

Understanding Your Organizations RTLS Options



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What is Radio Frequency Identification?

- ✓ **Radio Frequency Identification (RFID) is a technology that uses radio frequency communication and physical tags to enable the automatic identification and data capture of tagged items without human intervention.**
- ✓ **RFID tags have few problems of orientation and obscuration when compared with barcodes, magnetic stripes, Infrared, etc.**
- ✓ **RFID tags can be either Active, Passive, or BAP – each of these can include: electronic chips, storage, local power sources, sensors, and other functionalities that make them very versatile.**
- ✓ **RFID systems are comprised of tags, readers - to identify and communicate with the tags, RFID Middleware - to collect and filter the data from the readers, and integration components for backend systems.**
- ✓ **RFID is not a new technology, but there is something new about the technology.....**



RFID is not a new technology....



Toll tags,
parking lot
access



Building access control,
security



Supply Chain
Management



Race timing at
most major
Marathons



Get a Coke from
a vending
machine at the
Olympics



Event access,
ticketing

What is Driving RFID today?

New advances in technology are driving standards and early adopters... and, ultimately government regulations and business applications.

Key Drivers

New Technology



- Smaller, better, less expensive chips
- Reader reliability and range improvements

New Standards



- EPCglobal / Auto-ID Center
- The Internet

Industry Mandates



- Wal-Mart and DoD
- HDMA, FDA, European Union, State (CA – Serialization, FL – ePedigree)
- Target, Metro, Albertsons, other retailers

New Economics



- More efficient manufacturing processes
- Increased pressure on costs in Supply Chain

Business Applications



- Supply Chain visibility
- Partner collaboration
- Security and Safety Regulations
- Inventory tracking, just-in-time deliveries
- ePedigree & Serialization

inCode's RFID Enterprise Applications & Capabilities

<p>Supply Chain & Inventory Management</p>		<p>Leverage RFID technologies to transform supply chains by providing end-to-end visibility of goods and enabling improved inventory management.</p> <p>Solution examples Include: Retail Pharmacy Solutions, Item Level Inventory Tracking, high valued medical inventory tracking, pallet/goods tracking, and mandate compliance solutions.</p>
<p>Asset Management</p>		<p>Companies have physical assets (Fork Lifts, defibrillators, infusion pumps, beds, Cows, Manhole covers, documents, etc) that are needed to make, and to deliver products and services to patients and physicians. RFID enabled Asset Management solution enable organizations to effectively track, utilize, maintain and optimize their use in a cost effective and efficient manner.</p>
<p>Manufacturing Solutions</p>		<p>Manufacturing organizations are deploying RFID and barcode enabled Serialization and WIP solutions in an effort to effectively track and manage their products, increase quality control, dramatically increase product line efficiencies JIT manufacturing capabilities, as well as to meet government mandates concerning ePedigree and track and trace solutions.</p>
<p>Security, Mobile Payments & Access Control</p>		<p>RFID enabled solution continue to provide security solutions which allows organizations to monitor the movement and use of valuable equipment and personal resources throughout an organization. Solution in this area include mobile payments, access control, hazardous waste tracking and more.</p>

RFID Vs. Barcodes



By using a combination of tags, readers, and middleware, RFID helps various industries automate the data collection and data collaboration process.

Key Differences Between RFID & Barcode Technology

- **No line of sight required** - Brings efficiency savings by enabling a more automatic read process, involving limited labor and minimal time.
- **Ability to scan multiple products at once** - RFID readers can quickly pick up the signals being broadcast from all RFID tags within range.
- **Can be embedded in the package/product** – Tags are less likely to be damaged since they need not be placed on the outside of the item being tracked.
- **Read/write capability** – Unlike barcodes, RFID tags offer some level of read/write capability, and thus have the ability to “write” information as the tag travels through the supply chain.
- **Hands-free operation** – Operators can be more productive since RF scanning can be automated, freeing employees to perform other tasks.
- **Tags can withstand harsh environments** – Traditional barcodes would never hold up on a tire in use, or through an oven or painting process on a manufacturing production line.
- **Faster read-rate and increased data capabilities** – RF is much faster than optical reading of barcodes; and tags have significantly increased the data capacity.

Understanding Strategic Asset Management

In today's market, there is a greater need for public and private corporations to understand resource effectiveness. Strategic Asset Management provides companies a better visibility of asset location, utilization, and effectiveness.

