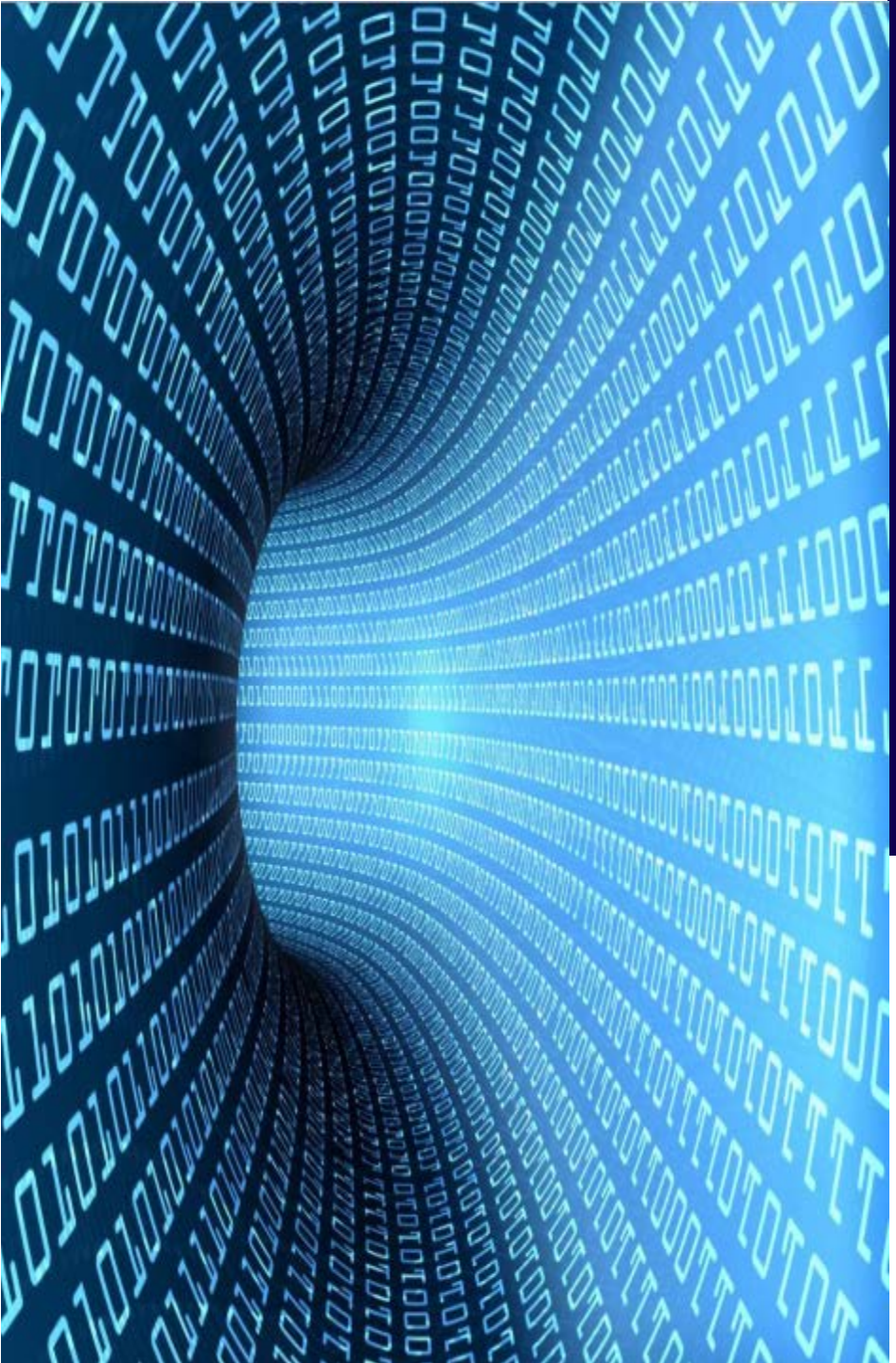


Every business can be a connected business™

Mojix
Company Overview

Mojix Delivers

Mojix delivers wide-area sensor networks and real time business solutions

that change the way the world does business

Connecting Business Assets

Connected assets report	**Connected assets** paired with **smart software** enable **action**.
	
IoT sensor technologies, such as RFID, extend enterprise connectivity to business assets Mojix helps select the best sensor for the job	Saving the enterprise time, money, customers, and even lives. Mojix's advanced software enables workflows using connected assets.

Solution Offerings

The right combination of expertise and technology to deliver powerful solutions

HARDWARE DEVICES

Connected Sensors

STAR Sensor Networks

- Hardware devices that connect assets to the enterprise
- Passive and active RFID tag solutions
- Mobile passive RFID readers.
- RTLS with passive RFID tags
- Global GPS tags for high-value assets

SOFTWARE

Business Intelligence

ViZix

- Cloud-based, modern software to collect and store information from connected assets
- Best-of breed architecture for Big Data applications
- Mobile applications to support business workflow
- Easy to configure and deploy.
- Used by Fortune 500 companies in Oil and Gas, Automotive, Retail, and Manufacturing

EXPERTS

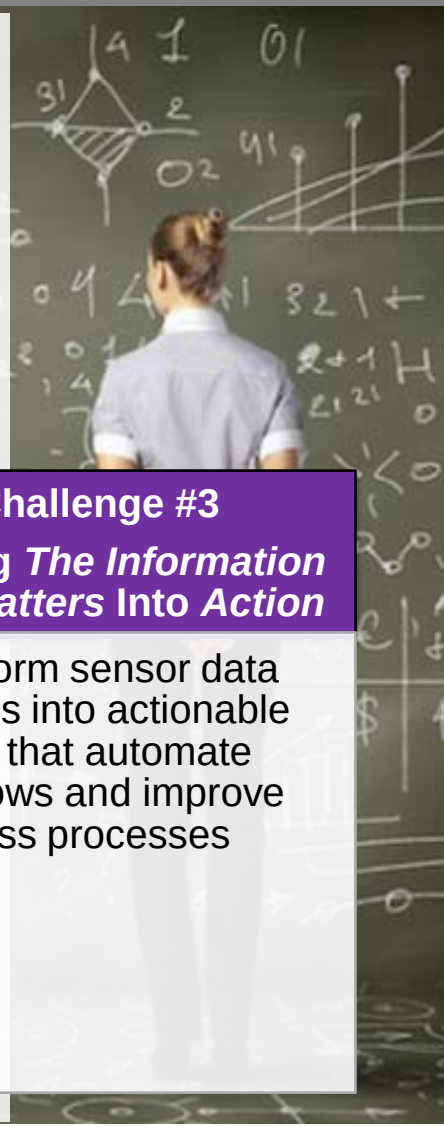
Professional Services

- Professional design, implementation, and support services
- In-house staff of over 100 dedicated professionals with business, software and hardware development, design, and project management skills
- Decades of experience with sensor and software experience in Oil and Gas, Healthcare, Retail, Manufacturing and Automotive
- +10 PhDs on staff
- 43 patents awarded or pending

IoT and RFID Data Challenges

In the IoT world, thousands of sensors generate continuous high-capacity, high-speed data streams at different rates and formats

Sensor systems provide high volumes of continuous real time “Streaming RFID” data



Challenge #1

Handling *the volume*

- Legacy AutoID software is based on antiquated architectures
- Incapable of handling streaming RFID and IoT

Challenge #2

Finding *the Information That Matters*

- RFID / IoT sensors continuously monitor asset status
- How do you mine massive amounts of streaming-RFID and IoT data to find **The Information That Matters**?

Challenge #3

Turning *The Information That Matters* Into *Action*

- Transform sensor data streams into actionable events that automate workflows and improve business processes

ViZix™ Connects Sensor Systems To Users

Client Users

ViZix is Sensor Agnostic

Corporate Backend Systems

sensor devices

Mobile devices

GPS Tags

Active Tags and Printers

Passive RFID readers

Wide Area

•6

STAR Sensor Networks

ViZix™ Makes Data Usable

…from thousands of sensors, produce millions of events.

ViZix captures information that matters, enabling users to visualize it, interpret it, and take action – in real time.

Powerful & Configurable Rules Engine

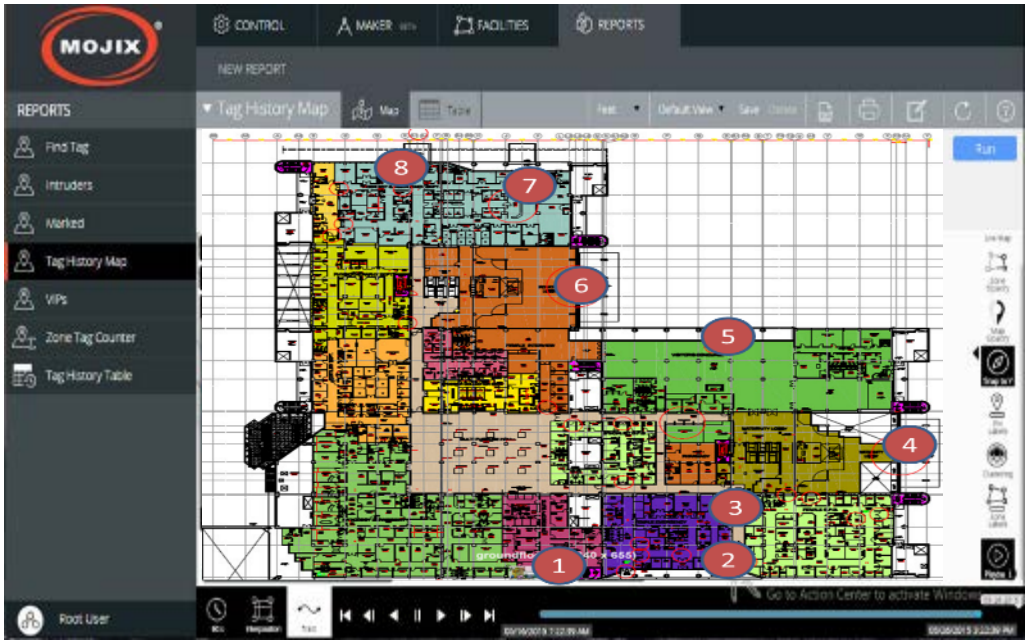
Rules Engine

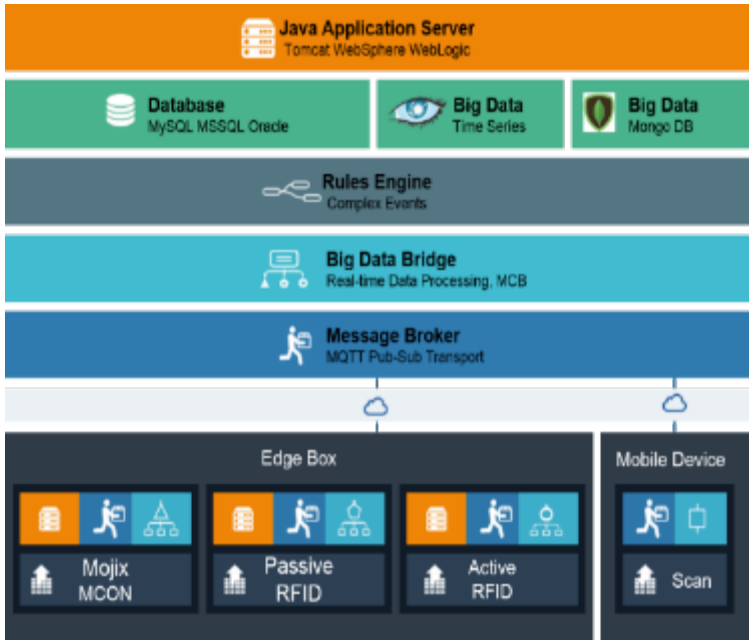
Automate alerts, workflow changes, and process improvements triggered by real time processing of sensor data.

