

Research Center Installs 72-Mile WLAN

BY BOB BREWIN

Most companies that deploy wireless LANs estimate their coverage area in terms of hun-

dreds of feet. But a research group at the San Diego Supercomputer Center is using specialized hardware configura-

tions to support wireless links that span up to 72 miles.

The San Diego County High Performance Wireless

Research and Education Network (HPWREN) last month installed a WLAN covering that distance to link seismicographic data collection equipment installed on San Clemente Island to the super-

computer center's facility in San Diego.

Hans Werner-Braun, a researcher at the supercomputer center, said standard 802.11b WLAN gear operating in the unlicensed 2.4-GHz frequency serves as the baseline hardware for the network. But he added that HPWREN, which is funded by grants from the National Science Foundation, uses configurations that are far from routine to extend wireless connections to scientific installations, schools and Indian reservations in the rural areas around San Diego.

For example, the equipment used in the WLAN link to San Clemente Island runs with the maximum power output of 1 watt allowed by the Federal Communications Commission for 2.4-GHz equipment, Werner-Braun said. In addition, HPWREN technicians installed high-gain, 2-foot parabolic antennas at both ends of the link to provide an additional boost to the signal.

No Alternatives

HPWREN is using Proxim Corp.'s Orinoco routers and bridges as part of the WLAN. Although the devices support a raw data rate of 11M bit/sec., the extreme distance cuts the actual throughput on the link to San Clemente Island to 1M bit/sec., Werner-Braun said. But there were no other viable communication alternatives.

Robert Ma, a product manager at Sunnyvale, Calif.-based Proxim, estimated that the new installation had a fixed cost of about \$3,000. The WLAN is used to carry data from a seismicograph data logger and Global Positioning System receiver to the supercomputer center, which then sends the information to a statewide seismic data tracking network.

Greg Ennis, technical director at the Wi-Fi Alliance trade group in Mountain View, Calif., said wireless point-to-point bridging that spans eight to 10 miles is "relatively routine." But the long hops installed by HPWREN are unusual, Ennis said, adding that the 72-mile link is pushing the technology to its limits. ▀