DVD: THE NEXT EVOLUTIONARY STEP FOR PUBLISHING MULTIMEDIA REFERENCE SOURCES

PAPER

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Abstract: *Recently, the new application of DVD technology in multimedia reference sources provides opportunities to integrate a large amount of various media, as well as many kinds of reference sources, on a single disc. This paper provides an overview of the recent trends towards publishing DVD multimedia reference sources and discusses the advantages of DVD-ROMs and the gigabyte storage potential of the technology for publishing multimedia reference sources.*

Introduction

When CD-ROM technology was introduced in mid 1980s, it took several years until it caused greatest changes in the reference services. The Library Corporation introduced Bibliofile in 1986. This reference database included more than 2 million MARC records of the Library of Congress cataloging output on four CD-ROMs [1]. Next many bibliographic and full-text databases were released on CD-ROMs. With the ever-increasing production of information in all fields every year, we are facing the large bibliographic, full text and multimedia databases in a way that publishers have to release them on deluxe or multi-volume CDs.

Multimedia means the integration into a digital environment of various individual media such as texts, graphics, animation, video clips and sound files. The main difference between multimedia reference sources and other forms of reference sources (e.g. printed or bibliographic databases) is the capability the former has for integrating media and data, especially sound and video, in an interactive environment, and the ability to represent these through user-friendly interfaces and hypertext links.

During last five years many multimedia reference sources on CD-ROMs have been released to the market. In some of these, we can clearly see the combination of various media as well as the integration of many reference sources in a deluxe edition format, which no longer fit the capacity of a single 650 MB CD-ROM.

The advent of DVD and its gigabyte storage potential has provided new opportunities to expand the capacity of CD-ROM databases, especially for multimedia applications. Many articles have been written about impact of CD-ROMs on reference services [2,3,4] as well as development of multimedia encyclopedias on CDs [5]. Yet many librarians may not be familiar with the capabilities of the more advanced medium, DVD, and its high data-storage potential for multimedia reference publishing.

What is DVD?

DVD stands for digital video disc, although the computer industry calls it the digital versatile disc. DVD is the next generation of optical disc storage technology. A

DVD looks just like a CD, but has higher data storage capacity. DVD players can also read CDs. The main feature of DVD is compression technology and storing data on multi-layer sides.

A single layer DVD can hold 4.7 gigabytes of data, seven times more than CDs. There are other DVD formats with dual-layer or dual-sided specifications. A dual-layer disc has two layers of data, one of which is semi-transparent, and can hold twice as much as a single layer disc. Double-sided, double-layer DVDs can hold about 17 GB of data. There are various kinds of DVDs. The DVD-ROM, DVD-Audio, DVD-Video, DVD-R (for recordable) and DVD-E (for erasable).

DVD and multimedia reference sources

The first database to be made available on DVD was the *Union Catalogue of Belgian Research Libraries* (*CCB*). SilverPlatter Information also released *MEDLINE Advanced*, the first bibliographic database of international biomedical literature on DVD. *MEDLINE Advanced* contains over eight million citations and abstracts of articles from 3700 journals published in 70 countries [6].

With its high data-storage capacity, DVD technology has made possible the integration of multi-volume databases on a single disc. So, DVD technology can solve the storage problems of gigabytes of bibliographic databases as well as multimedia encyclopedias with large amounts of text, video, sound and images. In the past two years, we have witnessed the release of many multimedia encyclopedias on two CDs (Deluxe edition) such as *Microsoft Encarta Encyclopedia*, *Compton's Interactive Encyclopedia*, *World Book Multimedia Encyclopedia*, *Grolier Multimedia Encyclopedia* and *Encyclopedia Britannica* (Multimedia Edition). This new development from multimedia publishers whereby they expand the multimedia aspects of their products and thus need more than one CD indicates the need for new technology with higher data storage capacity.

Recently some DVD multimedia encyclopedias have been released to the market. Some of these are:

Microsoft Encarta 99 DVD-ROM Reference Suite with three major Microsoft reference works; namely, *Encarta 98 Encyclopedia Deluxe 99*, *Encarta Virtual Globe 99*, and *Microsoft Bookshelf 99x*, all on a single 4.5 GB DVD [7].

Webster's International DVD Encyclopedia with 50,000 entries, 12,000 photos, 60 videos and animations, 13 documentaries, more than 1500 maps and more than 1000 sound clips [8].

Encyclopedia Electronica with 85 minutes of video, thousands of images, illustrations, pictures and maps, 25,000 encyclopedia articles and more on DVD [9].

Funk & Wagnall's Multimedia Encyclopedia on DVD with over 15,000 multimedia elements [10].

Britannica DVD 99 with over 73,000 articles, three hours of video and over two hours of sound [11].

DVD-ROM version of the *Grolier Multimedia Encyclopedia* with 36,000 articles, 15,000 and more. [12].

Advantages of DVD multimedia reference sources to CD ones

There are a number of advantages, which can be described in the following broad terms:

1. The high data storage capacity of DVDs makes it possible to represent more multimedia elements, especially sound and video, and to integrate many reference sources on a single disc.
2. DVD eliminates the need for disc swapping of deluxe multimedia databases and makes seeking information more convenient. For example, in the deluxe edition of *Microsoft Encarta* it was sometimes necessary to swap discs in order to access multimedia elements.
3. The quality of sound and video in DVD is better than CD-ROM. In fact, DVD makes it possible to display longer full-screen, full-motion and high quality videos.
4. DVD can deliver the data at a higher rate than CD-ROM. In fact, they offer speedier access to information, which is perfect for multimedia applications.

It is worth noting that DVD drives can also read both CD-ROMs and DVD-ROMs and this may be considered to be a good reason for many users to replace their CD drives with DVD drives. Moreover, by using DVD databases, it might sometimes be possible to avoid buying expensive CD-ROM jukeboxes. On the other hand, the release by National Geographic of the complete 109 years of their magazine on just four DVDs [13] indicates the possible requirement for the DVD-ROM jukebox .

The main restriction on the use of DVDs is the need for extra hardware on PCs and its higher price in comparison to CD-ROM drives.

Conclusion

The traditional role of reference librarians evolved through the emergence of CD-ROMs. Textual and multimedia reference sources on CD-ROM revolutionised library reference services. Now we are facing the more advanced medium, DVD. Although, this novel technology has many reference applications for storing gigabytes of bibliographic, full-text and multimedia databases, there remain some questions surrounding the use of DVD technology in libraries. For example, how long will it take until libraries, especially in developing countries, are equipped with DVD-ROM drives? Will more reference databases be available on DVDs? What significant advantages and changes will this new medium bring to the libraries?

The adoption of any new technology requires time, money and effort. DVD technology is likely to bring significant changes to the process of designing and developing multimedia reference sources. Librarians can pave the way for novel technologies relevant to modern library and information services and will come into their own when they recognize the advantages and pitfalls of new technologies like DVD.

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