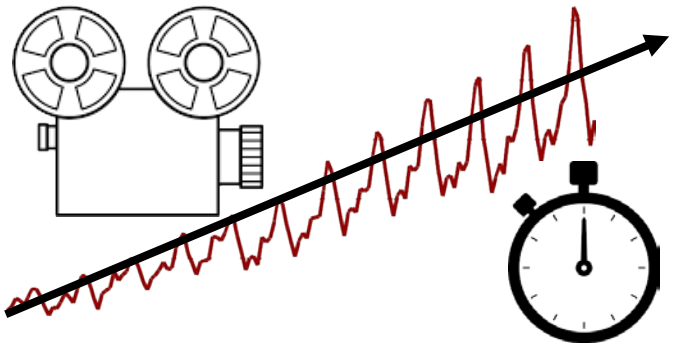
User configurability maximizes flexibility while controlling costs

It's non-compliant	⇨	Fix it
It's out-of-place	⇨	Move it
There are too few	⇨	Replenish it
It's out of spec	⇨	Schedule calibration
He / She is missing	⇨	Notify staff
It's expired	⇨	Quarantine it

Big Data Capability Enables Real-Time Visibility *and* Historical Analysis







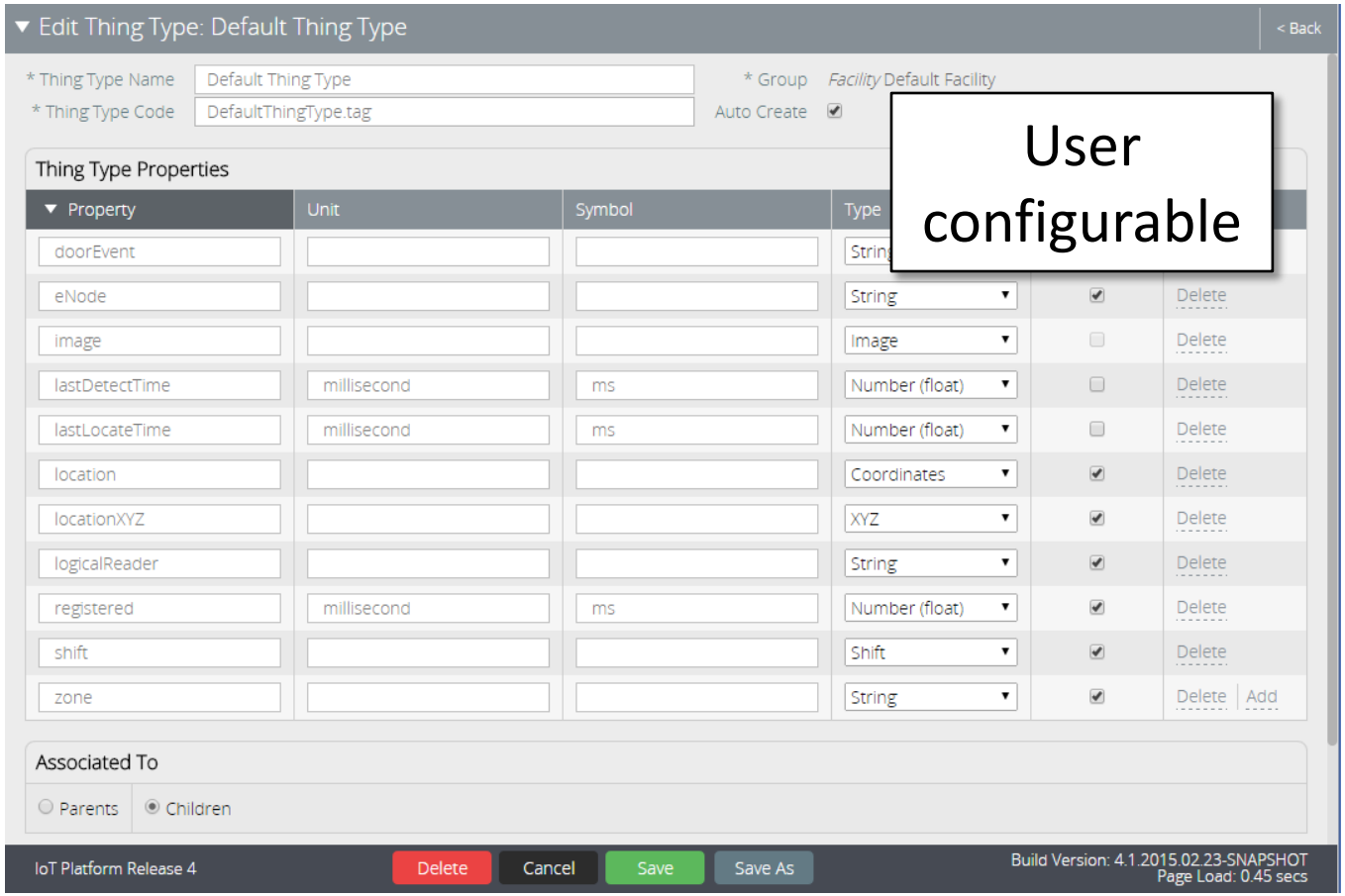
State-of-the-art support for unstructured data and time-series analysis enable real-time and after-the-fact data analysis

ViZix User-Configurability Enables Rapid, Cost-Effective Optimization

Users can add:

- Things
- Thing Types
- Attributes
- Rules
- Actions
- Roles
- Users
- Reports …

…without expensive software development.



Result: Fast realization of value and return on investment

ViZix™ Advanced Data Visualization

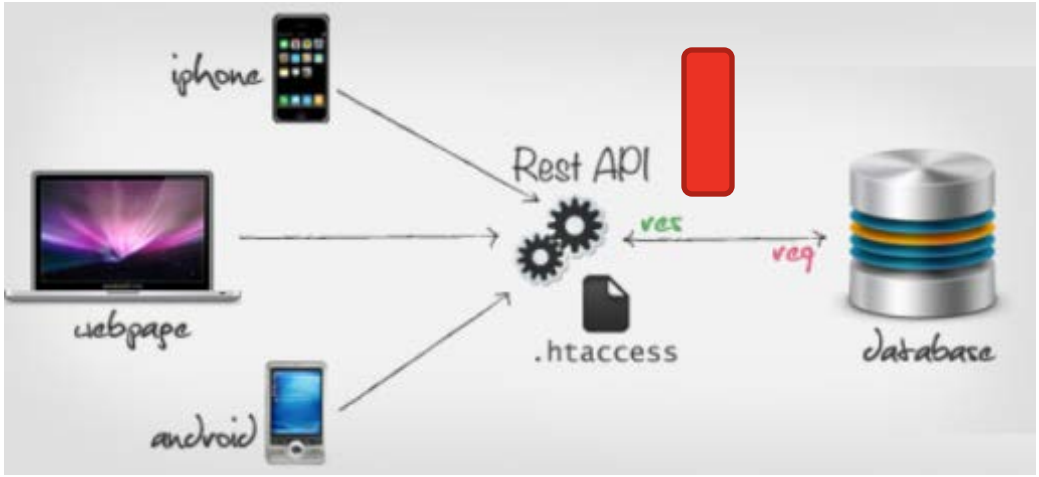
Bring Your Business Data To Life!

- Advanced IoT data visualization schema
- Interactive maps with customizable fields

Your Data, Your Way

- 3D, Multi-level maps
- Accurate asset location
- Color coded indicators
- Global drill-in, drill-out
- Simple zone creation

ViZix is Designed for Easy Integration



RESTful API

GET PUT POST DELETE

swagger

- Comprehensive, 100% coverage
- Flexible, where & extra clauses
- Time-series support
- Token-based security, session timeouts
- Multi-tenant role/resource permission'ing
- Integration-friendly JSON payload formats
- Full swagger support

With ViZix™: Collect, Store, Analyze, Visualize, Interconnect, … ***Act***

High capacity / high speed sensor fusion and aggregation platform

User-configurable, advanced IoT data visualization schema

Big Data distributed database framework for storage, search and retrieval

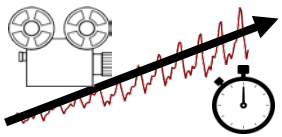
Powerful rules engine and UI for invoking workflow processing

ViZix

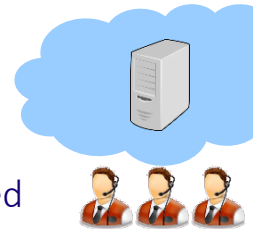
IoT sensor-fusion connected business platform

