



Zebra RAIN RFID Solutions Webinar

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Regional Portfolio Manager – IES / RFID

8/4/2020



Agenda

- Introduction / Vertical Use-cases
 - RAIN RFID
 - Overall Portfolio
 - Supplies
 - Handhelds
 - Fixed readers
 - RTLS – ATR-7000
 - Zebra Motionworks (Location Solutions)
- 



Figure 1. Magic Quadrant for Indoor Location Services, Global



Source: Gartner (January 2020)

Zebra Technologies was recognized as a Leader in Gartner, Inc.'s 2020 Magic Quadrant for Indoor Location Services, Global*

This is the first year Gartner has placed a company in a Leader position. Zebra has been recognized as a Visionary for each of the last two years.

Read a complimentary copy of the report here:

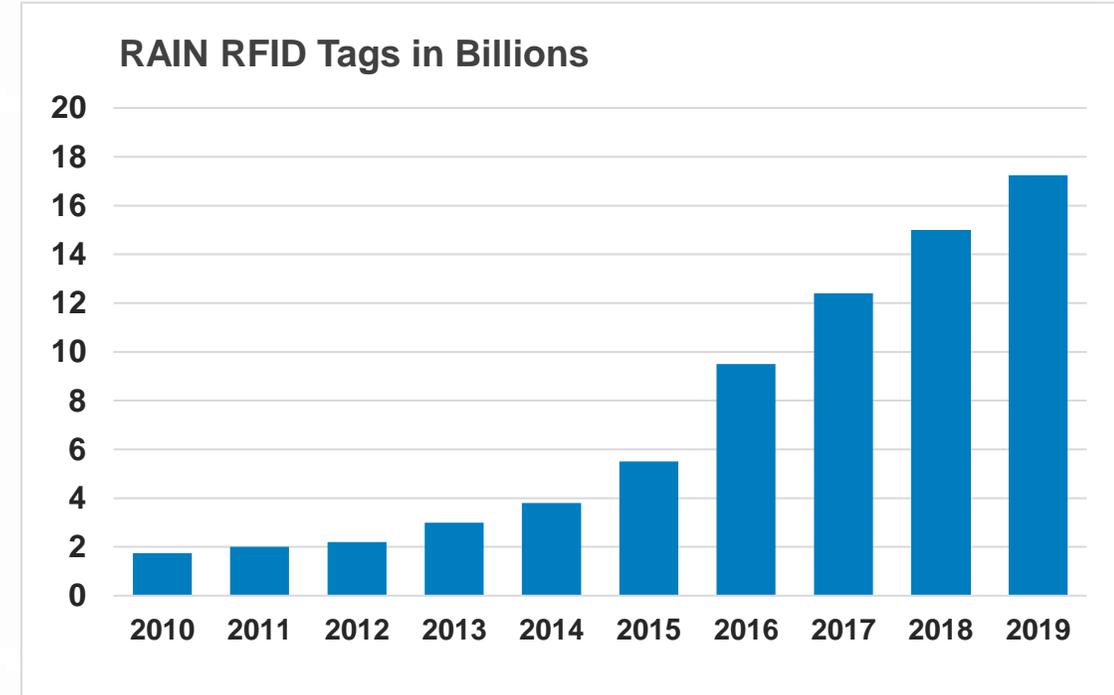
www.zebra.com/gartnermq2020



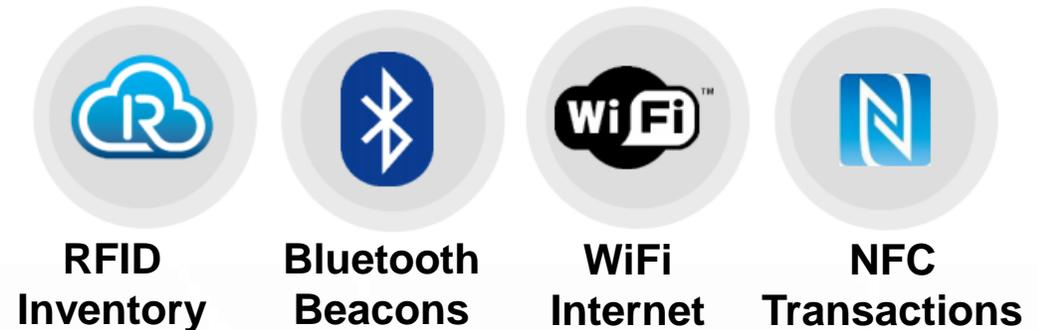
*Gartner, Inc., "Magic Quadrant Indoor Location Services, Global," Tim Zimmerman, Annette Zimmermann, 13 January 2020. This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request from Zebra Technologies. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally, and is used herein with permission. All rights reserved.

