



Sensor & Actuator solutions

Det teknologiske bakteppe Del II

Espen Braathe

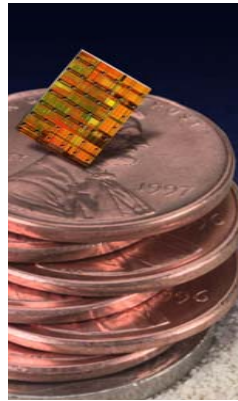
Solution leader S&A Norway

14.06.2007



An True Innovation Company

- Largest industrial research organization in the world
Patent leadership
More than 3,000 employees in R&D
\$5.5 bn in 2006
- World's largest information technology company
serving clients in 160 countries
- We translate our advanced technologies into value for our customers through our professional solutions, services and consulting businesses worldwide.



Deep Expertise in Oil & Gas

- Global practice
- 60,000 consultants – more than 3,000 in petroleum industry
- Proven track record delivering technology and business value
- Portfolio of industry solutions and middleware architecture
- Industry partnerships
- IBM Research engaged in First of a Kind Oil Industry projects



But we also need local skills and resources

- IBM Norway:

- 1,200 employees

- All IBM product lines represented

- One of the largest consulting companies in Norway

- Well-established supplier to the industry today

- Dedicated to Norway:

- Business solutions team in Stavanger

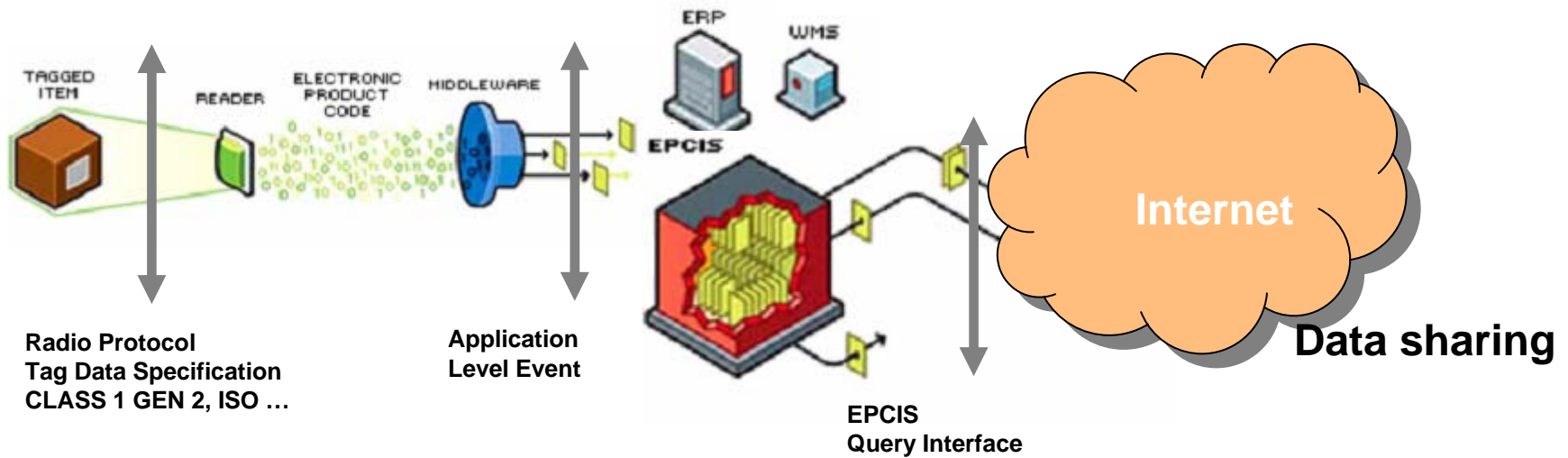
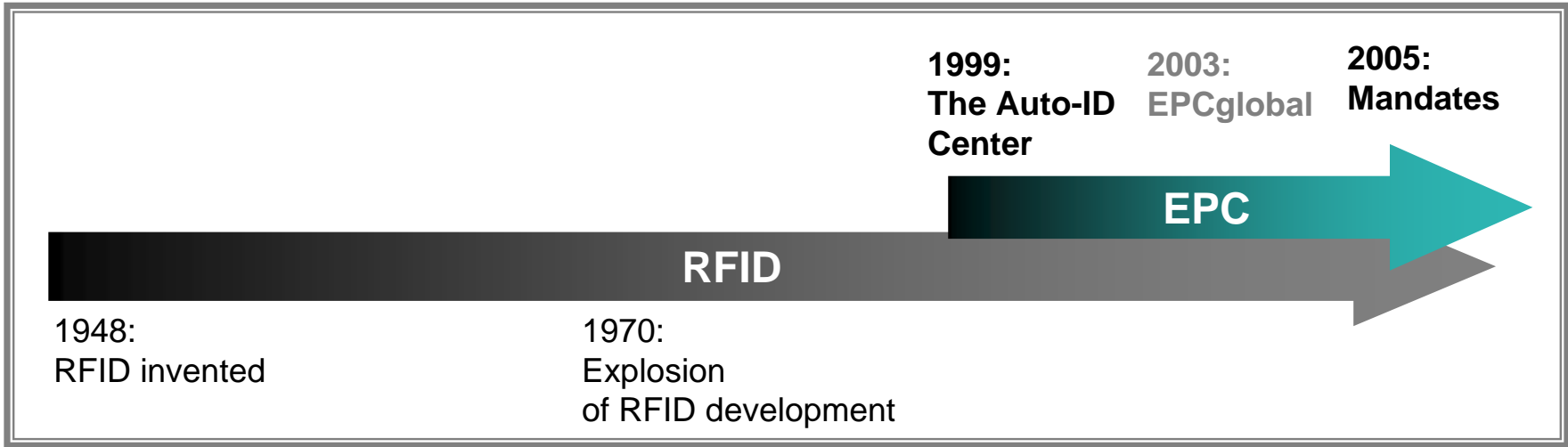
- Teaming with sectors and others with extensive experience from industry