Seamless, back-office integration via web-friendly, RESTful API

Advanced time series data analysis, playback and trails support



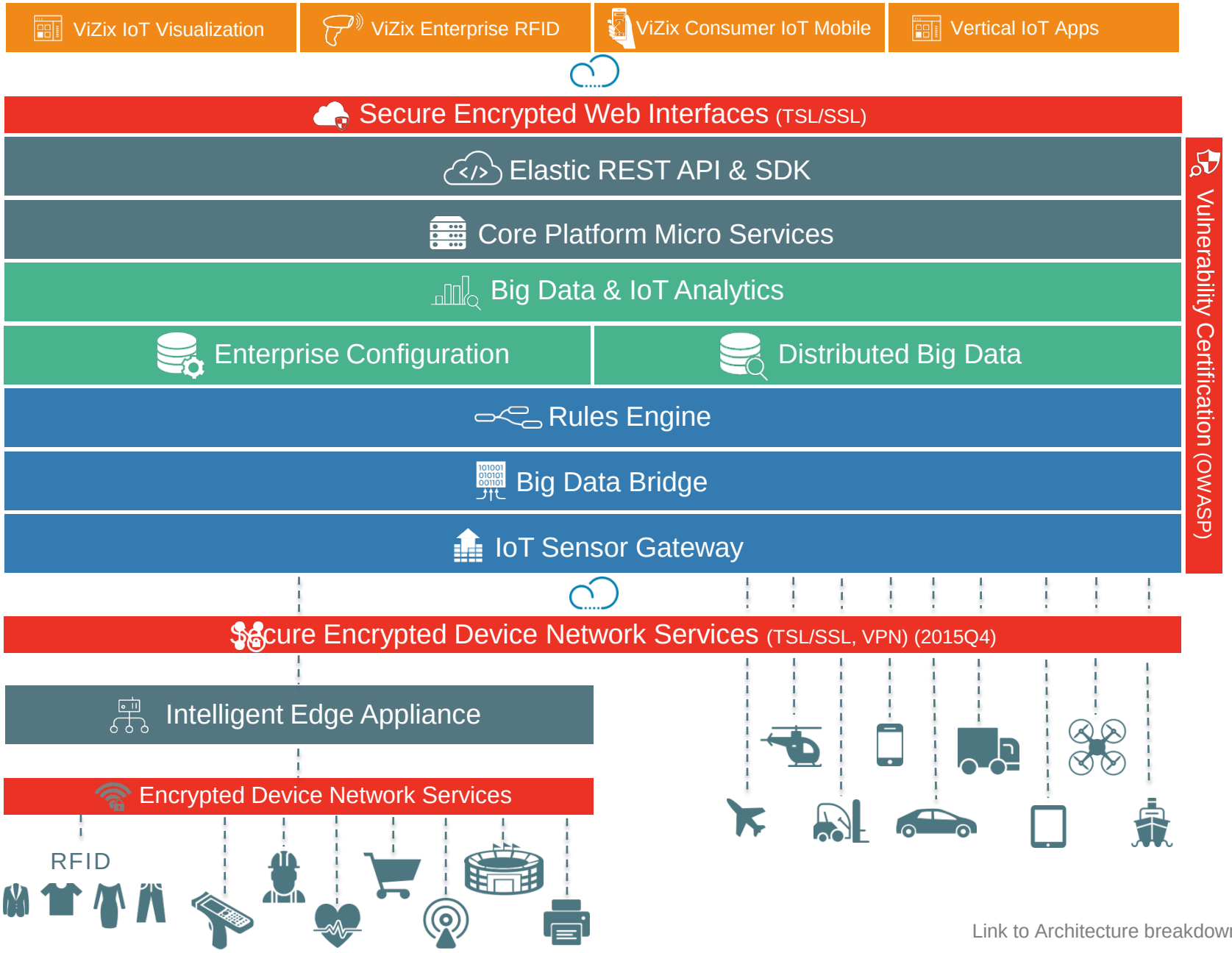
Secure – standards-based (OWASP) vulnerability testing; TSL



Multi-Tenant hosting in the cloud or Intranet with complete data separation

Link to Architecture breakdown

ViZix IoT Platform Architecture

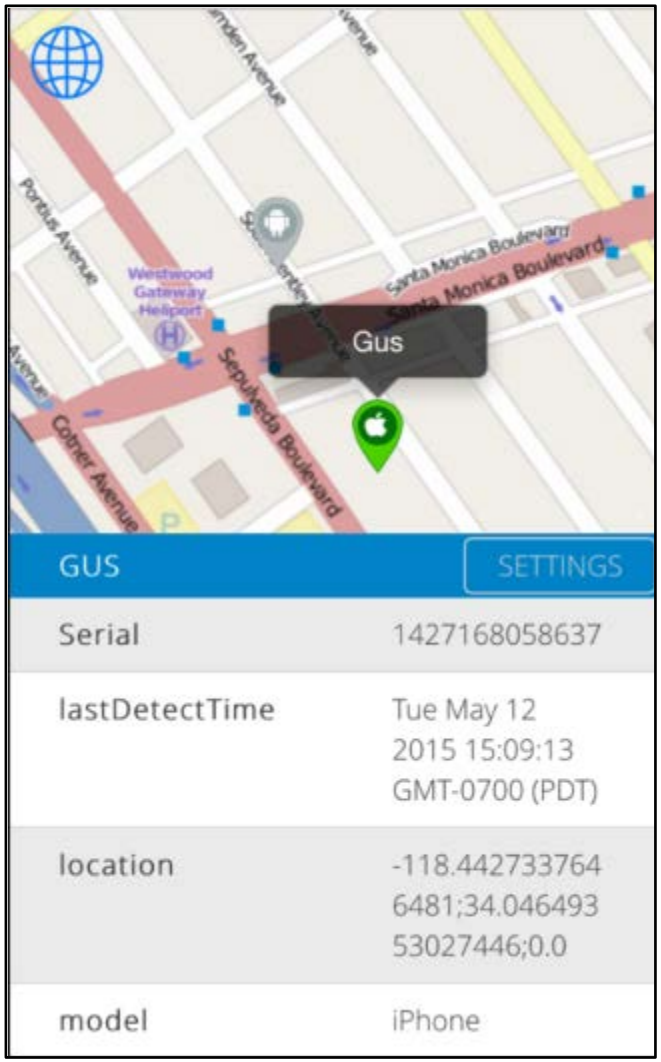


Link to Architecture breakdown

ViZix™ Mobile Solutions

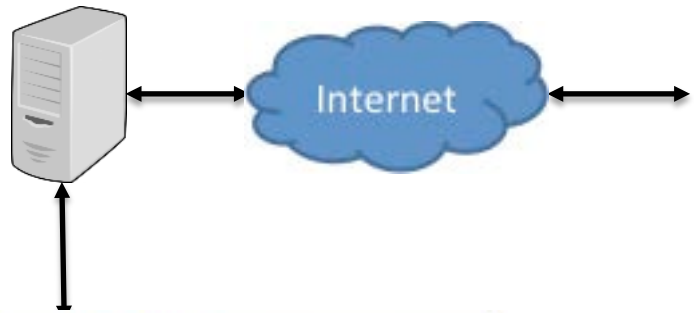
IoT in the palm of your hand

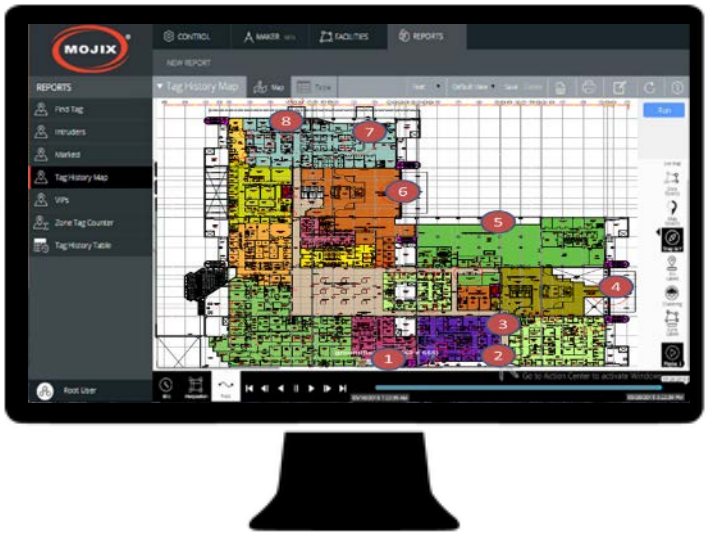
- Simple & intuitive iOS interface
- Real-time updates



Mojix STAR
Wireless Sensor Network Solutions

Master controller (MCON) uses advanced algorithms to determine location





Sensitive STAR receiver detects more tag signals at longer ranges without line-of-sight

eNode network and low-cost antennas scale efficiently

ViZix captures, filters and processes information that matters, enabling users to visualize it, interpret it, and take action – in real time.

Mojix STAR 3000 Wide-Area Reader

Wide-Area Reader System

Read coverage across wide areas
and multiple choke points

Location services (RTLS) using passive tags

The STAR 3000.

Deployed world-wide

43 patents related to this product
and associated software

STAR 3000 Wide Area RFID Solution

- Space, Time, Array Receiver w/ Distributed Excitation
  - Space Time Array Receiver (STAR) – ***Mojix Exclusive!***
    - An extension from NASA's approach to salvaging Galileo mission
    - Overcomes major limitations of legacy fixed readers
    - Tag detect range extends >1000% (~50 ft. now >500ft.)
    - Read LOS is not required!
      - Takes advantage of signal reflections and multipath constructively
    - Tailor transmit radiation pattern to business process with proper Tx antenna choices widely available from more than 100 vendors
  - Distributed Excitation – ***Mojix Exclusive!***
    - Maximize probability of exciting all tags in interrogation space
    - Enables reliable RTLS performance

Mojix STAR 3000 Architecture

STAR 3000 Receiver

RF Energy

Wired via coaxial LMR-240 cable

eNode

Coaxial cable

eNode

eXpanders

exciter antennas

Network cable

MCON:

- Linux OS, Edgebox
- Location Engine
- Event Management
- Sensor data consolidation

