

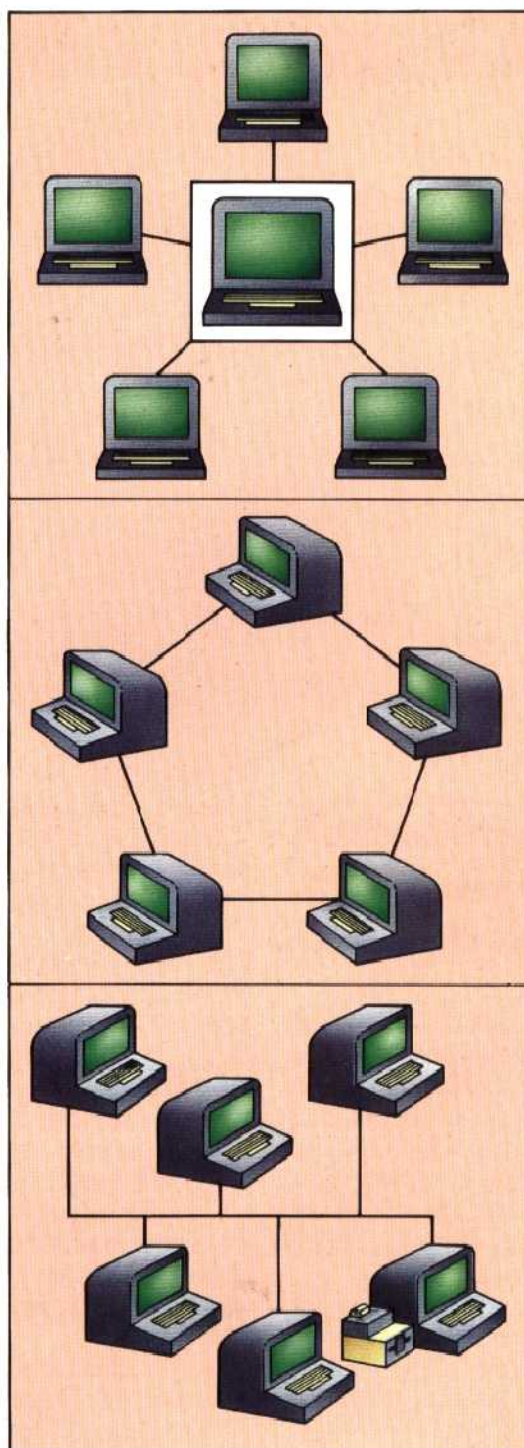
example of this is the Winchester disk — a hard disk that runs in a hermetically sealed (airtight) environment, offering some of the speed and storage capacity of mainframe disk units. Winchester disks — named rather quirkily after the Winchester 30/30 repeating rifle, because they were originally constructed as twin disks, each with 30 megabytes capacity — are necessary for the volume of transactions handled by commercial software. They have enough spare capacity, however, even in very busy environments, to cope with more than one user accessing them at once. Similarly, while a dot matrix printer (see page 74) will be adequate for most jobs, word processing will often require a 'letter-quality' daisywheel printer costing considerably more. Unless one user can keep it constantly at work, it pays to be able to share such a printer across several workstations.

Networks offer other possibilities, too. Documents that require the attention of a number of people can be passed on from one to the other without being printed on paper. This happens, for example, in the more technically advanced newspaper and magazine offices. An author creates a typescript, which is then passed to the editor for his critical appraisal. Next it is the turn of the sub-editor, who corrects spelling, grammar and usage, marks the type specifications and passes it to the typesetter, who begins the printing process. Before Local Area Networks became available, this process meant that a typescript would often be retyped two or three times before it reached the printer.

Network systems are available for most home micros, but perhaps the most widely used is Acorn's Econet for the BBC Micro. Econet designates one of the machines on the network to act as a 'file server', which looks after the central disk drive and all the various requests for information. This machine can be either dedicated to that purpose or available to a user whenever it is not needed to provide a service to other members of the network. If the network shares a printer there will need to be one machine available to control it.

Econet will support up to 254 workstations plus the two 'server' stations, but a much more realistic limitation on the size of the network is the distance that the farthest station can be away from the 'clock unit', a maximum of 500 metres (1,650 feet). The clock unit is a separate box that also sits on the network and controls the rate at which data is sent around the system. Econet uses two pairs of cables, just like the telephone system, and so is relatively simple to install. One of the pairs carries data, the other the clock pulses needed to ensure synchronisation.

Econet's rather sophisticated communications software resides in an eight Kbyte EPROM (Erasable Programmable Read-Only Memory) in every workstation. The system's most complex task is to prevent 'collisions', that is, to ensure that only one member of the network is transmitting at



## Types Of Network

### Star

A star network connects each user's machine to a central controller, which will also manage the common peripherals

### Ring

Some networks require the users' computers to be joined together in a continuous loop. They are less popular because the data might have to pass through as many as half the machines in the ring to get to its destination

### Bus

The design of more refined networks, such as Econet, is very similar in concept to the architecture of a modern microcomputer: data and control messages are passed directly from one user to another

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any one time. Other home computer-based networks are similar, though generally do not offer quite such comprehensive features.

Mini and mainframe computer-based networks have become widely used in the course of the last decade, and need not be restricted to one country. Many airlines, for example, use reservations and ticketing systems that span the entire globe, transmitting their data by telephone lines or satellite link.

With the general move towards cable television, it is reasonable to expect an increase in the use of networks, perhaps based on a similar concept to that of Micronet 800, a Prestel-based system that allows programs to be downloaded over telephone lines onto the BBC Microcomputer.