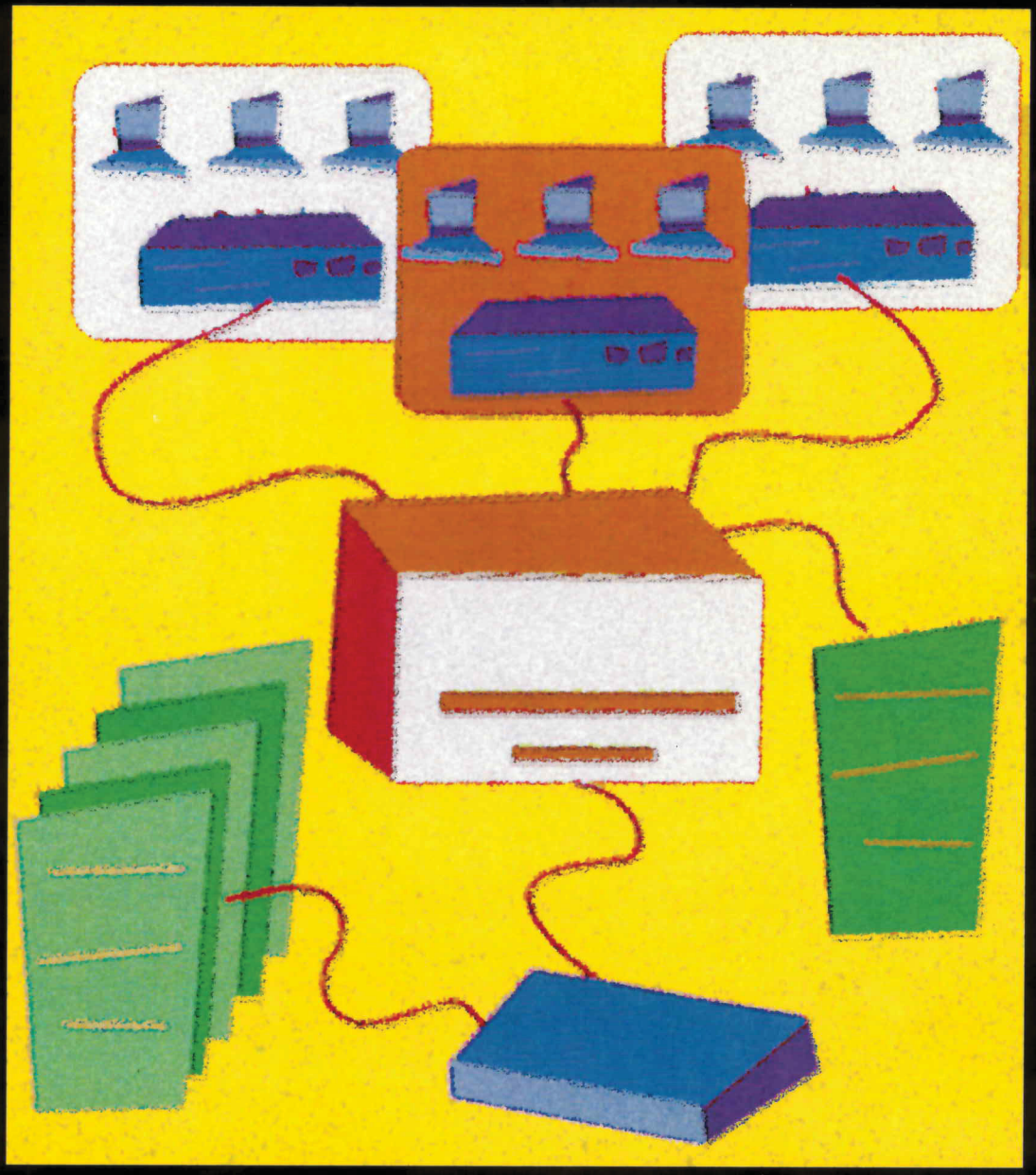
TECHNOLOGY AND APPLICATIONS FOR HIGH-SPEED LANS

GIGABIT ETHERNET



RICH SEIFERT

Gigabit Ethernet

Technology and Applications for High-Speed LANs

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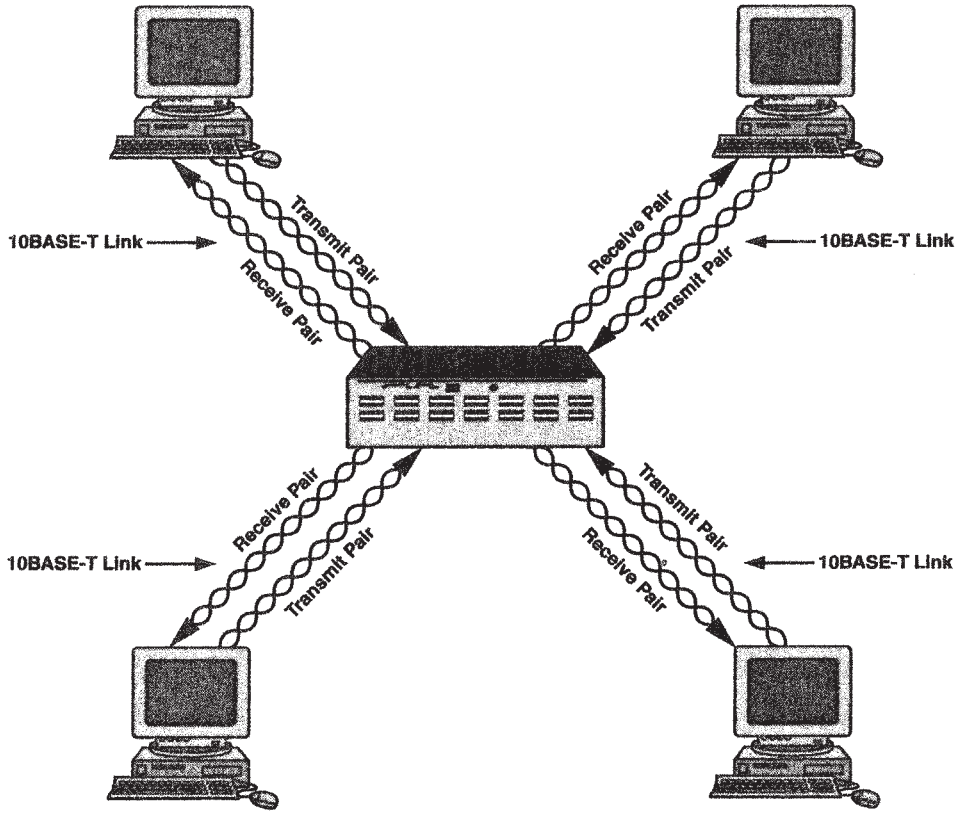

Figure 4–2 Dedicated media.

changes the fundamental assumption that the underlying medium cannot support full-duplex operation. Unlike coaxial cables, many varieties of twisted-pair Ethernet (10BASE-T, 100BASE-TX, and 100BASE-T2) can, at least in theory, support simultaneous bidirectional communications, since there are separate paths (wire pairs) for communication in each direction.

Even though the channel may be capable of supporting bidirectional communications, an Ethernet using a repeater hub uses this channel in a half-duplex mode; at any given time, only one station can transmit a frame on the LAN without interference. Multiple transmissions result in collisions, which are resolved by the Ethernet MAC in the normal way. But the migration to dedicated media at least enables the possibility of using the channel in a full-duplex fashion.

Table 4–1 indicates which of the standard Ethernet media systems are capable of supporting full-duplex operation.