

UWinfo at the University of Waterloo: Resource Sharing in the Virtual Community

by Faye Abrams and Michael Ridley

The technical maturation and widespread availability of the global Internet computer communications network has created not only a superhighway for the movement of data but also a new vehicle for more effective resource sharing. The information space, or cyberspace, which has been created by the Internet is a digital world populated by information systems and millions of people. The connectivity and linkages afforded by this network have created a new phenomena, a new environment and a new culture.

The Internet is comprised of virtual communities; rich, fully functional, dynamic communities comprised of people, services, and even places. Resource sharing in the virtual community is more effective and powerful because we are sharing access not physical objects. The network is a public-information space into which resources, services and data are simply deposited and made available for use, reuse, modification, and repackaging. Sharing in the virtual community is both natural and easy. Client/server tools developed at various academic computing centres have been largely responsible for laying the technical groundwork and providing the potential for resource-sharing initiatives. Tools such as File Transfer Protocol (FTP), Archie, Wide Area Information Servers (WAIS), the World Wide Web, and the Internet Gopher have made impressive contributions. The Internet culture has developed around concepts of mutual contribution and responsibility. The commitment to network resource sharing in the computing arena is clear and long standing if relatively informal. The tools created and supported throughout the network are indicative of this philosophy.

The existing challenge is to exploit these tools in ways which provide effective access to information resources and services and which serve user needs. Libraries are uniquely positioned to meet this challenge. Michael Schrage, a proponent of fundamentally renewed collaborative work based on new information technologies, believes that librarians should be the "presidents of invisible colleges" providing the "care and feeding of virtual communities."¹

UWinfo, the campus-wide information system (CWIS) at the University of Waterloo, was implemented and is being managed as a resource for the virtual community. The system began as a campus information management tool for local resources and Internet services and is now seen as a participant in the larger information space which is the network itself. UWinfo and systems like it are the essential building blocks for the establishment of a dramatically new resource-sharing environment.

Creating a Campus-Wide Information System: UWinfo

A CWIS is generally held to be a widely available, online information system accessing campus information and services. In addition, most CWISes provide access to remote information via network connectivity. A CWIS typically provides access to:

- online catalogues;
- course and programs information;
- course and exam timetables;
- university documents (Senate minutes, official policies);
- event calendars (academic, sports, cultural);
- staff/faculty directories (email, phone, mailing address);
- lists of campus services (library hours, computing services);
- university news releases; and
- campus newspapers.

Since most of these items already exist in various forms it is easy to question the need for a CWIS. The benefits must outweigh the resources needed to create and maintain the system and they do. With a CWIS all the information is:

- accessible from one place;
- available around-the-clock;

- more current than its print counterpart; and
- accessible remotely (e.g. from home, offices, labs).

In addition to information integration and improved access a CWIS can provide organizational benefits such as:

- online institutional archives;
- the potential for saving paper; and
- reduced phone calls and saved personnel time.

However, most important are the specific educational benefits: the ability to link to resources and services outside one's own campus limits.

With these benefits in mind the University of Waterloo began establishing the fundamental building blocks for its CWIS. In May 1992 the University Computing Committee established the UWinfo Operations Committee by appointing its members from three distinct groups: the Department of Computing Services, the University Library, and the Data Processing Department. At this same time a UWinfo Advisory Committee was formed with representation from all administrative departments and academic faculties. The Operations Committee was charged with the planning, implementation and maintenance of the system. It was also responsible for liaison with information providers, promotion and support, monitoring, problem solving and evaluation. The Advisory Committee was created as a sounding board and a support group for the Operations Committee.

The first tasks the Operations Committee undertook were:

- to create an information structure and menu organization that would meet the needs of information providers and users;
- to select, approach and assist the initial information providers; and
- to determine the critical mass of available information and services necessary to implement the system.

Information Providers: Tasks and Responsibilities

The success of any CWIS is dependent on its information providers. The Operations Committee

provides the framework for the system but the information providers must provide and manage the content. The importance of this group cannot be overstated. Information providers are in fact and in practice the information owners. They are totally responsible for the accuracy, timeliness and appropriateness of the material they present and are expected to input, maintain and withdraw their information as necessary. While it is the task of the Operations Committee to maintain the system as a whole, to provide the links between servers and to give guidance, it does not exercise any editorial control.

The Operations Committee assists information providers in a number of specific ways. One extremely important area is training. The Information Provider Training Course developed by the Committee is a three-part program which attempts to impart to potential information providers many of the necessary skills needed to design, organize and input their data. The course includes at least one hands-on session and at its conclusion each participant is provided with filespace on UWinfo in which to practice structuring their data. Information providers are encouraged to use existing wordprocessed documents as their initial attempts at creating UWinfo files.

Another critical task of the Operations Committee is promotion of the CWIS to potential information providers. Demonstrating the system, and outlining the benefits of being part of UWinfo is a large part of the job of the Committee. The liaison with and the care and management of the information providers is critical to the success of UWinfo.

As the information provider community expands, communication amongst this group is becoming an important concern. In addition, the user community itself needs a forum to discuss, debate and influence the development of UWinfo. While the UWinfo Advisory Committee provides a formal communications mechanism, the Operations Committee has also established a local newsgroup dedicated to UWinfo (uw.uwinfo) to encourage public discussion and an email address (uwinfo-ops@uwinfo.uwaterloo.ca) to allow private communications.

