FALKEN Secure Networks

RFID Enables Real-Time Supply-Chain Management

RFID keeps Canadian Food Supply-Chain Safe

Currently the food manufacturing industry is facing both government regulations and industry requirements for quality and traceability. In order to guarantee safety in food, precise traceability within the Food Supply-Chain is required. Establishing "Pedigree" is a term borrowed from the Pharmaceutical industry for this similar application. RFID devices allow recording all useful information for traceability directly on the commodity.

Current numerical ear-tag can be easily replaced with low cost tamper-proof RFID tag for close to real-time visibility of the animals across the country.

Active and Passive RFID Technologies

An end-to-end system typically utilizes both active and passive RFID technologies. Active RFID tags and readers are used to track the vehicles and crates used to transport livestock, poultry, seafood and fresh produce items among various facilities. Passive tags were used to track individual animals. RFID tags with GPS, and time & temperature sensors are able to provide unprecedented levels of end-to-end visibility and traceability of fresh foods as they are harvested, processed, stored, and distributed. The wireless temperature sensor allows managers to monitor cold chain and temperature fluctuations over time during shipment and storage of temperature sensitive goods. Tags can be molded into a crate or the product packaging depending on the product involved.

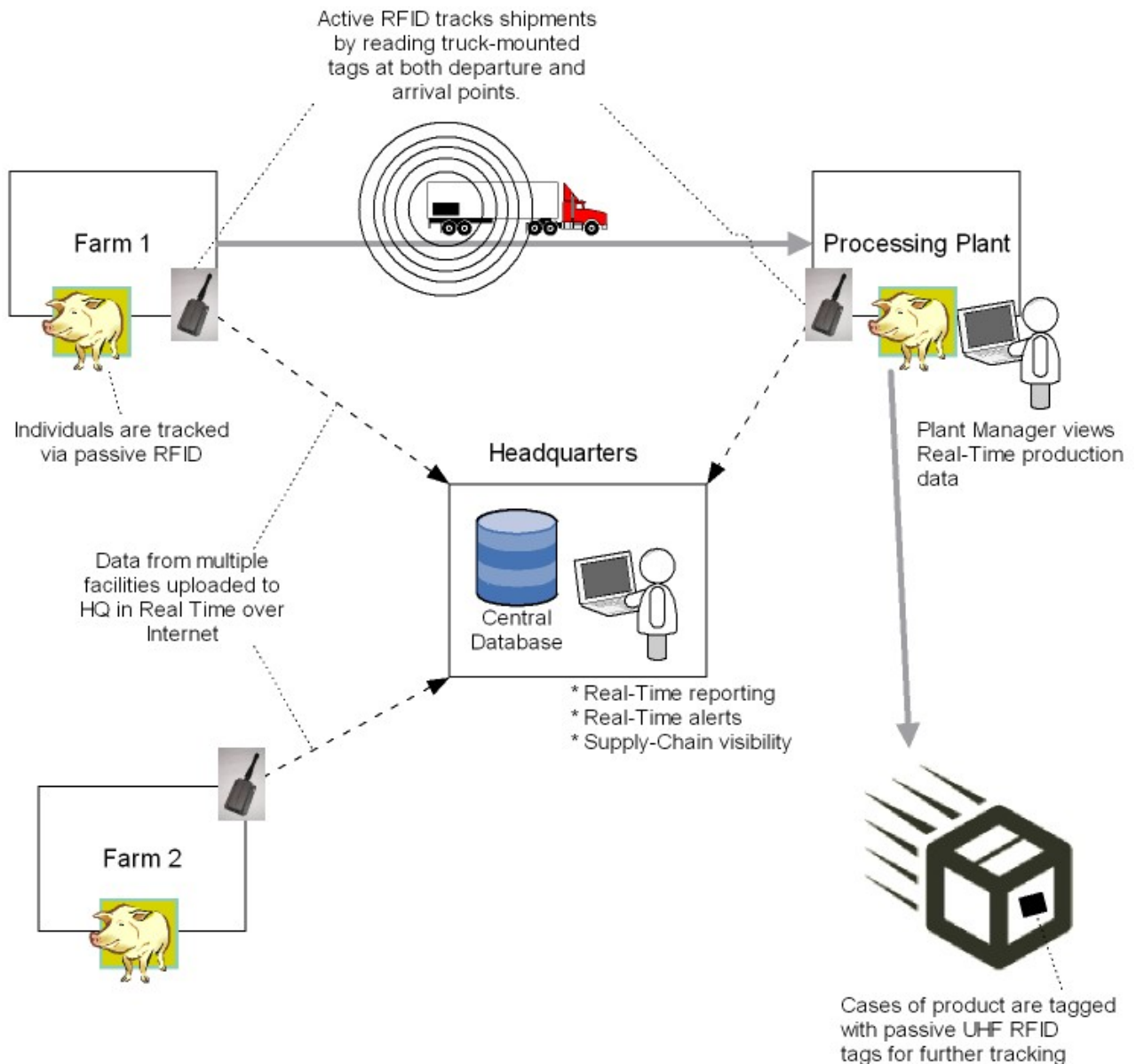**RFID keeps Canadian food supply safe and efficient**

A producer of cheese has implemented RFID to document the production of individual, handmade rounds of cheese. RFID tags containing EPC are placed on each cheese at the beginning of production. The tags are read throughout the production and ripening processes and only removed when the cheese is delivered to stores.