Market Growth

- **~17B UHF RFID tags sold in 2019**
 - ~70% retail / ~30% non-retail
 - Retail apparel is the largest vertical by tag volume; only 10% penetrated
- **Manufacturing, Logistics, and Food applications will drive use-case expansion and future tag volumes**
- **Why is RFID growing now?**
 1. Stable and robust global standards
 2. Consistent and reliable performance
 3. Unique capability among wireless technologies
 4. Recognized value among common use cases



Source: RAIN RFID Alliance, IDTechEx



RFID Use Cases



T&L

Improves asset visibility, data quality and inventory management

- Distribution, Shipping and Receiving
- Warehouse Ops (Case, Pallet, Cross-Docking)
- Asset Tracking
- Baggage Tagging

Delta Airlines, Air France, Saudi Post, Carvana,



MANUFACTURING

Enables smarter decisions with real-time tracking

- Work-In-Process
- Product Identification
- Shipment Accuracy
- Automated Receiving
- Asset Tracking
- Product Lifecycle

Daimler, Boeing, Dana, Johnson Controls, BAE Systems, Polaris, Volvo



HEALTHCARE

Increases efficiency, reduces costs and elevates patient care

- Specimen, Laboratory and Pharmacy Labeling
- Records Management
- Asset Tracking
- Patient Identification

Mayo Clinic, KitCheck, Aarhus University Hospital, Hamni



RETAIL

Boosts sales, reduces out of stocks and improves productivity

- Inventory Visibility
- Order Fulfillment
- Customer Engagement
- Asset Tracking
- Authentication
- Loss Prevention

Macy's, Target, Walmart, Lululemon, Decathlon, Nike, Footlocker



GOVERNMENT

Automate / error-proof time-consuming and labor-intensive tasks

- Asset Location
- Access Control
- Supply chain tracking
- IT and other Assets
- Identification
- Loss Prevention

US Army, NSA, US Navy, Social Security, DoD, UBP, DoJ

Zebra RFID Product Portfolio



The industry's broadest portfolio of RAIN RFID technology

FIXED READERS & ANTENNAS



FX9600



FX7500



ST5500



ATR7000



AN510



AN720



AN400



AN600



SR5500



SP5500

HANDHELD & HANDSFREE READERS



MC3330R



MC3390R



RFD8500



RFD2000



DS9908R

PRINTER ENCODERS, INLAYS, LABELS & CARDS



ZT400R Series



ZE500R Engine



ZD500R



ZXP7, ZC350 and UHF Card



ZT411R On-metal



ZQ520R



ZQ630R



ZT600R Series



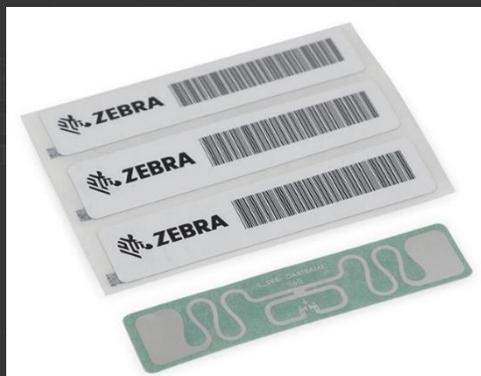
RFID Upgrade Kits



RFID Inlays and Labels

UHF-RFID Supplies Portfolio

- 2019 Our RFID inlay range: 30 sizes
- Cover most common applications
- Labels for specialist applications
- Silverline for on-metal / liquid



Latest News: Zebra's UHF-RFID Supplies Portfolio

Newest generation of Zebra RFID inlays



Applications: Distribution, Shipping, Receiving, Pallets



Application: General uses...

Advanced - ZBR4000

- Optimized to be read from any angle
- Wideband performance when placed on or near challenging materials
- Up to 60 feet read range (4"X6", 2"X4")

General Purpose - ZBR2000

- Delivers consistent, reliable performance
- Helps you achieve a better ROI

Zebra Handheld RFID Readers



Handheld RFID Readers

Your use-case determines the hand-held of choice



DS9908R-SR



DS9908R-HD

2D Presentation Imagers

Key Benefits:

- Small Read-area for limited spaces (<6ft)
- Built for scanning and added versatility of RFID Reads

Target markets:

- Retail - POS
- Labs – Specimen tracking
- Electronics Assembly – Item Tracking



RFD8500



RFD2000

RFID Sleds

Key Benefits:

- Mobility
- Double as Mobile Computers
- Good Read-specs 700+ tags/sec

Target markets:

- Department Stores
- Specialty Apparel
- Sporting Goods
- Indoor Asset Tracking



MC3330R



MC3390R

Integrated RFID Handhelds

Key Benefits:

- Purpose-made Ergonomics/Durability
- Highest Level of performance 900+ tags/sec
- Circular and Linear Polarizing 20-60 feet (20-70 feet barcode scans SE4750MR/ SE4850/)
- New 4770

Target markets:

- Manufacturing
- Warehousing/Supply Chain/T&L/Aviation
- Retail
- Commercial Services/Government

