

From tagged item to business intelligence

Intelligent operations — AI, automation, real-time decisions — only work when the data underneath is reliable, accurate and real-time. That data layer is RAIN RFID: the foundation it all depends on.

1 THE DATA FOUNDATION: CHIPS, TAGS & READERS

Where reliable item-level data is created

Tags, chips and readers do the work no other technology can: giving billions of everyday items a unique digital identity and reading them automatically, at scale. Everything upstream depends on the accuracy, completeness and timeliness of the data generated here.



Apparel, parcels, medical kits, pallets, luggage...

Items



Passive • battery-free • pennies each

RAIN tags



Fixed, handheld & mobile • hundreds of reads/sec

RAIN readers



Item ID • location • timestamp • DPP (Digital Product Passport) data

Item data

2 THE INTEGRATION BRIDGE: MIDDLEWARE

From millions of raw reads to meaningful business events

Readers produce millions of raw reads. Middleware filters, deduplicates and aggregates that stream into the events enterprise systems can actually use — keeping core systems fast, scalable and stable.

Filter & deduplicate

Strip noise, hold-times, repeat reads from the same antenna.

Aggregate to business events

"Pallet 4421 left dock door 7 at 14:02" — not 12,000 reads.

Integrate & scale

Speaks the language of ERP, WMS, SCM & CRM at any volume.

2A HYBRID ARCHITECTURE: EDGE & SCALE

Real-time decision made at the point of read

Some decisions need to happen instantly — before data travels through the network. Edge analytics triggers alerts, gates, sortation and routing decisions directly at the reader or gateway for immediate local action, while centralized middleware consolidates those events into enterprise-wide visibility.

Local rules

Trigger actions at the reader, gateway or dock door without waiting for the network

Exception alerts

Flag wrong item, wrong zone, missing item or dwell-time breach in real time

Offline resilience

Continue critical workflows when enterprise connectivity is limited

Cloud consolidation

Edge events flow upstream to centralized middleware, creating a single source of truth across all sites

3 THE SYSTEMS OF RECORD: ERP, WMS, SCM & CRM

Where RAIN data meets the platforms that run the business

Aggregated, contextualised RAIN data flows into the systems your teams already use to plan, execute and serve customers — turning real-time item visibility into inventory accuracy, fulfilment speed and customer trust.

ERP Enterprise resource planning

Inventory valuation, financials, procurement.

WMS Warehouse management

Receiving, putaway, picking, cycle counts.

SCM Supply chain management

Logistics, traceability, supplier orchestration.

CRM Customer management

Order status, returns, omnichannel experience.

OMS Order Management System

Inventory consolidation, ship-from-store, click & collect, omnichannel operations.

4 INTELLIGENT OPERATIONS: SOFTWARE & AI

Where real value is created

RAIN RFID provides the reliable, accurate, real-time item-level data that makes AI, predictive insight and autonomous decision-making possible — turning billions of everyday reads into a live picture of every item, everywhere.

Real-time visibility

A live, item-level digital twin of the entire operation.

Predictive AI & ML

Forecast demand, prevent stockouts, surface anomalies.

Autonomous workflows

Trigger replenishment, dispatch, or audit without human input.

Decision intelligence

Margin, shrink, throughput & sustainability dashboards.

Circular Economy & DPP Orchestration

Track product lifecycle beyond the Point of Sale for buy-back, second-life, and recycling. sustainability dashboards.

Whether you're scoping a pilot, evaluating vendors, or scaling to enterprise, the RAIN Alliance can connect you to the people, standards and members making it work. **Get in touch → <https://therainalliance.org/contact-us/>**