"The information documents the production stages for each individual slab of cheese, proving the quality of the production process as well as the origin of the cheese," EPCglobal stated. "Similar applications are used to improve the chocolate production process and to track how wine is made."

With recent outbreaks of E. coli, Mad Cow, Listeriosis and other instances of contamination making headlines nationwide, increased visibility and traceability of livestock-based and harvested foods is of paramount interest to today's fresh food producers. With a RFID "Pedigree" system, customers shall be able to significantly reduce the time and scope of recalls if and when contamination issues arise.

As fresh food is tracked through its expected (user-defined) route, deviations from expected times and conditions trigger alerts that are sent real-time to process owners. For example, for items that have gone beyond a defined tolerance (time, temperature, etc.), location and product data are instantly transmitted to the process owner so that appropriate actions can be taken. FALKEN Secure Networks integration of Omnitrol Networks solution features tag and contextual information with a centralized management dashboard accessible by multiple parties over a secure Internet dashboard as well as integrated into multiple enterprise systems.

In the event of contamination being detected, customers can trace the affected product down to the exact

Active RFID tracks shipments by reading truck-mounted tags at both departure and arrival points.

Farm 1

Individuals are tracked via passive RFID

Data from multiple facilities uploaded to HQ in Real Time over Internet

Farm 2

Processing Plant

Plant Manager views Real-Time production data

Headquarters

Central Database

* Real-Time reporting
* Real-Time alerts
* Supply-Chain visibility

Cases of product are tagged with passive UHF RFID tags for further tracking

GPS field location where it was picked. This level of traceability allows for easier identification of contaminated product lots, allowing management action with speed and precision, which will help keep them from reaching the consumer and contain costs. Additionally, the solution increases the velocity of product through the food chain, optimizing freshness.

Refrigerated truck bringing fresh produce to market may pass 3 or 4 time and temperature zones

Cold-Chain Management

A paradigm shift is currently underway that may significantly impact a multi-billion dollar global issue – the estimated $35 billion[1] of annual waste in perishable goods. There can be enormous opportunities for companies to differentiate themselves in the marketplace through leveraging the emerging technologies that improve supply chains.