A recent study¹ indicates of the companies surveyed:

- Logistical asset operations cost accounted for
 - At least 5% of revenue for 50% of the companies
 - At least 10% of revenue for 17% of the companies
- 12% of IT assets are lost, misplaced or stolen a year
- 25% lose or misplace more than 10% of their container fleet per year
- 50% have manual, labor intensive asset management processes
- 75% believe existing manual processes and systems fail to meet operational maintenance requirements

¹ Aberdeen Group, "RFID-Enabled Logistics Asset Management: Improving Capital Utilization, Increasing Availability, and Lowering Total Operational Costs"

Addressing the Need for Visibility in Asset Management

Asset Management consists of understanding where, who, why, and how an asset is being utilized and Maintained.

Where are my assets?

- Has the asset arrived at the correct location?
- Is the asset in the right location?
- Was the asset misplaced, and if so, how can I find it?
- Is an unauthorized person removing my asset?

Is the right person using the asset?

- Who checked out the asset?
- Do the proper individuals have access to the asset, or is it often misplaced?
- Do unauthorized individuals have assets to the assets?

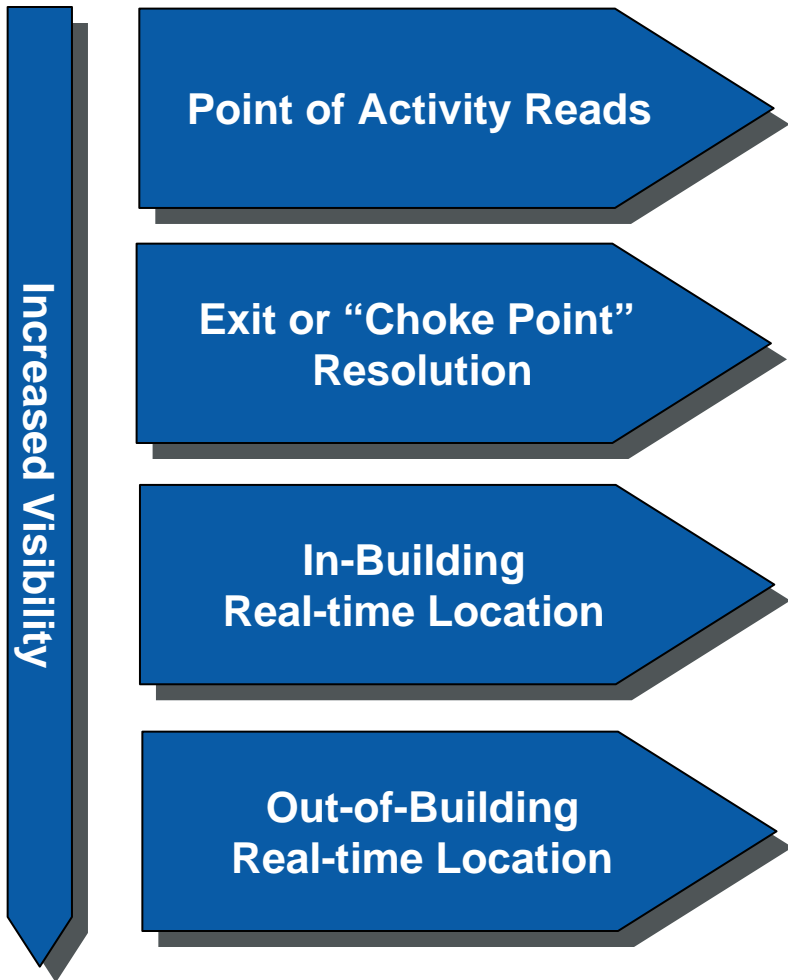
Are my assets being used equally?

- Do I have too many assets?
- Are some assets being used more than others, and is that lowering the life cycle of the product?
- How can I effectively deploy my assets to maximize utilization time?

Am I deploying assets effectively?

- Was the nearest asset deployed, or did I incur additional cost by utilizing the wrong asset?
- Where can I place my assets to improve efficiency?
- Does the process allow for the asset to be used effectively?

