



VIDEOTEX,  
VIEWDATA  
& TELETEXT

A TRANSCRIPT  
OF THE  
ONLINE CONFERENCE  
ON VIDEOTEX,  
VIEWDATA  
AND TELETEXT

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The use of MicroCobol for Telesoftware

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The concept of Telesoftware is described with particular reference to its implementation using MicroCobol - a machine invariant programming language developed by CAP-CPP.

Examples are given both of the use of on-line programs as an enhancement to the standard viewdata facilities, and also examples of the types of program that could be distributed by telesoftware but run in "stand alone" mode.

## 1. INTRODUCTION

### The Concept of Telesoftware

When viewdata was invented a few years ago, no-one could foresee how rapidly microelectronics was going to develop. The result has been that except for a few of the very earliest sets, all viewdata receivers are built around a set of chips, rather than discrete logic circuits. Some of these chips are in fact general-purpose, programmable, microprocessors. The pressure is still very strong to minimise the number of components, and hence the cost, for the mass market domestic sets, but the marginal cost of providing additional capabilities is not high, and a number of "intelligent" sets are now being developed.

Such intelligent viewdata receivers give the capability to carry out more complex operations than are available with a standard terminal. For example, it is possible to process the data that is received, rather than just to display it, and it is also possible to reprogram the device to perform different functions.

Now a reprogrammable device requires a means of getting the programs into it. But with viewdata we are talking about a terminal connected to the telephone network. So why don't we use the network itself to distribute, not just data, but also the programs (software). This is the principle of telesoftware: the distribution of software via a communication medium, in this case the telephone.

But telesoftware is not just an interesting technical idea: there is also a need for it. As the cost of hardware has been coming down rapidly there has not been a corresponding fall in the cost of developing and maintaining software, which remains labour intensive and therefore increases with inflation. However, there is an alternative way to reduce the selling price, and this is to sell many copies of the same software. The ideal way to achieve this is to have a means of distribution whereby the software supplier can set up a single copy of a program which is updated when necessary. Purchasers can take copies paying a usage charge each time they do so. This is precisely the facility that telesoftware can provide.

### Compatibility

With the standard Prestel system, it is already possible to

software we again want to achieve the same results, i.e. we want to have a single version of a program, stored on Prestel, and capable of being brought down and executed in a range of different terminals.

This is an extremely difficult problem to solve. Even with standard terminals, characters look different depending on the display chips used, and there is at least one inconsistency in interpretation of control characters (see Prestel pages 33822 and 3382262). With software there is much greater scope for inconsistency because the basic instructions are different between different processors.

The problem has been solved completely in the implementation of MicroCobol, which is a programming language designed to be portable over a wide range of machines. Programs are compiled to an intermediate code which is then interpreted identically on different processors. Even more significantly, the same result is obtained from a program which is in error, so it does not matter what machine is used to test out the program, the effect is always the same.

#### MicroCobol

The MicroCobol language<sup>1</sup> has been designed specifically for business applications on microcomputers. Some of its features are:-

Based on COBOL, the most commonly used language for business data processing, but modified to make it suitable for interactive use on small machines (rather than batch mainframe operations) and also extended to include modern structured programming constructs. It is a language designed for professional programmers (unlike BASIC for example) but there is a large population of such programmers capable of using it with minimal retraining.

MicroCobol incorporates a powerful disk-based operating system with extensive file handling capabilities. It requires at least one and preferably two disks, the minimum being floppy disks of quarter megabyte capacity. Minimum memory is 48K, but 64K is an advantage.

Thus MicroCobol is suitable for an intelligent business viewdata



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