- Leveraging IBM's experience from this and other industries – locally and globally

- Part of global oil & gas network



Technologies and standards are maturing



What problems are we solving with EPCIS?

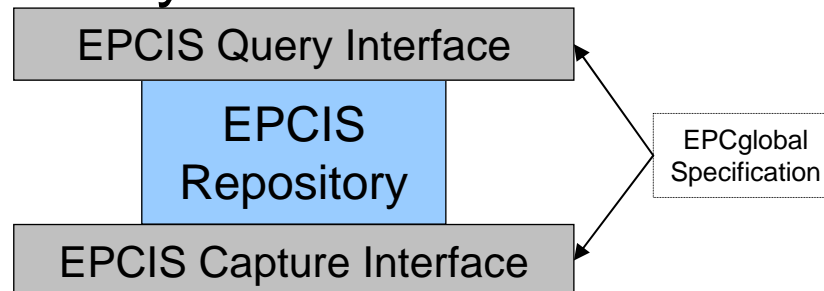
EPC Information Service (EPCIS)

The goal of EPCIS is to enable disparate applications to leverage Electronic Product Code (EPC) data via EPC-related data sharing, both within and across enterprises.

--EPCIS Version 1.0 Specification



- The goals above can be broken down into the following:
 - How do we **STORE** and archive RFID Event data?
 - How do we **SEARCH** information from this stored data?
 - How do we securely **SHARE** this data with others?



What traceability event data is stored in EPCIS?

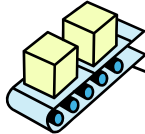
EPCIS data crosses four dimensions - **what**, **where**, **when**, and **why**

What



Transactional Data
Retail Point of Sale

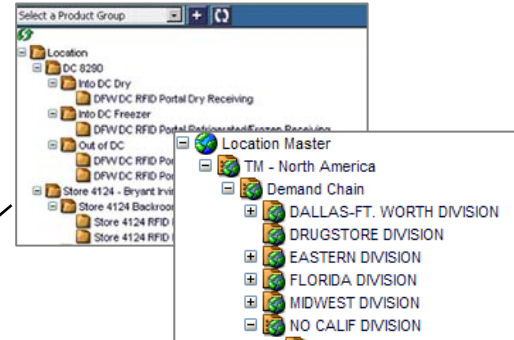
Supplier Data
e.g. Warranty,
Lot/Batch, Product
Specs, Expiration Date



