

Track & Trace

*Different options and the
impact on reusable transport packaging*

RPA Learning Center at PackExpo 2017

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What problem are you trying to solve?



There are many different options....

All with
different
levels of cost,
involvement
and
technology
requirements

- Manual (Asset Count)
- RFID
 - Active
 - Passive
- Barcode/Symbols

What you DO with the data will determine the level of success for solving your problem

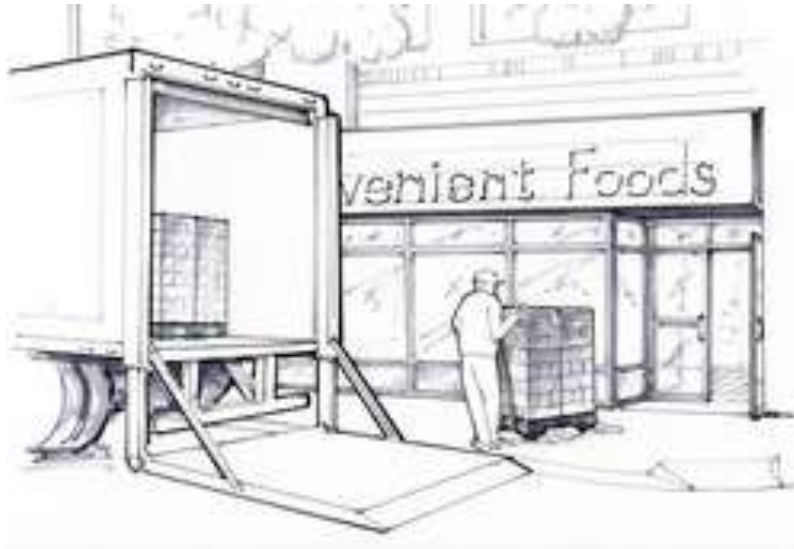
Customer implications

Internal enforcement

Total supply chain impact

Asset Count

- Application:
 - Direct store delivery
 - Milk run



Asset Count

- Advantages:
 - Minimal investment

