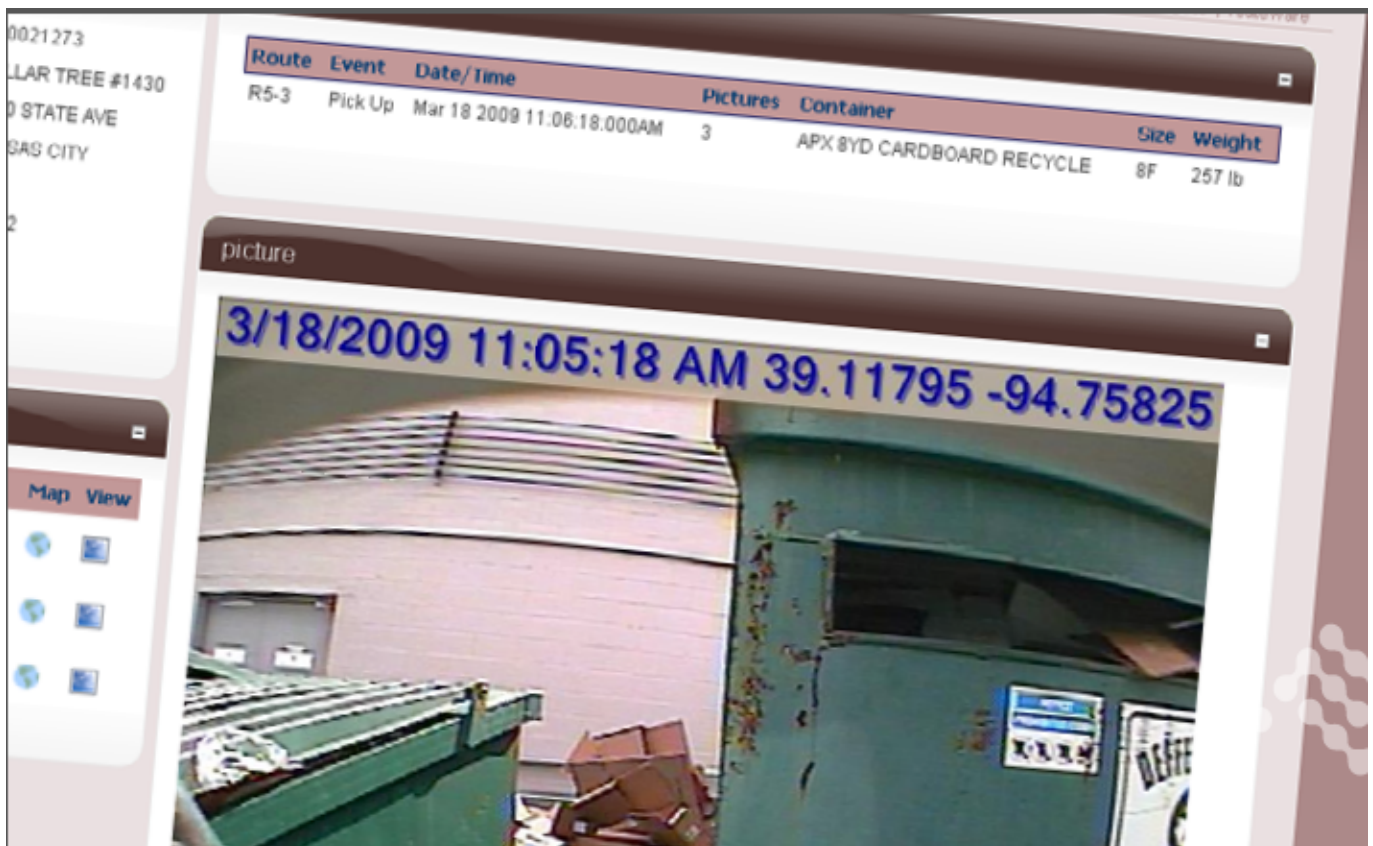

Routeware

Waste Management Company Streamlines Data Collection Using Sierra Wireless® AirLink® Gateways - A Sierra Wireless® Mobile Data Solution



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CUSTOMER CRITICAL CHALLENGE

- In-vehicle waste hauling operations system needed connectivity for waste management solution

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- Required reliable, consistent connectivity for real-time data transmission and twoway communication

SOLUTION

- Thousands of in-vehicle waste management solutions deployed with AirLink® gateways for management of data communications

BENEFITS

- Secure, reliable “always on” and “always aware” connectivity through ALEOS® intelligence
- AirLink Software Suite for easy configuration, remote management and troubleshooting
- Plug-and-play re-deployment if vehicles are retired or temporarily out of service
- Military Specification Certified for high performance in harsh waste truck conditions

Routeware has transported the waste industry into the 21st century by streamlining processes and helping its customers to streamline and improve routing, leading to bottom-line cost savings and revenue increases.

Business Challenge

Routeware began in 1999 by developing a simple in-vehicle computer solution intended to help the waste industry transition from a paper-based to an electronic based data transmission and management system. The initial solution consisted of a custom-designed computer and proprietary operating system that stored data entered by waste vehicle drivers throughout the day. These drivers would end their day at a centralized location where they would download the stored data for use with billing, scheduling and other operations applications.