NEW MC3330R APPLICATIONS

Mid-range circular antenna for bulk inventory applications



RETAIL BACK-OF-STORE

- Inventory/cycle counting
- Automatic replenishment
- Receiving/shrink control
- Omni-channel order fulfillment
- Item finding

DATA CENTERS/OFFICES

- Asset management and tracking

HEALTHCARE

- Inventory/cycle counting
- Asset management
- Item finding
- Laboratory inventory
- Stock demo/sample inventory

NEW MC3390R APPLICATIONS

Long-range RFID reading for semi-industrial applications



MANUFACTURING

- Production Parts
- Finished good inventory
- WIP



WAREHOUSING

- Inventory/cycle counting
- Automatic replenishment
- Receiving/shrink control
- Item tracking/locationing
- Omni-channel order fulfillment



TRANSPORTATION & LOGISTICS

- Cross-docking
- Item tracking/locationing

BOPIS – Buy Online, Pickup in Store

- E-commerce
- Inventory Visibility
- Store pick-up lanes
- Delivery



MC3330R



RFID8500



ZT400R Series

Zebra Fixed Readers

Zebra Fixed RFID Readers



RFID Fixed vs Handheld Scenarios

Cues and what words to listen for?

Fixed Readers

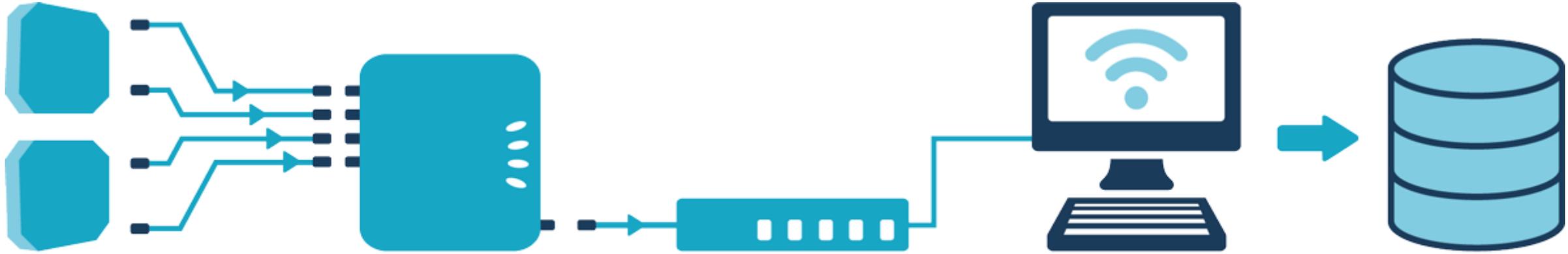
- Installation / Infrastructure
- Fixed / Frequent
- High Value / Advanced process
- Control / Monitor / Advanced Tracking
- Checkout / PoS / Loss Prevention

Handheld

- Cycle count
- Mobile / Occasional
- Low Value / Budget
- Locate / Basic Tracking



RFID basic architecture



1 Antennas

2 Reader

3 Network

4 Install

5 Database

“Light up” Tags/reads

Capture data

Connectivity Hub / Power

Interface / Analytics

Storage

Industrial Class

Fixed UHF RFID Reader

FX9600



Features

- **High performance, rugged RFID reader**
- IP53 sealing, diecast housing
- **4-port and 8-port reader configurations**
- Power-over-Ethernet (PoE) & PoE+
- 4 /4 General Purpose Input/output (GPIO) ports
- Embedded applications hosting
- All cabling and input/output ports are on one side
- **Greater accuracy for reading challenging materials**
- Longer read ranges even for large DC's and yards
- Higher throughput rates for reading more, and densely packed goods
- Fast read rates

Benefits

- Ideal for high volume, high density, high throughput applications
- Withstands toughest environments
- Maximize uptime even in the toughest environments
- Cover more portals with fewer readers - simplifies/ reduces the cost of set-up, deployment and management

Target markets

- Warehousing/Supply Chain
- Manufacturing
- Energy & Utilities

General Purpose

Fixed UHF RFID Reader

FX7500



Features

- Higher, faster RF performance
- Light Weight – smallest in its class
- 4-port and 2-port antenna options
- Power over Ethernet (PoE)
- Plenum rated - Install behind walls ceiling spaces
- New Linux digital architecture
- Additional USB host port
- FIPS 140 (level 1) compliance
- Supports embedded applications

Benefits

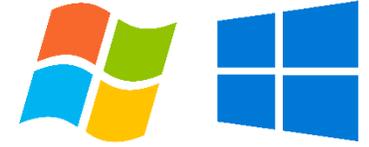
- Increased read/tracking rates and sensitivity
- Enhanced noise rejection
- Increased connectivity/functionality
- Higher security
- Easy to use, deploy

Target markets

- Retail – storefront/offices
- Healthcare
- Commercial services/government
- IT Asset Management

Setup and Optimization Tool

For Zebra Fixed UHF RFID Readers



123RFID Desktop

The screenshot displays the 123RFID Desktop software interface. At the top, it shows 'ZEBRA 123RFID' and '3 Readers Connected'. The main area is divided into several sections:

- Data View:** Shows 10 TAGS, 20,521 READS, and 245 READS/SEC. A table lists EPC IDs, counts, and timestamps.
- Filters:** A section for filtering data.
- Reader Metrics:** A section showing performance for three readers: 1. A Main Reader (10.11.100.121), 2. FX9600TR563D (10.11.100.121), and 3. FX9600 USB Read.. (10.11.100.121). Each reader has a pie chart and a bar chart showing tag counts and read rates.

