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Technology Planning:
Oregon State University's Information Commons

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The centerpiece of Oregon State University's newly expanded and renovated Valley Library includes a large public computing facility, the Information Commons. From the beginning, the Information Commons was to be more than just another "student computer lab," with a strong emphasis on offering a facility for library users to access information in electronic format in the same location as library reference services. Word processing and other software applications were to be offered only on a limited number of machines. An implementation group studied patterns of student computer use elsewhere and, in a report written in March of 1998, made recommendations about the configuration of the new facility. Mostly due to budgetary limitations, some of the recommended features did not materialize, but the general nature of the facility remains true to the original intent.

Hardware
The original report called for a mix of computers: approximately 30 percent would include library software, productivity software and Internet access; 50 percent would be limited to Internet and library database access; and the remaining 20 percent would be used for email access or specialized multimedia applications. In all likelihood, the mix will remain in these proportions after the library installs 50 more thin-client SunRay workstations this summer. The "specialized multimedia applications" never materialized due to support issues, but at the end of this summer the library will have 74 Internet access machines, 53 computers with Internet access and Microsoft Office and a small number for Internet access and email (email is not necessarily available on other machines—see discussion below). In addition there is a single workstation with special adaptive technology hardware and software to enable computer use by people with disabilities.

The Library has added new computers several times during the short life of the Commons, mostly in batches of 40 to 50 machines, and there is now an interesting mix of hardware, the age and relative computing power of which somewhat dictates its use.

The very oldest machines are nearly eight years old. In the computer world, that qualifies them as museum pieces! They are running Kermit to access the text version of the library catalog or the antiquated Pine email that is still offered to students as an email system. The library uses Kermit for the telnet connection because few students are old enough to remember when everyone used it as the de facto standard, so they do not know how to tamper with it as easily as they would with newer software. All of these machines are due for replacement in a few weeks' time.

A substantial number of relatively slow Pentium computers purchased from Tangent Computers when the Commons opened are used to run only Netscape, either in kiosk mode with access only to the web-based library catalog, or to connect to the Web. Although they are Pentium machines, they are slow enough that they are unable to run Microsoft Office very effectively—a controversial issue, since they have floppy disk drives and the thin-client workstations do not.

Our newest conventional desktop computers are Tangent Pentium 350s and are in high demand because they have Microsoft Office *and* disk drives.

Thin Clients
The library's latest acquisition for the Commons, and for placement throughout the library, is 95 thin client workstations. Thin clients are actually sophisticated dumb terminals. They have enough internal intelligence to find and connect to a server and display whatever the server sends to them all the real work is done entirely by the server, which can be located almost anywhere. At OSU, forty-five of these are NCD workstations connected to a Windows 2000 server. The NCD clients have a built-in Windows CE operating system the same as that used by some brands of Palm Pilot-type devices. They have no moving parts or disk drives. These are supported by two servers running Windows 2000 Terminal Services. Some of these client workstation offer Microsoft Office, while others are limited to Web access. The other 50 thin clients are Sun Computers' SunRay stations connected to a Sun Enterprise 250 server, running Sun's Unix (Solaris) operating system. Their purchase was made possible by a generous grant from Sun Computers. These eye-catching workstations will offer Netscape access only, since Unix-based Netscape is almost identical to Netscape for Windows.

There are several advantages to using thin clients in a public access setting:

- The workstations are relatively inexpensive ($400 to $500 each) and have a much longer useful life expectancy than a conventional workstation.
- Since all the true work is done by the server, thin clients can apparently run almost any application.
- As new applications are developed, the thin clients can still be used although the server may need to be replaced. Replacing one or two servers is gener-

ally less expensive than replacing 45 conventional workstations.

- Updating the software on the server effectively replaces the software on all the workstations simultaneously, so management is much simpler and cheaper.

- All client workstations are identical, so if one fails, an unlikely event since there are no moving parts, it can be switched with another one and the new one needs no configuration or software.

Unfortunately, the lack of disk drives is also a disadvantage, since many users still like to take their data with them on a floppy disk. The library does not offer storage on the thin client server, but remote storage is available on those machines which offer Microsoft Office and require the users to login to an applications server. Nevertheless, the lack of floppy drives has made the thin clients less popular with users than the conventional machines. Recent technical developments suggest, however, that local floppy drives will be available for thin client workstations in the near future.

Security

Various security issues have arisen since the Commons opened in 1999. Theft or tampering with equipment in the Commons has not been a major problem, as the computers are all locked down with a security cable, and we have maintained software security with Fortres 101 software from Fortres Grand Corporation. However, one rather vexing security issue is anonymous email. There were several unpleasant incidents including an emailed bomb threat to campus security, culminating in the confiscation by the police of a disk drive as evidence.

Although workstations offering applications such as MS Office require an authenticated login, the Internet access machines do not. Librarians felt that the library should offer access to electronic information on the Web to anyone who comes in, without the requirement for identification. Unfortunately, a small number of people abused this open access by setting up anonymous email accounts through sites such as hotmail.com and sending offensive or threatening messages. When these messages were traced back to computers in the Commons, we came under increasing pressure from network administrators to require a login ID for all machines. The library, however, found a simple, but effective, alternative. No login ID is required on Internet access computers, but access to free email services is blocked using a hosts file to redirect the addresses of all the free mail services which could be found (over 800 by now) to a local server describing student email services. OSU students and staff can still access their OSU email account on any machine and free mail service, such as Hotmail, can be accessed from any machine which requires a login. A few machines can still be used by non-OSU users for access to free mail but these users must first present an ID. Since we removed the users' anonymity, we have not had any complaints of abusive email.

A similar security issue made possible by anonymous access to machines has also been resolved. Network Services received complaints of abusive language being used in a chat room for school teachers and the source was traced to someone using a library computer which not requiring a login. The Library has now supplied Network Services with the IP addresses of all machines which do not require logins, and Network Services is now able to block access to certain sites from these machines if they receive complaints from the administrators of those sites. Only one site has requested this so far.

Managing Access

To offer better accessibility to a limited number of computers, the staff of the Information Commons has experimented with various ways of assigning users to specific computers for a set length of time. This process is done only for computers where a login is required. In cooperation with the managers of several other computer labs on campus, the library considered using a very sophisticated program, Lab Manager, which was developed by the University of Texas at Austin. Among other features, it offered a graphical representation on the Web of available computers; it automatically limited users to a preset time limit; and had a waiting list function. Unfortunately it was not possible to implement it satisfactorily in the OSU environment. For a short time, staff placed names on a written list after checking for a university ID. This was replaced by a locally developed online system and then later by the library's Innovative Interfaces circulation system. A token with a barcode and a computer number was checked out to users for a two hour loan period, and only people with the appropriate token were supposed to use the associated computer. This method worked reasonably well.

The whole checkout process was time consuming and has recently come into question as the library added more workstations and substantially improved workstation availability. Accordingly, it was recently decided to discontinue the need to check out computers. It remains to be seen how well this will work when most of the students return in the fall, but the librarians are hopeful that most users will find a workstation fairly quickly when they need it.

Now that our student staff no longer need to remain at the counter to check out computers, they are more available to assist users with computer questions and to walk around the facility to check that all the machines are working as they should. It should be noted, however, that, unlike a regular student computer lab, it was never intended that complex computer questions would be answered at the assistance desk. Anything questions that go beyond basic assistance with the workstations are handled by telephone by the University's computer assistance desk. The Commons' technical assistance desk and the library reference desk are adjacent to each other and work closely together, complementing each other's services.

The Information Commons in OSU's Valley Library.

The stylish SunRay thin client from Sun Computers.

The Windows 2000 thin client.