School districts give microwave top marks

By Laura DiDio

From kindergarten through 12th grade, schools are increasingly putting wireless microwave technology at the head of the class as they navigate the ABCs of internetworking entire school districts.

Wireless microwave technology, which has been around since the 1960s, is undergoing a renaissance in the '90s. Users such as school districts are rediscovering microwave's advantages as a reliable, cost-effective internetworking technology.

K-through-12 school districts typically have only a fraction of the operating budgets of their wealthier university counterparts. But they find microwave appealing because it lets them link dozens of geographically dispersed schools at full Ethernet speed for a fraction of the cost of fiber-optic cable.

Benefits of microwave

- Customer-owned equipment
- No recurring costs
- Transparency to network
- Full-speed 10M bit/sec. Ethernet, 20M bit/sec. duplex Ethernet and 45M bit/sec. DS3 connections

This was the case for George Araya, technology specialist at the Desert Sands Unified School District in Palm Springs, Calif., and Bruce Ionno, data processing manager at the Atlantic City Public School System in Atlantic City.

"For 10 cents on the dollar vs. the cost of fiber-optic cabling, we were able to link all 21 schools in our district for a onetime cost of $500,000, compared with an estimated $5.5 million for comparable leased-line connections," Araya said. The district is using gear from Microwave Bypass Systems, Inc. (MBS) in Hingham, Mass. "The MBS microwave equipment was the only solution that allowed us to transmit voice, data and video at full wire-speed Ethernet reliably and cheaply," Araya said.

The Atlantic City Public School System similarly installed a microwave link last September. The school district had looked into a variety of options, but these choices failed to pass muster because of prohibitive costs, according to Ionno.

"The fiber-optic cable priced out at $3,000 per month plus $20,000 in up-front installation costs. By contrast, the microwave link carrying our Ethernet data traffic cost $40,000 complete, and we own the equipment," Ionno said.

His initial skepticism — and fears that inclement weather such as fog or excessive rain would disrupt network operations — has proven unfounded.

"The MBS microwave equipment works perfectly and is superior to fiber," Ionno said. "We've done benchmark tests transmitting files over the hard-wired Ethernet network and over the Ethernet microwave connections. The response time is the same."

Equal access for all

The microwave technology is also a great enabler: It allows schools to transmit all types of data, including multimedia and full-motion video, and also lets school districts access the Internet. The Internet is an equalizing force for districts such as Desert Sands, which encompasses many poor neighborhoods. "Internet access evens the score for our students who otherwise would never have access to the multitude of services and information that they get on-line," Araya said.

The positive experiences of the Desert Sands and Atlantic City school districts are causing other school systems to sit up and take note.

Richard Rigling, assistant superintendent for business affairs at Lowell Public Schools in Lowell, Mass., and Steve Arnoff, administrator of instructional technology, recently phoned Ionno for a midterm report card on the MBS microwave network's performance. They liked what they heard.

High-tech education

A microwave network can connect computers in a school district for academic and administration purposes. It can also connect students to the Internet.

School districts that have installed microwave networks include the following:

- Atlantic City Public School System, *Atlantic City*
- Desert Sands Unified School District, *Palm Springs, Calif.*
- Lemon Grove School District, *San Diego*

School districts that are considering microwave networks include the following:

- Lowell Public Schools, *Lowell, Mass.*
- Mesquite Independent School District, *Mesquite, Texas**
- Rockwood School District, *Ellisville, Mo.*

* Using microwave for cable TV transmission; considering it for data

"We can't afford leased lines or FDDI, and microwave seems like a good fit," Rigling said. Arnoff said that if the microwave implementation is approved — most likely in May or June — the Lowell school district may put a microwave tower on each of its 10 new school buildings.

Dennis Hevron, director of electronic engineering at the Mesquite Independent School District in Mesquite, Texas, is also considering adding microwave to his district. "I like the reliability of microwave. And I think it will have a place in our networks," Hevron said.

Spry aims for wider browser distribution

By Ellis Booker

Spry, Inc. wants to put a copy of its Internet browser in every pot by distributing it with general merchandise such as refrigerators and athletic shoes.

Spry's Mosaic browser provides a graphical way to navigate the Internet. Company executives said it makes a lot of sense to distribute it to consumers. "Companies are putting up Web sites all over, but 98% of their customers are not on the Internet," said David Pool, president and chief executive officer of Spry.

Late last month, Seattle-based Spry launched Mosaic In A Box, a single-disk product that can get new users running on the Internet in minutes. Like Internet In A Box, which Spry introduced last fall, the latest title automatically creates local Internet accounts through CompuServe, Inc.'s network of more than 400 nodes worldwide.

Honing the focus

What is unique about Pool's strategy is his desire to forge alliances — none of which have been announced yet — with general-interest consumer goods companies. The result, Pool said, will be a profusion of company-specific, on-line networks able to micro-market to consumers. He said this approach will be more focused than what vendors of goods and services can achieve today with commercial data networks such as CompuServe or America Online. These networks dilute a merchant's message with unrelated services and data, he said.

Although Spry has no formal deals with large consumer-oriented firms, it does have some other things cooking. Martin Rood, president of Dealernet in Lynnwood, Wash., recently received 10,000 copies of Mosaic In A Box, which he is planning to give away this week to car dealers at the National Automobile Dealers Association meeting in Dallas. "Someone has to proactively go out and get people to sign up" on the Internet, Rood said. The Dealernet World-Wide Web site has been up for 18 months.

Analysts said Spry's distribution strategy is welcome but that the company is not alone in wanting to make the Internet more mainstream.

"I'm glad Spry has this product, but they have to move on execution," said Jerry Michalski, managing editor of "Release 1.0," a newsletter in New York. He said Prodigy, Inc.'s Web browser, the first among the commercial data networks, could offer functionality similar to Spry's default home page approach. "If Prodigy felt like doing it, they could set a button from an advertisement appearing on their core service to the advertiser's Internet home page," Michalski explained.

The next step in bringing consumers onto the Internet and into cybermalls may be to make access free, said Mark Winther, vice president of worldwide telecommunications at IDC/Link Resources Corp. in New York. "Carriers sell $7 billion worth of 800 numbers a year," Winther said. Businesses with 800 lines have found them "a tremendously effective and cost-effective way of providing support and a way to order goods."

"For the Internet to truly become a commercialized vehicle for new forms of business to the consumer, this has got to happen," Winther said. "It's not going to happen by [Internet access] and on-line providers beating themselves up on prices." He said it has taken CompuServe 20 years to reach just 2.5 million subscribers.

Mosaic In A Box will be available by midmonth for $49.95 retail; users will be billed $9.95 a month for service plus $2.95 per hour after the first three hours.

Packaging the 'net

Last week, Spry, UUNet Technologies, Inc. in Falls Church, Va., and Compatible Systems Corp. in Boulder, Colo., announced WorldWire for Windows, a corporate Internet bundle of software, TCP/IP access and networking hardware for Windows-based Ethernet. WorldWire includes Spry's Internet navigation software, Internet access through UUNet's AlterNet TCP/IP network and Compatible Systems' MicroRouter 900l router. The Windows package includes a five-user corporate license for Spry's Air Series. The $1,995 package is slated for March.