Features

- 3-clicks from launch to reading tags
- Setup and configuration wizard
- Easily access built-in help including how-to-videos
- Import picture and known tag list for personalized demos
- Intuitive GPIO accessory integration
- Simplify RFID application development
- Get data analytics about reader and antenna performance
- Supports Zebra FX7500, FX9600, and ST5500



USB printer cable

Benefits

- Both RFID novices and experts have the controls and guidance they need in a single tool to configure and deploy an RFID system
- Easily optimize fixed reader deployments and implement powerful proof-of-concepts
- Save time and effort by configuring multiple readers at one time
- Easily create logic-driven GPIO events using the intuitive wizard

Target markets

- Retail / Hospitality
- Transportation & Logistics
- Healthcare
- Manufacturing
- Government

<https://www.zebra.com/us/en/products/software/scanning-systems/123rfid.html>

RFID Antennas



AN510



AN440



AN480



AN720

Rugged

Key Benefits:

- MIL-STD-810G benchmark
- Durability under duress and environmental conditions
- Use-case dependent / Various Mounting Option
- Easy to Install
- Gain: 6-20 dB Range

Target markets:

- Manufacturing
- Warehousing/Supply Chain/T&L/Aviation
- Retail
- Exploration / Utilities



AN710



AN610



AN620

General Purpose

Key Benefits:

- Discreet, slim and Versatile
- Use-case dependent / Various Mounting Option
- Easy to Install
- Gain: 6-8 dB Range – Close proximity reading

Target markets:

- Department Stores
- Specialty Apparel
- Healthcare
- Indoor Asset Tracking

Dual-Element Antenna

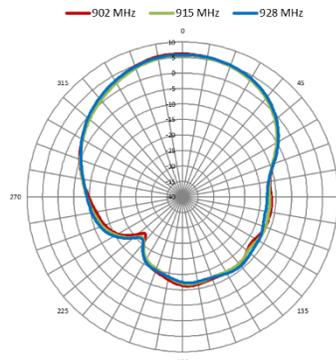
UHF RFID Antenna

AN440

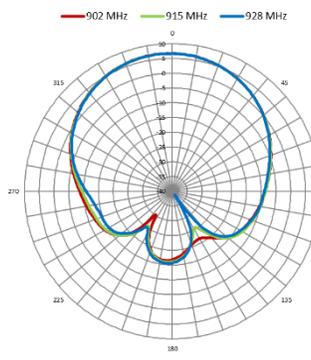


Features

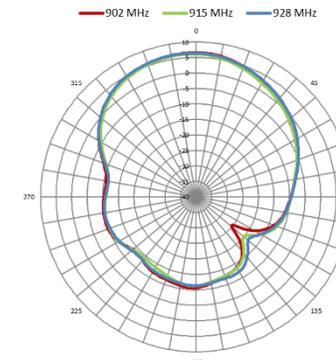
Polarization	1 x Left-hand circular / 1 x Right-hand circular
Dimensions	575.1 mm x 259.1 mm x 33.52 mm / 22.6 in x 10.2 in x 1.32 in
Connector	Dual N-Type Female
Connector Location	Rear
Mounting Options	Mounting studs provided
Weight	7.0 lbs. / 3.2 kg
Casing/Materials	UV Stable ASA
Frequency Ranges	EU: 865 – 868 MHz US: 902 – 928 MHz*
VSWR (Return Loss)	1.22:1
Gain	US/Canada: 6.0 dBiL
Front to Back Ratio	20 dB
3dB Beam Width	70° in both planes
Axial Ratio	1 dB typical
Operating Temperature	-30° to +70°C / -22° to +158°F
Storage Temperature	-40° to +85°C / -40° to +185°F
IP Sealing	IP67
Vibration	MIL-STD-810G, Method 507.5, Procedure II – Aggravated, IEC-68-2-6 (10 to 150 Hz, 0.5g, one hour in each of two axes – random vibration)
Humidity	IEC-68-2-30 (-25° to +40°C / -13° to +104°F) 24 hour cycles of 90% relative humidity



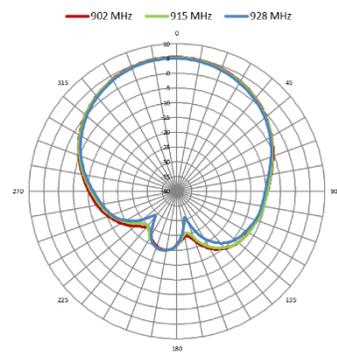
Horizontal (LHCP)



