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## Hot Topics for the New Year

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# □ ONLINE DATABASES □

BY CAROL TENOPIR

## Hot Topics for the New Year

IT IS DIFFICULT to imagine a year when information events unfolded as quickly and dramatically as they did in 1993. The trends set in motion are likely to accelerate in 1994 and will change our work and lives. The increasingly hot database topics were much discussed at the 1993 annual Online/CD-ROM conference in November in Washington, D.C. and the International Online/CD-ROM Information Meeting in December in London. For the first time in my memory, many of the most relevant information topics are also the stuff of daily newspaper headlines.

### What's hot?

What's hot for 1994? The "major industry announcements" and "hot topics" sessions at Online/CD-ROM '93 (see *Automation News*, p. 38), combined with audience interest, provide a good guide for the coming year. The five hottest topics were:

1. The emerging national information infrastructure (NII);
2. Internet;
3. The maturation and consumerism of the CD-ROM market;
4. Document delivery (just in case you haven't heard, just-in-time collections are the latest trend); and
5. New ways to search commercial online systems.

### Information infrastructure

No one can avoid reading and hearing about the first trend: it is being reported and profiled all around us on TV and radio and in popular magazines and newspapers. It has the potential to dwarf or set the tone for many other trends.

For the vision of an information superhighway to become reality, at least two important elements must be

in place: 1) physical communication lines that allow broad bandwidth (for transmission of text, data, sound, graphics, and video) into the home; plus 2) desirable content. Librarians are just one of the players in the content area and must get involved from the beginning as both content providers and facilitators to help people locate and use that content. An interesting new mix of some giant companies are becoming involved in both the physical aspects of the infrastructure and content provision.

The physical problems of adequate communication lines will be solved for large portions of the country in the next few years. The solution that is emerging now seems to be a combination of telephone companies laying fiberoptic traffic lines for high bandwidth and high performance, linked to cable TV connections into homes. Recent court rulings and strategic mergers allow the same companies that provide the lines to also provide content.

Almost weekly it seems a new proposed merger or acquisition of regional telephone companies with cable TV and/or entertainment companies hits the papers, starting with U.S. West and Time-Warner and continuing with the pending (at press time) multibillion dollar acquisition by Bell Atlantic of cable company Tele-Communications Inc. Proposed mergers of regional telephone companies, cable TV companies, and information content providers are continuing to be announced, yielding huge conglomerates as primary players in the information industry.

The September 1993 Clinton-Gore agenda for "The National Information Infrastructure" clearly envisions a "partnership with business, labor, academia, the public, Congress, and state and local government" to build not only the physical components but the content, standards, software, and training aspects as well. For a copy of "The National Information Infrastructure: Agenda for Action" contact Natl. Telecommunication and Information Administration NII Office, 15th St. and Constitution Ave., Wash-

ington, DC 20230; FAX 202-482-1635; Internet: [nii@ntia.doc.gov](mailto:nii@ntia.doc.gov).

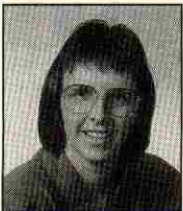
### Internet

Some people see Internet as an already existing component of the international information superhighway, which is growing exponentially despite its lack of dominant players, centralized planning, and nation-specific regulations. With two million computer hosts, 50 million users in 60 countries (plus 137 countries that use only E-mail), and a growth rate of seven to nine percent per month, this global network of networks is changing the way people communicate, access information, and do research.

According to Steve Arnold, information consultant, "Internet has emerged as a broadcast medium, a publishing medium, an information exchange medium, and a virtual community." He calls it "the information appliance." This appliance is operated and driven by the people who use it. Sometimes this results in chaos (too much information, redundancy, disappearing information, and poor software), but it also results in a climate of innovation and accessibility where anyone can do anything, anytime. Vinton Cerf, president of the Internet Society, calls it the "world's largest focus group," where software developers and electronic publishers can get instant feedback on their products.

Many information resources useful to library customers are available on Internet and can be located with Internet-locating software tools such as Gopher, Veronica, Archie, and World Wide Web. Internet is being used by academic, corporate, public, and school libraries for E-mail, cooperative research, subscriptions to electronic journals, as an inexpensive way to get to many bibliographic and full-text resources, and to answer reference questions. [For an ongoing guide to the information highway, see [Internet@LJ](mailto:Internet@LJ), premiering in January 1994.—Ed.]

Specialized Internet services aimed at libraries are popping up as well. For example, OCLC recently announced an Internet-based current awareness service called Contents



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Alert. It will send Tables of Contents of serials selected from nearly 15,000 titles to Internet E-mail boxes.

### Maturation of the CD-ROM market

The emergence of cheap online access with Internet has not killed CD-ROM growth. In fact, CD-ROM is now, after nine years, a mature technology that recognizes its strengths as an ideal publishing medium for many things, especially multimedia electronic books.