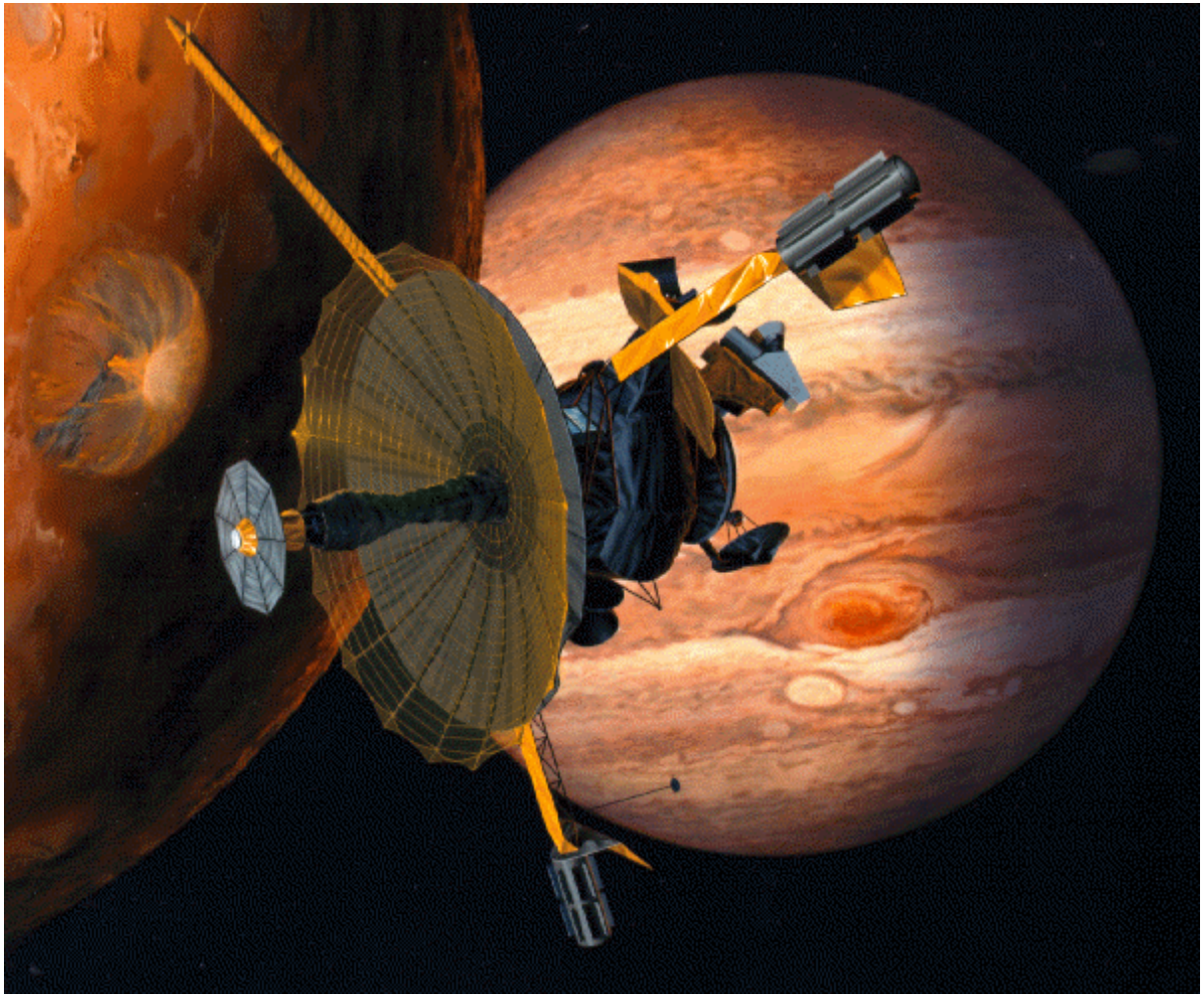
User clients

Back-end systems

Active performance
Passive economics

	Traditional Passive RFID	Mojix Passive RFID	Active RFID
Technology	• Short range: 6 – 20ft • RTLS capability – no • No benefit from multi-path	• **Long range receiver with distributed antennas** – 100's of feet • **RTLS capability - yes** • Benefits from multi-path	• Long range, but needs battery • RTLS capability • Intolerant of multi-path
Economics and scalability	• Inexpensive tags cost $0.10 to $2.00 each • No battery needed • Cost scales with expensive readers	• **Benefits from inexpensive antennas & tags** • Inexpensive tags cost $0.10 to $2.00 each • No battery needed	• Expensive RTLS tags cost $40 to $100 each • Ongoing battery maintenance • Cost scales linearly with coverage
Standards	• Standards-based (ISO, GS1) • Many tag vendors keep prices down	• **Standards-based** (ISO, GS1) • Many tag vendors keep prices down	• Proprietary protocols add cost, complexity, risk

STAR Architecture: NASA Roots



Jet Propulsion Laboratory
California Institute of Technology

Mojix founders were on the team that invented advanced mathematics and electronics to rescue the damaged Galileo satellite from 570 million miles away

Consulting and Professional Services

Solution Consulting & Development Services

- Solution Consultants and System Engineers collaborate with our clients to define the requirements and develop a solution using best-of-breed technologies.

Project Management Deployment Services

- Project teams implement the technology solution and support our client's launch.

Maintenance and Support Services

- Team of 100+ software and hardware professionals with expertise in web application and mobile.
- Agile development process for delivering quality software to meet our client's requirements.

Offered by Mojix
and its
Global Partner Network

Mojix Supports:
Optimal Sensor Selection for Purpose

GPS Tags

- Uses GPS satellites to report location
- Used in high-value assets deployed outside
- Battery powered
- Synchs with Mojix ViZix™ Application.

Sensor Tags

- 10 sensors including support for light, digital microphone, magnetic sensor, humidity, pressure, accelerometer, gyroscope, magnetometer, object temperature, and ambient temperature.
- Synchs with Mojix ViZix™ Application.

Active Tag solutions

- ISO 24730 active tag for RTLS
- Battery-powered
- Located by Location Receivers
- Synchs with Mojix ViZix™ Application.

Mojix Supports:
Multiple Reader Types & Accessories

Traditional RFID reader

- Reads Passive EPC GEN 2 tags
- Used at isolated read points like gates.
- Requires power and network connection.
- Synchs with Mojix ViZix™ Application.

Mobile Handheld RFID reader

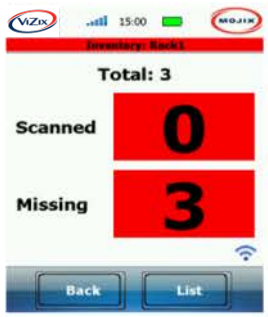
- Reads Passive EPC GEN 2 tags
- Rugged, IP-65 rated and will survive tough environments.
- Synchs with Mojix ViZix™ Application.

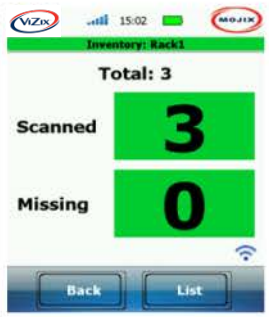
RFID Printer

- Encodes Passive EPC GEN 2 tags
- Synchs with Mojix ViZix™ Application.

Mojix Supports:
Custom Mobile Workflow Apps and UI's

Application Selection → Select Facility → Select Rack → Inventory (Before Scan) → Inventory (After Scan) → Synchronize





Automate Your Processes

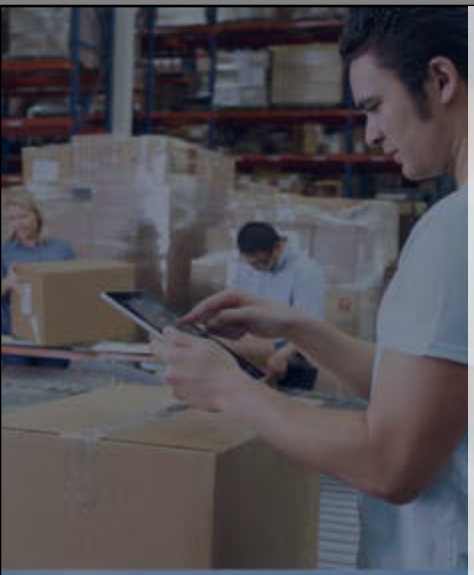
Create mobile workflows for your business and improve and automate your processes.

ANDROID iOS

Mojix Advantages

- Real-time visibility
- Remote, web-enabled, global access
- User configurability that provides flexibility without additional software development time and expense
- Big-data analytics that enable insight and clarity
- Active performance with passive economics
- Solution consulting and development

Mojix Solutions In The Market



Mojix has deployed RFID solutions around the globe for Fortune 500 companies.

Event Safety and Security

Mojix Safe and Secure Event Experience Ensures a Positive Experience for Athletes and Attendees at the 1st European Games

Main Issue

Public events present unique security challenges

- Security personnel need visibility and awareness
- System must be unobtrusive and respectful of privacy
- System must provide actionable information in real-time

Solution Approach

System provides actionable, real-time info and post-event analysis

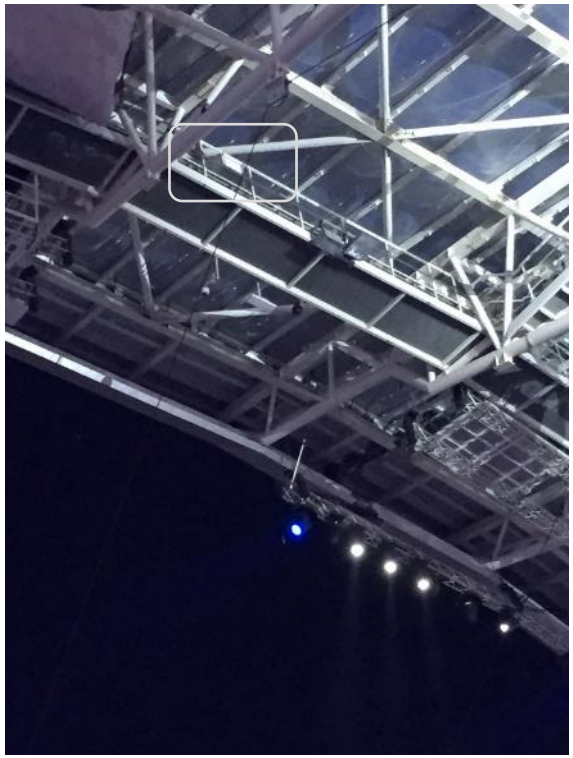
- Access tickets are RFID-enabled
- Readers log presence at key checkpoints
- System provides zone-level location info
- Integrates with existing systems, e.g., video
- Provides a user-configurable rules, alerts and reports engine and big-data analysis capability
- Provides web-enabled, centralized access

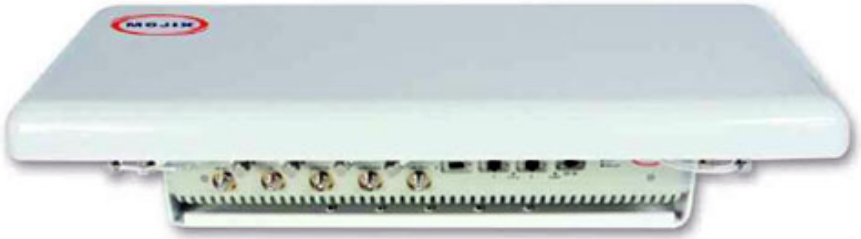
Effect / ROI

Increased safety and security

- Reduced likelihood of event disruption
- Better coordination of agencies
- More effective emergency response
- Ability to recognize when action is required in real time

Mojix STAR Receiver over the Stadium





Mojix STAR receiver
can detect excited tags
from hundreds of feet

Integration with Existing Security Systems

When the ViZix system generates an alert, security personnel can select the camera feed from that location