“In the beginning, to download data from the unit, we had a 4x4 post with a

boom and a retractable cable. The driver would pull the cable through his window and plug it into a port on the dashboard," explained Steven Kaufman, founder and senior vice president at Routeware. "Eventually we moved to 802.11 to remove the need for a physical attachment, but we were still subject to a variety of problems, such as limited range and the need for line-of-sight with the on-board system's antenna."

Since the initial solution was conceived a decade ago, the product has gone through significant evolution. For instance, the on-board computer, once the main focus of the solution, is now simply a means to an end. According to Kaufman, the system's main value is its ability to offer control over a hauler's three key assets: vehicles, drivers and routes.

In early 2007, when Routeware moved from its proprietary operating system to a Windows®-based touchscreen tablet, they introduced rewritten touchscreen applications capable of communicating with a variety of peripheral devices, such as on-board cameras used to resolve billing and collection disputes. Additionally, Routeware introduced an operational dashboard application that allows fleet managers and dispatchers to track a broad range of route, driver and vehicle statistics (such as speed and location) in real-time. All of these were built around the integration of cellular modems into the revamped system.

"Having access to real-time data makes a difference every moment a truck is in the field," said Kaufman. "Once cellular coverage started to expand and cellular technology became more reliable, we were able to take advantage of greater communication opportunities."

Sierra Wireless AirLink® Solution

When searching for a reliable in-vehicle cellular solution, Routeware turned to value-added systems integrator Feeney Wireless, who recommended the Sierra Wireless AirLink gateways to provide reliable uptime and data transfer speeds, precise GPS information and robust remote configuration and management capabilities.

"We tried another brand of modem, but had significant quality and connection issues. There is no more difficult vehicle to build electronics for than a garbage truck," said Kaufman, who cites idle vibration, the nature of truck contents, the duration of a vehicle's service and extreme temperature as factors that can erode a product's reliability. "We have customers nationwide and in Canada, and we needed a solution that could withstand Wisconsin winters, as well as Texas summers."

AirLink gateways are compact, intelligent and fully-featured mobile communications platform that includes a high-precision GPS receiver and rich, embedded intelligence provided by ALEOS® embedded intelligence. ALEOS simplifies installation, operation and maintenance of any solution and provides “always-on” and “always-aware” connection management. ALEOS also ensures persistent network connectivity and, in conjunction with the AirLink Software Suite of management software, allows for easy setup and configuration and provides extensive remote management capabilities. Because AirLink gateways are certified for the MIL-STD 810 series of standards issued by the United States Army’s Developmental Test Command, the intelligent device is also rugged enough to perform in the harsh field environment to which waste industry vehicles and drivers are regularly exposed.

Feeney Wireless provided Routeware with configuration support and was able to acquire the necessary gateways within a short lead time. The integrator also made optimization recommendations to help drive the Routeware solution to the next level.

“Feeney Wireless has provided us with great support,” said Kaufman. “They arrange activation services with providers, have worked on initial device configuration and have provided us with their overall technical expertise.”

Routeware has also taken advantage of the AirLink gateway’s input/output (I/O) port capabilities to manage the flow of transactions from other peripherals, such as the previously referenced on-board camera, which connect to Routeware’s in-vehicle system. As Kaufman described, AirLink is “more than just GPS and data transmission; it’s an I/O “traffic cop” that routes all of the complex inputs we have flowing through our system.”

Results

Routeware uses AirLink devices as one of the core elements in its in-vehicle waste management system and currently has thousands of systems deployed throughout North America. Even though the communications device has a higher up-front cost than Routeware’s original modem choice, Routeware has never regretted its decision to upgrade because of the solution’s unmatched performance quality and overall lower cost of ownership.

Kaufman describes Routeware’s quality decision as central to a customer’s return-on-investment (ROI) decision and links the company’s solution expansion plans directly with Sierra Wireless.

“When we upgraded to the AirLink device, all of the connection problems we

were having just disappeared, along with many of the customer complaints about cellular communication difficulties," said Kaufman. "The Sierra Wireless product works seamlessly with our system and has proven itself to be extremely reliable in the field. We are thrilled with our decision to switch to the AirLink product line."

Routeware's waste management system utilizing the Sierra Wireless AirLink gateway running on both EVDO Rev A and HSUPA-based cellular networks provided the following benefits:

- **Reliable, on-demand communication**
"ALEOS intelligence provides the 'always on' and 'always-aware' access to real-time two-way communication required for critical mobile data applications."
- **Rugged form factor**
"MIL-STD 810 certified for high performance in the harshest of environmental conditions."
- **Fleet management**
"GPS tracking provides ability to acquire vehicle information, such as location and speed, without interruption."
- **Peripheral management**
"Advanced I/O port capabilities enable management of data transmission from multiple peripherals."
- **ROI and quality**
"Unmatched performance and durability helps Routeware create the high-quality product it has committed to provide its customers."
- **International presence**
"AirLink products are certified in Canada and abroad, allowing Routeware to deploy in other countries as opportunities arise."
- **Product support**

– Sierra Wireless and its resellers stand behind their product andwork together to provide reliable, quality solutions.