



# Position Tracking with Active RFID Networks in Healthcare and Industrial Applications

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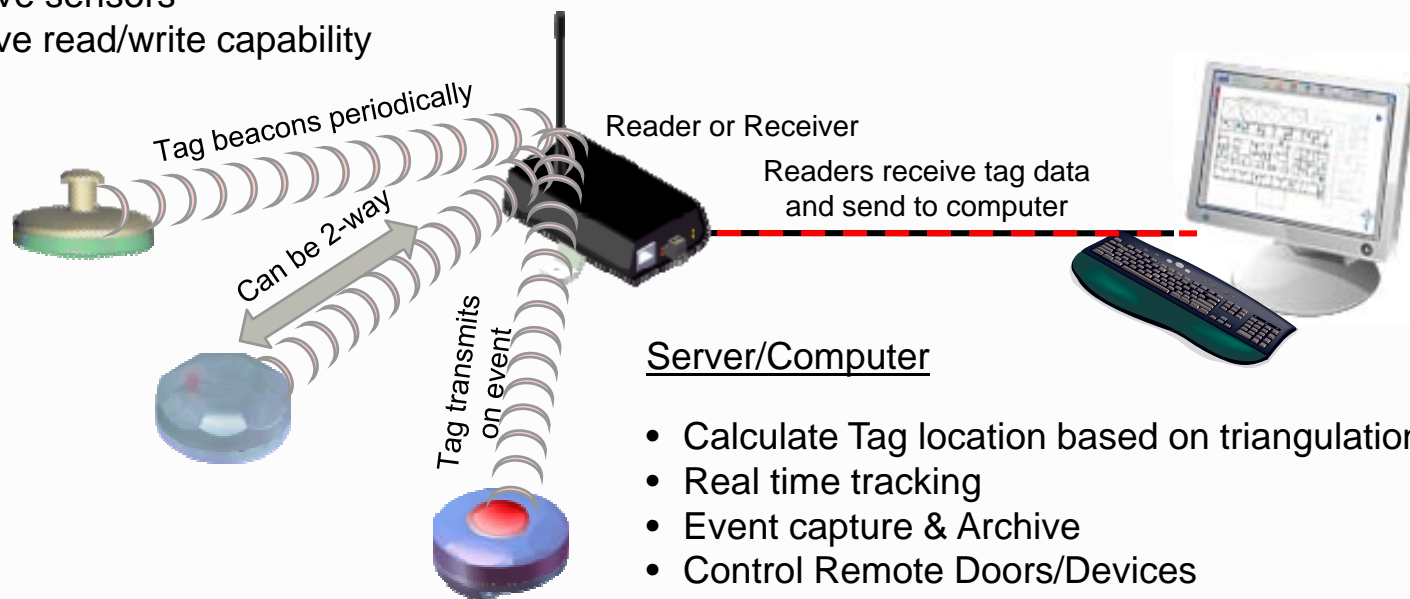
# What is Active RFID?

## Active Tags

- Miniature Radio Transmitters
- Have own power source
- Use variety of Radio Frequencies
- Each tag has a unique ID
- Line of sight not required
- Can be read from long distances
- May have sensors
- Can have read/write capability