Vertical (LHCP)



Horizontal (RHCP)



Vertical (RHCP)

Healthcare – Patient, Assets, Specimen

Silverline



Z-BAND RFID WRISTBAND



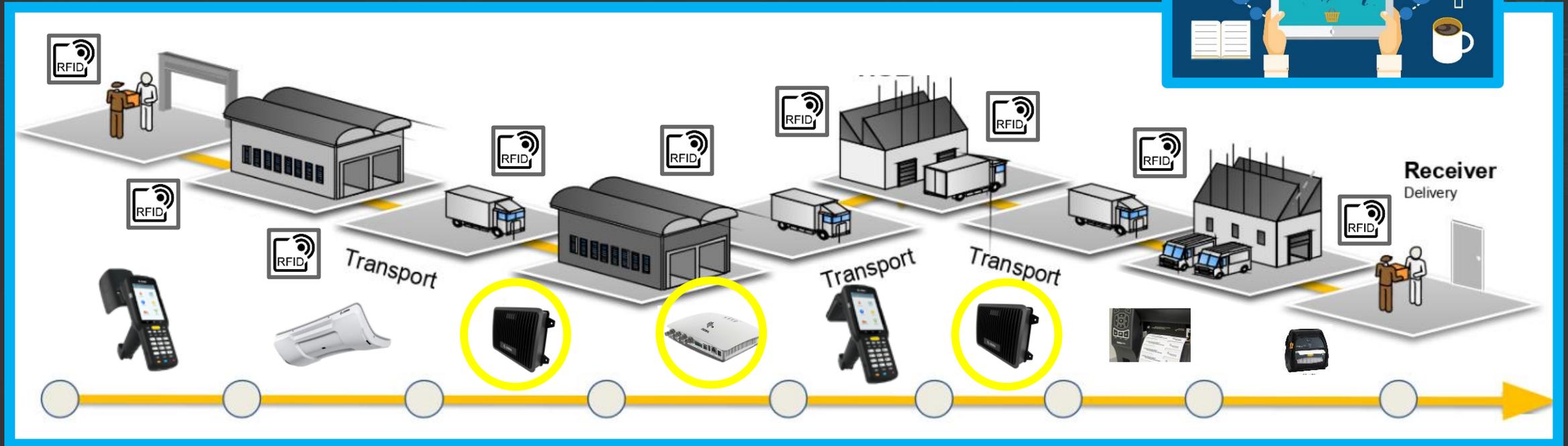
FX7500 (4 Ports)



Antenna Cable Length: 30 feet Max (60 feet Antenna Separation)

RFID Journey

Traceability / Provenance



Implementing RFID with process / work flow captures:
On the Edge intelligence..! (Savanna)

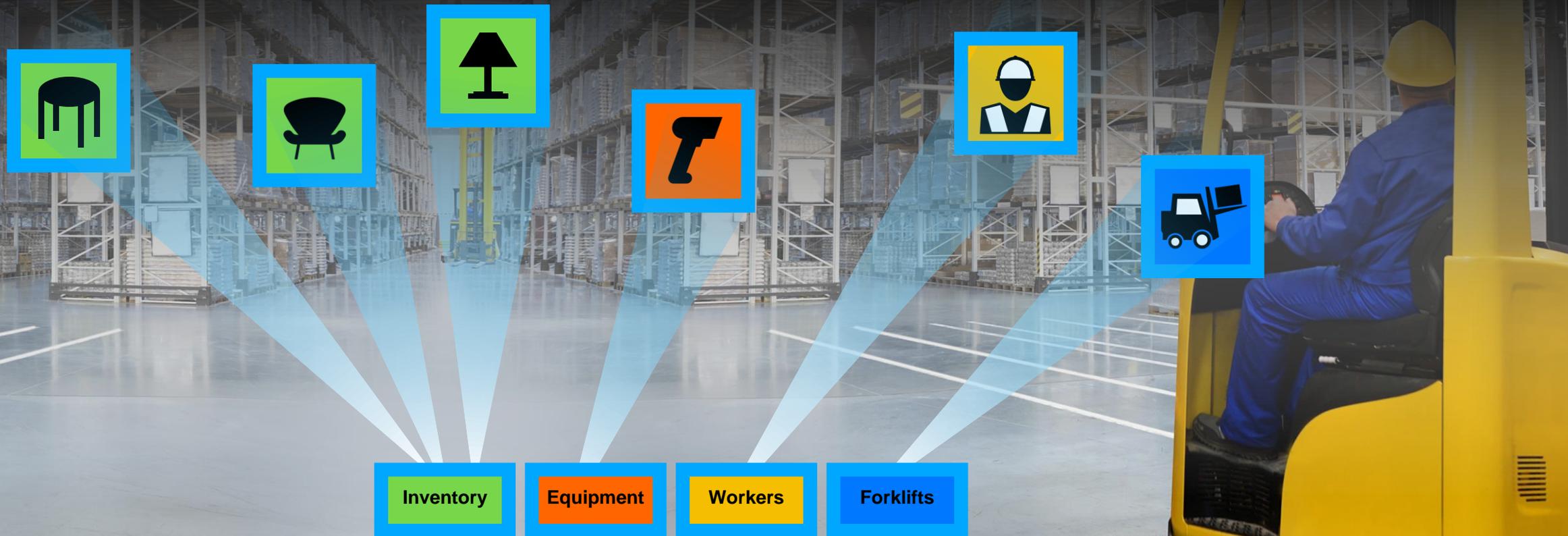
Passive RFID = Last known Location / **Active RFID** = Persistent reading providing real time location