Sharing Resources: UWinfo

In the first six months of operation UWinfo has been able to offer an impressive number of resources and services to both local and remote users. University of Waterloo information providers have

already made the following available to UWinfo users:

- WATCAT, the online catalogue (Library);
- lists of campus and local events (Information and Public Affairs);
- the university newspaper (Information and Public Affairs);
- the Consumer Price Index (Operations Analysis);
- technical reports (Department of Computer Science);
- library-produced bibliographies (Library);
- university policies (University Secretariat);
- staff and faculty directories (Department of Computing Services);
- course timetables (Registrar); and
- bookstore information (University Bookstore).

The following three menus taken from UWinfo reflect the range of resources and services which are available via the system. Figure 1 is the top (first-level) menu screen of the system. Figure 2 is the second-level menu displayed when a user selects #9 from the main menu ("Other Servers"). Figure 3 is a third-level menu for the topic "Guides to the Internet and Its Resources".

UWinfo

1. About UWinfo/
2. About the University of Waterloo/
3. Official University Documents/
4. Facilities & Services/
5. Departments, Faculties, Associations, Student Groups/
6. Courses and Timetables/
7. UWdir ... directory of faculty and staff (email, phone, etc)/
8. Events, News and Weather/
9. Other Servers (FTP, Archie, CWIS, Databases, etc.)/
10. {Index of Menu Items, all UWinfo servers} ?

Figure 1: Main UWinfo Menu

Other Servers (FTP, Archie, CWIS, Databases, etc.)

1. About other Servers
2. American English Dictionary (soundex) ?
3. Campus Information Systems (CWIS, Gophers, BBS)/
4. FTP sites (miscellaneous)/
5. Guides to the Internet and Its Resources/
6. Library Catalogues and On-line Texts/
7. Miscellaneous Servers/
8. University of Waterloo FTP Archives/
9. University of Waterloo gophers/
10. Webster Dictionary search/
11. Wide Area Information Servers (WAIS)/

Figure 2: Second-Level Menu

Guides to the Internet and Its Resources

1. Beginners Guides to the Internet/
2. Campus Wide Information Systems/
3. Guides to Internet Resources/
4. Internet Hunt (Quiz)/
5. Listservs, Discussions Groups, Ejournal, etc/
6. UseNet News Frequently Asked Questions... FAQs/
7. WAISed archives of USENET newsgroups/
8. World Wide Web (W3)/

Figure 3: Third-Level Menu

On September 16, 1992 UWinfo was officially introduced on campus. UWinfo proved extremely useful almost immediately when the system was used to announce first the impending naming of the new University president and then the official announcement itself. Between September 16 and December 31, 1992 over 200 000 usages of the UWinfo were logged. Even more significant when considering the issue of resource sharing is that 25% of these usages were made from other institutions.

Sharing Resources: the Internet

The seamless integration of local and remote resources is accomplished by the Internet Gopher software upon which UWinfo is based. The Internet Gopher was developed at the University of Minnesota as a distributed document-delivery system; it has expanded to become a distributed information-delivery environment.² The software has been widely implemented in the academic world with hundreds maybe thousands, of servers populating the Internet.

Resourcing sharing in this environment is as simple as linking to a specific service or data residing on a server on the Internet. The simplicity of the gopher protocol (which makes effective and efficient use of both network bandwidth and server capabilities) reduces many of the disincentives to resource sharing.

For example, archiving and indexing electronic journals is an important issue for many academic libraries. Libraries at the University of Michigan and North Carolina State University have mounted some journals using a similar structure. These resources are made freely available and a simple command in UWinfo makes these journals accessible at Waterloo.

Given the relative ease of resource sharing in the electronic environment it is important to consider whether underlying resource-sharing issues are changed. The loose mixture of formal and informal collaborations and cooperative ventures which characterize the Internet are an important model for libraries. However, the key to resource sharing remains the solid commitment on the part of all participants to the long-term maintenance of data resources or services. The added benefits and opportunities of the electronic environment do not preclude the importance of a shared philosophy and shared goals.

Conclusion

The Internet is a vast, accessible information space in which virtual communities are emerging. UWinfo is an example of a new type of information management tool which seeks to respond to that community both fostering and supporting a collaborative environment where resource sharing is substantially enhanced. Developing these building

blocks requires planning and phototyping. As Brian Nielsen, developer of Northwestern University's NUinfo has said "A CWIS is 90% information, 10% system but 100% organizational innovation".³ As resource sharing moves into the virtual community with CWISes and other information tools it will be necessary to reinvent our organizations and redefine our concepts of collaboration and cooperation.

Footnotes

¹ Michael Schrage, "The Myth of the Information Age, or Why Information Technology Isn't," presented at the Library and Information Technology Association 3rd National Conference, Denver, Colorado, September 13-16, 1992.

² Bob Alberti et al, "The Internet Gopher Protocol," University of Minnesota, 1992. Available via ftp from boombox.micro.umn.edu (/pub/gopher/gopher_protocol/protocol.txt).

³ Brian Nielsen, "Early Planning and Implementation Issues," presented at INFORMA'92: CWIS: Leadership Roles for Libraries, Hilton Head, South Carolina, May 10-12, 1992.

To access UWinfo: If you have a gopher or gopher client link to uwinfo.uwaterloo.ca at port 70. Otherwise telnet to uwinfo.uwaterloo.ca and logon as uwinfo (no password is required).