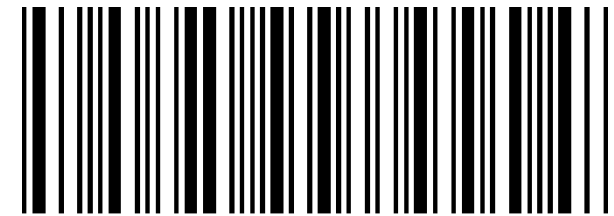
- Packaging Impact:
 - None

- Disadvantages:
 - Manual
 - Data verification
 - Time spent collecting

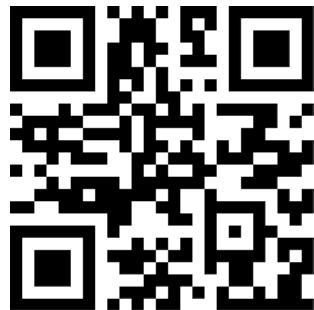


Barcode/Symbols

- Application:
 - Warehousing
 - Distribution
 - Health Care/Drug



12345678



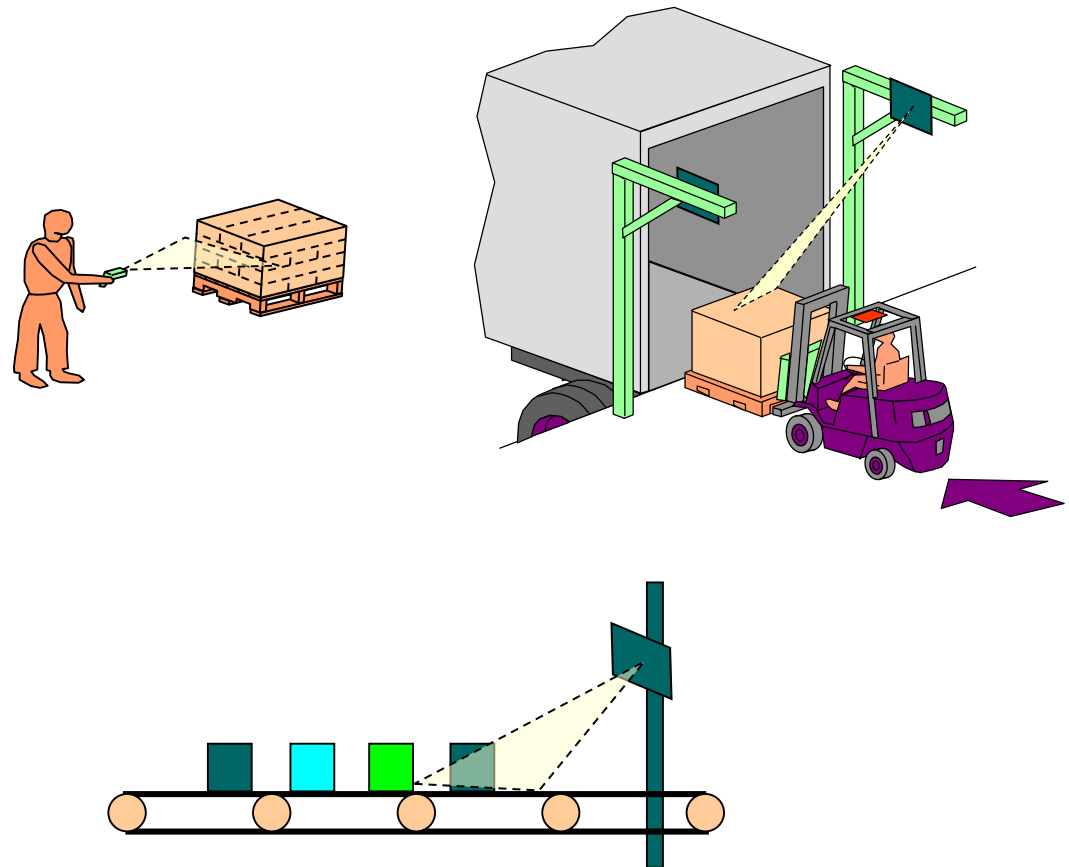
Barcode/Symbols

- Advantages:
 - Low cost
 - Universally adopted
 - Common formats & Technology
- Packaging Impact:
 - Label application
 - Hot Stamp
- Disadvantages:
 - Read one at a time
 - Requires line of sight
 - Usually requires activation by a person



RFID

- Application:
 - Warehousing
 - Distribution
 - Health Care
 - Environmental
 - Retail
 - Logistics
 - Manufacturing