ATR7000 Real-Time Locating System Introduction



The solution: see it all in real time with Zebra's ATR7000

A NEW CLASS OF RFID READER OFFERING NEW FUNCTIONALITY



Get a new layer of asset intelligence with the ATR7000.

Identify, locate and track assets in real-time. And see current location, if assets are moving — and in which direction.

Zebra ATR7000 RTLS Reader

TRACK AND LOCATE A WIDE RANGE OF ASSETS



Manufacturing

- Parts and assemblies
- Trolleys
- Tools
- Machinery
- Key personnel
- Forklifts and clamp trucks
- Other high-value assets



Warehousing and Supply Chain

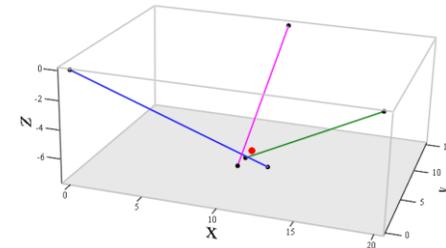
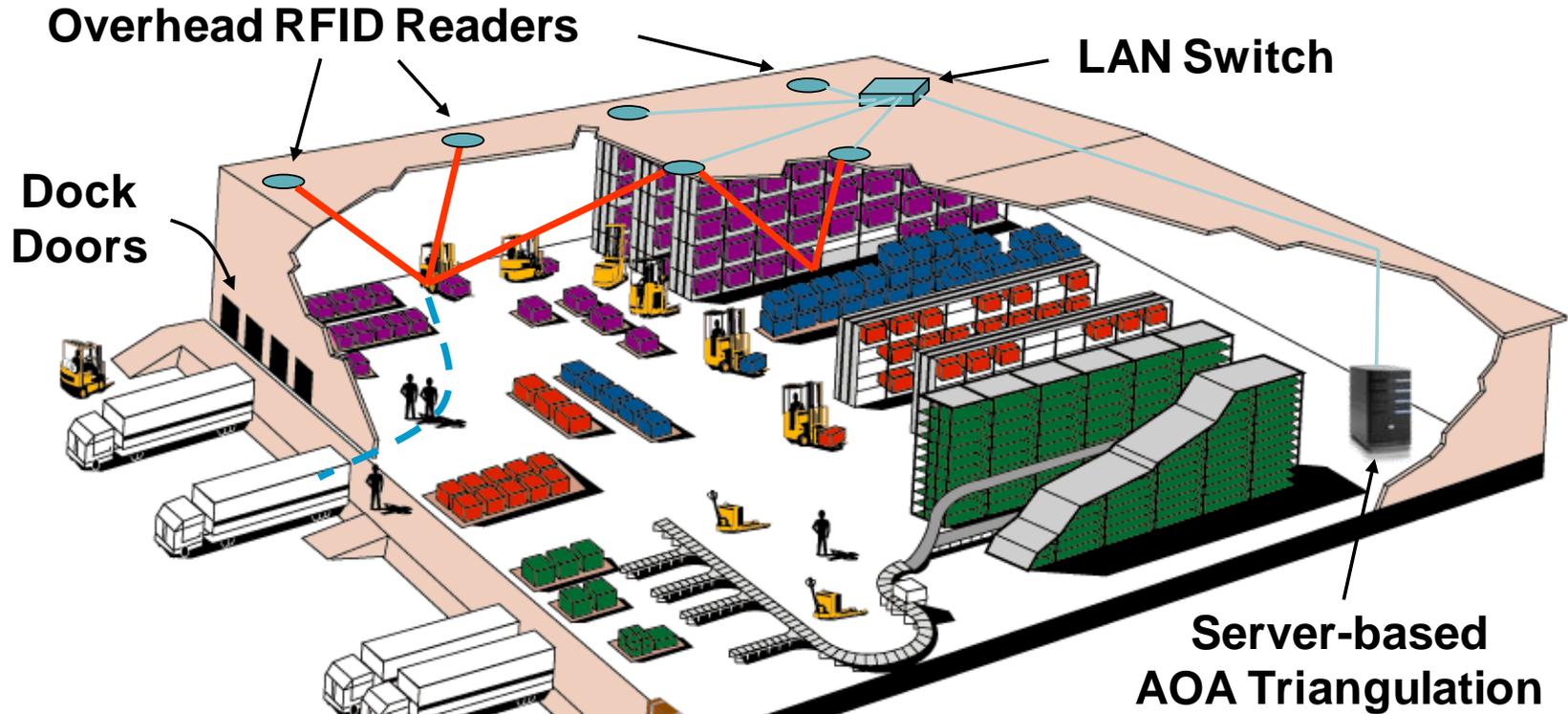
- Finished goods
- Inventory
- Key personnel
- Forklifts and clamp trucks



