

# ESLs Are Becoming More Affordable For Retailers

The latest offering from W5 Networks reduces system costs to \$3.50 apiece for electronic shelf labels.

By Claire Swedberg

Oct. 4, 2006—Electronic shelf labels (ESLs) have been available to retailers for years, but the cost has kept them out of the reach for many companies, particularly grocery retailers that could require thousands of ESLs for just one store. ESLs—wireless labels that display pricing information on LCD or LED screens—replace paper shelf labels, doing away with the labor-intensive job of manually changing prices. This can potentially save hours of labor costs on a daily basis.

On average, ESLs cost \$6 to \$8 apiece. However, W5 Networks has begun marketing a lower-priced solution, which it hopes will appeal to price-sensitive retail outlets unable to afford ESL systems. The W5 ESL System, released last week, sells at \$3.50 per ESL—the lowest price in the ESL industry, according to Neil Patil, W5 Networks' VP of marketing.

The W5 ESL product includes the ESL units themselves, as well as access points that communicate with RFID chips in the ESLs and software. W5 began developing the offering in early 2005, says Chuck Neugebauer, W5 Network's founder. Its development was the result of the company's work with supermarket chains to learn what issues have kept ESL from wider deployment.

Price was a big issue. "They were looking for a system under \$5 [per ESL unit]," says Patil. In addition, he says, the systems were too complex, making deployment difficult, as well as driving up the total system cost. Typically, ESL systems require dozens of antennas and receivers and numerous shelf overlays to attach the ESLs, and their installation and integration costs are high. The W5 system requires only three to five access points per store, Neugebauer explains, powered via Ethernet.

W5 was able to reduce the number of antennas and receivers by providing a longer read range with its units, Neugebauer says. This also reduced the number of necessary access points.

The average store ESL system comes with 40,000 to 50,000 two-way ESL units, able to send and receive transmissions to and from the access points. Each unit includes a battery with a typical five-year lifespan, an RF antenna, chips, a circuit board, a plastic housing, an LCD display screen and sensors to measure temperature. Also included are three to five access points, consisting of a receiver and transmitter. These devices communicate with ESL units via 4.2 GHz or 5.6 GHz RF signals, using the Unlicensed National Information Infrastructure (UNII) and ultrawide band (UWB). The system uses W5's proprietary wireless communication protocol to transmit, receive and manage data to and from the electronic shelf labels. Data is stored in an industry-standard relational database that supports Oracle, SQL Server and MySQL. All server software and hardware would be installed at the customer's stores and corporate headquarters. The W5 communication protocol is patent-pending and enables low power consumption and long-range low-latency

communications.

Many stores change approximately 10,000 prices per week, Patil says, and the ESL system will make that possible in a matter of minutes. Store employees can enter product pricing changes in an XML file, then upload that file to the retailer's server. The ESL units communicate with the access points every two minutes; if a unit's price changes in the interim, it receives the data at that time. The new prices are then displayed on the units' LCD screens. The labels can sense environmental and location data, such as food refrigeration temperature, and can issue an alert to store employees if temperatures rise or drop to dangerous levels.

The system costs, on average, between \$150,000 and \$180,000 for a typical store, Patil says, plus a nominal annual support and maintenance fee for the software, in line with most enterprise software vendors. At least one store is piloting the system, although Patil would not specify which one. W5 ESL, which targets midsize to large grocery chains, is now available commercially for trial.

"What's compelling is it's not just a benefit to the supermarket retailers," Neugebauer says, "It also provides something to build on." The system can support other wireless battery-operated devices, such as other sensors and other RFID-based systems.

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