



Vehicle Tracking at American Port Services

Case Study

Introduction

In the world of Third-Party Logistics Providers, the company with the best operational efficiency wins. With the accurate transport of thousands of items every day relying on them, there's no room for errors or wasted time and labor. That's why American Port Services, a large logistics provider in the Southeast United States, turned to AeroScout to improve visibility of trailers and containers moving through its largest cross-docking facility, which it runs on behalf of one of the world's largest retailers. With an innovative Wi-Fi-enabled RFID system from AeroScout and partner AGI Worldwide, APS is drastically improving its operations, cutting yard management costs and increasing efficiency.

An Expensive Game of Hide and Seek

American Port Services (APS) is one of the largest Transportation Logistics providers in the Southeast United States, handling goods that arrive from all major southeastern seaports. With several warehousing and cross-docking facilities, APS helps major retailers ensure that the trip from port to destination is a smooth one.

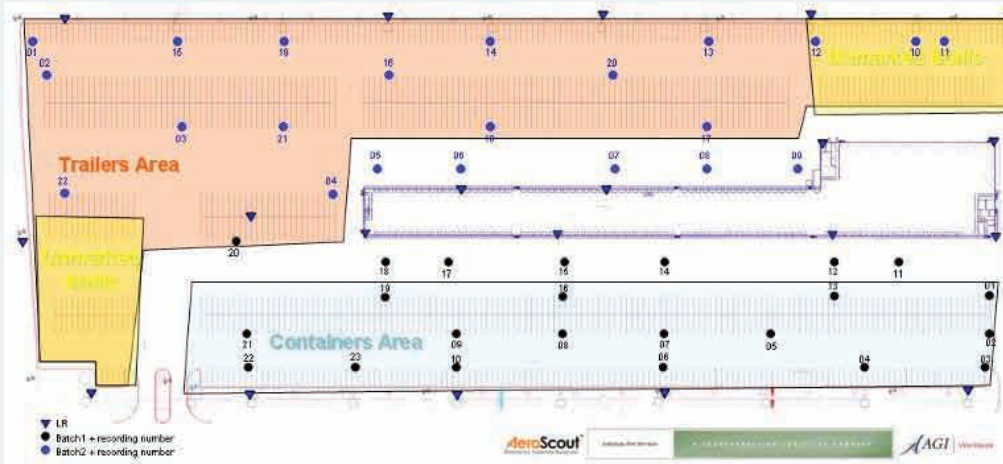
At its largest cross-docking facility, the 60-acre Savannah, GA location, APS has 1000 spaces for trailers and containers. Each day, about 300 third-party trucks pass through the facility, dropping off large loads of a single item from a port shipment, and exiting with mixed truckloads to deliver to their destination. The fast movement and constant change can make it a chaotic environment, though, and the new facility's managers recognized how operational inefficiencies were damaging the company's service and negatively impacting the bottom line.



When a truck enters an APS cross-docking facility, it is assigned a space to drop off its trailer or container shipment. Because goods are constantly in motion around the facility, the assigned stall is often already taken (or not yet vacated), and the driver needs to find another stall. Just as often, the driver or gatekeeper makes an error with the stall number, and the trailer is deposited in the wrong location. To address this problem, APS utilized its team of 4 full-time "spotters" to drive around the facility, finding trailers and moving them to their next location. On average, each misplaced trailer took a spotter 30 minutes to find. The labor and fuel costs of this manual search process were high, and the time it added to complete customer orders reduced satisfaction.

APS was no stranger to using technology to solve operational problems—they had already implemented sophisticated yard management software to reduce labor costs and increase efficiency. With this success in mind, APS began to search for a complimentary technology that would allow them to automate the process of locating trailers within the yard. Necessary elements of the solution included:

- The ability to retrieve location information in real-time;
- An easily attachable/removable tracking tag, as the trailers are not APS-owned;
- Best-of-breed accuracy;
- A rugged solution designed to work outdoors and withstand the elements;
- A minimal infrastructure investment, both from a cost and a physical plant perspective;
- A solution that could be easily managed and maintained, in order to reduce overall manpower costs; and
- Reliable data even when multiple assets are moving in an unstructured manner.



AeroScout Solution

To meet these challenges, APS turned to systems integrator and technology provider AGI to conduct a search of potential vendors and implement a system. AGI conducted a thorough search of multiple Real-Time Location System (RTLS) and Active RFID vendors and found that the AeroScout Visibility System clearly provided the highest performance and the greatest value. APS now utilizes the power of AeroScout's Wi-Fi-based Real-Time Location System to accurately locate trailers in their yard. AeroScout provided APS with a complete architecture for tracking trailers and communicating their location: including the server software, receivers placed throughout the facility to triangulate position, and the tags themselves. The system offers unparalleled precision and speed, dramatically reducing APS's operational costs of yard management. Perhaps best of all, AeroScout's cost was a fraction of its closest competitor. "AeroScout is far ahead of the pack in offering a full-featured, flexible location system that delivers the combined power of Wi-Fi and Active RFID to logistics environments," said Kevin Wilson, VP, Business Development, AGI. "No other vendor could match the reliability of the AeroScout system, and their low infrastructure requirements ensured that no other vendor could match their price either."



