University Library (UL) of Essen has had experience with electronic systems since 1976. In 1986 we implemented our first PC-net in the ordering department and in 1990 we changed our circulation system from a mainframe to a PC-net, and enlarged the configuration with an PC-net for CD-ROM's. The three nets are NOVEL Netware systems with servers, printservers and about 50 PC's, 20 of them for public use.

Cataloguing is done by shared online cataloguing in the Cooperative Library System of our State Northrhine-Westfalia with minor technical connections to the PC-net for ordering. Only a few of our staff members are without workstations.

The initial idea was the dream of one large net, every PC fitted with high capacity, a universal user-interface, multi-tasking and the use of international databases. In short, the realisation of the brave new library world.

For a very short time in 1990/91 the topology in Essen UL looked like figure 1.

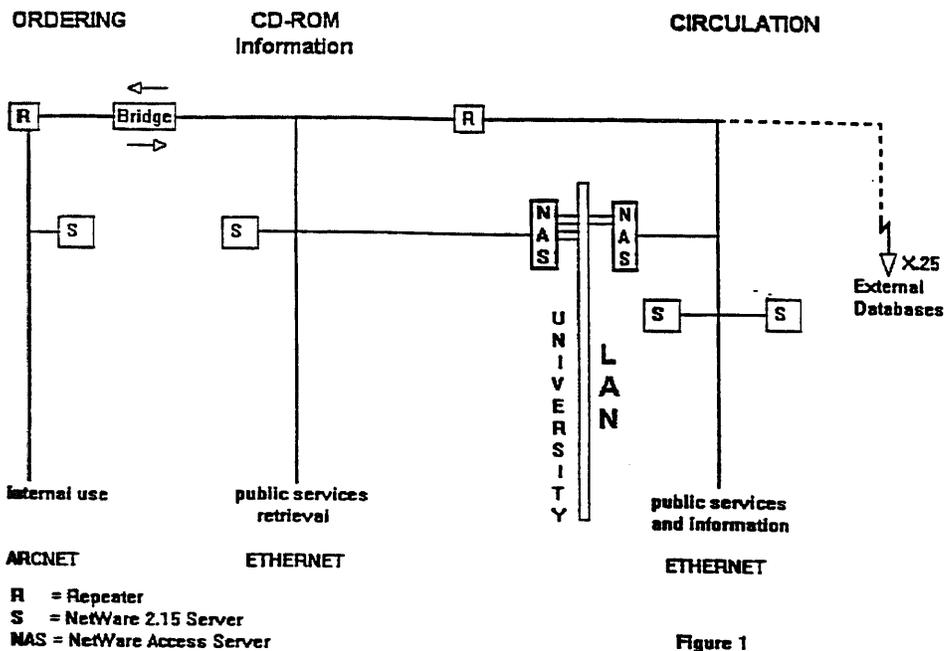


Figure 1

Today's reality looks more like figure 2.

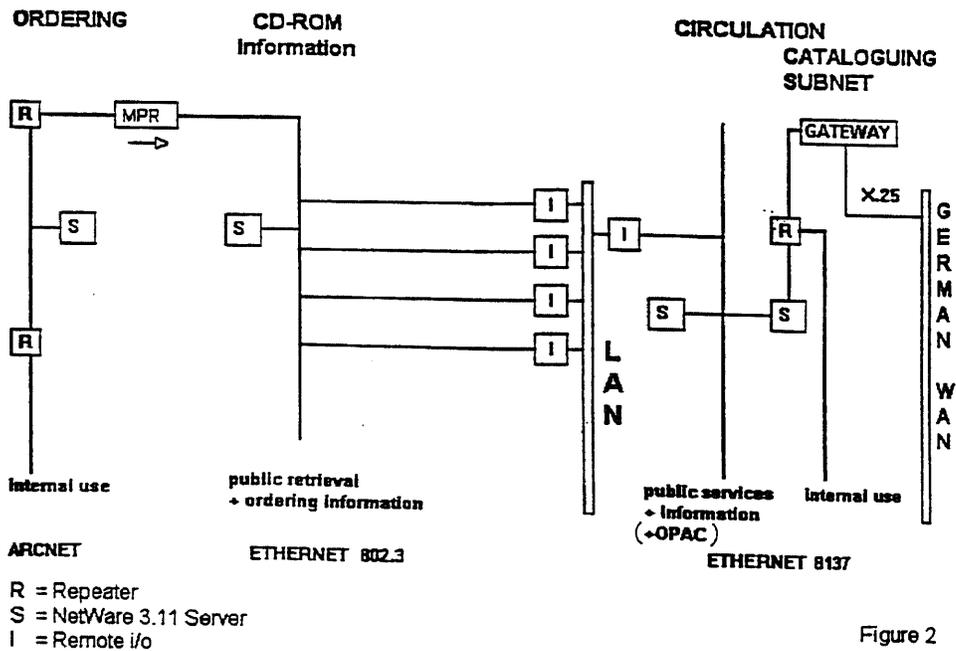


Figure 2

The main differences are the separation of nets, external access only by remote I/O, diskless stations for public access (with no connection to external databases), and separate access to CD-ROM and to circulation information with different user-interfaces.

