Other Network Technologies

FDDI. Fiber Distributed Data Interface (FDDI) networks run at a standard 100-Mbit/s transfer rate using multimode optical-fiber cabling. The purchase cost is high, partly because it necessitates new cabling for existing networks. FDDI is also available as a high-speed backbone network connecting LANs.

A twisted-pair version, TP-PMD (twisted-pair physical medium dependent) FDDI, is under development, using Category 5 UTP and STP copper cables. This version is sometimes called Copper Distributed Data Interface (CDDI).

ATM. Asynchronous transfer mode (ATM) is a new network technology particularly suitable for wide area networks and campus backbones. It is intended to allow seamless integration of campus LAN backbones into the wide area network.

ATM uses cell switching (53 bytes per cell) similar to high-speed telephone switching over existing UTP or optical-fiber cabling. It runs at 25 to 622 Mbits/s.

Table I
Cabling and Topological Comparisons

	FDDI	ATM	100Base-T	Demand Priority
100-Mbit/s Category 3 cable supported?	No	50 Mbits/s with complex coding	Yes	Yes
Bundled cables supported?	No	No	No	Yes
Multiple cascades supported without bridging or routing?	Yes	Yes	No	Yes
Cost	High	High	Medium	Low

Ethernet and Token Ring Switching. Switching is also being introduced into Ethernet and token ring networks. To increase overall throughput, LANs are segmented. Hubs switch packets dynamically between connected segments allowing simultaneous transmissions among pairs of network segments. This increases bandwidth by two or more times that of individual segments.

100Base-T. 100Base-T is a scaling of CSMA/CD to 100 Mbits/s. There is no migration path or accommodation for existing token ring users. The technique cannot emulate 10Base-T topologies since the maximum topology is two repeaters.

Table II
System Comparisons

	FDDI	ATM	100Base-T	Demand Priority
Supports multimedia with guaranteed delay and bandwidth?	Yes	Yes	No	Yes
End-node adapter card complexity	Node management is expensive	Segmentation or reassembly of frames is expensive	Low	Low
Ethernet 802.3 networks can be upgraded without software changes?	No	No	Yes	Yes
Token ring 802.5 networks can be upgraded without software changes?	No	No	No	Yes