It is the software a computer uses that determines how well a machine performs its function, and this is especially true for networks. First and foremost there must be a 'layer' of software over the machine's operating system that makes the connection between each node and the network. Known as *networking software*, this layer puts the server station in control of the specialised operations of file serving or print serving, and also gives it control of the flow of data within the network. In addition to setting up this chain of command, the networking software informs the computer at each node that it is on a network, that there is a server attached, and how many other nodes there are. Finally, the networking software gives the node computers a protocol for communicating with the rest of the system. This layer of networking software must be up and running for the network to operate.

Once the networking layer is established, the individual nodes must have a program, or a set of programs, for their own applications that recognise the network and know how to communicate with it. This is software written specifically for networking applications, and can be run from a cassette or disk drive at the node, or through the file server. The software is only as complex as the operation. If node 1 in our network is running a word processing program and sending the results to the printer independently of the other nodes, the only modification required to a standard word processor is the inclusion of network protocols. On the other hand, if nodes 2 and 4 need to use the same data, and they need to be able to see each other's results, things become more complicated. In such a case, the applications software (whether it be a word processor, spreadsheet, database, or even a game) and the system hardware must have the ability to do multi-tasking. In other words, the CPU has to be able to handle more than one task simultaneously, and must have the ability to manage communications from at least two other CPUs simultaneously.

TONY SLEEP

Shared Experience
This school was equipped with 16 BBC Micros with colour monitors, a printer, a double disk drive and Econet (Acorn's LAN for the BBC Micro) for £16,000 in 1984 — cheaper than providing each computer with a disk drive and printer. The speed of the network is such that each work station seems to have sole use of the disk drive, even when 30 pupils are at work; terminals may have to join a network queue for the printer. Econet enables David Watkins, teacher in charge of computing, to give all his pupils regular 'hands-on' experience; inter-terminal communication is a valuable bonus when the network is used for subject teaching

The driving force in bringing networking to the home user seems certain to be Sinclair Research. A networking interface is built into the Interface 1 add-on unit for the Spectrum. This unit is selling well because it is needed to enable Microdrives to be used with the Spectrum. Once sufficient Interface 1s have been sold, software is likely to appear that makes use of the network interface.

Sinclair's latest micro, the QL, has a similar networking interface built in as standard, and this should be compatible with the Spectrum version. Although this interface is fairly crude, the popularity of these machines should make it worthwhile producing networking software for them. Games programs are the obvious first candidates. Beyond that, the possible applications for home computer users are, unfortunately, rather limited.

There are several elements needed before networking computers becomes truly feasible. The simplest, of course, is that there must be at least two micros to be linked together. Secondly, the micros must be fairly near each other so that cables can link them together. This means they have to be in the same building. Lastly, there has to be enough 'traffic' to make the network practicable. This means it needs users who either exchange data many times a day, or who want to share expensive equipment (such as printers or disk drives) to offset the cost of the network.

If only a small amount of data were moved around the network it would be easier for one user to hand it to another as a tape or disk. Similarly, if the network consists of only a few micros, it could be cheaper to provide each with its own printer and disk drive, rather than investing in the extra cost of computers.

Thus, apart from games, the only practical uses for the networking of home micros are in small businesses and the classroom. The Sinclair QL has cut the cost of networking down to a level where it is worthwhile providing a computer for staff who do not need to use computers heavily. Many people may soon find themselves with networked computers on their desk at work.