

Optical storage for magazine data, 4 March 1992

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This one pre-dated DVDs and was a feasible way of using a single page of a magazine to provide significant multimedia capacity. Even with 1992 density, it could have given 5GBytes of data to offer video material as part of a paper magazine.

Concept

Use of digital optical tape technology to facilitate multimedia magazines, video postcards, optical smart cards etc.

Problems

Lack of compact and robust storage mechanisms.

Current magazines are confined to text and graphics (albeit with a free CD or Tape) so are very restrictive.

Current publication methods use a lot of trees.

BT Opportunity

Awareness of threats from very cheap data transfer

Multimedia manuals

Compact telephone directories

Summary

Magazines are currently printed on paper, with some adding cassettes or CDs for specialist purposes. It is also being considered to download magazines over telephone lines, electronic magazines. However, a relatively new form of data storage may be useful for magazines too. Digital optical tape (DOT) is a very cheap way of storing data and is being developed for computer archiving. It costs less than 0.5c/MByte. It is not clear whether this includes the cost of the machines. Although DOT is currently a reel format, and the same principle has been applied to tags, there is no reason the technology could not be applied to a page format.

The suggestion in this note is that rather than producing thick magazines, magazines using fewer pages (maybe just one) could be made, with the information written in a form similar to DOT format. These could be mass printed, just like ordinary magazines. They could be read by a suitable machine.

Storage density for DOT is currently 25Mbytes/square inch, so a typical magazine page (100 square inches) using the same density would hold up to 2.5GBytes, far more than a compact disc. This would be enough to store plenty of text, graphics, sound and even some video. A double sided page would hold 5Gbytes. The search times and read rates for DOT are also reasonably good. At current DOT cost, this would make the magazines quite expensive. However, with volume production and sales, costs could fall dramatically and make the medium useful for many other applications. For some magazines, still photographs would be desirable, but adding multimedia information in this format may still enhance the magazine. This could be implemented by a tear-off strip. Magazines could be distributed and sold in the same way as today, with the front of the single page being designed to attract the buyer. The reverse side could hold the information.

It is worth noting that the 5Gbytes capacity of a double sided page equates to almost 17 minutes of HDTV at 40 Mbit/s. Full TV type adverts could be included in the magazine rather than just simple stills. Rather than including CDs with magazines, 5Gbytes would leave plenty of space to replace these. Software for computers could be accompanied by multimedia information, such as may be needed for computer games and VR.

Business cards could be printed which contain all the necessary information about a person. All of a person's personal profile, CV, documents, ID etc. could be printed on a single card and replicated for minimal cost. This could be a cheap interim way of accomplishing some of the functionality of smart cards.

Optical dots could be used to replace bar codes on items in a supermarket. Instead of just a reference number, the optical dot could contain all the information about the product, such as nutritional information, advertisements for other products in the range, and recipes or instructions for use.

Telephone books could be made much more cheaply and more environmentally soundly using such technology. A directory of all subscribers could be printed on a single card. This would save countless trees and a lot of money, provided that users have the reading technology.

Instruction books could contain multimedia information, making them much more useful.

There is one other advantage which makes the medium attractive for information storage. Because it is made of paper, it is easy to destroy and the waste could even be recycled.

There are many other potential applications, which benefit from multimedia information on a robust, flexible, reliable, reproducible format.

This technology allows huge quantities of data to be written in a compact form, easily replicated, which can be sent through the post or bought off the shelf. It is robust and lightweight. It must surely be a significant threat to many data transfer services such as

electronic newspapers, networked archiving etc. It is important that BT are aware of the potential of this medium, since many of its services will be in direct competition.

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4/3/92