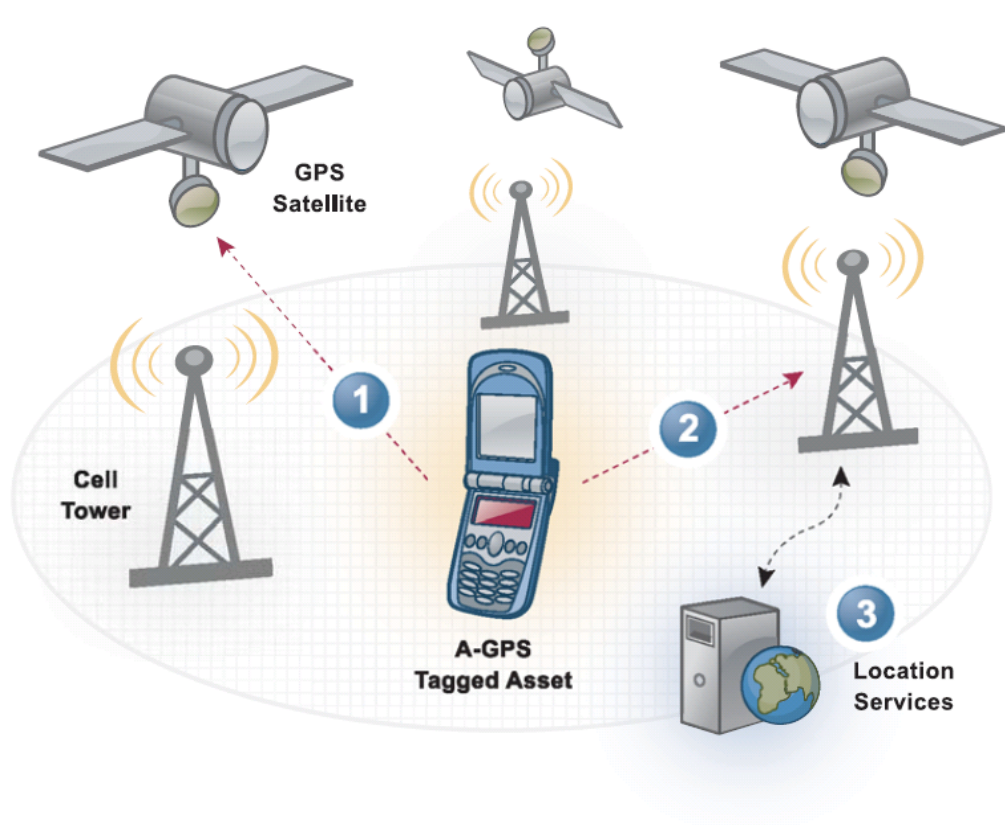
Remember this? Lets Understand how it works.....



A variety of Solutions and technologies can be used to gain the visibility described above include:
Active/Passive/Semi technologies

Wide Area Tracking: Assisted GPS

By utilizing assisted GPS, the effective tracking area is expanded to include any areas with cellular coverage both internal and external of the facility or compound.



Solution Advantages

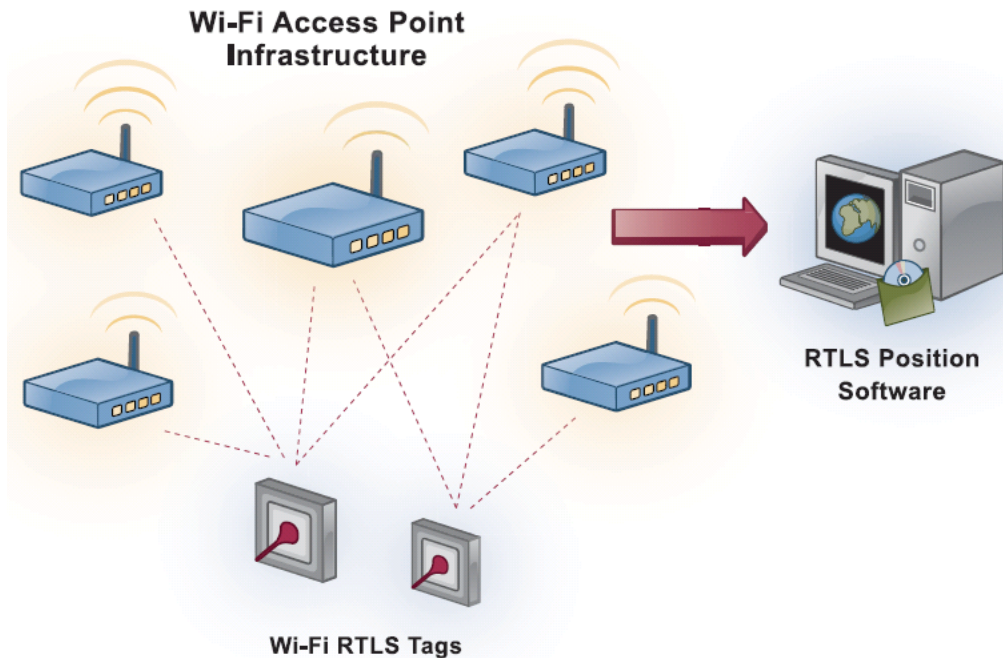
- Asset visibility both inside and outside of the facility regardless of transport mechanism
- Does not require line-of-sight visibility to satellites or cellular infrastructure
- Simplified deployment without the need of infrastructure hardware

Solution Disadvantages

- Proprietary vendor specific solution
- Requires additional LBS wireless infrastructure to be implemented
- No visibility outside of the facility compound or wireless coverage areas

In Building RTLS: WiFi-based RTLS

WiFi RTLS leverages pre-existing wireless LAN networks to calculate and monitor asset locations within the confines of a company facility or compound.



