

COMMUNICATING WITH SAM

WIRELESS APPLICATIONS FOR MISSION CRITICAL TRACKING



Sam Johnston

Question:

Our company is currently investigating the use of wireless technology for loss prevention and real time tracking. Our company manufactures reproductions of original mechanical designs for mass distribution and we have a very short production schedule and turnaround time that must be maintained to control operating expenses and potential penalties imposed by our customers for missed deadlines. Any time spent attempting to locate misplaced originals becomes an added cost and can seriously affect our ability to deliver on time. We have been assessing "location services" technology to solve this problem. Do you think this is the right solution? And if so, what other features and benefits can we expect from real time location tracking that will enhance our project cost justification? What are the limitations of this solution and how can we make the most of such an investment

Answer:

The simple technology based answer is yes, location services can help address most of your needs in tracking and managing your valuable assets. The business answer is somewhat more complex, in that you will need to balance the overall cost of deployment versus the benefit of the application. Depending on how well you track activities in your business and how precisely you can assign cost, the business case process may be simple. Understanding the technology and how it can impact each business point is crucial as it may also lead to re-engineering of business processes once you understand the full power of the technology.

Like most if not all technologies, there are some key deployment considerations that can seriously impact the effectiveness of such a solution. Recent developments in location based services have allowed for visibility beyond the tracking of goods with passive RFID tags and bar coding. Location services will now allow you to have real time visibility into all aspects of the business. While it can help you manage production expenses, as you have planned, it can also assist in tracking people and high value assets on your premises and throughout your network branch operations.

Without accurate tracking throughout the production cycle and beyond, manufacturers have a difficult time measuring all process

costs. The loss, or "shrinkage", of goods and assets can become a major variance to the cost of goods. Real time inventory management and careful monitoring of all aspects of production can be a competitive advantage if the technology is in place to manage the business model. Loosing track of your finished goods or crucial production tools and assets is costly at anytime, but adopting a model that relies on real time access can have significant adverse impact on a business that does not implement supportive technology.

The recent adoption of RFID by leading organizations with compliance mandates has brought to the forefront new technology advancements in location capabilities. Manufacturers of tracking technologies are continually developing new methods and enhancing features that permit real time visibility. Most organizations have not felt the need to implement an enterprise-wide RFID solution because of the costs associated with tag technology versus the net value of the assets they are trying track. The advent of real time location services is changing this trend as companies realize the value of locating and monitoring their core assets and people. Using active tag technology and the latest developments in network based solutions, organizations are now able to monitor not just tag movement, and they now can track any WiFi enabled device such as wireless phones, mobile

computers, laptops and even people for job reporting, security and access control. Search and wait times can be greatly reduced using centrally managed systems connected over the enterprise network. As the workplace becomes increasing mobile, flexible and virtual, location services is an opportunity gain control over staff and assets that are continually mobile. The visibility into the location of these resources can play a vital role in making operations and process more efficient.

There many industries that can benefit from location services including healthcare, finance, retail, government and manufacturing. Some of the applications benefits are immediately apparent to stakeholders:

Security & Loss Prevention

IT personnel can rapidly locate wireless security threats including rogue access points and client devices. They can also use the solution for design of location based security and integrate it into environment and access control so that their key assets don't walk off your their premises without notification. Public venues with a wireless network can utilize active tags and WiFi enabled devices to locate lost children during events and healthcare facilities can track the nearest available personnel to dispatch where they are most needed in an emergency.

Production and Job Reporting

Optimize key production tools and process by tracking object or personnel movement on the shop floor. Location control of high value inventory is maintained at all times for real time visibility.

Telemetry

Active RFID tags can be linked to key equipment to report essential information related to consumption, operational status, and maintenance cycles of machinery. WLAN traffic, capacity and RF patterns may also be fed back through the system to allow for location trend management and usage behaviour.

One such example of advanced location tracking is Cisco's Location Appliance solution which in its latest release,

incorporates location services capabilities, IT management, location based security and business policy enforcement. This appliance when combined with several other wireless management products, can track critical elements within your organization right down to a few meters of each element's last polled position. Companies which already use Cisco's latest wireless infrastructure can leverage this backbone to minimize the total cost of ownership. The Cisco location services solution consist of a Cisco a WLAN controller, Cisco lightweight access points, active RFID tags or WiFi enabled devices, the Location Appliance itself and Cisco's Wireless Control System (WCS). The latter consists of software which provides a graphical maps for instant lookups of most recent location information for a given WiFi device whereas the Location Appliance enhances these functions for

up to 2500 simultaneous devices with historical trends and replay capabilities for location and security audit trails.

