

Point of View



Cisco and AeroScout Point of View

Location-Based Services and Enterprise Visibility Solutions

Wasted Time Adds Fat to Lean Manufacturing

Hunting for work in progress (WIP). Retrieving carts or pallets. Rummaging for that special tool or fixture. Wandering the warehouse in search of who knows what. It's a waste of resources. Time spent looking is lost forever. It costs you money but generates no income. It bloats your cycle time and inflates your labor costs.

What if you could keep track of everything, and never need to search? You can. Easy-to-use tools from AeroScout using Cisco® Wi-Fi infrastructure can help you locate anything or anyone in your facility.

Visualizing Waste

Before you can attack waste, you must first visualize it. Live, accurate WIP tracking can identify where flow gets congested, products misdirected, and orders lost. A real-time location system (RTLS) can also monitor specialized tools, fixtures, carts, and other equipment.

This capability helps you align your activity around the seven big wastes in a manufacturing environment: overproduction, excess inventory, wait time, motion, transportation, rework, and over-processing.

The war on waste never ends. Even after years of refining your process, you can probably still squeeze out waste, and some of that waste is likely time wasted searching for people or materials. Any time spent that is not specifically changing product form, fit, or function is waste. Even "value-added" cycle time can often be improved. Where is the waste in your system? How can you reduce overtime hours?

AeroScout's RTLS solutions can help provide the answers.

RTLS can measure product movement. It can track any and every order through a multi-stage assembly and test process. AeroScout's solutions record movement from place to place, automatically time-stamping every value-added activity. As a result, you can identify areas where the waste is hiding. After all, if you don't know where the bottlenecks are, how can you devise strategies to eliminate them? RTLS can also track people, so you can find critical team members when you need them.

STANLEY

AeroScout
Industrial

The Advantage of Wi-Fi Infrastructure

AeroScout delivers complete location-based services and enterprise visibility solutions that take full advantage of Cisco wireless infrastructure. The two platforms work together seamlessly. You get a critical service along with more value from your network.

AeroScout, part of Stanley Black & Decker, is a global market leader in enterprise visibility solutions using standard Wi-Fi networks. Its systems can track and monitor the quantity, location, condition (temperature, humidity, etc.), and status of inventory, as well as mobile assets and people equipped with a unique tag. Many of AeroScout's customers are Fortune 500 companies that specialize in process and discrete manufacturing, mining, and logistics. The company invented the first Wi-Fi-based active RFID tag, and today it is widely recognized as a market-leading Wi-Fi RTLS provider.

Cisco is the world leader in wireless infrastructure and the hardware to support it. It has the industrial product portfolio to extend reliable Wi-Fi wherever it's needed. Its enterprise and industrial wireless networking solutions give you the highest performance and the most scalable Wi-Fi platform you'll find for business communications.

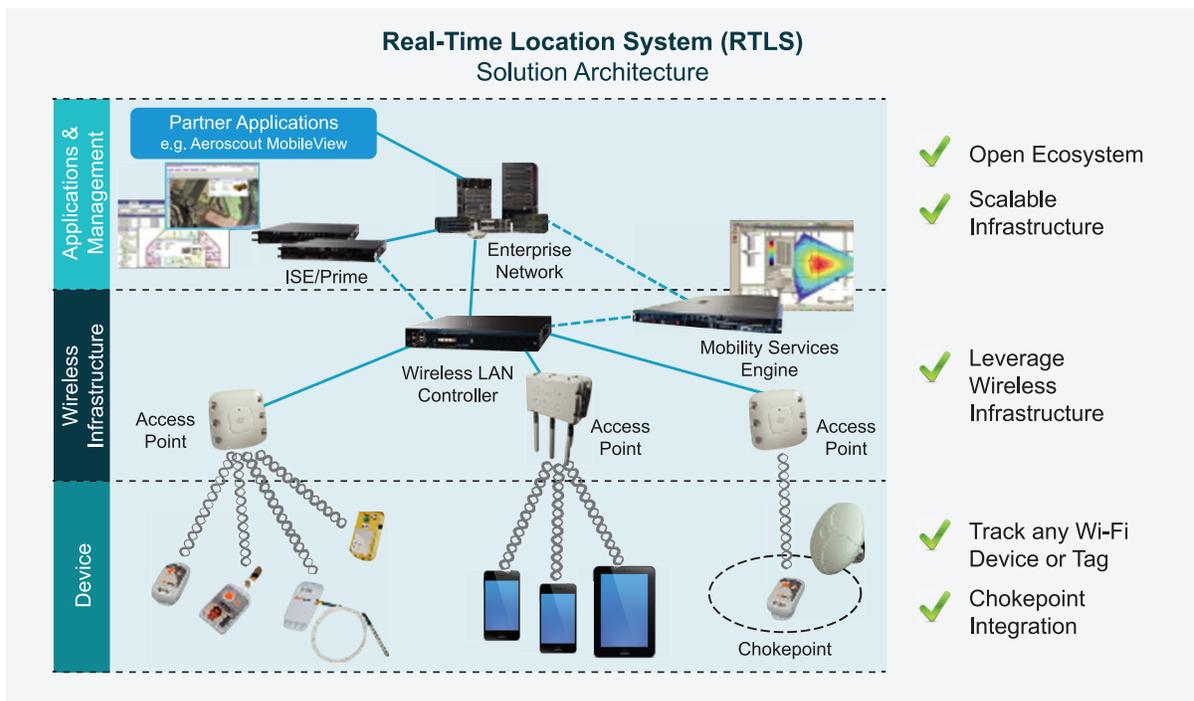
Together, the two companies make an unbeatable team.