Solution Advantages

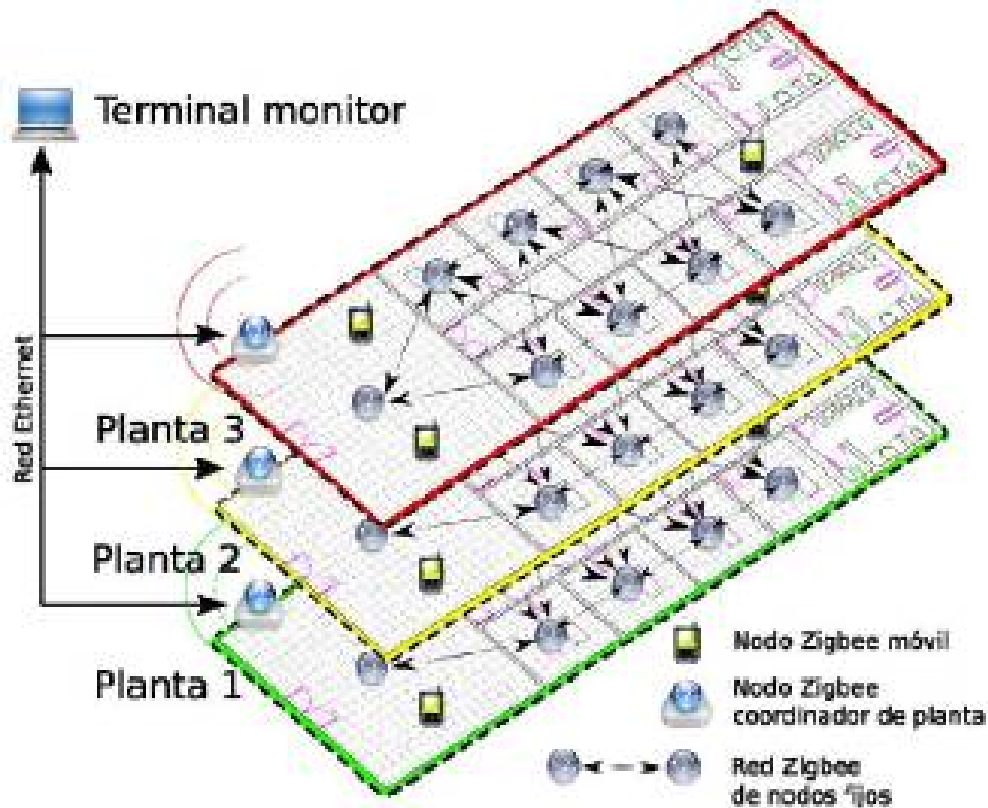
- Infrastructure & deployment cost savings
- Lowered TCO from leveraging existing wireless infrastructure installations

Solution Disadvantages

- Additional WLAN infrastructure may be necessary to provide required coverage
- No visibility outside of the facility compound or wireless coverage areas

In/Out of Building RTLS: Out-of-Band LBS

Specially designed RF networks, independent of traditional wireless LAN, enable Out-of-Band location based services to provide an accurate location of an asset located within a yard or warehouse facility.



Solution Advantages

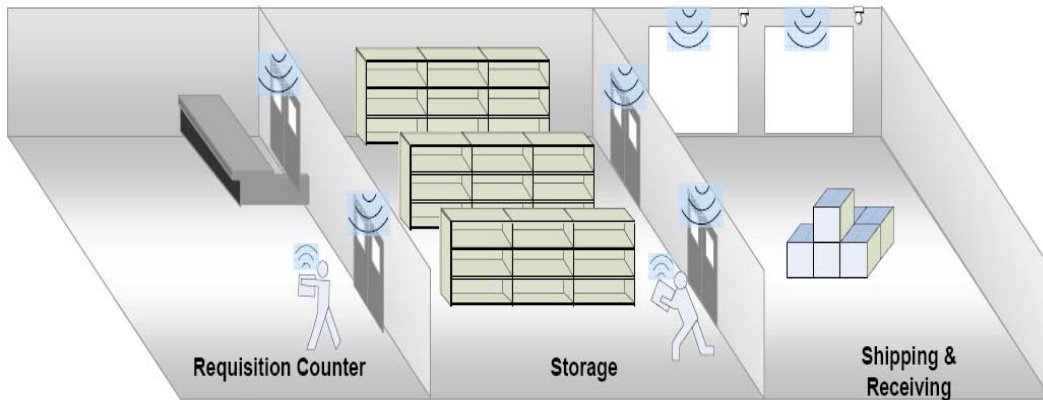
- High outdoor accuracy
- Some solutions potentially could leverage components of wireless LAN infrastructure with add-on hardware components