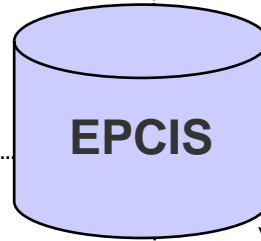
**DC EPC Events
and Product
Master Data**



**Location Master
Data**



Where



Timestamp



When

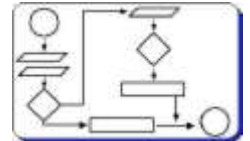
**Store Associates
Product Location &
Information**



**Supply Chain
Visibility and
Inventory Mgt**



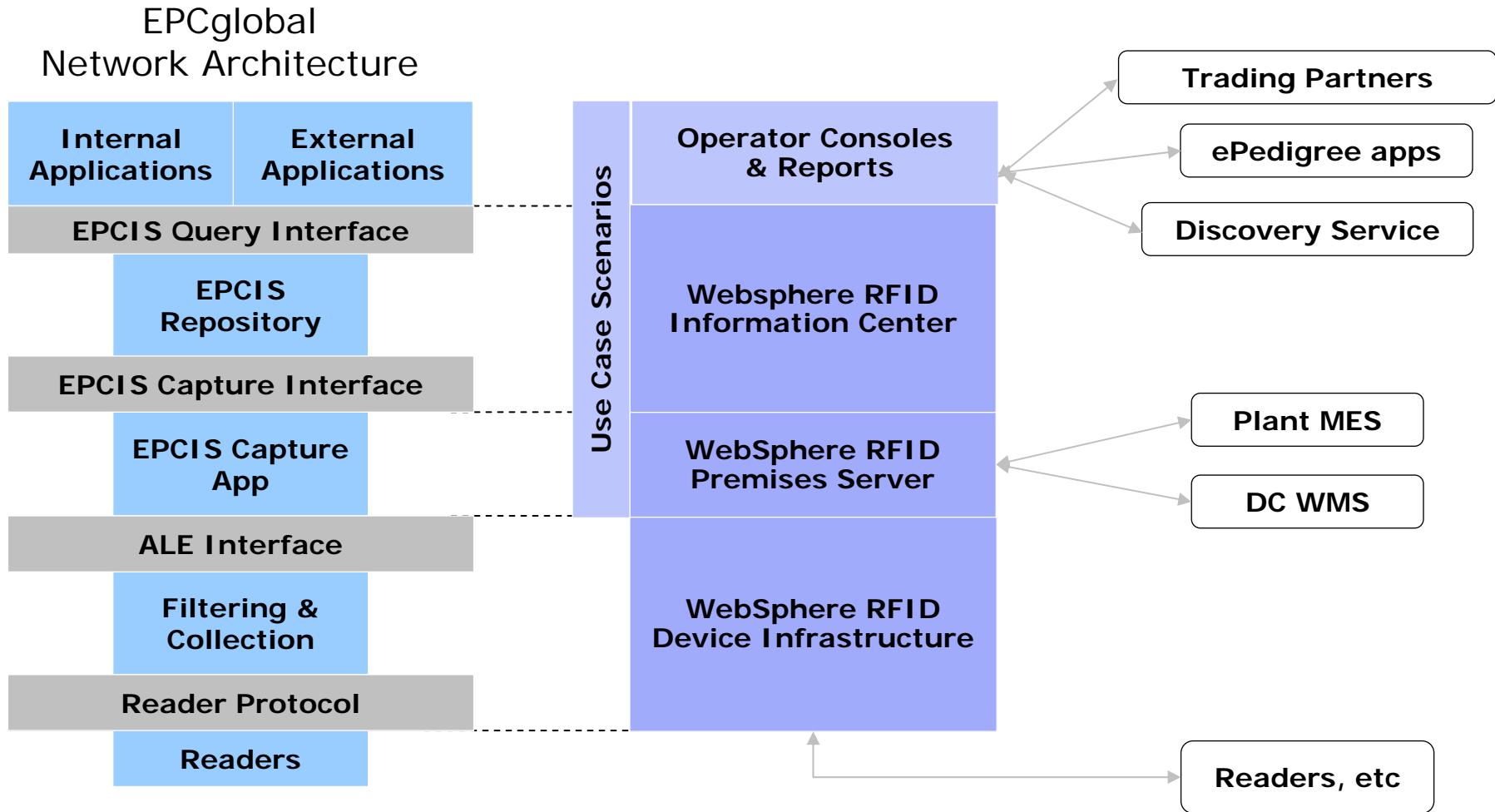
**Business Process
Improvement
In-Store, DC**



