



ACT Sirius 1



Local Area Network

The ACT Sirius 1 Local Area Network allows resources such as hard disks, printers and plotters to be accessed by a number of ACT Sirius 1 workstations. Each workstation can communicate with the various devices so that expensive equipment is shared and not duplicated. ACT Sirius 1 users can exchange messages or complete files of information to provide enormous time and labour savings.

The network can connect up to 54 workstations and 10 file servers using twisted-pair cable and a single network interface board on each machine. As each resource is named the user need not know the physical location.

The result is a low-cost, durable, heavy-duty system operating in the medium speed area of 1 megabit per second.

The ACT Sirius 1 Local Area Network is based on OMNINET and runs under the MS-DOS operating system.

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LOCAL AREA NETWORK

Features

As many as 54 workstations and 10 file servers, each with a transporter installed, can be supported on a network of up to 1500 feet of twisted-pair cable meeting the RS-422 standard. Repeaters are available for networks in excess of 1500 feet.

The transporter in each node manages the network for that node, serving as the common network interface.

No master network controller is required, as individual transporters supply all the control requirements for the chosen distributed network.

Furthermore, the transporter performs many high-level network tasks that in other networks are often the responsibility of the host computer. Generating and receiving acknowledgements, retransmitting messages, and detecting duplicate messages are all functions performed by the transporter. A host computer sends messages by issuing a simple command and is not disturbed by the network transporter until a valid message arrives.

The transporter implements the network protocol for the first four layers of the International Standards Organisation and American National Standards Institute's Reference Model of Open Systems Interconnection.

Two levels of carrier-sensing hardware and collision-avoidance software are provided.

Twisted pair cable:

- Low cost.
- Easy to install.
- Shielded twisted-pair cable is no more susceptible to radio-frequency interference than coaxial cable.

Efficient low-level acknowledgement scheme:

- Every message is acknowledged by the receiving station.
- If a message is not positively acknowledged within 15 to 20 microseconds, the sending station will retransmit after waiting a random time interval.
- The wait clock that measures the

random time interval between transmissions ticks only when the network is idle. (This eliminates the queuing that is often a problem with Carrier-Sense Multiple Access protocols.)

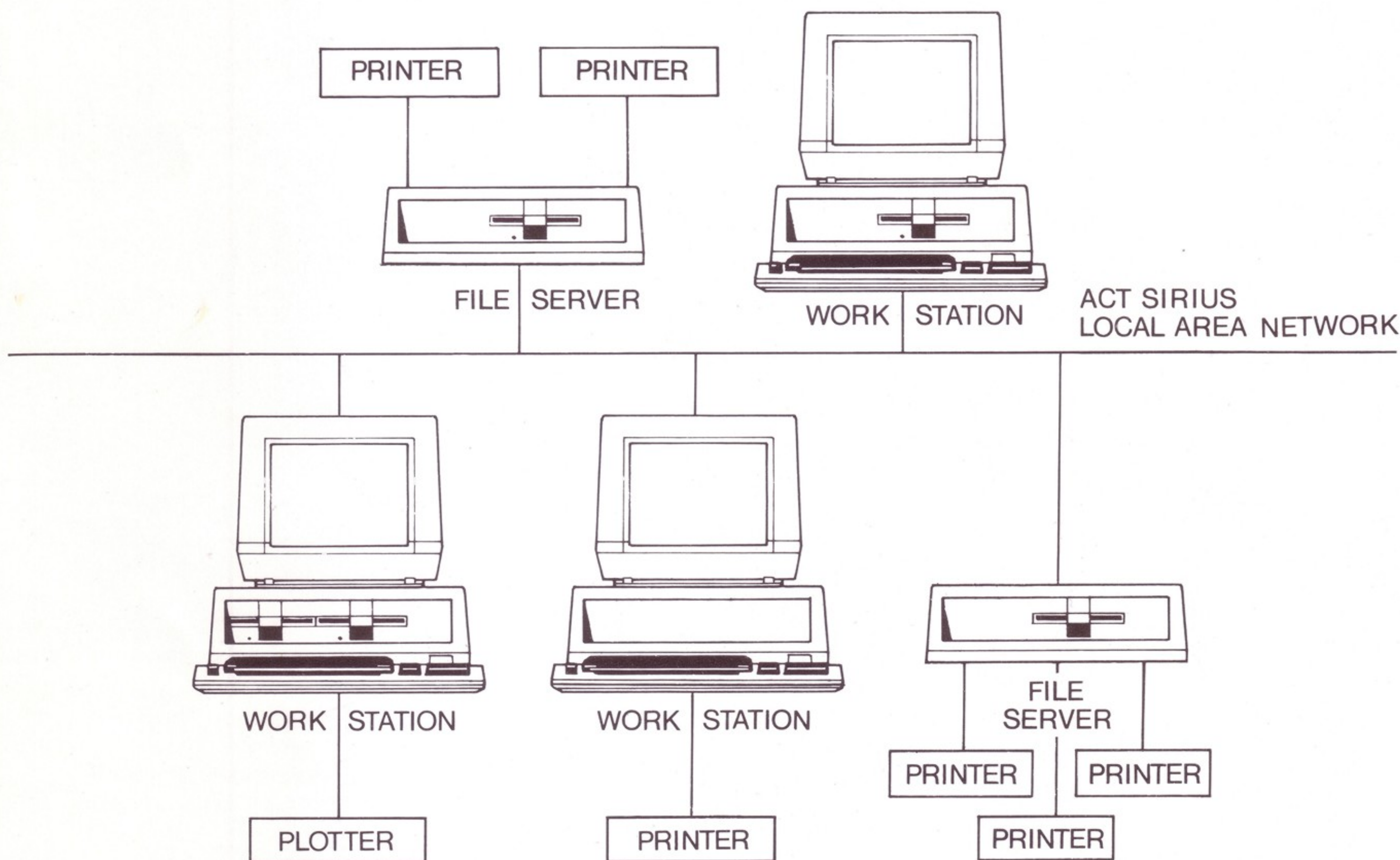
"Micro virtual" circuits guarantee that a message sent through the network will be received correctly by the appropriate host.

Duplicated messages are discarded.

Messages will arrive in the same order in which they were transmitted. Each transporter is fully buffered.

Specifications

- Transfer rate – 1 million bits/sec.
- Effective data rate – 100K bits/sec.
- Interconnect Medium – twisted-pair (shielded or unshielded).
- Maximum drops per Net – 64.
- Electrical Interface – RS-422.
- Error Detection/Correction Scheme – CRC/Positive Acknowledge.
- Protocol – Carrier Sense Multiple Access.



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