Restricted Area Access Control at Industrial Site

Mojix STAR ensures that only trained personnel are allowed in high-risk areas

Main Issue

Control access to safety-trailed personnel

- Ship-building operation presents safety risks for untrained visitors
- Presence of untrained visitors increases both accidents and secondary effects of accidents
- System required to restrict access to high-risk areas to trained personnel

Solution Approach

Mojix STAR-based system provides visibility

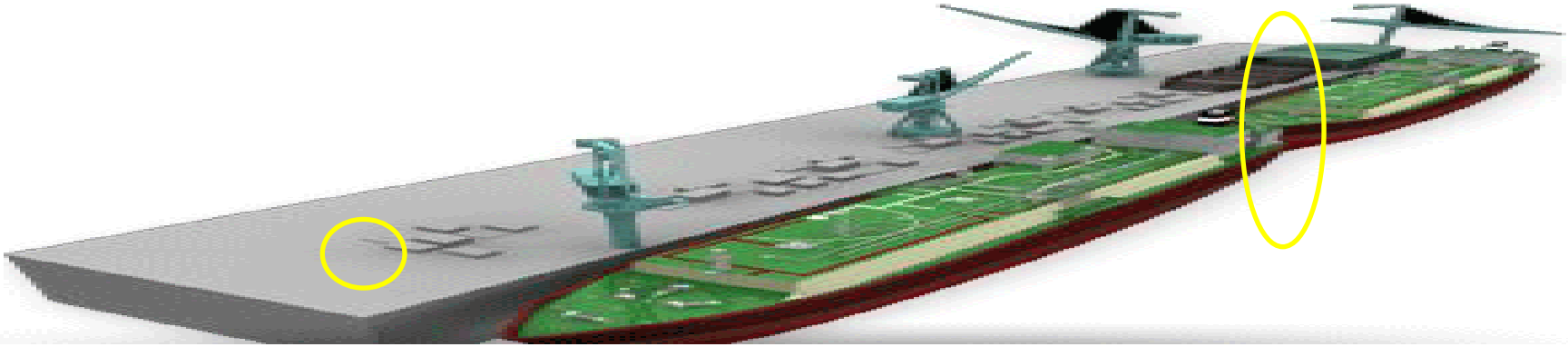
- Mojix STAR implemented at key entrances
- Trained personnel wear identification badges with passive, battery-free RFID tags
- Access granted only to trained personnel

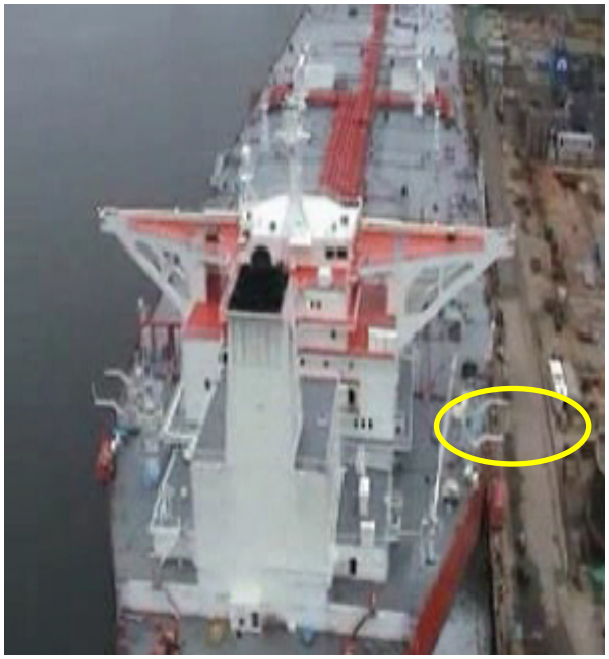
Effect / ROI

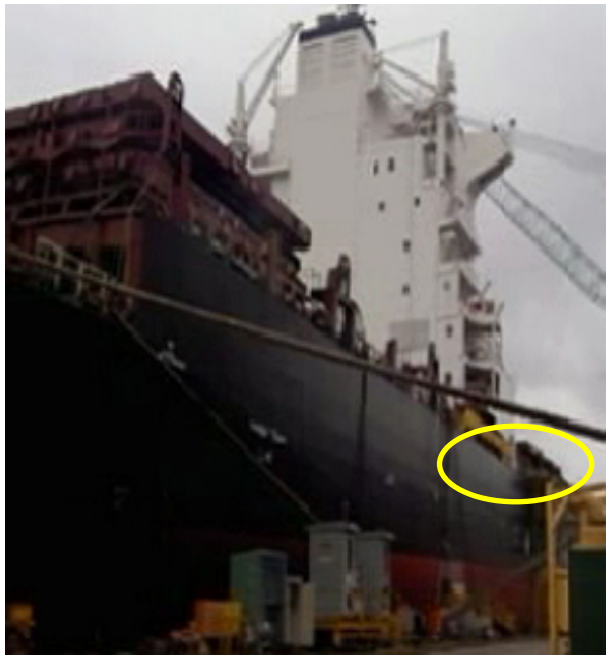
Increased safety and reduced liability

- Reduction in accidents
- Reduction in secondary effects of accidents
- Reduction in required safety staff on-site through better zone control

Readers at Key Points Control Access and Reduce Accidents







Plant Tracking and Monitoring

Mojix STAR System provides continuous visibility and monitoring of plants in large greenhouse complex

Main Issue

Plant research requires tracking of wide variety of hybrids

- Studies require precise identification of species
- Thousands of plants of hundreds of varieties
- Mixing or misidentification of species cost time, money and risks experiment data integrity

Solution Approach

System provides automatic identification, monitoring and alerts

- Reports each plant to correct house on campus.
- Reports the location to within 10ft
- Signals alerts when plants are removed from designated zones

Effect / ROI

Research integrity and compliance

- Increased data integrity
- Verifiable compliance
- Improved operation efficiency
- Cost of error avoidance

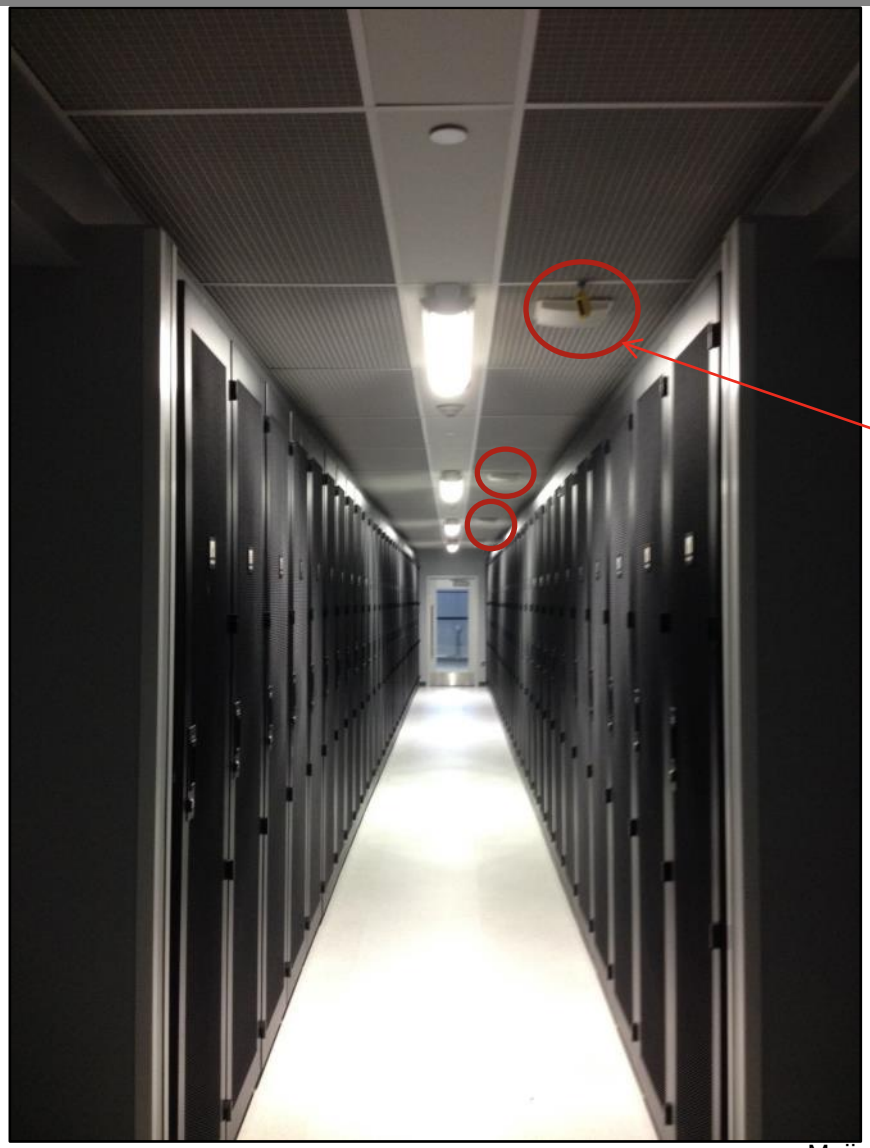
Passive RTLS = Low Cost Monitoring

STAR

Mojix-STAR system keeps track of all tagged plants

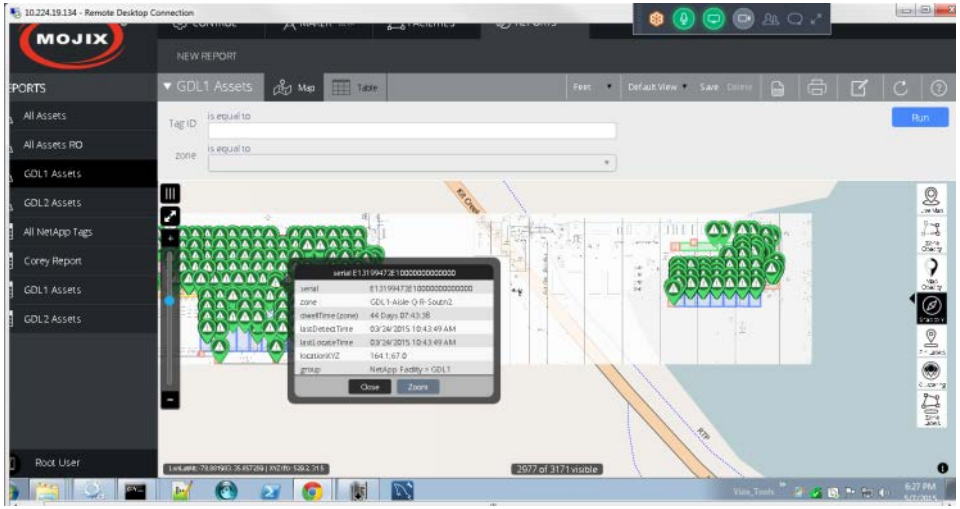
Antennas

IT Asset Monitoring in Server Farms



Mojix STAR system detects IT assets as they move in and out of each of the rows in a server farm facility