Transportation and Logistics

- Packages
- Freight
- Key personnel
- Forklifts and clamp trucks

ATR7000 RTLS System Setup Overview





ZEBRA MOTIONWORKS™ RTLS SOLUTIONS

LOCATION SOLUTIONS THAT GIVE YOUR ENTERPRISE A
DEFINITIVE EDGE

Carl Kallen

MotionWorks™ Solution Stack

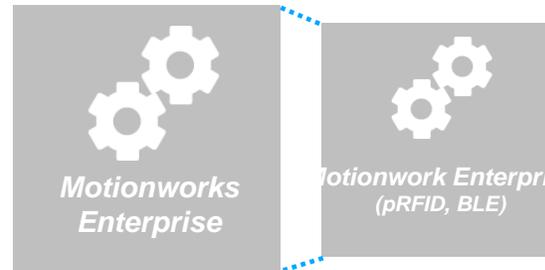
Business Application

(Zebra and 3rd Party Business Solutions: UI/UX, Business Workflows, Dashboard, Maps, Alerts, Reports)



Location Software

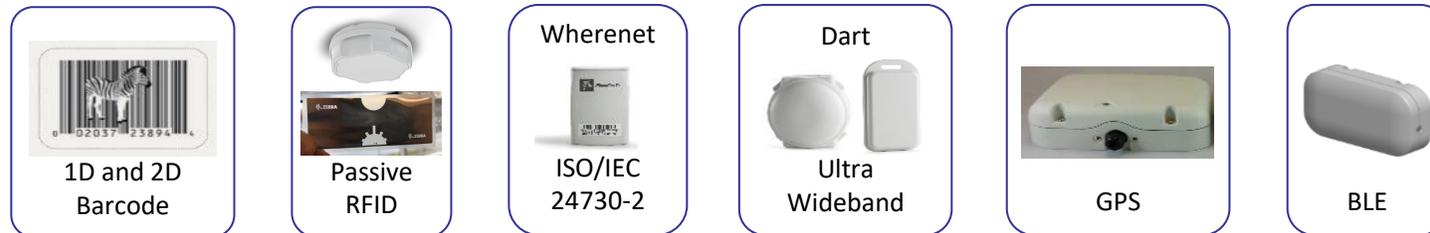
(Data aggregation, business rules engine, application integration framework)



Zebra Signature Services
(Discovery, Design, Implementation, SW & Data Integration, Training)

Sensing Hardware

(Location & identification infrastructure)



What kind of solutions does Motionworks Enterprise enable?

- **MT&L**

- Yard Management
- Line-Side Replenishment
- Asset Tracking & Management
- Tool / Fixture Tracking & Management



- **Healthcare**

- Medical Equipment Management
- Patient Tracking
- Anatomic Pathology Tissue Tracking
- Supplies Replenishment



- **Retail**

- Consumer Tracking
- Loss Prevention
- BOPIS / Omni-Channel
- Improved Inventory