2. Reasons for the changes

2.1 Personal Data Security Law

Data held in libraries consist mainly of title related information, but in an ordering system, and in a circulation system there are personal data stored, and including data related to vendors. Due to German law we are obliged to observe strict confidence, and there are institutions in the university which may inhibit the implementation of a PC-net if they do not approve of the security measures of the library.

Therefore we first separated the ordering net with an MPR (Multi-Protocol-Router), to prevent access from part of the CD-net. As our library has an interest in giving information to the public about titles in the in-processfile, we suppress the sensitive data in this file and copy it to the CD-net server regularly. To this in-processinformation, and the use of the CD-ROM databases, we offer free access.

In the circulation system the information on personal data is supplied to the individual patron by his user-number and personal password, and we hope to be able to prevent abuse to the same grade as banking institutions. As further security we offer remote I/O to patrons interested in external access.

2.2 Criminal activity

Universities are part of the world, even if criminal activity may be less frequent among the scientific community. The so-called, Hacker, may cause damage to software and data, and hardware is sometimes stolen too. Computers should be locked and are best not equipped with extra boards etc., graphic cards are of especial interest; we take advantage of using PC's with integrated graphic boards on the main board.

The prevention of software damage is leading to the first measure which is locking the login level for patrons. In both nets open to the public, circulation and CD-ROM, we offer user-interfaces with no possibility of getting to the login level or system drive.

User searching via the university LAN is a special problem. We decided to solve this by a remote control program, called TeleReplica, a shareware program. The academic staff is able to get access to CD-ROM, the ordering-in-processfile and some services of the circulation system (reservation, loan renewal and account information): this remote I/O technique is very convenient, giving us and the public some security.

In the near future the university will connect the library to the new Unix-LAN and we decided to implement OMNIWARE which is, in fact, a sort of remote control software for CD-ROM applications. The circulation system (including the OPAC) will be connected to the Unix-LAN with a separate host and a copy of our catalogue.

2.3 Viruses

Viruses do not often infect systems but the measures for security seem to exaggerate the fear of viruses. Countermeasures against viruses sometimes destroy

the userfriendliness of systems. We are very unhappy about the large number of diskless stations for patrons use: this kind of workstation means no uploading and no direct downloading, it is suitable for nothing but information.

Together with the separation of the PC-nets there follows another disadvantage: the separation of services. For example, it is not possible to verify directly if a title from a CD-ROM database is held in the library's catalogue. The integration of all library services in one system could be a solution, if the integration of foreign retrieval software, like that of CD-ROM, does not spoil the system's security. Our circulation system was not able to integrate CD retrieval software of different producers.

To maintain a minimum of service there was installed a special print and download station at the CD-ROM net, attended by a staff member. This has an additional disadvantage: it becomes more and more difficult to find an adequate inkjet printer, which means diskless stations may become also printerless stations.

2.4 Network Performance

Every library has its own topology and it is not possible to pass on experiences of performances. We, for instance, observed a rapid increasing of collisions of tokens when circulation at the library rush-hour met with heavy retrieval. We think that the implementation of subnets could be one way of improving performance. We have separated the large datastream of the cataloguing module from that of the circulation services. In a few months the circulation system will be enlarged by an OPAC and we expect to support a maximum of 50 workstations without a breakdown of the net. A UL similar to Essen has already reached this capacity and suffers a drop in performance. We will shift part of the demand for information to the new university LAN using a special server with a copy of the catalogue.

3. Possible consequences for library concepts

I will reduce my conclusions to three points:

1. We have to be careful about promises of multifunctional user workstations.
2. We have to find hardware suitable for library services.
3. We need the experience of different system worlds.

The 1. point is a system problem. Its realisation and duration depends on the successful counteraction of dangers like viruses and criminal activity. Where the observance of personal data security is a minor problem it will be much easier to integrate foreign software.

The problem of finding hardware suitable for library services increases while there are not many occasions for the installation of such hardware. We are still implementig PC's designed and put together for "personal" use and not for "public" use.

Could it really be a solution of many of the above problems to separate the personal data from all the other library services and to pay the gain of information with the pain of the separated circulation? That is not yet known.

The third point is to recognise the existance of different system worlds, the UNIX one, and the DOS world. A library has to live in both, but that requires the solution of integration problems. Essen UL is open to that and hopes to get this experience soon.