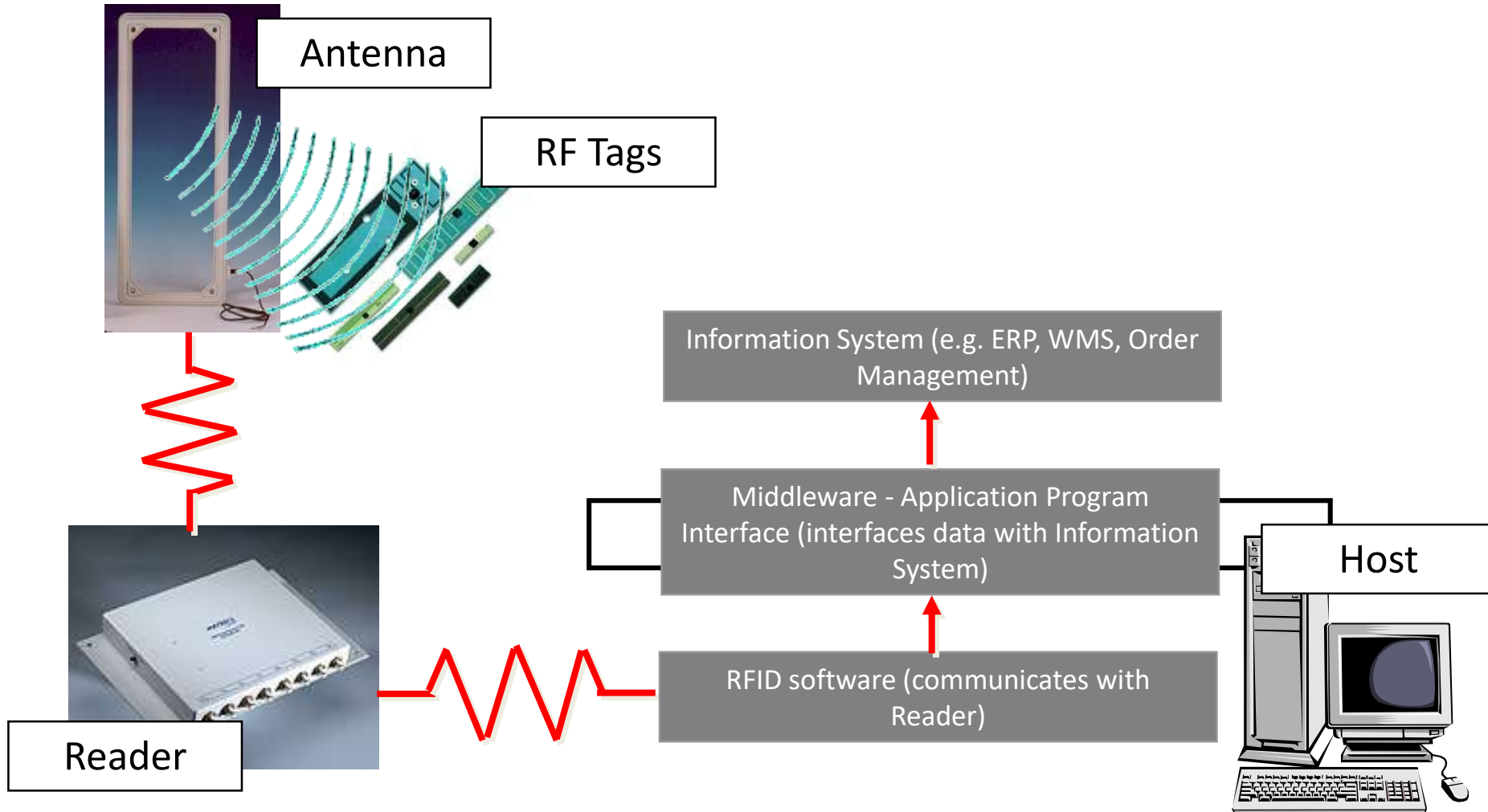




Types of RFID

	Active RFID	Passive RFID
Features	<ul style="list-style-type: none"> • Real-Time location • Reusable tags with replaceable batteries • Long Read-Range • Enviro sensor reporting (e.g. temperature) • Not sensitive to UHF material interference 	<ul style="list-style-type: none"> • Low-Cost tags • Small tag sizes and formats • Writeable memory • No batteries
Limits	<ul style="list-style-type: none"> • High tag cost and large size • Battery life 	<ul style="list-style-type: none"> • Shorter Read Range • Only visible within 'sight' of reader • Sensitive to UHF material interference
Best Use Cases	<ul style="list-style-type: none"> • Large area coverage • High-value or high-impact assets • Yard management 	<ul style="list-style-type: none"> • High volume, low cost assets • Supply Chain applications

RFID SYSTEM COMPONENTS



RFID

- Advantages:
 - Read 100s per second
 - Line of sight not required
 - Can be embedded
 - Read & Read/Write
- Disadvantages:
 - More expensive
 - Emerging standards
 - Global spectrum allocation
 - Signal interference issues
- Packaging Impact:
 - Label
 - Encased
 - Embedded

Technology Considerations

- **Application Environment** - Varying application environment (temperature, humidity, distances, speed, frequency interferences, metals, liquids, chemicals, etc.) can cause tags/readers to perform very differently. (e.g. Radio waves reflect off of metal and are absorbed by water at higher frequencies).
- **Tag Style** - Because of the enormous number of tag/antennae designs available, rely on tag manufacturers/partners to recommend best options for the application.
- **Packaging Style** - Each plastic reusable pallet and container is different, depending on color of pallet, size, form, application and resin properties, and can require a different RFID (tag) solution.

Critical Success Factors

- Develop strong relationship with supply chain partners; share the value
- Train associates
- Pilot the solution prior to full implementation
- Use the data you capture to find improvements

How do you get started?



- Engage all stakeholders
- Analyze your supply chain for opportunities for efficiency and savings.
- Design and prove a solution
- Turn to a tag/technology supplier that understands reusables
- Pilot, or test, the solution with a known set of supply chain partners
- Keep looking for continuous improvement opportunities in your supply chain



Thank you