When a truck now enters the yard, AeroScout's battery-operated Wi-Fi tag is easily attached using a temporary mount. The gatekeeper scans both the trailer's bar code data and the tag to associate the two, and this information is automatically integrated with the existing yard management software. The driver is given an assigned parking spot, just as before. Now, though, when a spotter needs to locate a particular trailer for pick-up, he radios a central manager who, with one click, looks up the location of the tagged trailer. The location is given by stall #, and is accurate to within +/- 1 stall. The spotter can immediately locate the trailer and deliver it to its next destination.

As the truck leaves the facility, the tag is removed by the same mounting process. Because AeroScout tags have a long battery life (4+ years), APS can immediately reuse the same tag without the need for charging. "The AeroScout system is an outstanding solution to a pressing problem in the logistics and transportation industry, and automates a manual trailer-tracking process that used to take a full team of people and hours every day," said Ty Cobler, Director of Operations, APS. "We expect that AeroScout's innovative Wi-Fi-based solution will deliver huge efficiency gains for our facility, and provide a quick return on investment." The implementation of the AeroScout system has reduced APS trailer searching time from 30 minutes per trailer to practically nothing, and drastically reduced the need for dedicated spotter labor. APS believes that they will realize immediate operational savings on total yard management costs, and expect a quick return on investment.

The Wi-Fi Way

The AeroScout Visibility System's combination of active RFID and Wi-Fi allows APS a more accurate, flexible and inexpensive solution than passive RFID and other location solutions on the market. Because AeroScout's technology is integrated with a standard 802.11b Wi-Fi network, APS's infrastructure requirements were minimal. APS's trailer-tracking system is integrated with a Wi-Fi data network and AGI's yard management platform. This network is also based on an

open infrastructure and a set of publicly recognized standards. As APS's requirements grow and change, and as technology matures, they are not beholden to a vendor's proprietary set of wireless standards.

APS's difficult outdoor environment also proved to be a challenge in which AeroScout's solution excelled. The close quarters of some of the parking areas, the high degree of metallic interference and varying weather conditions all contributed to a dampening of RF energy.

A passive RFID solution would require the installation of hundreds or even thousands of readers throughout the facility to cover this terrain; with AeroScout, APS needed only 20 receivers to cover the full 60 acres.

Future Opportunities at APS

One of the main benefits APS saw in the AeroScout system was its flexibility— as APS grows and its needs change, AeroScout is the only Wi-Fi-based solution to enable multiple types of location and numerous location-based applications. In the future, APS will be able to utilize the existing AeroScout infrastructure for personnel tracking for security and safety, tag-based telemetry for mobile equipment, and many other applications.

APS is also taking further steps now to use the AeroScout system to reduce costs. APS is in the process of installing AeroScout Exciters at the facility exits. Exciters trigger AeroScout tags to send an additional immediate message, conveying the knowledge that the tag has passed through a choke point such as a doorway or gate. The APS Exciters will enable an automated alert if any tags or tagged trailers leave the facility without authorization.

Another step currently planned by APS is to outfit facility staff with PDAs that link to the data on the centralized warehouse management system. This will allow employees to find trailer locations directly on their PDA without the need to radio a central manager for the information.



The AeroScout System at APS

The AeroScout installation at APS involves three primary elements:

- AeroScout Engine software, installed on a central server. The core software, written in Java, manages the collection and processing of location data.
- AeroScout Location Receivers. 20 receivers are spaced throughout the park environment and mounted in a variety of configurations on buildings, poles and other structures. These remotely-configurable receivers are housed in rugged NEMA-rated weatherproof enclosures, with a variety of external antennas connected for optimal radio signal reception. They are currently connected to the APS yard management network by fiber-optic cable links. The same receivers can alternatively be installed with wireless bridges.
- AeroScout T2 tags. These waterproof, rugged tags measure just 1.5 by 2.5 inches (62mm x 40mm) and are mounted with an optional magnetic trailer mount. Each T2 tag unit has a unique identifier that is the MAC address of the 802.11b radio, allowing the AeroScout software to recognize an individual tag. The T2 is the only long-life Wi-Fi tag on the market, with a battery life of 4+ years and a weight of just 1.2 ounces (35 grams).
- The AeroScout Engine communicates with the existing yard management platform from AGI to provide up-to-date trailer stall information.

About AeroScout

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AeroScout provides award-winning enterprise visibility solutions that utilize Wi-Fi wireless networking standards to deliver accurate location-based solutions. The AeroScout system includes real-time location services (RTLS), long range active RFID, telemetry and choke-point visibility all in a single integrated cost-effective infrastructure. AeroScout's standards-based applications locate valuable assets and people in indoor and outdoor environments, enabling customers in numerous industries to drive revenues and cut costs. AeroScout is a privately held company based in San Mateo, CA. For more information, please visit www.aeroscout.com.