Solution Disadvantages

- Proprietary vendor specific solution
- Requires additional LBS wireless infrastructure to be implemented
- No visibility outside of the facility compound or wireless coverage areas

Shelf & Room Level Visibility: EPC-Based Solutions

EPC-based RFID solutions provide a low cost tracking and visibility solution that enables the tracking of inventory and assets as they move through pre-defined RFID Chokepoints within a facility.



Solution Advantages

- Lower-cost Tag options
- Extended tag life
- Tag does not require batteries reducing the need for recharging or replacement

Solution Disadvantages

- Location visibility limited to zones monitored RFID choke points
- No visibility inbetween “chokepoints”

Case Study: Wide Area Tracking RFID Enabled Solution

Business Issue

- Within the last several year, ATM robberies have been on the rise, not only through on-site burglary, but complete removal of the ATM to a convenient location where the unit could be opened in an easier manner.
- With the locations of ATMs being placed outside of employee staffed areas, banking institutions are increasing their risk of potential monetary theft.

Solution

- inCode designed, developed and deployed an RFID enabled asset tracking solution, for a large US financial institution, that was placed inside their distributed ATMs. This solution was integrated with their asset loss systems and send a real-time alert in the event that the power cord of the ATM was removed or unplugged or the unit was tampered with.

Business Benefits

- Faster resolution of ATM thefts through relaying real-time ATM information to the necessary authorities.
- Pro-active alerting capabilities that informed key banking staff of a potentially stolen ATM through integration with back-end systems.



Case Study : Passive “Choke Point” RFID Enabled Solution

Business Issue

- High Back log in yards was leading to decreased throughput & lost revenues. To decrease backlog, Transportation Company wanted move to a model where they rent their chassis to customers. Transportation Company was concerned with asset loss and billing accuracy because of the lack of visibility.

Solution

- A centrally controlled & integrated RFID solution, based in it's Corporate Data Centre, to control the remote based RFID solution. Transportation Company Deployed customized tags and readers to allow them to withstand their harsh operating environment.

Business Benefits

- Since the solution went live, Transportation Company claims 100% read accuracy on all assets entering and exiting their Yard. This has led to 500K of savings in the first 7 months.
- Benefits stem from increased visibility, increased through-put, and increased customer satisfaction.



Case Study : In-Building - RFID Enabled Solution

Business Issue

- Hospital staff frequently face the challenge of not being able to locate portal medical equipment
- This issue creates operational back logs and a liability issue when assets could not be found for maintenance



Solution

- Implemented a Real-Time Location Solution (RTLS) to track both patients and medical equipment through-out the Operation Room campus.
- Solution comprised of Wi-Fi based RFID tags and a real-time asset positioning engine and integrated.



Business Benefits

- Solution improved the efficiency of overall asset management and control of valuable assets, patients and staff.
- Solution deployed to leverage the hospital's existing 802.11b network to decrease the overall TCO



Case Study : Shelf Level Tracking RFID Enabled Solutions

Business Issue

- The inability to track their high valued assets and inventory
- Owned High valued assets were “disappearing” from the shelves
- Consigned inventory was also going missing

Solution

- inCode Deployed a centralized smart shelf tracking solution to enable the automated tracking of high valued assets and inventory
- Choke points were established at doors leading to storage room to detect tagged assets leaving

Business Benefits

- The solution significantly improved visibility, allowing the organization to more effectively track their high valued goods.
- Solution reduced the number of people dedicated to counting consigned inventory



Case Study : RFID Enabled Asset Tracking Solution

Business Issue

- Paramedics needed a way to decrease response time on their ambulatory calls
- Additionally, not having an electronic trail of which asset was used on which calls opened up the paramedics to legal liabilities

Solution

- Tagged medical equipment stocked on ambulances. This information was then tracked via a RFID reader within the ambulance walls which to correlate the equipment on each ambulance and integrated with the backend asset management system.

Business Benefits

- Decrease turn around time of ambulances.
- Improved the efficiency of overall asset management and control of valuable assets.
- Establish an electronic record of which specific asset was on which ambulance at what time.



Thank you!



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