A real-time view of the harvest from the initial picking allows those further downstream in the food chain to prepare for exact volumes of incoming product. Better preparedness reduces harvest cycle time.. Such efficiencies translate to a lower risk of spoilage and
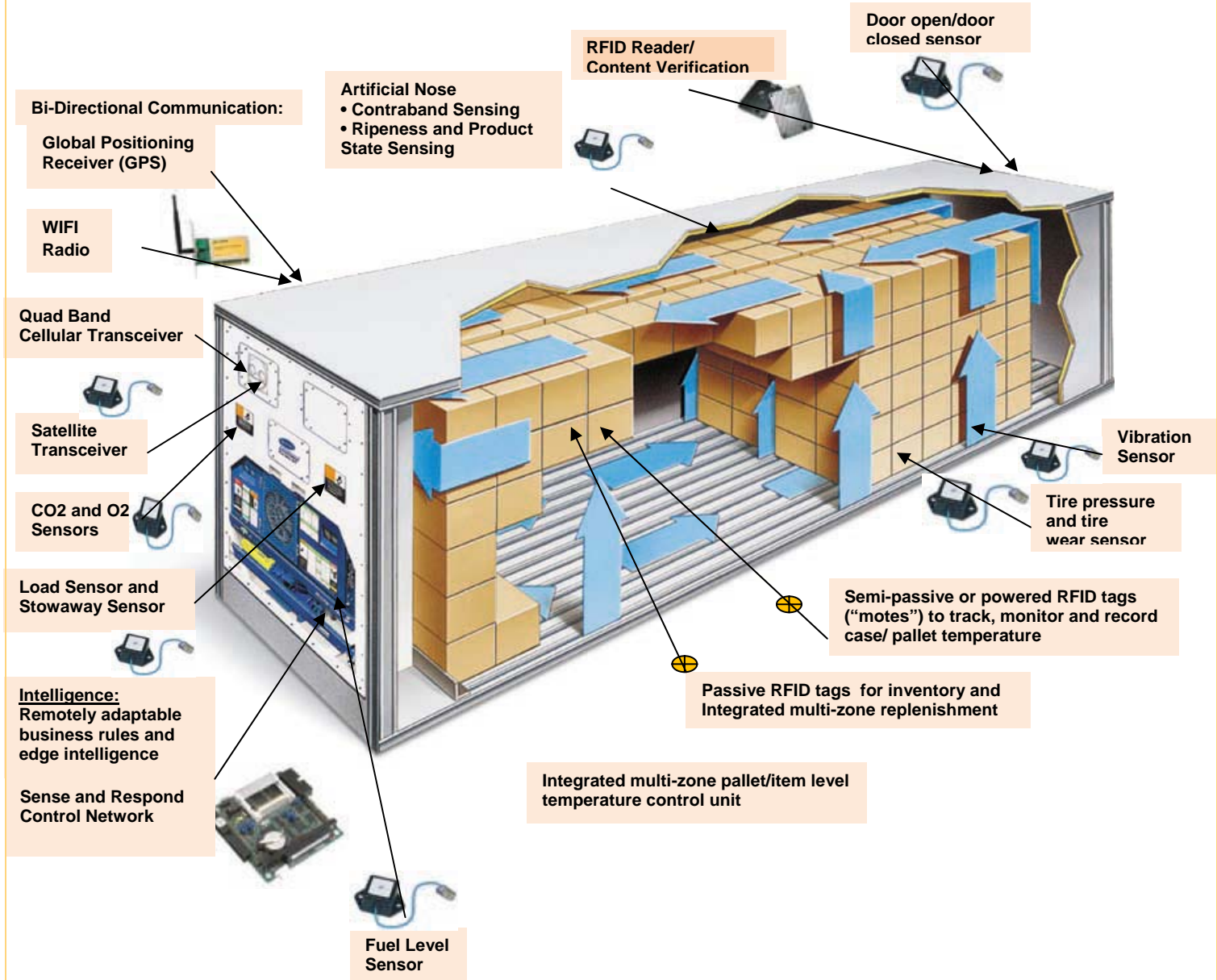
contamination, and allow system operators to quickly identify bottlenecks and anticipate opportunities for process and quality improvements. Active RFID with temperature, shock and other sensors integrated with GPS, GPRS and SATCOM provide unparalleled real-time end-to-end cold-chain visibility

The Smart Container

Specimen Bi-Directional "Smart Container" Illustrating RFID-enabled Multi-Sensory Technology Environment

Proactive Solution: When adverse events occur – such as unacceptable temperature changes – bi-directional data may help to reduce waste by making automated adjustments to container atmosphere and sending alerts for early removal of inferior product.

RFID Reader/ Content Verification

Door open/door closed sensor

Artificial Nose
• Contraband Sensing
• Ripeness and Product State Sensing

Bi-Directional Communication:

Global Positioning Receiver (GPS)

WIFI Radio

Quad Band Cellular Transceiver

Satellite Transceiver

CO2 and O2 Sensors

Load Sensor and Stowaway Sensor

Vibration Sensor

Tire pressure and tire wear sensor

Semi-passive or powered RFID tags ("motes") to track, monitor and record case/ pallet temperature

Passive RFID tags for inventory and Integrated multi-zone replenishment

Intelligence:
Remotely adaptable business rules and edge intelligence

Sense and Respond Control Network

Integrated multi-zone pallet/item level temperature control unit

Fuel Level Sensor

Integrated RFID solutions from FALKEN Secure Networks comply with the latest industry standards-GS1 EPCglobal's Electronic Product Code Information Services (EPCIS) standard -- which allows sharing of RFID data across and between enterprises.

FALKEN Secure Networks(FSN)—Your partner for RFID automation

If you choose to pursue RFID implementation in your organization, here is the FALKEN Secure Networks commitment to you:

- FSN will provide solution architects to work with you to define system requirements for your particular installation. Multiple locations can be networked together for a central and real-time view and centralized management.
- FSN will do a RFID site survey to validate radio frequencies, tag types, system design and performance
- FSN will provide all necessary hardware and software to make the system work for you
- FSN will integrate the system with your existing enterprise management software
- FSN will provide documentation for the system, including operating procedures
- FSN will train your people
- FSN will provide warranty and continued system support

For RFID-enabled Document Tracking and Management, FALKEN Secure Networks (FSN) and partners bring together the right technologies to give you control over your files and make your office run more efficiently. Our automated and secure processes save time and labor, and prevent problems before they occur. With FSN ,you get the latest, non-proprietary secure RFID technology with the most powerful and flexible RFID file tracking software available.

Contact Us

FALKEN Secure Networks is a specialized System Integrator, RFID Solution Architect, and Value-Added Reseller with focused expertise in the RFID site survey, cost-effective design, and turn-key project implementation.

Contact FSN at sales@falkensecurenetworks.com

Motorola/Symbol

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