How Does It Work?

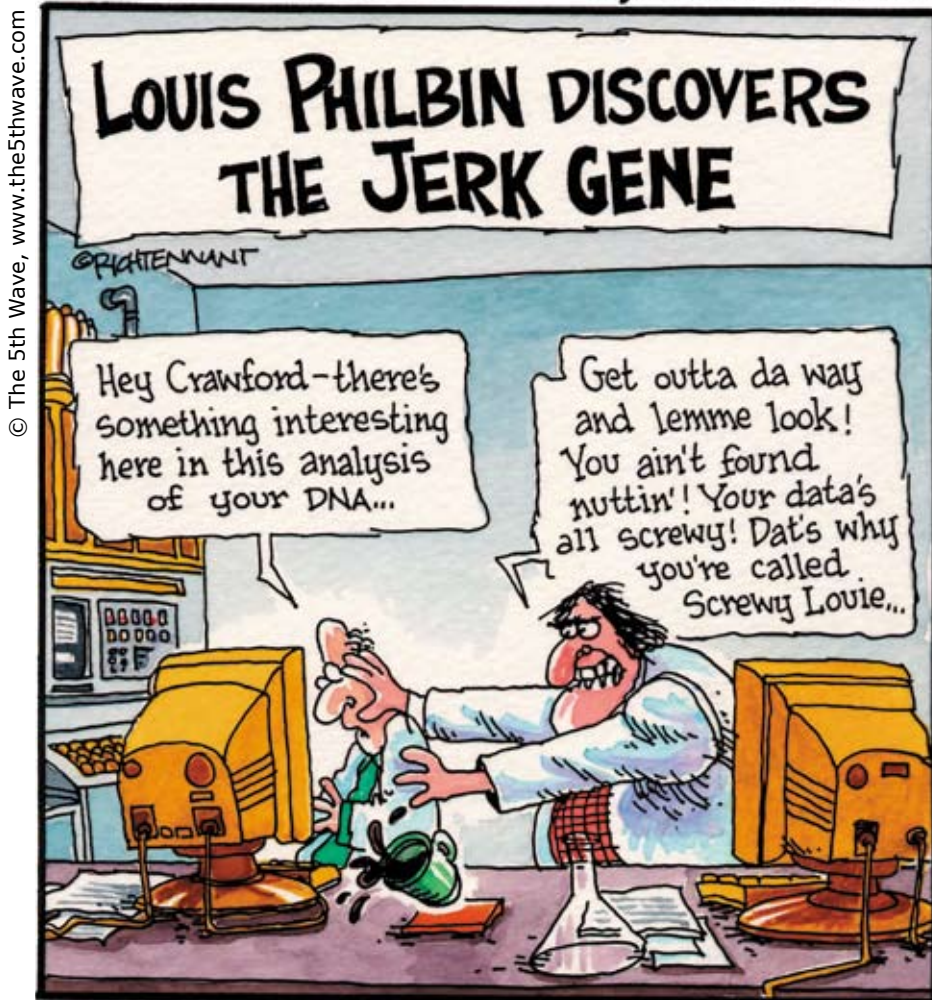
In Cisco's example, the Location Appliance uses the lightweight access points to act as "readers" for 802.11 wireless clients and WiFi tags. The access points collect received signal-strength-indication (RSSI) information from all WiFi enabled devices, then send it to the LAN controller(s) which in turn compile the RSSI information which in turn is sent to the Location Appliance via Simple Network Management Protocol (SNMP). The information is then displayed via the WCS for graphical view of each device location. Cisco's model also includes tools that allow to you plan and troubleshoot the system.

Design and Implementation: Keys to Success

While location services are a great tool for organizations to deploy, it is important to know that there are limitations to its capabilities and not all location systems are created equally. To take full advantage of this technology's features and benefits, there are key considerations:

- Access Point placement and density measurements are important. Follow the manufactures recommended parameters that will conform to product specifications. Be sure to consider the design limitations as they relate to your current topology?
- Determine if there are any reliance on client and tag design compatibility
- Establish if there any proprietary software or client OS requirements
- By design, location services is a live and dynamic environment and it is therefore important to have the ability to manage and monitor the devices
- Are there security protocol restrictions on the client side?
- What if any, troubleshooting capabilities does the solution provide?
- Is the system self-sustainable or do you require on-going integration expertise?
- What is the product life-cycle of each solution component and is the solution a scalable one?
- When it comes to tracking people, privacy policies need to be developed first

