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Cover: Photo by Ron Katz. Voice processing board courtesy of Pika Technologies Inc.

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CATCH A WAVE

Faster and more reliable than leased lines, less expensive than fibre and able to link remote networks in a single bound. Wireless LAN microwave-link technology is heading this way.

BY JAMES BUCHOK

Seated in a hotel restaurant in downtown Toronto, David Theodore gives the impression he'd like to take over the world. And maybe that wouldn't be such a bad thing. Here's a guy barely out of his 20s, who talks about old-fashioned values like he's Ross Perot. He probably wouldn't mind being Ross Perot. He throws around "personal guarantees" that his company will do this and his products will do that. He's so excited over wireless microwave LAN connectivity he barely touches his open-faced tuna sandwich. He talks with such conviction he nearly chokes on a black olive he mistakes for a grape.

With his hair slicked back a la Gordon Gekko and his face well-tanned, the would-be boy-king of the airwaves talks wistfully of the early days of radio, likening himself, albeit unintentionally, to Marconi. "Radio ushered in all high technology," he says. "My company pioneered wireless LAN technology back in 1985. We were the very first in the industry to have a full bandwidth wireless LAN solution and we continue to lead with an overwhelming share of the worldwide market. It's got to be well in excess of 70 per cent," Theodore says.

His company, Microwave Bypass Systems of Braintree, MA also manufactures each component of the system – the radios, the interfaces and the bridges.

So, why haven't we heard of him until now? Theodore says he's just starting to make a move into Canada and will have an office here within a year, although his products are already in use at Sudbury General Hospital, Toronto's St. Joseph's Health Care Centre and the City of Scarborough, Ont. Data General Canada worked as a reseller on those projects. Theodore has made no direct sales in Canada thus far.

"Canada is at least as good a market for us as the States," he says, "and in some ways better, because right now Canadians are under the impression that T1 is adequate, because they haven't had access to anything else." The dreaded T1 is the digital transmission carrier, used primarily for

voice communication but also for LANs. To Theodore, T1 is a venomous snake that criss-crosses the land in lease agreements with the even more dreaded Bell Canada. He plans to make like St. Patrick of the north.

"We are going to take the local business away from Bell here. I can't find any way for anyone to justify ordering up a Bell leased-line for LAN applications any more." Easy,

Dave, that's an olive you just put in your mouth.

"If you're a LAN user, why should you order up T1? T1 is a telecommunications standard for PBXs (private branch exchanges, a user-owned sort of LAN for telephones). If you're a LAN user you want a LAN pipe. You want a full-bandwidth medium that's transparent, and so we are offering a full bandwidth medium with the ease of installation and delivery of a leased-line."

He says microwave also beats fibre. "On the fibre end, there's the cost of installing and the right-of-way issues and what-not that can make the job absolutely out-of-the-question cost prohibitive."

Microwave, he says, provides the reliability of fibre and the easy installation and delivery of leased-lines, for a \$35,000 price tag, installed at both ends, bridges in-



David Theodore: "We are going to take the local business away from Bell here."

KERRY E. CLARK

cluded. "In Canada you're spending \$18,000 just to install a T1 line, and then these outrageous rates, like two or three thousand dollars a month, for the lease of the line."

He says his microwaves also beat T1 on reliability. On a typical 4.3 mile "single hop" microwave range, Theodore says, the reliability rate is "in the order of 99.999 per cent." He says the technology just requires the radio/antennae, etherwave transceiver and interface equipment. "With Bell, you have just two things to plug into, who knows what's in the middle?"

He says a study of each of the U.S. regional Bell operating companies, conducted by the U.S. House of Representatives Telecommunications Subcommittee, rates their reliability "far lower" than anything delivered by microwave. "We have customers who have not detected a microsecond of outage in the years that they have been using our equipment."

For the devout skeptic, his company will supply an installed point-to-point microwave Ethernet link, *plus* a T1 for backup. In fact, what he really believes is there's room for all three technologies. "The fibre companies spout off that everything should be fibre, the microwave companies say everything should be microwave, Bell thinks everything should be leased lines. That's bull. You need to mix the appropriate technologies where they fit best to achieve whatever the end-user's goals are."

Then come the guarantees. Guarantee number one: "Any engineer from my outfit that does not get the customers link up and running same day - not three months,

same day - will not have a job to come back to. We guarantee, not only response time, but repair time."

Guarantee number two: "I am now personally guaranteeing every installation we do if the customer requests us to, so that no purchasing manager will ever lose their job because they made a poor decision." The most important thing, Theodore says, is to provide service, "like the good old fashioned companies used to, and with us it's not a bullshit slogan."

One-third of Microwave Bypass Systems' business comes from hospitals, particularly for tele-radiology - linking up magnetic resonance scanners such as X-ray and CATscan machines.

A high profile client is Edwards Air Force Base in California. Theodore refers to Edwards when asked about the security of microwave transmission. He says it's secure because it operates at very high frequency and it's "narrowly sent" from point-to-point.

"If someone wants to tap into it they have to physically block the path, know the frequency, know the specifications on the receiver, know the antenna." He admits it's conceivable. "It's conceivable to clone people too."

He says there's a lot of confusion over LAN microwave applications due in part to the growth of indoor wireless LANs. "When the subject of wireless comes up, people say things about microwave like, it goes down in the snow, it has to be a clear day, the fog will screw it up, a flock of birds flying in front of the antenna will screw it up. All of that is myth. A lot of that can be attributed to less robust wireless technolo-

gies like laser, where steam rising from the pavement can create a problem, fog creates a problem, snow creates a problem, because you need not only line of sight, but clear air to transmit. You do not need clear air for microwave transmission. We have lengths in Mexico City, Los Angeles and areas where there are days when you can't see a building 500 feet away." And he adds, microwave radio technology has been used by Bell companies "forever," and in radio and television broadcast. "How often has your television gone out? How many times have you turned on your FM radio in your car and had nothing? It's extremely rare."

Having been a reseller, Theodore knows what he wants from Canadian VARs that want to catch a microwave. He already has Canadian resellers, namely Data General and a company called Brak Systems, but the Canadian invasion will require a few more allies.

"We do not want to sign up 500 resellers in Canada. We want a few, very good, highly qualified, highly reputable organizations to work with. We want systems integrators. We want people who are networking outfits as opposed to radio companies. We don't want transmission companies. We don't need and we're not looking for microwave radio resellers. We want LAN resellers."

And in a year from now, Theodore says, "you will find hundreds of microwave radio links from my company going up all around Canada." He guarantees it.

James Buchok is Associate Editor of SI Business magazine.