RTLS users have convincing reasons for investing:

- Lean manufacturing requires careful control of inventory
- Time spent hunting for tools, test equipment, production material and more is time lost
- Specialized manufacturers need better ways to track WIP and personnel movement in order to optimize process flow
- Tracking inventory in closed containers and transports is very difficult without technology that "sees" where others can't

Unique, identifiable RFID tags are small and inexpensive, and they can be attached to virtually any item. They can identify and locate devices, tools, work pieces, and more in a manufacturing context. Used heavily in large discrete manufacturing facilities, the tags communicate with Wi-Fi networks and provide location information based on triangulation between access points. As shown in Figure 1, customers use these to create context-aware manufacturing through Cisco wireless infrastructure, adding capability at minimal cost.

Figure 1. Context-Aware Manufacturing Solution Architecture



Extending the Internet of Things into an Industrial Environment

AeroScout's technology is a practical industrial application of the Internet of Things (IoT) concept: it's a great way to track the rapidly growing number of things that need to be tracked in a manufacturing environment. Industrial users have been using various forms of machine-to-machine (M2M) communication for decades. Now IP technology over Wi-Fi is quickly moving into that territory.

The same Cisco infrastructure that enterprise systems rely on every day has been ruggedized to perform in the often hostile factory floor environment. As you extend your office Wi-Fi network into the manufacturing area, consider the benefits of adding an active RFID location system. Companies that do so often find the RFID system is the critical application that justifies the cost of upgrading their wireless infrastructure. As shown in Figure 2, manufacturers already running Wi-Fi networks may find they can improve RTLS capabilities by upgrading their overall infrastructure.

Figure 2. Wi-Fi Networks Can Improve RTLS Capabilities

RFID tags are small, easy to mount, and inexpensive enough to attach to a wide variety of items. There are even wearable versions for people.



Real-World Return on RTLS Investment

Here's how manufacturing companies are profiting from real-time location systems:

“Why can't we keep our fixtures and specialized tooling under control?”

A Fortune 100 aircraft manufacturer depends on its AeroScout RTLS to help it build hugely complex airliners in one of the world's largest manufacturing facilities. The active RFID tags communicate with the Cisco Wi-Fi network to help the company track many items needed for the manufacturing process. Specialized jigs, fixtures, ground support equipment, and even major product sub-assemblies are tracked, preventing delays when assembling mammoth aircraft on a 4.3 million square foot manufacturing floor.

“How can we maintain better control of our inventory?”

A major tire plant produces 1000 different car and truck tire products in a 2.6 million square foot facility. Tire curing machines need to be full for maximum batch efficiency and to maintain production levels. Previously, sub-optimal management of green tire inventory on the floor left too many curing slots empty. Meanwhile, green tires were being scrapped in other parts of the plant. Confusion caused waste of both green and cured tires. Adding AeroScout tags to each product carrier allowed managers to monitor inventory across the entire facility. Improvements were widespread: more efficient curing, production closer to schedule, less labor overtime, waste reduction, and fewer physical inventory counts of WIP.

“How can we find WIP for specific jobs?”

An architectural glass fabricator builds outer walls for commercial and institutional buildings in three facilities across the United States. Their manufacturing process uses thousands of individual carriers that transport glass for custom orders. As the orders move through nearly 20 tempering, lamination, vacuum, and other process steps, workers would see their share of breakage, lost inventory, and remakes. The company needed a solution that would help locate any job within five minutes, and that solution had to fit into the current networking infrastructure, with easy deployment and minimal maintenance. The AeroScout Wi-Fi-based RTLS system monitors projects using the company's existing Cisco Wi-Fi network and has increased carrier location

accuracy from 60 percent to well over 90 percent. It has also reduced total glass scrap by 65 percent. In addition, the company has reduced staging losses by 55 percent and repurposed 16 full-time employees previously assigned to find glass throughout the facility.

Customized RTLS to Meet Your Business Objectives

One size doesn't suit all. We can customize all the elements of your RTLS for your manufacturing environment. AeroScout will tailor the application platform so that it works the way your people and processes work. Your RTLS system will function intuitively and won't require a lot of training to get up and running.

As our teams work together reviewing your goals, we will consider factors:

- Our RTLS systems can often operate using an existing network.
- You may find you want to extend network coverage into additional parts of your plant.
- We may determine you require more access points because location accuracy depends on network density.
- There may be a need to extend more or denser coverage to warehouses, storage yards, and other places.

Cisco can easily optimize new or existing Wi-Fi infrastructure to help ensure coverage for the specific areas required. We can also customize to the location resolution you need. For instance, you may need to locate a tag within a square meter, or you may not need that level of precision. We will design a system to fit your needs.

Cisco and AeroScout bring both technologies together to operate seamlessly. You benefit from a robust solution that supports more cost-effective manufacturing by removing unnecessary fat from your lean manufacturing operation.

Why continue to waste money searching for critical people, equipment, and materials? Find out how Cisco and AeroScout can create a real-time location system for you. Contact Cisco today to learn more.