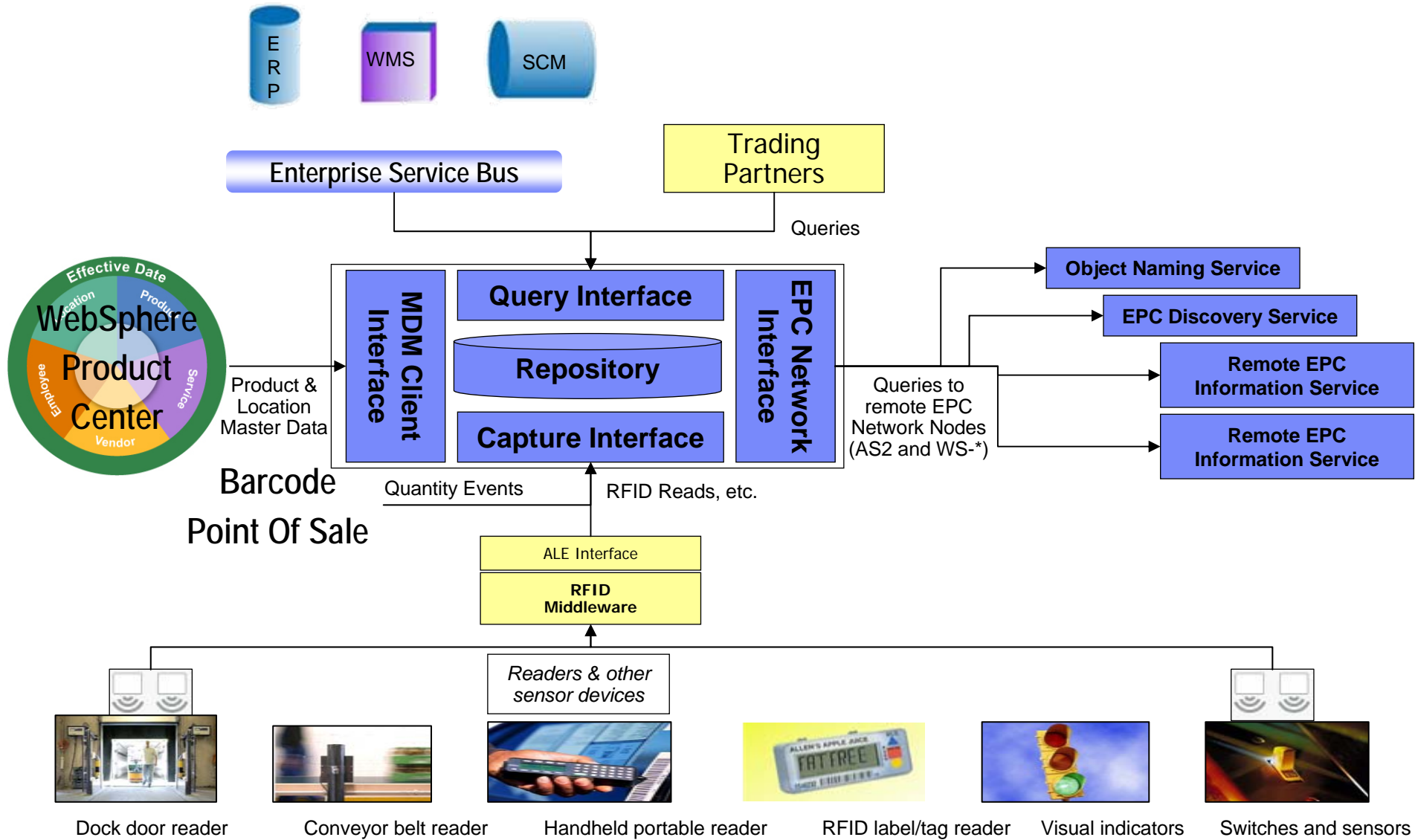
Why

IBM Websphere RFID Information Center

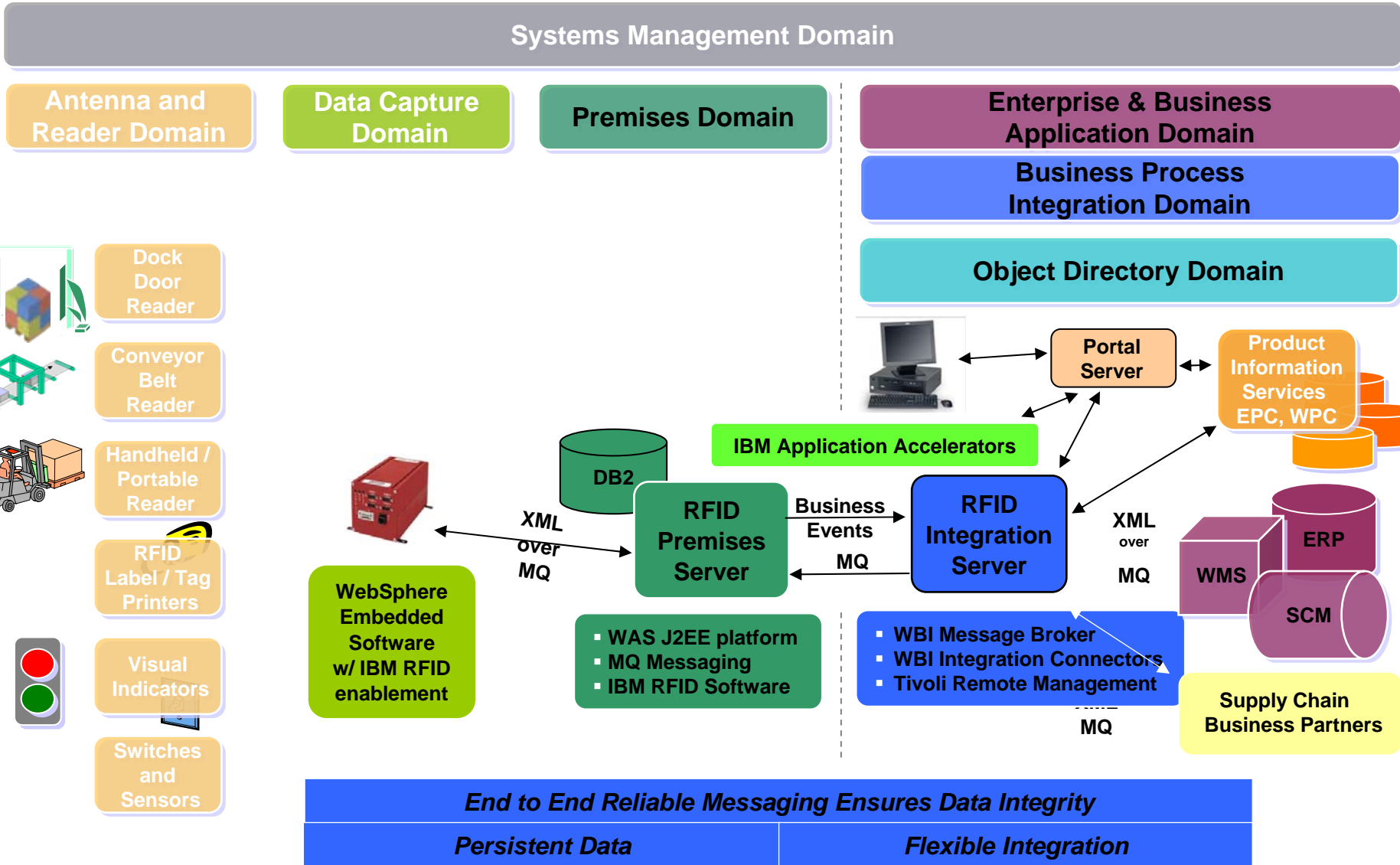
