the companies who will have to decide whether to use the token-ring method, whether Soderblom's patent covers their particular implementation, and whether to pay the licensing fees if they think it does or take the chance of litigation if they think it does not.

IBM supports token ring. "We support the token-ring approach using baseband technology," said Victor J. Goldberg, an IBM vice-president and president of the company's Communications Products Division, in a September 21st keynote speech to the IEEE Computer Society's Compon conference in Washington. "Further, we recommend the hierarchical wiring structure, with star connections going from wiring concentrators to offices."

This structure is similar to that used for telephone installations, and has the advantage of providing focal points for system maintenance and problem diagnosis. Wiring concentrators service wire segments made up of simple electrical components; hence, the concentrators enable users to quickly find and isolate faulty stations, he said. In many cases, bypass relays and other simple devices allow automatic reconfiguration.

IBM favors a distributed access system that allows each terminal to seize the token and pass information. Access delay is predictable and controllable, Goldberg pointed out. A system designer can predict not only the average performance of an attached product, but its worst-case performance as well. The approach permits the use of priority access, i.e., of a rule that determines how frequently a station may transmit. Selected stations may be allowed a higher rate of access and, therefore, a higher percentage of available bandwidth.

The ring topology permits a fault in one node to be detected immediately by the next node, he continued. "Isolating and bypassing, or solving, a problem therefore becomes very straightforward, particularly when each ring segment is wired through a wiring concentrator."

Goldberg considers the applicability of fiber optics to the ring topology to be a significant advantage. "Fiber is inherently well-suited for application in a point-to-point link. Fiber optics can support the higher speeds and longer drive distances which we anticipate will be required before the end of the decade." Data rates in the range of 30 megabits per second, at distances greater than one kilometer, can be readily achieved with fiber optics, he said.

Fiber-optic Ethernet. The first fiber-optic local area network compatible with Ethernet was demonstrated by Codenoll Technology Corporation of Yonkers, New York, during the International Fiber Optics and Communications exhibit, September 15-17, in Los Angeles. Called Fiber Optic Net/One, it is the result of a joint development effort involving Codenoll, Ungermann-Bass of Santa Clara, California, and Siecor/FiberLAN of Research Triangle Park, North Carolina.

The new network is plug-compatible with existing Ethernet equipment, according to Michael H. Codenoll, president of Codenoll. Since fiber-optic cable is not susceptible to interference generated by electromagnetic radiation, it is a good choice, according to Joe Kennedy of Ungermann-Bass, "for environments such as factories with heavy machinery" or for use "in close proximity to radar sources." Because optical fibers do not radiate energy and are difficult to tap surreptitiously, they are also well-suited to security applications.

IBM supports a token-ring approach and "hierarchical wiring," the use of star connections going from wiring concentrators to offices.

First Ethernet chip. Seeq Technology, Inc., of San Jose, California, is the first company to announce an Ethernet data link controller on a single chip. At a September 14th Wescon press conference, Seeq said that their chip—the 8001—will be available in sample quantities in November and in production quantities early in 1983. The initial price will be $135 in lots of 100.

Other companies are not far behind. Intel expects to have samples of an Ethernet data link controller before the end of the current year. Ungermann-Bass and Fujitsu, Ltd., are jointly developing and producing a two-chip set. Advanced Micro Devices, Inc., and Mostek Corporation are also developing Ethernet-type chips.

In mid-September, IBM announced that it was joining Texas Instruments in the development of integrated circuit chips for its token-passing local area network. As yet IBM has not actually announced a product.

Although Goldberg did not mention it, IBM has already taken out a license to use Soderblom's patent, for a one-time fee said to be somewhere in the vicinity of $5,000,000.