EQUIPMENT FOR THE ONLINE PUBLIC ACCESS CATALOG

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Following is the first of a two-part report, originally presented by Susan Logan Miller of Ohio State University at the HSOCLCUG meeting's "Workshop on the Development of the Online Catalog" in April.

What is the so-called equipment which is necessary for the online catalog? Starting from the "computer", which is the central processing unit (or CPU) and its associated memory, other equipment associated with the computer are the disk drives on which online system stores the data files. These data files include the bibliographic record files, search-key files, headings files, transaction files, call number file, etc. In fact, the Ohio State automated system had 31 files the last time I counted. The computer will also need the capability to receive the communications lines from the terminals. Also desirable for the support of the online catalog are the tape drives, which are not part of the online equipment, but are necessary for system back-up of the data files and also are important in maintaining the data from external sources, like the OCLC/MARC Subscription service tapes.

The computer room usually will have a climate control system - often air conditioning. Although much of the computer sales literature indicates that air conditioning is not necessary, I've been told that there are fewer problems when computers are in climate controlled rooms.

To link the Library's terminals with the computer, wires are necessary. These wires may be phone line grade, but often are coaxial cable. If the terminal is linked to the computer via phone line wire, then a modem is necessary to translate the computer signal so that the terminal can display the computer message.

The online system will normally have at least one printer, the primary function of which is to record information so that it can be carried or sent to other locations.

The terminal is the equipment of the online catalog which is visible to all users. In fact, many users consider each terminal to be a stand-alone unit which contains the catalog much-like the microform readers in a microform catalog.

The selection of equipment for the online catalog is determined by the needs and expectations of the individual library. These needs and expectations will often appear as requirements in a request for proposal (RFF) or as specifications for the online catalog. Many variables are possible when specifying the online catalog which in turn will affect the selection of equipment.

Some of the variables in the online catalog which affect equipment selection follow.

1. The number of terminals required by the library will impact the size of the Central Processing Unit required. The more terminals the more space required to store and process the messages (or displays) to each terminal.
2. The number of bibliographic records and the size of those records will impact the storage...
space required to house the data. Obviously the larger the library, the more titles and the more space will be required to store the titles in the online catalog. Many circulation systems store short data records consisting of call number, author, title, publication date, and holdings. These short records generally average 100 characters in length. The full catalog record which is necessary to support an online catalog may have 500 characters or more.

3. The number, type, and size of indexes (or access points) to the library's holdings will also determine the required central processing unit size and storage. The online catalogs may provide access by author, author/title, subject, title, call number, Library of Congress card number, ISSN, ISBN, Medical Subject Headings, etc. The most efficient access keys are those which are unique numbers, e.g., call number, Library of Congress card number, ISSN, and ISBN, because these numbers normally identify a single record. Next in efficiency are search keys, such as those used by OCLC and the OSD LCS, which are generally more efficient in terms of CPU use and storage required than are Boolean search terms and searches. The length of each access file record will determine the storage space required. When the OSU Libraries changed the author search from a 9 character search key of 6,3 to permitting a full search of the entire author heading, the storage space requested for the author file was a disk which was 1/8 of the previous total system storage.

4. Networking or sharing of the online catalog will increase the storage required for storage of bibliographic records, because a group of libraries will have more titles than an individual library. The larger number of libraries will also result in a larger number of terminals required. This networking will also be necessary between these separate libraries and the CPU.

5. If the online catalog is part of an integrated system which includes circulation and acquisition functions, equipment selection will also be affected.

**TERMINALS**

Currently, the OSU Libraries have six different terminal models on LCS and all operate somewhat differently. These terminals include the Texas Instrument Silent 700, the Minibee and the Microbee from Beehive International, the IBM terminal models 3101 and 3278, and the Telex Prototype library terminal. The real workhorse of the system is the Silent 700, one of which is in every circulation and technical services area and which provides print copy of all transactions. All six models are used as public terminals, which is confusing to the LCS user.

I do not believe any library has the answer to the number of terminals necessary for an online catalog. The terminals required will depend in large part on the specific online catalog. The time required for each transaction is an important factor in the number of terminals needed. This is the time it takes to enter the search, receive the computer response, read the response, and begin entering the next search. The second factor is the number of transactions required to complete a search. On LCS, the author/title search requires a minimum of two transactions; the subject search requires three. At OSU, we are planning for 116 public terminals to serve 55,000 students - or one for every 450 students. A fourth factor will be the satisfaction the user secures from the system. In other words, any reduction in frustration will probably increase the number of searches.

"LCS TERMINAL SELECTION"
After our experience with multiple models of terminals, the Libraries decided to develop specifications for a single CRT terminal to be used for the online catalog. The Libraries have determined that this terminal should be capable of displaying the full ALA/MARC character set, which contains diacritical marks, diphthongs, and other special characters. Initially it will be a keyboard terminal rather than a touch screen terminal. There were several reasons for this decision: (1) Our computer center does not encourage the touch screen at this time. (2) Touch screens would require a rewrite of LCS. (3) Response time using touch screens for searching is untested on large bibliographic files.

"RECOMMENDATIONS FOR TERMINALS"

First, user proof the terminals, particularly the control switches. Specific switches which have caused problems on one or more of our terminals include the on/off, brightness, local/online, the test mode switch, and the escape switch. The brightness and local/online controls merely make the terminal look as if it is not working; however, turning off or using the test mode switch on the IBM 3278 disconnects the terminal from the online catalog; and correction is necessary at the control terminal to regain service at that terminal. One of our terminals has a series of 16 tiny switches which control the baud rate, the duplex, the error check, parity, etc. These switches are pencil lead size. Frequently, when problems with this model were reported to the computing center, the switches had been reset by busy pencils. We finally covered these switches and some others with black plastic tape. This same terminal had the local/online control as a key located between the space bar and the shift key. The ease with which the user could unknowingly place the terminal in the local mode prompted the Libraries to request that the key be made inoperable.

Second, use words on the control keys. International graphics are particularly frustrating, as are abbreviations. For office staff who use the same terminal every day, graphics or abbreviations may be fine; but for the library user who uses the terminal infrequently, they are not helpful. The keys frequently used on LCS which are identified with words include CLEAR, ENTER, BACKSPACE, and PRINT. Although other systems may use different keys, our recommendation is to use words rather than codes.

Third, the terminals should not have any offending noise, e.g., pure tone frequencies. The OSU Libraries were front-page news in a March 1975 issue of Computerworld. The article stated that some OSU Libraries staff reported headaches, dizziness, and nausea when working at the terminals. The cause was identified as a pure tone emanating from the flyback transformer in recently installed terminals. This sound was measured at 46 decibels in the 16 kilohertz band. In 1976, the Industrial Commission of Ohio, Division of Safety and Hygiene recommended that specifications for terminals might include a 35 decibel maximum in the 16 kilohertz band.

Fourth, the terminals should not interfere with other electrical systems. In the Illinois application of LCS, one terminal has been identified as a possible cause of 3M Theft Detection Systems Malfunction, when the terminal was located in the proximity of the 3M system. The vendors are investigating.

Fifth, for systems requiring keyed search as LCS does, the terminals should have standard typewriter keyboards. It is difficult to instruct how to use the online catalog without having to cope with nonstandard equipment.

(continued in SOM # 28)