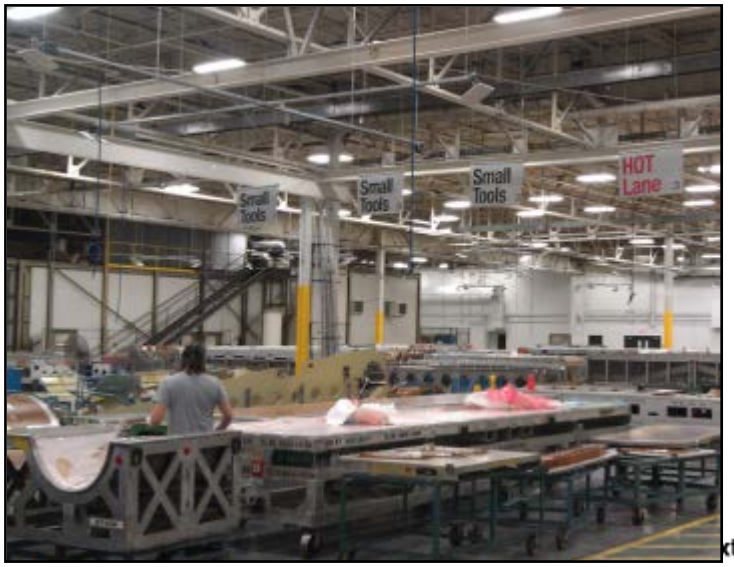
Antennas



Tool Visibility - Manufacturing

The Mojix RTLS system illuminates most of the floor space

- Wide area coverage
- Multiple choke points



Raw Material Tracking – Manufacturing

The Mojix RTLS system illuminates the warehouse floor space using fixed Mojix antennas suspended from the ceiling at 22ft.

Total Healthcare Visibility

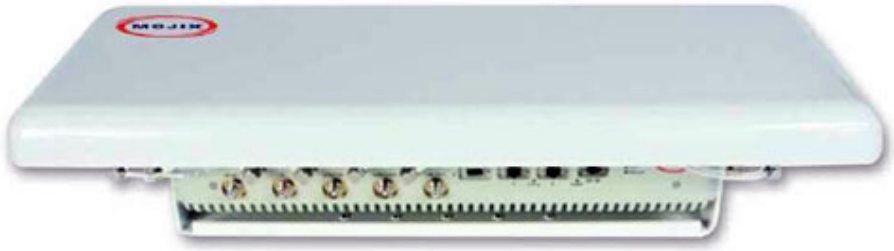
Trollies

Hospital Beds

Patients

Hospital Warehouse

Wheel Chairs



AGVs

Documents

Equipment

Instruments

Infants

Mojix Solution Benefits In Healthcare


Patients

- Outcomes
- Safety and security
- Satisfaction


Assets

- Fast access
- Capital efficiency
- Accountability


Inventory

- Lean supply chain
- Timely replenishment
- Inventory visibility


Documents

- Fast access
- Reduced auditing costs
- Better patient privacy

Example: Patient Documents in Women and Children's Hospital

Mojix Star system ensures accountability, compliance and operational efficiency while reducing auditing costs

Main Issue

Patient data: valuable and confidential

- Patient documents contain private health histories on thousands of patients
- Users use files extensively, but then lose them or fail to return them
- Lost files interfere with patient care and efficient hospital operation

Solution Approach

System finds files throughout the facility; records check-in/check-out

- Inexpensive RFID tags attached to every file
- Mojix Star system monitors 11 building portals
- Document room entrances & exits and hallways on two floors monitored
- Alarm sounds if unauthorized removal occurs

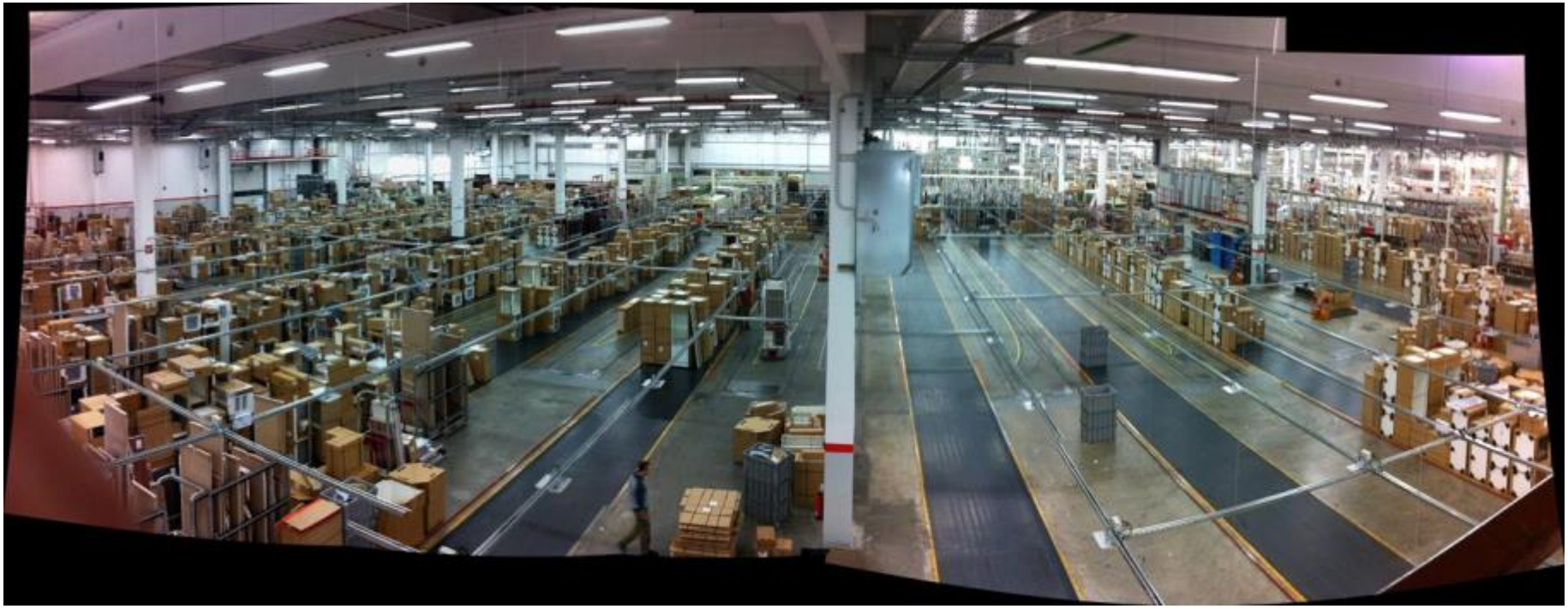
Effect / ROI

File location is known and accountability is established

- Administrators know where files are and who checked them out
- File users have confirmation when they check files in
- Patient care and privacy is enhanced

Staging Confirmation - Manufacturing

Warehouse Management - Furniture



The Mojix RTLS system illuminates the warehouse staging area using fixed Mojix antennas suspended from the ceiling.

Retail Inventory Tracking

Illuminate Your Inventory with OmniSenseRF™

Powered by MOJIX

- Revenue Uplift due to reduced out-of-stocks
- Margin improvement due to reduced markdowns, shrinkage
- Improved customer experience and omni-channel operations

Mojix End-to-End Solutions for O&G

- In the Warehouse

- In the Yard

- In the Port

- On the Rig

Personnel Emergency Response

Mojix ViZix system locates personnel in real time, ensuring rapid, effective, emergency response

Main Issue

Visibility is key to safety

- Many jobsite risks
- Rapid response required
- Locating personnel in real time is key
- Muster to a safe location is critical
- Different emergencies require different responses

Solution Approach

RFID locates employees in real time

- Employees wear inexpensive passive tags
- Mojix STAR system reads badge tags worn by employees
- Stairways, entrances, exits, muster points
- ViZix platform enables real-time, web-based visibility and coordination of response

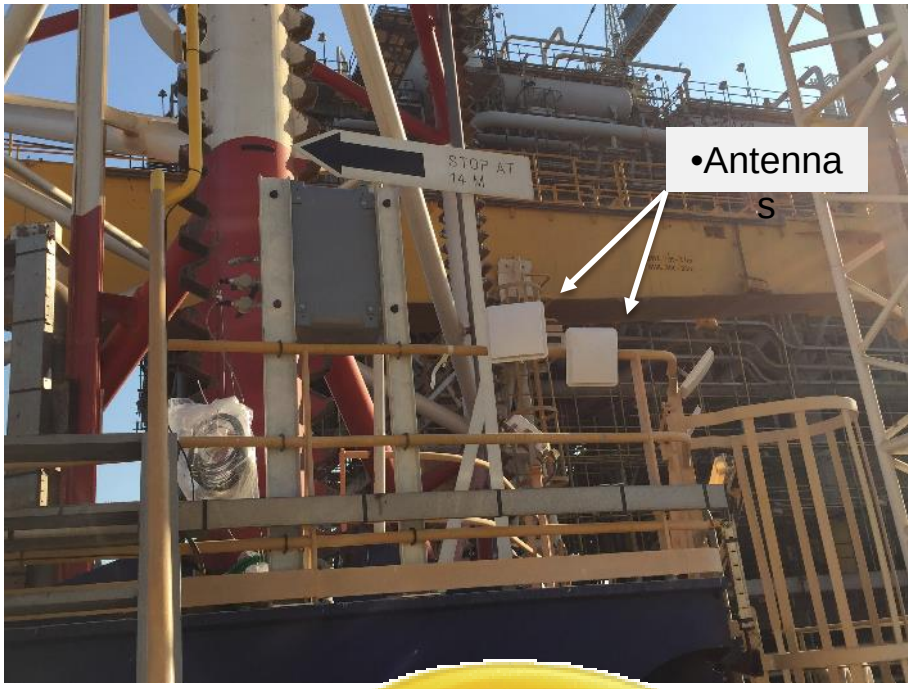
Effect / ROI

Increased safety, reduced liability

- Safety officer can quickly account for all personnel on the rig
- Rapid response ensured
- Insurance and liability costs reduced

Personnel Safety – Key Requirements

- Central coordination of emergency response
- Web-enabled monitoring from anywhere
- Configurable alerts and reports without software development
- Monitor open areas, stairways, gates and key chokepoints
- Compatibility with an oil-rig environment – intrinsically safe



