Wired Society

The growth of cable television provides a further avenue for communication between home computer users

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Much is made of the benefits of the so-called 'cable revolution', which will bring 20 or 30 television channels into our homes, but little mention is made of a side-effect that could change the way in which we communicate with other members of the community. For one, of those channels may be set aside as a link between home computers. We have already looked at two methods of using home computers as communications terminals: viewdata systems (see page 268), which allow access to a large general database, and Local Area Networks (page 218).

Using a viewdata system like Prestel's Mailbox, it is possible to send messages between subscribers, and any subscriber to Prestel can buy goods and services (holidays, for example) directly from a central Information Provider. However, these two services are limited in their application. Similarly, if your computer is one of the workstations on a Local Area Network, you can communicate with any other station — but the largest and most powerful microcomputer based network will extend over only two or three kilometres, and your bank, butcher and insurance broker are hardly likely to be part of it. You could, of course, be both a Prestel subscriber and a network member (in fact, that would be a very sensible way of spreading the cost of Prestel). But that is still a far cry from being a member of a community whose every part is linked electronically to every other.

The most important physical factor preventing the creation of city-wide networks of this type is the signal loss in the transmission medium, whether it be twisted pairs of cables, co-axial cables (like the aerial lead on your television set) or optical fibres. It is this phenomenon that limits the size of Local Area Networks at present, and the only way to overcome the problem is by inserting 'booster' or re-amplifier stations at frequent intervals in the network.

A second consideration is that of 'traffic density', or the volume of information to be communicated. This influences the bandwidth, or range of transmission frequencies, required. As a general rule, we need two hertz of bandwidth for each bit per second that we wish to transmit. A 300 baud (300 bits per second) transmission requires 600Hz; a 1,200 baud transmission needs 2.4kHz. Normal speech uses a minimum of 3kHz across a telephone line, so this is the nominal bandwidth of a telephone line. To transmit a colour television picture, however, requires 8MHz — three thousand times as much as speech. In other words,

Circuit City
Milton Keynes, a town built from new beginnings, was supplied with cable television right from the start. 22,000 homes in the town are supplied with seven television channels (six live and one that shows films), and six VHF radio channels. The next step towards an integrated information network allows the supplies of electricity and gas to be metered centrally, rather than in every building. Local Area Networks, to be installed in public buildings, will soon be added, as will a public viewdata system