For the first time, CD-ROM drives are beginning to be viewed as a standard microcomputer peripheral by manufacturers. This means there is a large enough installed base of CD-ROM drives to allow a sizable consumer market. There are approximately six million installed CD-ROM drives worldwide, estimated to jump to ten to 12 million by the end of 1994. Combine this with thousands of low-priced discs, and it is easy to see why the mass market for CD-ROM has arrived.

It is getting difficult to count titles accurately, but predictions for 1994 range from 6000–8000 CD-ROM titles. By 1995 this number may double or triple. The biggest growth areas, according to Nancy Herther, editor of *CD-ROM Professional* magazine, have been in consumer multimedia products and discs produced outside the United States. These titles are the most difficult to count and are often not covered in the CD-ROM directories.

Prices have been coming down dramatically, according to Herther. The multimedia products aimed at consumers average about \$50, and the median price for all CD-ROMs is now \$150, reflecting the many low-priced products that share the market with the much more expensive ones aimed at the library market. Blockbuster (of videotape rental fame) will begin to sell and rent CD-ROM products in some of its stores on a trial basis.

The games, movies, and other entertainment markets for CD-ROM will grow rapidly in this new environment, as will education and training. Libraries that are accustomed to thinking of CD-ROM only as a medium to provide in-library access to expensive bibliographic databases must rethink their approach. CD-ROM is becoming a mainstream publishing medium to be treated in collection development and circulation.

Another aspect of CD-ROM that will spur its growth in 1994 is the availability of relatively affordable, reliable

recording drives. CD-Recordable drives are now available from several manufacturers at prices under \$5000. These recorders, combined with one of the dozens of authoring software packages now available, allow users to make their own CD-ROM products without going through the expensive mastering/pressing process.

### Document delivery

When library budgets decline but subscription prices increase, something has to give. Combine those factors with the continued acceleration in the amount of specialized information published annually and the difficulty of physically storing materials, and it's not hard to see why libraries face a crisis in serials collection development. Document delivery is one buzzword being posed to help solve that crisis. In other words, libraries are in transition from "just-in-case" collections (collection development model) to "just-in-time" access (access when needed).

Documents can be accessed and delivered on paper, online, or on CD-ROM. Electronically they can be full image, full text ASCII, or both (compound). Payment may be by subscription, per document, or a combination. Delivery may be from other libraries or from commercial publishers. While consortia that divide collection development responsibilities and network electronically are helping libraries survive, they also are worrying publishers.

The notion of publishers and libraries working together to provide online or CD-ROM access to documents was discussed at several sessions. Rick Noble, of UMI, summarized some of the major document delivery projects that are bringing image products from publishers to libraries. These projects include AT&T Bell Labs RightPages, Red Sage (University of California San Francisco and Springer-Verlag), TULIP, ADONIS, PowerPages (the new name for UMI's CD-ROM image products), and DIA-LOG's SourceOne.

### New ways to search online databases

The two previous Online Databases columns (*LJ*, October 1, p. 67–68 and November 1, p. 54, 56) discussed search software that allows natural language queries and relevance ranking instead of command entry with Boolean logic search engines. Those columns described Personal Library Software (the search engine for many CD-ROMs and for CQ Wash-

ington Alert and parts of America Online) and WIN (Westlaw Is Natural). WIN subsequently won the 1993 Online Product of the Year Award.

Most online searchers are very familiar with what has been the de facto standard for online systems for more than 20 years—command language interfaces coupled with Boolean logic searching.

At the Online/CD-ROM '93 "Major Industry Announcements," DIALOG and Mead Data Central announced their entry into the non-Boolean arena. DIALOG's Target and Mead's FreeStyle will allow users to search for documents in a more natural way and without using Boolean operators. Although neither is really completely natural language (phrases still need to be indicated and synonyms should be input), both provide an alternative to some of the constraints of Boolean systems.

Boolean systems require all terms linked with ANDs to be present; therefore they are sometimes called EXACT MATCH systems. In a search, for example, about what people in Canada or Mexico think the impact of the North American Free Trade Agreement will be on immigration, only documents that contain all three concepts (e.g., Canada or Mexico, NAFTA, and immigration) will be retrieved.

Partial match systems—those that allow documents with two of three concepts to be retrieved—will often retrieve quite different sets of documents. They actually get much more complex than this, counting things like how many times each word occurs in each document, compared to how many times each occurs in the database as a whole, or how important each word or concept is.

Target, FreeStyle, WIN, and Personal Librarian all use relevance ranking where documents are displayed, with documents likely to be most relevant to the topic displayed first. Documents that contain all of the terms in each of the concepts will likely be displayed early.

Now that the world's two largest commercial online systems have joined the relevance ranking fold, it must be considered a serious trend. More and more online systems will offer users the choice of natural language or commands, or the choice of Boolean logic searching or relevance ranking. The question of which is better is one that every searcher now has to ask for every question that is searched.