Have you ever wondered why the Library’s catalog and all the various databases the Library offers can’t be searched with the same commands and through the same interface? Have you wondered why Franklin and Current Contents have one look and feel, which is different from the OVID search system for MEDLINE and CINAHL, which is different from Anthropological Literature, and so on?

Most current Penn Library electronic services are terminal/host (vt100) systems. A terminal/host system requires a “dumb” terminal that essentially is just a remote screen for the central “host” computer. The dumb terminal can be a dedicated terminal located in the Library, or a personal computer using terminal emulation software. Files and data are stored on the host, and the user at the dumb terminal can only send keystrokes and view data. The terminal interface itself does not have the intelligence (computing power) to do any sophisticated processing of the information sent by the host.

Future Library electronic services will be oriented to an architecture called “client/server,” and often to a “flavor” known as “Z39.50 client/server.”

What is client/server?

Client/server is a software architecture that divides an application into two pieces: the client, or interface; and the server, or search engine and data “warehouse.” The client/server architecture distributes computing processing around networks, and maximizes the processing power of multiple-platform client workstations: only the data that users need is sent, and at workstations, whether they are DOS/Windows, Macintosh, or UNIX, users have control over the processing and presentation of the information. Consequently, many organizations, libraries included, are implementing client/server architecture because they believe it will lower computing costs, improve productivity, increase data security, and allow better presentation of data (such as image display). The Eudora e-mail program and the Netscape Web browser are examples of client/server systems in use at Penn.

What is Z39.50?

Z39.50 is a communications protocol that supports searching and retrieval of information in a distributed network environment. Z39.50 makes large information databases easier to use by establishing uniform standards so different systems can communicate with one another in a way that is transparent to users. The protocol makes it possible for a user in one system to search and retrieve information from other computer systems (that have also implemented Z39.50) without having to know the search syntax used by those other systems.

The utility of Z39.50 is not limited to bibliographic data: the protocol is general and can work with other types of data, such as images. And the protocol is being used by communities other than the library community: for example, the Government Information Locator Service (GILS) and WAIS (Wide-Area Information Server) are cousins of Z39.50. Moreover, the utility of the protocol is being extended by Web-to-Z39.50 gateways, so Web browsers can also be clients of Z39.50 servers.

Z39.50 at Penn’s Library

The current OVID MEDLINE/CINAHL search system is a terminal/host system. (MEDLINE and CINAHL are citation databases for medicine and nursing, respectively, and OVID is a search system developed by Ovid Technologies, Inc.) However, the Library is testing new, Z39.50-compliant client/server OVID software. In the new OVID implementation, the “client” will be the user’s workstation and the application software installed on it. Because the client is intelligent, it can communicate with the Library’s OVID server, pass database queries and other requests to it, receive data from it, and present it in a Windows-compatible interface (a Macintosh client and a Web product are under development, and an X-Windows product may also be developed).

But since the new OVID client/server software is extended by the Z39.50 protocol, users will get more than just a graphical interface. Not only can the OVID client communicate with the Library’s OVID server, the client can simultaneously act as a front end to OVID servers that are not located on campus (for example, those maintained by Ovid Technologies itself).

The Library also has an ongoing project to select a replacement for the current library catalog; the new system should be client/server and, ideally, Z39.50 compliant.
The new catalog client will have an interface and search commands distinct from the OVID client interface and search commands. However, under Z39.50, the OVID client could also be a user’s front end to the Library catalog server (if the latter is Z39.50 compliant). One could use the OVID interface and search commands to search the Library catalog, and catalog search results would be displayed in the OVID format (although perhaps not as well as the Library catalog client would display them). Similarly, in the reverse direction, the Library client could search the OVID server, and MEDLINE and CINAHL search results could be displayed in whatever manner catalog records are displayed (although not perhaps with all the capability as through the native OVID client).

Moreover, Z39.50 will make it possible for the Library catalog system to interact with the OVID system so journal holding information from the catalog is reflected in the OVID system. This is why Z39.50 is important: it promises to permit a single user interface—or multiple user interfaces—to access a burgeoning number of electronic information resources.

To summarize the benefits of OVID Z39.50:

• It provides a graphical, point-and-click, Windows-compliant OVID interface. (As the Library acquires full-text OVID databases, the client will make it possible to view graphical text, images, tables, charts, etc., instead of just the plain text now viewable through the vt100 product.)

• It provides “hooks-to-holdings, “ (when the Library selects a new library system that is Z39.50 compliant) which lets you know if the Library has a copy of citations found in the search system.

• As a Z39.50-compliant client, the OVID software will be able to search and display information from Z39.50-compliant servers, whether or not the server system is developed by Ovid Technologies.

The Library anticipates that a Z39.50-compliant Windows client will be available for wide distribution soon, and later, clients for Macintosh and X-Windows, as well as a Web product. For details and status, refer to the OVID System News screens when logging in to MEDLINE or CINAHL, or to “All About OVID” on the Health Sciences Libraries Web Home Page (http://www.library.upenn.edu/biomed/).

For more information about Z39.50

The Library of Congress is the official maintenance agency for Z39.50. Its Z39.50 Web pages (http://lcweb.loc.gov/z3950/agency/) contain official information and documentation related to the development and maintenance of the standard, including the official, 160-page text of ANSI/NISO Z39.50-1995 in pdf and ASCII formats, as well as articles and papers about the standard and a hyperlinked bibliography. Links to many Z39.50 servers are provided from http://lcweb.loc.gov/z3950/.

A Z39.50 Implementors’ Group (ZIG) drives the evolution of the standard; to subscribe to ZIG’s listserv (Z3950IW), send the message “subscribe z3950iw” to listserv@nervm.nercd.ufl.edu.

“Z39.50 Resources: A Pointer Page” is an excellent starting point, with a thorough, hyperlinked bibliography (http://www.research.att.com/~wald/z3950.html).

Many examples of Z39.50 library applications are accessible from the Web via gateways at (http://is.rice.edu/~riddle/webZ39.50.html).

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From left to right: an OVID citation screen resulting from a search on “ebola virus” and a full-text screen, with a pop-up reference window, resulting from a search on “virus.”