Low cost, battery-free, passive RFID tags on helmets and lanyards

Cloud-enabled, Real-time Visibility during an Emergency

Platform Construction Supply Chain

Global supply chain management for construction of Clair Ridge oil platform

Main Issue

Tracking sub-assemblies across the globe

- Platform assembled in Korea from sub-assemblies manufactured around the world
- $7 billion project with over 90 global suppliers
- Large penalties for late delivery
- Needed: end-to-end, real-time, global visibility from the supplier to the warehouse

Solution Approach

Multiple sensors give global visibility

- Passive RFID for local inventory management and location tracking
- GPS for track & trace in transit
- Integration: Panalpina logistics and Aveda VPRM project resource mngmnt systems
- Easy-to-use, web-enabled software gives global visibility on demand

Effect / ROI

Increased visibility and control

- Predictable construction schedule
- Synchronized delivery of sub-assemblies
- Penalties avoided
- Construction costs reduced

From Source to Assembly

Project Purchasing

Vendors

Consolidation Centers

Labels & tags

Cargo

Warehouse

Final destination

Builder

Seamless Integration of Multiple Tracking Technologies

Local Tracking:
Warehouse, Yard, Rig, Site

In Transit Tracking:
Vessel, Van, Flight

Passive RFID

- Ideal for all materials
- Local/warehouse visibility
- RFID 10ft - 100s-ft (HH/overhead)
- Inexpensive tags
- No batteries required
- Inherently I-Safe

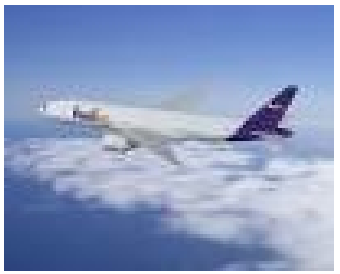
GPS

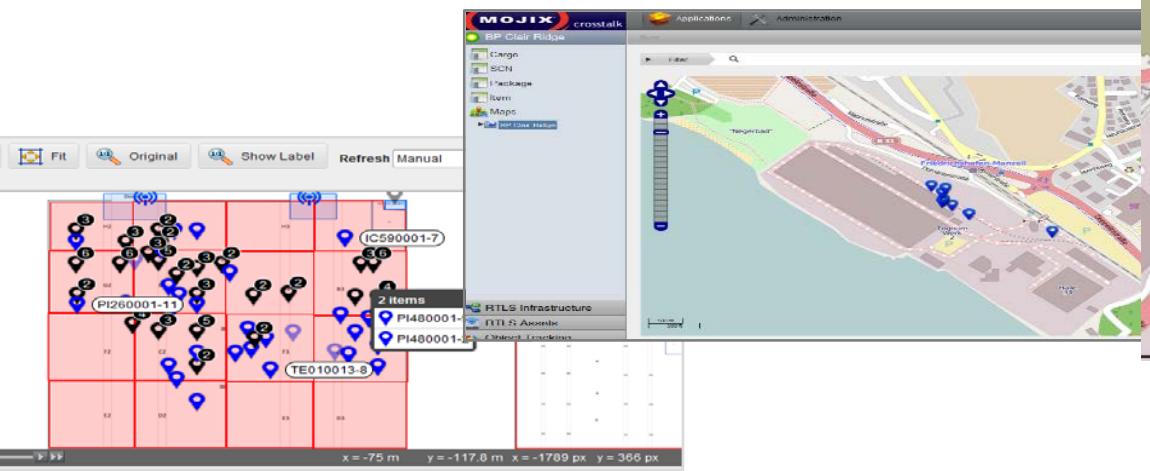
- In transit location tracking
- Global visibility on road, rail or sea
- I-Safe capable

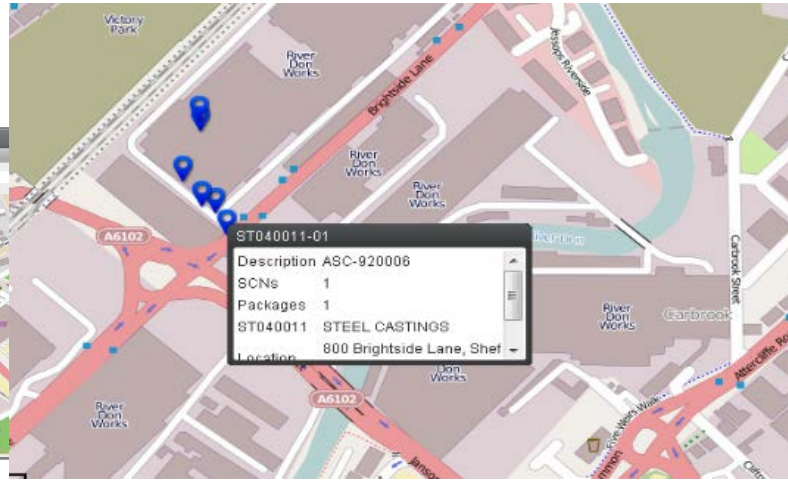
Easy, Web-based Visibility

Log on, find the shipment:

- On the road
- In the air
- On the water
- In the yard
- In the warehouse

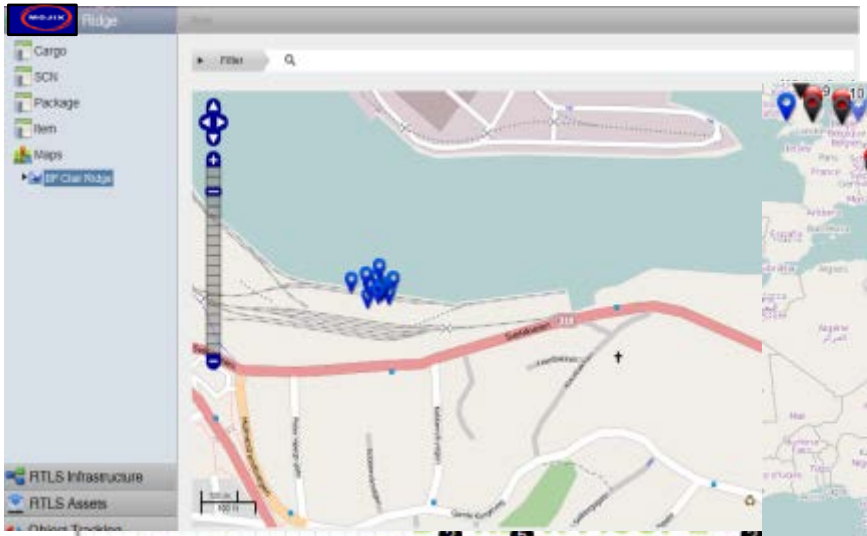




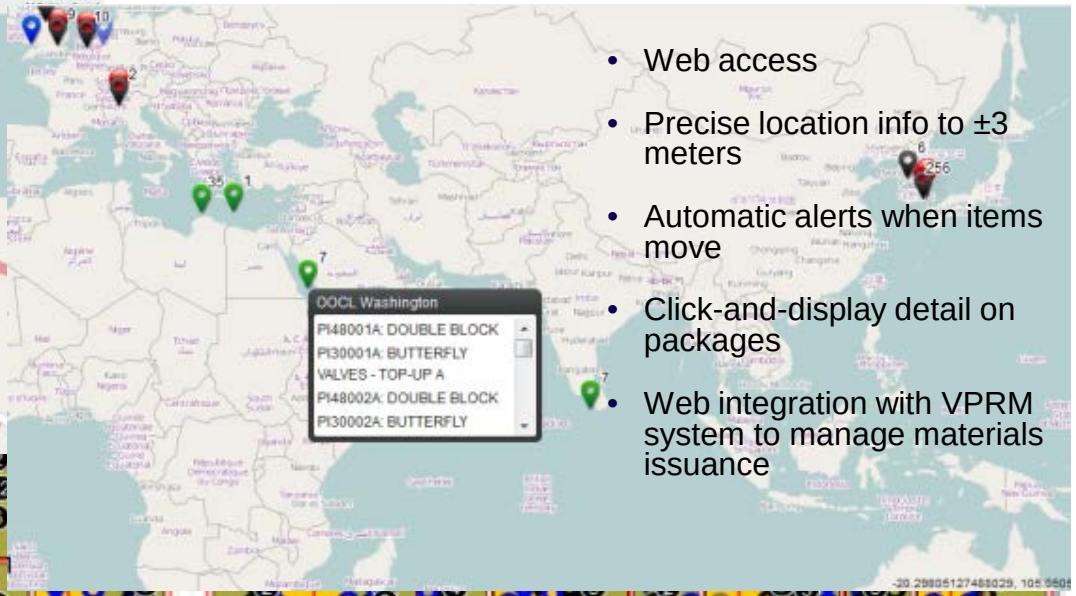


Global Continuous Asset Visibility

Freight staged prior to Vessel loading



Freight is associated with Vessel. Vessel is tracked using on board Vessel GPS via satellite communication.