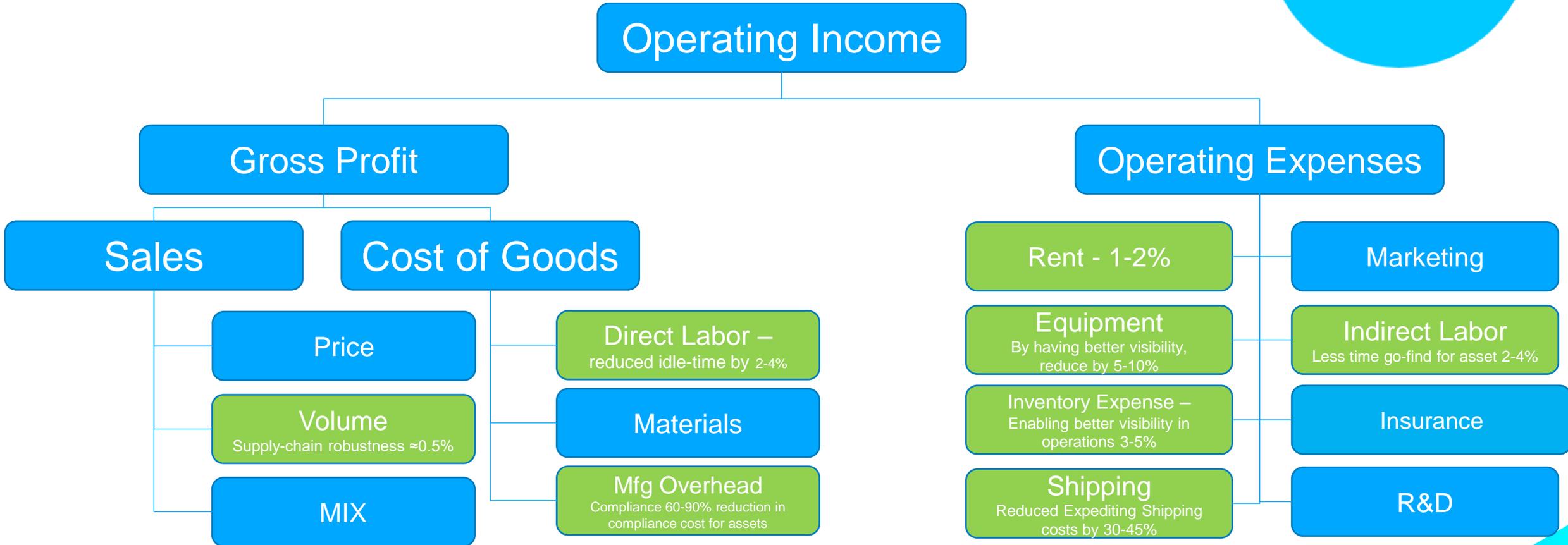
- **Government**

- - Asset/Inventory Tracking

Motionworks Asset

Customer Value Map

- Increase Utilization by 20 percent
- Reduced work delays due to missing tools by 80%
- Reduced out-of-certified tools by 30%.
- Capital expenditure to replace “currently not found” items by 50%,
- Reduced workloads due to search/find time from 8+ hours to less than 30 minutes (95%)





Zebra MotionWorks[®] Proximity

Powered by Zebra Savanna™

Proximity Sensing, Alerting and
Contact Tracing Solution

Carl Kallen
Senior Advisor and Regional Portfolio Manager
Solutions – North America



Solution Overview

1 SELECT



Zebra Android Mobile Computer or BLE Bridge

2 ASSIGN

Unique Device ID associated with Employee ID or anonymized user ID

3 USE



Wear device on front of body for optimal performance

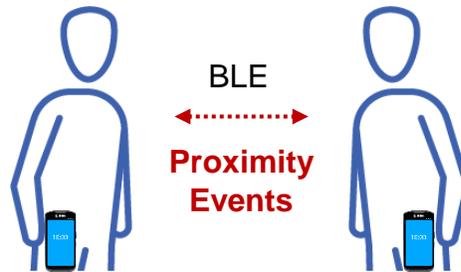
CONTACT



Continually send proximity event data with Employee ID or anonymized user ID and duration

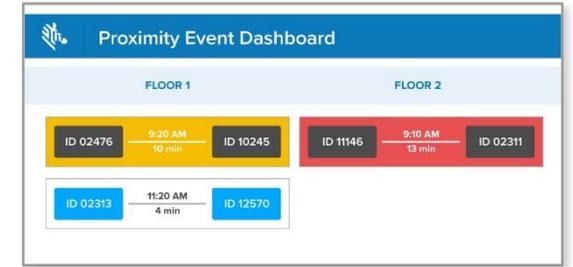


Wifi Backhaul

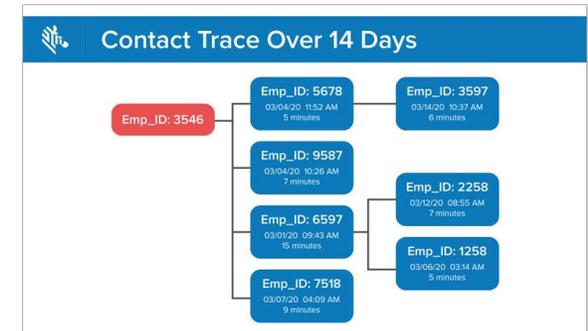


REPORT / ADMINISTRATION

Live Dashboard:
Display employee proximity events



Contact Tracing Report:
Determine who was in proximity to an individual suspected of/or has tested positive for COVID-19



Analytics & Reports:
Variety of data reports, including date/range and trends, etc.



In summary

- RAIN Passive RFID in mature state – great asset tracking technology with low cost TCO
- Handheld solutions foundational for cycle counting and mobile locationing
- Fixed reader solutions to automate repetitive workflows, reducing errors
- ATR-7000 takes Passive RAIN RFID to Real time locationing
- Zebra Motionworks Active systems for high value assets, capital goods with clear ROI
- Motionworks Proximity leverages locationing, devices, contact tracing

- Work closely with your Zebra partner Logic to initiate an RFID project:
 - Asset tracking
 - Inventory automation
 - Supply Chain visibility
 - Other