## Readers

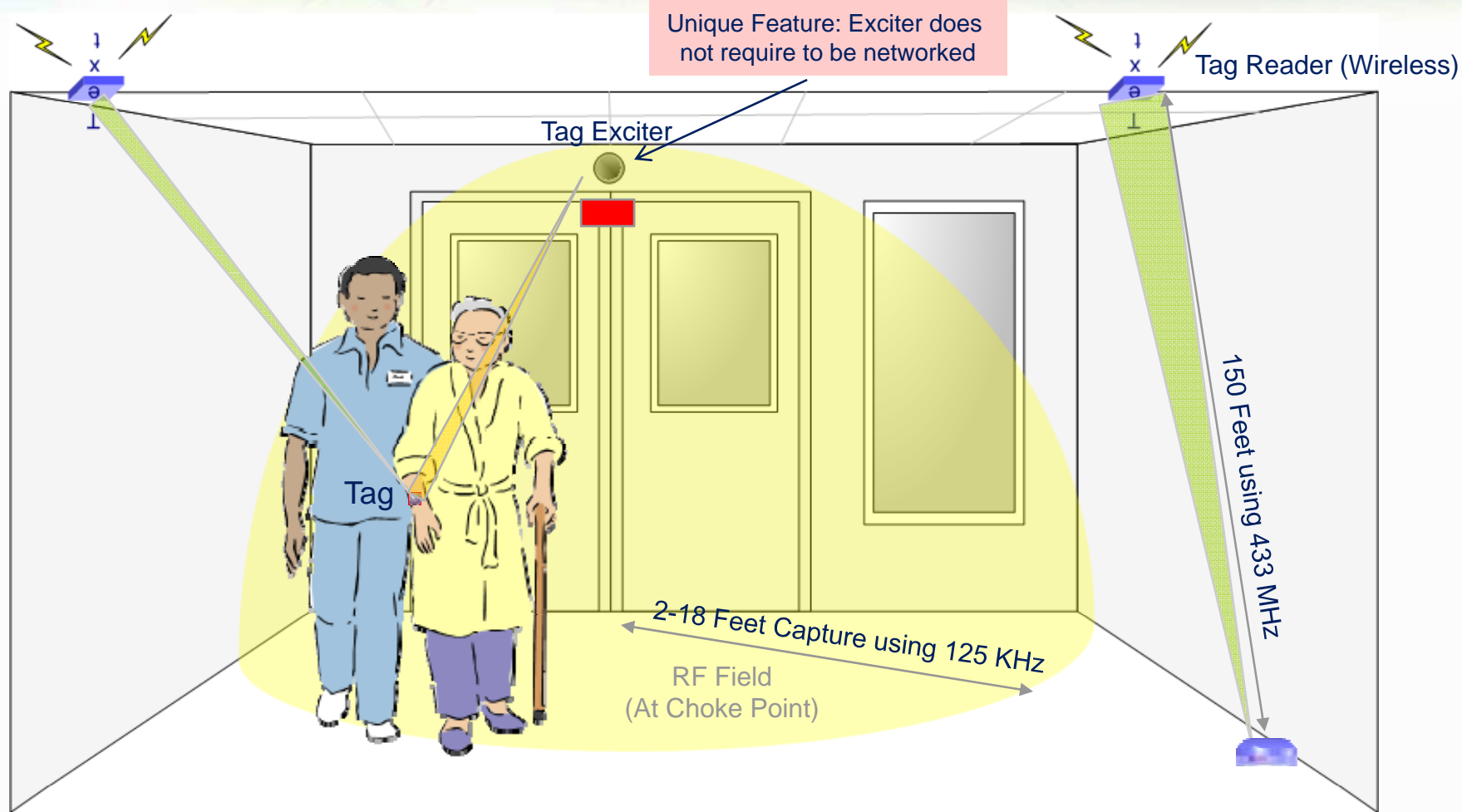
- “Listen” to periodic Tag transmissions
- Send received tag data to server/database
- Control doors/devices as appropriate



## Server/Computer

- Calculate Tag location based on triangulation algorithm
- Real time tracking
- Event capture & Archive
- Control Remote Doors/Devices
- ERP system interface

