



DATA COMMUNICATIONS

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Monday, September 22, 1986

An Unlikely Couple Form Company To Sell Microwave Ethernet Link

By Jon Swartz

CAMBRIDGE, MASS. — One is a seasoned 24-year expert in the field; the other a brash young ex-MCI salesman. Together they are taking on an increasingly popular technology—digital microwave—and adapting it to link disparate local area networks.

Frank J. Miani, 47, and David S. Theodore, 25, of start-up Microwave Bypass Systems Corp., have developed an Etherwave transceiver designed to connect LANs up to 15 miles apart and support transmission at the full 10-megabit-per-second standard Ethernet speed.

"It's extremely important that customers realize how simple and cost-effective this is," said Theodore, company president. That's where Theodore's elder associate, Miani, vice president of systems engineering, comes in. "I want them to know what we're selling by talking to someone who knows this inside out," Theodore said.

Etherwave's development was, initially, only a byproduct of what 2-year-old Microwave Bypass considered its main business: design work and consulting for microwave communications systems based on gear from M/A-Com Inc., Burlington, Mass., and other vendors.

But Microwave Bypass began to push the product earlier this year, after being approached by a neighboring data communications equipment manufacturer that needed to connect its two buildings in Cambridge, Mass., with two new sites in nearby Concord. The two Cambridge buildings were connected to each other by cable, as were the two buildings in Concord.

The customer, whose name was not released because of a non-disclosure agreement, had considered several alternatives for the installation, then subsequently ruled out each.

One idea had been to use private lines from New England Telephone Co. But cost was a deterrent, as was the prospect of a lengthy wait for the private line T1 service that allows data and voice channels at speeds up to 1.544 megabits per second.

Cost considerations also ruled out the use of fiber optic cable to connect the sites.



The Microwave Bypass team: Henry Coolidge, left, LAN engineering VP; president David Theodore, center; and Frank Miani, Microwave engineering VP.

The customer, already a user of short, point-to-point microwave transmission, opted for a microwave solution to the Concord-Cambridge problem.

Microwave Bypass stepped in with its high-capacity 23 gigahertz Etherwave short-haul microwave system to bridge the 13 miles between the two sites.

The system employs two microwave hops, with the repeater on a leased tower in Lexington, Mass. Total capacity of the system includes a 10-mbps LAN data channel; four T1

An Unlikely Couple Link To Market Microwave LAN Gear

voice circuits supporting 96 phone lines; and broadcast-quality video for conferencing.

Theodore and Miani say their Etherwave transceiver is optimally designed for connecting LANs five miles apart. But by using repeaters the system can link networks 15 miles apart.

The transceiver accommodates four LAN types: baseband and broadband Ethernet; token-ring; and token-bus.

The unit also supports five commercial network schemes: Digital Equipment Corp.'s DECnet; the Department of Defense-standard Transmission Control Protocol/Internet Protocol; Xerox Corp.'s Xerox Network Systems; Proteon Inc.'s ProNet; and Ungermann-Bass Inc.'s Net/One.

It was two years ago that Miani, after 22 years as a systems engineer at M/A-Com, decided to take a chance with Microwave Bypass.

Considered an expert on microwave technology, Miani's past credits include work on live TV transmissions of every summer and winter Olympics since 1964 and 10 Super Bowls. He was also involved in the TV transmission of the 1979 Carter-Begin-Sadat Middle East peace summit and has worked on equipment installations in China.

"Frank Miani had no reason to leave M/A-Com. He had a great job there," Theodore said. "He was traveling throughout the world doing things other people dream of. But I thought it was essential to get him if people are to take a company—and its 25-year-old president—seriously."

For Miani's part, it was young Theodore's unabashed enthusiasm that hooked the older man. Despite job offers from ABC and NBC, among others, Miani signed on with Microwave. His job is to educate prospective users on LAN extension as well as to help users wade through the alphabet soup of LAN terminology.

"There are 45,000 LANs in this country. Business could go through the roof," Miani said. "But to interest users, we have to simplify what at times is an extremely confusing vernacular."

To do that, Theodore and Miani tout the Etherwave transceiver as a highlight on the Microwave Bypass company tour given prospective users. They talk about a typical application involving use of a 23 GHz wideband analog radio, a store-and-forward buffer and the transceiver itself.

They discuss cost, which averages—including the LAN microwave system, LAN in-

terface, licensing and installation—\$60,000. A customer would procure that equipment, including the Etherwave, through the company's network of electronics distributors.

"[The clients] are extremely impressed. We've had inquiries from Harvard, MIT and Lincoln Labs about extending their LANs," said Theodore.

Fleet National Bank, Providence, R.I., is among Microwave Bypass' growing list of customers. The \$10 billion bank group recently signed an agreement with Microwave Bypass to extend the bank's LAN to corporate headquarters a mile away.

Both companies refused to specify the value of the deal.

Theodore, nonetheless, admits that many users remain apprehensive about microwave.

"People think it causes cancer and is unreliable," he said. "They still believe it fries any bird in its path or is put out of commission by planes and rain. Believe me, the odds of a plane interfering with a microwave signal are much less than those of a car running into a telephone pole."

But Theodore and Miani remain optimistic. "Obviously if I didn't believe in the project, I wouldn't sink every penny of mine into this," Theodore said.