The 5th Wave By Rich Tennant



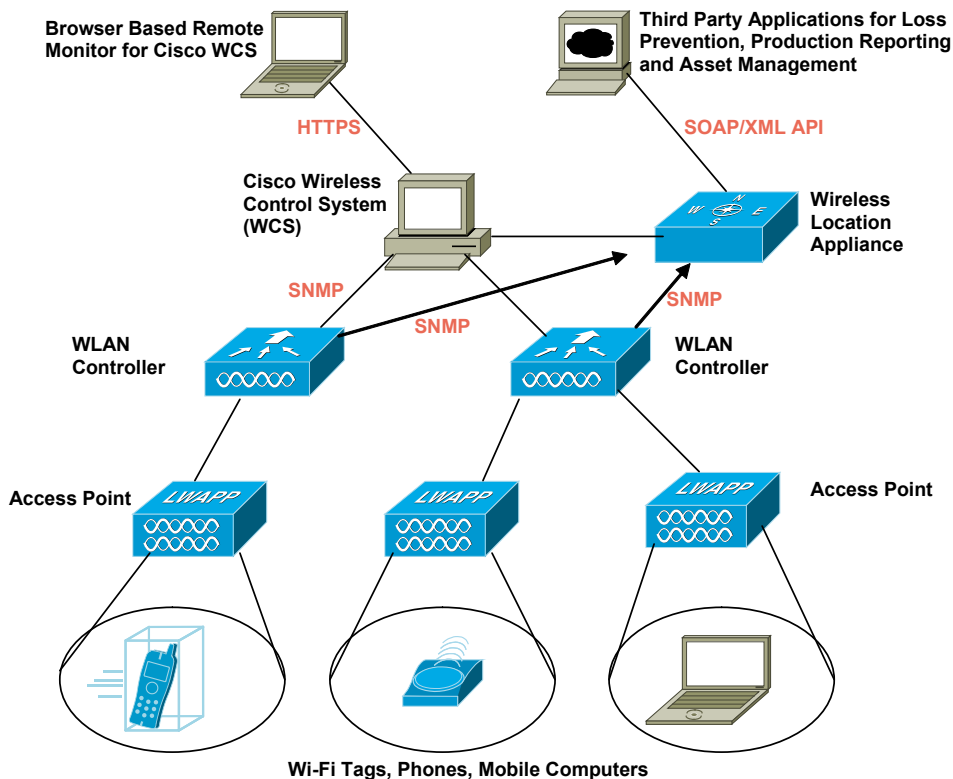


Figure 1 - Overview of Integrated Location Services Architecture

Location services technology can be dramatic in business impact, and as a transformational technology it may be difficult to anticipate in advance all the business process improvements that can be enabled. Rather than painting yourself into a corner through a deployment that limits your thinking, start small with a pilot to measure results and assure design and functionality is not an issue moving forward.

It is also important to understand that you may not have all the skills and knowledge internally given the early stages of the technology. Don't be afraid to consult organizations that specialize in network convergence and who are experienced in areas of technology integration of both legacy and advanced systems including RFID and automated data collection. They tend to have the greater knowledge base of how these solutions are evolving and how they can be integrated into your business with minimal disruption.

Location services is an efficient way to increase visibility into your supply chain, monitor workflow activity, track people and high value assets. The solution allows

you to connect to and monitor all activity that is WiFi enabled and on the move. The underlying technology of location services is not new. What is new is the method in which they are converged, resulting in new applications for the enterprise. The early adopters will be successful if they focus on the most highly valued assets, focus on realistic coverage areas, and pick a knowledgeable partner to work with. Thorough planning, design and implementation will be required to achieve the desired results.



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COMMON Education Foundation

The COMMON Education Foundation promotes higher education in the information technology area. It does so in several ways including awarding tuition reimbursement scholarships to students attending accredited universities, and by providing scholarships to instructors at an Academic Initiative for System i college to attend COMMON conferences and IBM Summer School.

To fulfill these and other goals, the Foundation raises money through a variety of methods, one being the Silent Auction held at each COMMON conference.

This fall, TUG will be supporting this effort by contributing prizes for the Silent Auction, and we invite you to join us! If you would like to participate by donating a prize (or prizes), please contact the TUG office. (The contributed items must be non-perishable.) If you would rather make a monetary donation to the foundation, that is also acceptable.

TUG members attending the COMMON Fall Conference will deliver the items to the Foundation booth on September 16th in Miami Beach.

Please consider giving to this worthwhile cause.