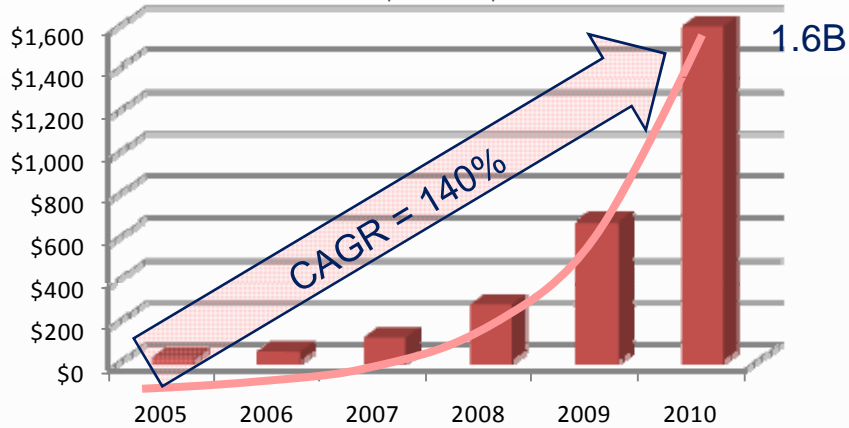
# GuardRFID's Functional Concept



# Active RFID Market & Trends

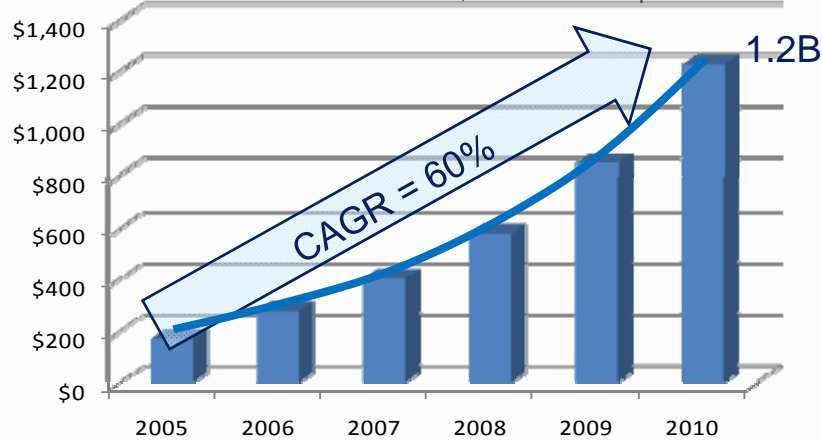
## RTLS Global Sales Forecast

Source: RFID Update – Sept 7, 2005

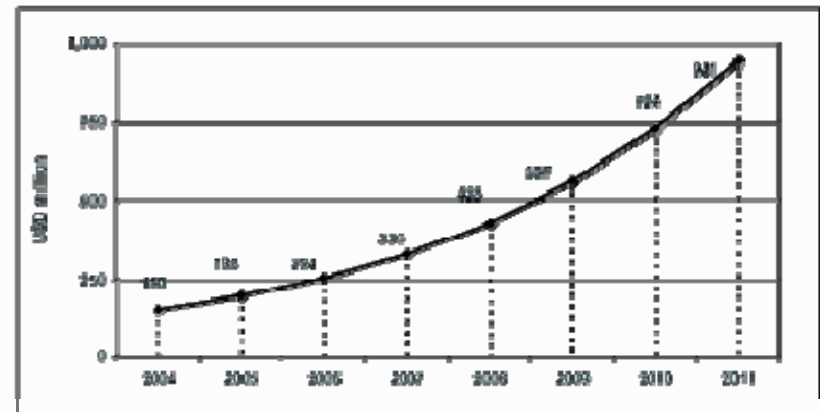


## RFID Absorption in Healthcare

RFID in Healthcare 2006-2016, IDTechEX – Sept 2006

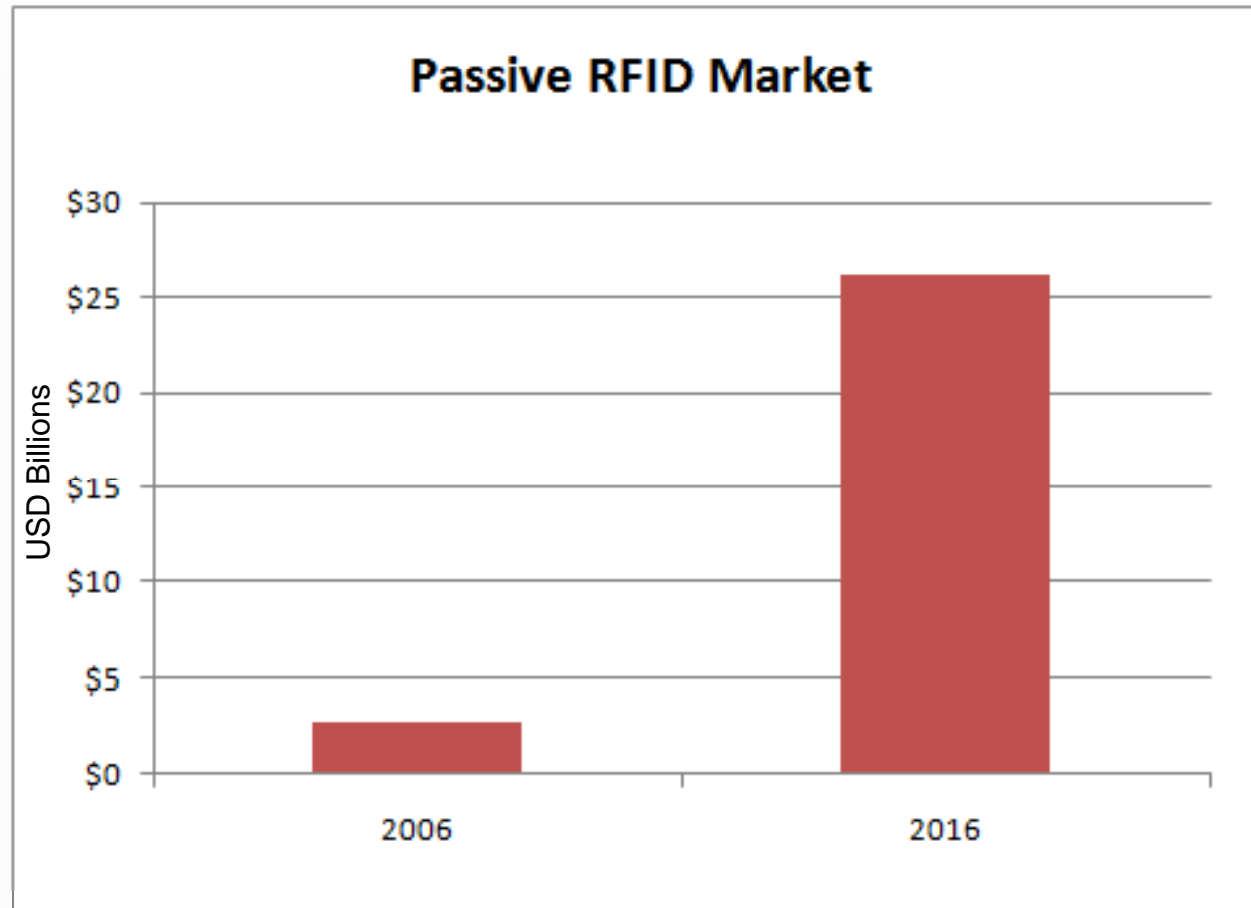


The RFID Patent/Asset Tracking Market Forecast, 2004-2011 (in USD million)



Source: Opportunities in Healthcare - Kalorama Information/MarketResearch.com – January 2007

# The Passive RFID Market



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# Current Issues

## Variety of Technologies and Frequencies

- 433 MHz and variants thereof
- 2.4 GHz “Wi-Fi” based tags
- 3.1 GHz to 10.6 GHz Ultra Wide Band (UWB)

## No Widely Adopted Standards

- ANSI INCITS 371.1 - 2.4-GHz Air Interface Protocol
- ANSI INCITS 371.2 - 433-MHz Air Interface Protocol
- ANSI INCITS 371.3 - common API between either of above
- ISO 18000-7 (Savi sponsored)

## Technology Issues

- Tag size
- Battery Life
- Location Accuracy
- Cost and therefore price

# Healthcare Applications

- Conformance to Regulatory Requirements
- Patient Tracking and Protection
- Prevention of Infant Abductions
- Productivity Enhancements
- Asset Tracking and Location
- Equipment Maintenance Logistics
- Patient/Equipment Flow Capture
- Access Control
- etc