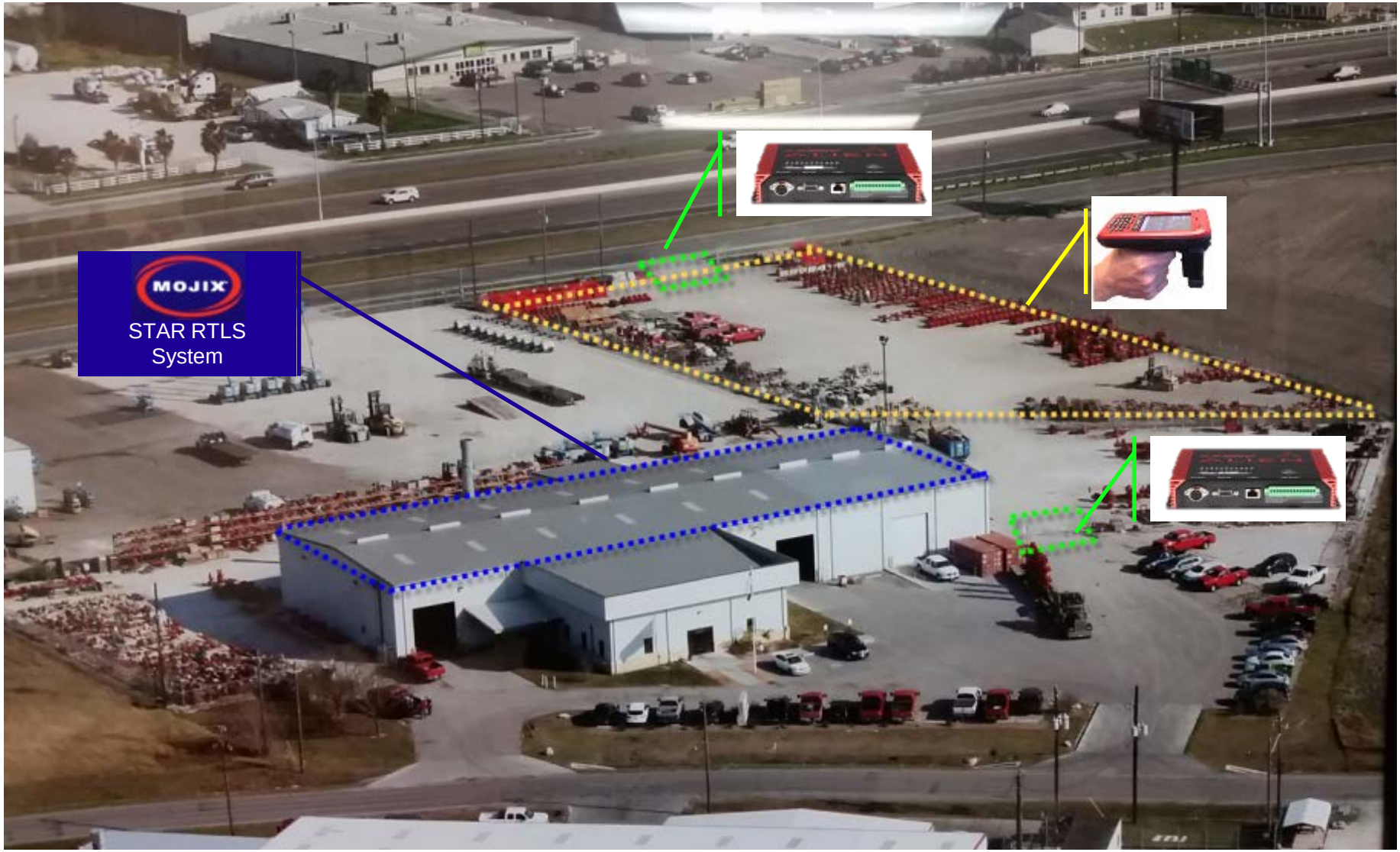
- Web access
- Precise location info to ±3 meters
- Automatic alerts when items move
- Click-and-display detail on packages
- Web integration with VPRM system to manage materials issuance

Auto receipt and location tracking of over 8000 assets in a warehouse

In Transit:
Global Supply Chain Visibility

- A shipping control number associates items, pallets and containers to RFID tags and GPS devices
- When containers are below decks, the system tracks the vessel
- The system can pinpoint the location of any item in transit anywhere in the world

Repair Base -Total Visibility Solutions



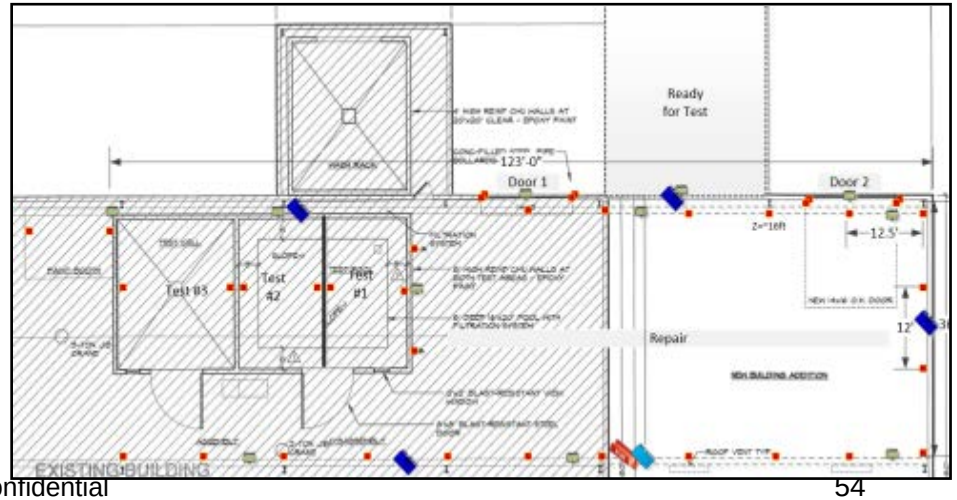
Refurbishing Facility - Total Visibility

Antennas installed overhead track assets inside building

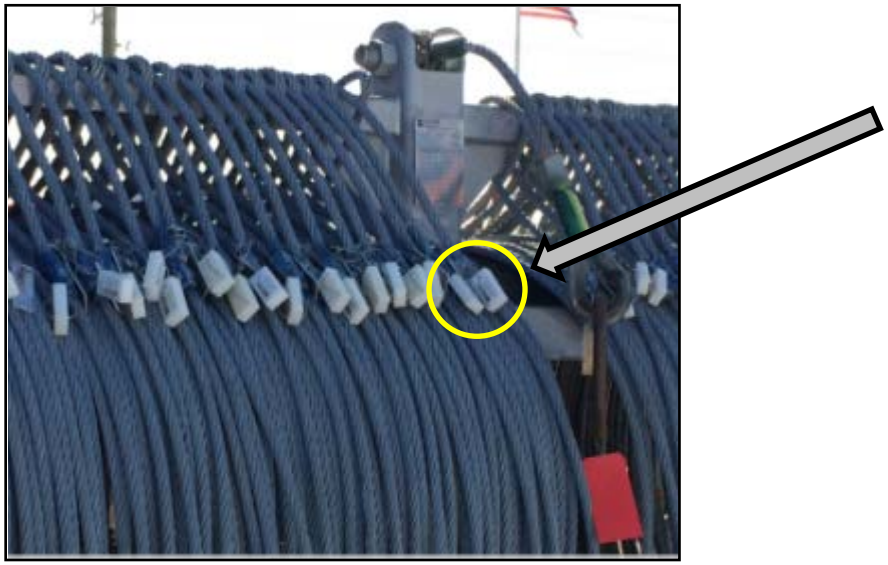
STAR Receiver installed on column

Mojix RTLS provides wall-to-wall asset visibility

- Antennas overhead constantly monitor & locate
- Mojix RTLS engine locates tagged assets inside the building and reports zone location. For example, “Repair”, “Test Cell 1”, “Paint Cell”, etc.
- Enables dwell-time reports and process checks.



Sling and Pipe Tracking

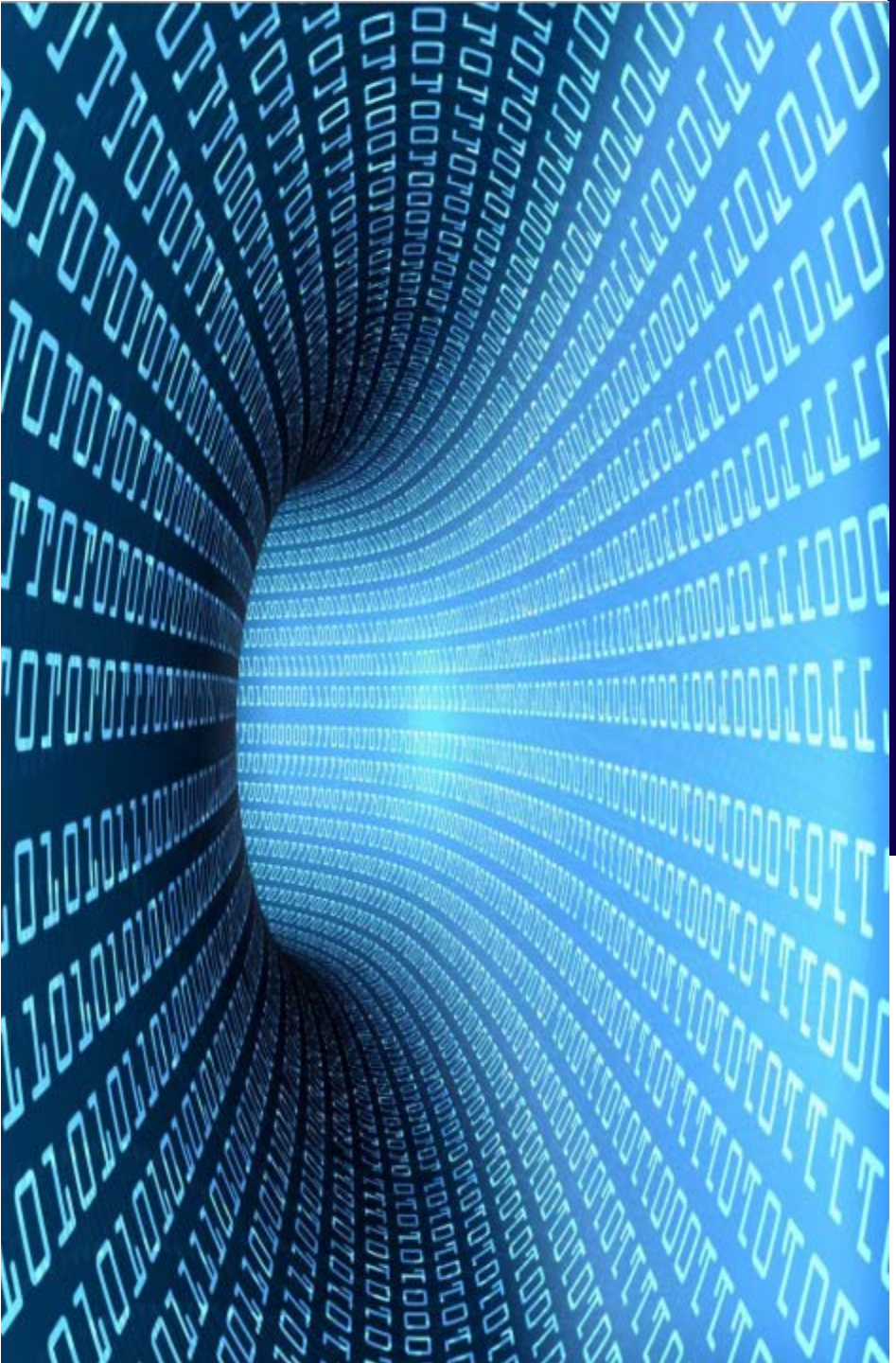


Mojix Solution for Sling Management

- Fast **check-in** and **check-out** of slings.
- Reduces process time by over 95%.
- Passive EPC GEN 2 tag (no battery)
- Affixed to asset with metal tie-wrap
- Rugged for tough environments.

Mojix Solution for Pipe Tracking

- Passive EPC GEN 2 tag (no battery)
- Affixed to asset with metal band
- Rugged and will survive stacking.



MOJIX

Every business can be a connected business™

Contacto: **Sr. Francisco Vázquez**

Tel.**670.513.911**

Email**: franv@warnier.com**