Sarbanes-Oxley

Disclosure Information

The Joint Commission

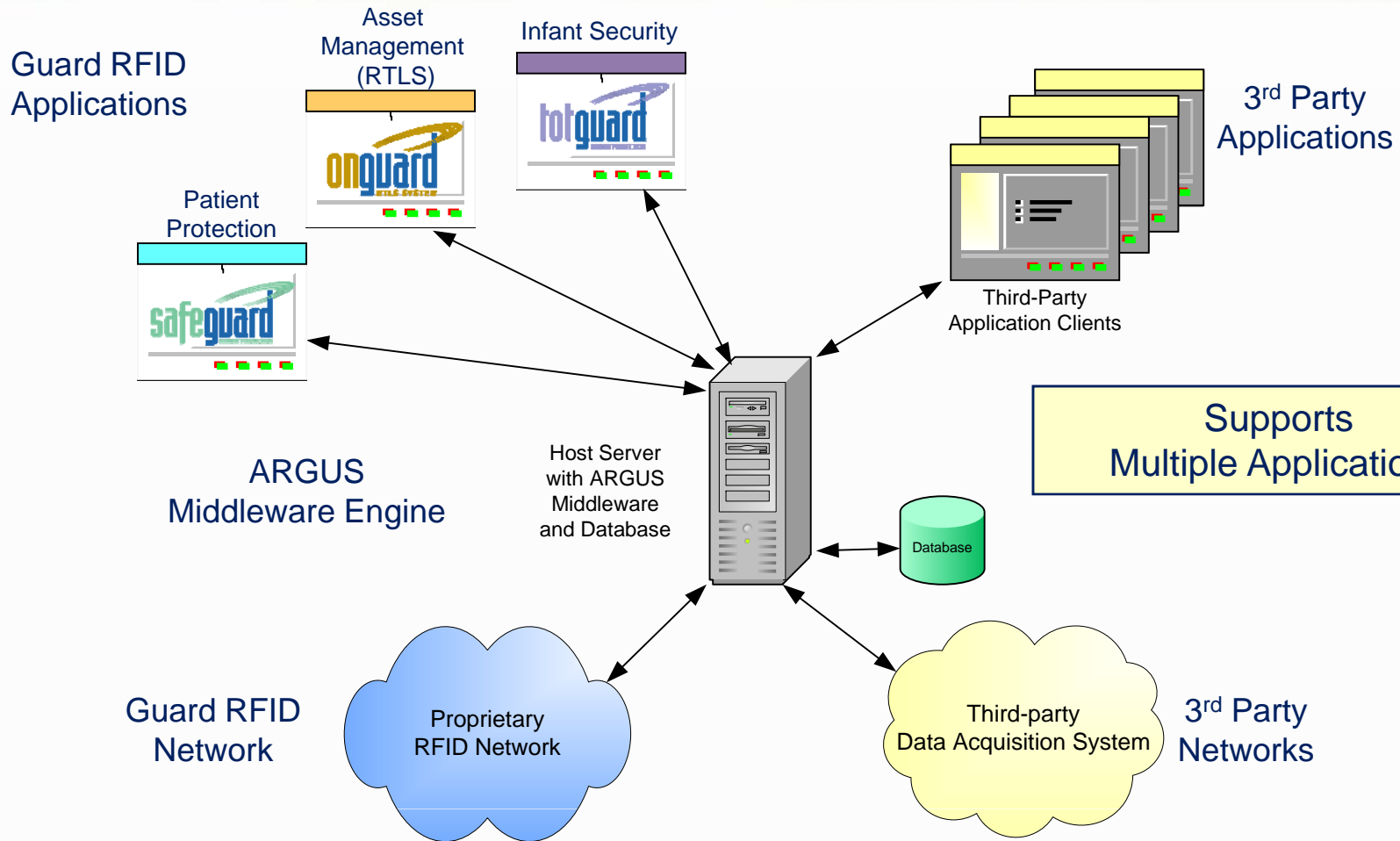


# Industrial Applications

- Asset management
- Tote/Skid tracking & Location
- In-transit visibility
- Manufacturing Work In Progress
- People/Asset Security
- Inventory management
- Warehouse/Factory Logistics
- Auto proof of Delivery
- etc



# GuardRFID System Architecture



# GuardRFID's Infant Security System



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# Major Market Issues Guard RFID Resolves

- Smallest and lowest cost Active Tags in the world, starting at less than \$10 a tag in high volume applications
- High bandwidth with theoretical acquisition of 1,000 tags/sec at choke points
- Significant system cost reduction due to wireless installation capability
- Fully Scalable System, using Guard RFID's Argus Middleware Engine
- Infrastructure uses Ethernet (cabled or wireless), and has POE capability
- Unique Dual Tamper Infant Tag, enhancing reliability and security
- Operates in free air as well as on metal surfaces





Thank you!