Fully Aligned to Global Standards



EPCIS – Integration to selected external systems

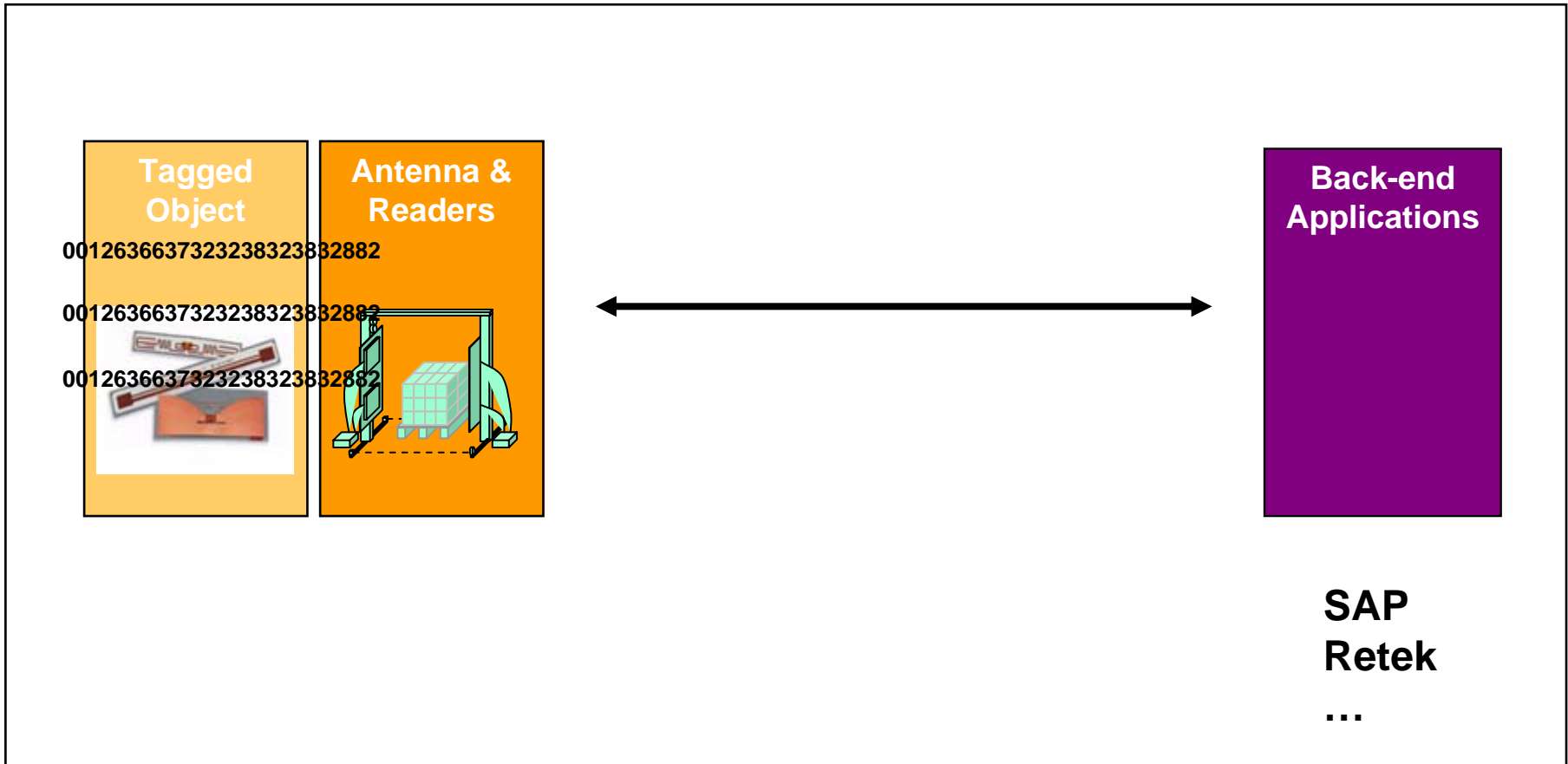


IBM RFID Software Solution Architecture

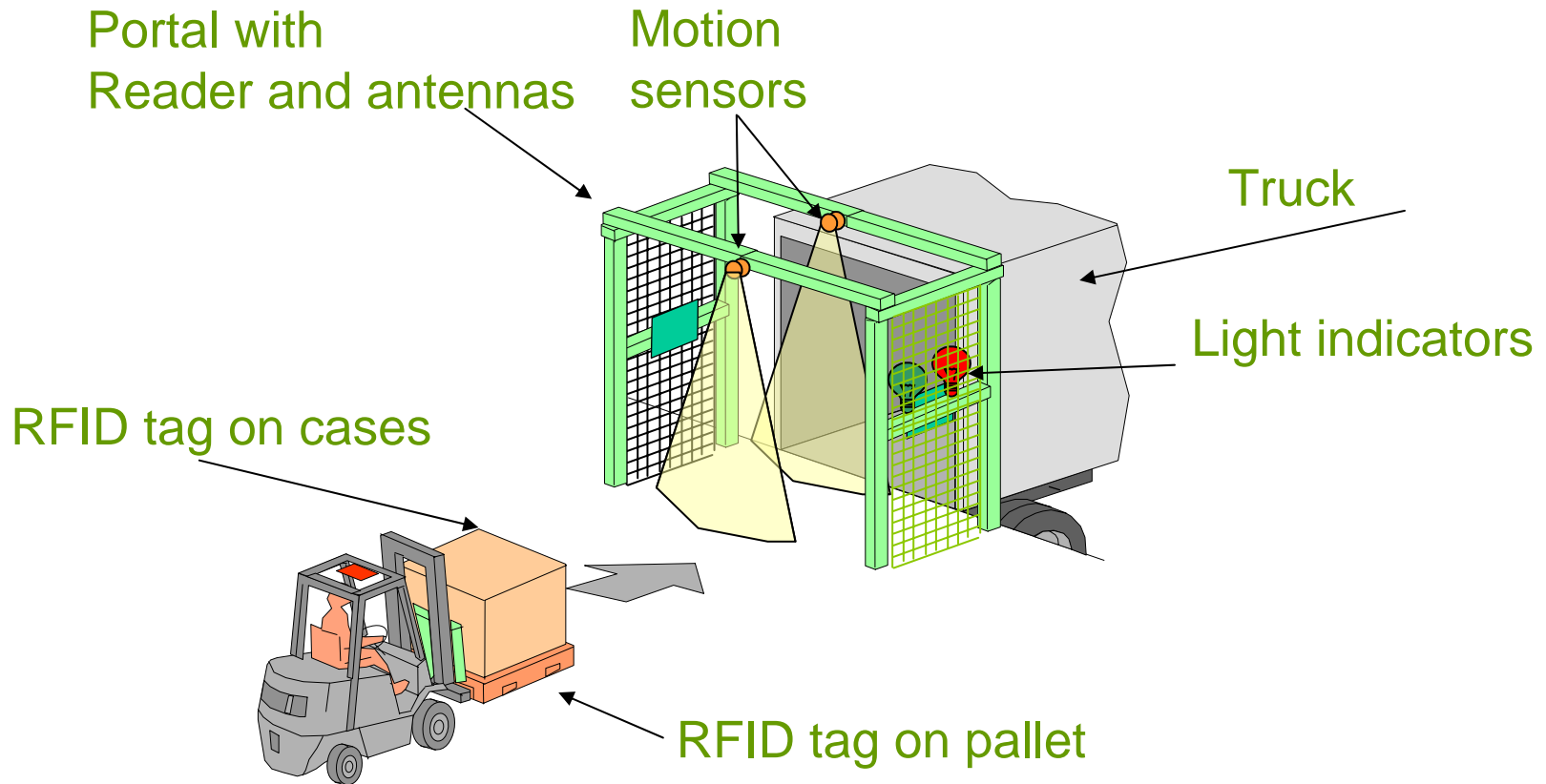


Integration et Deployment

An end-to-end solution to convert “raw” RFID read in business decisions

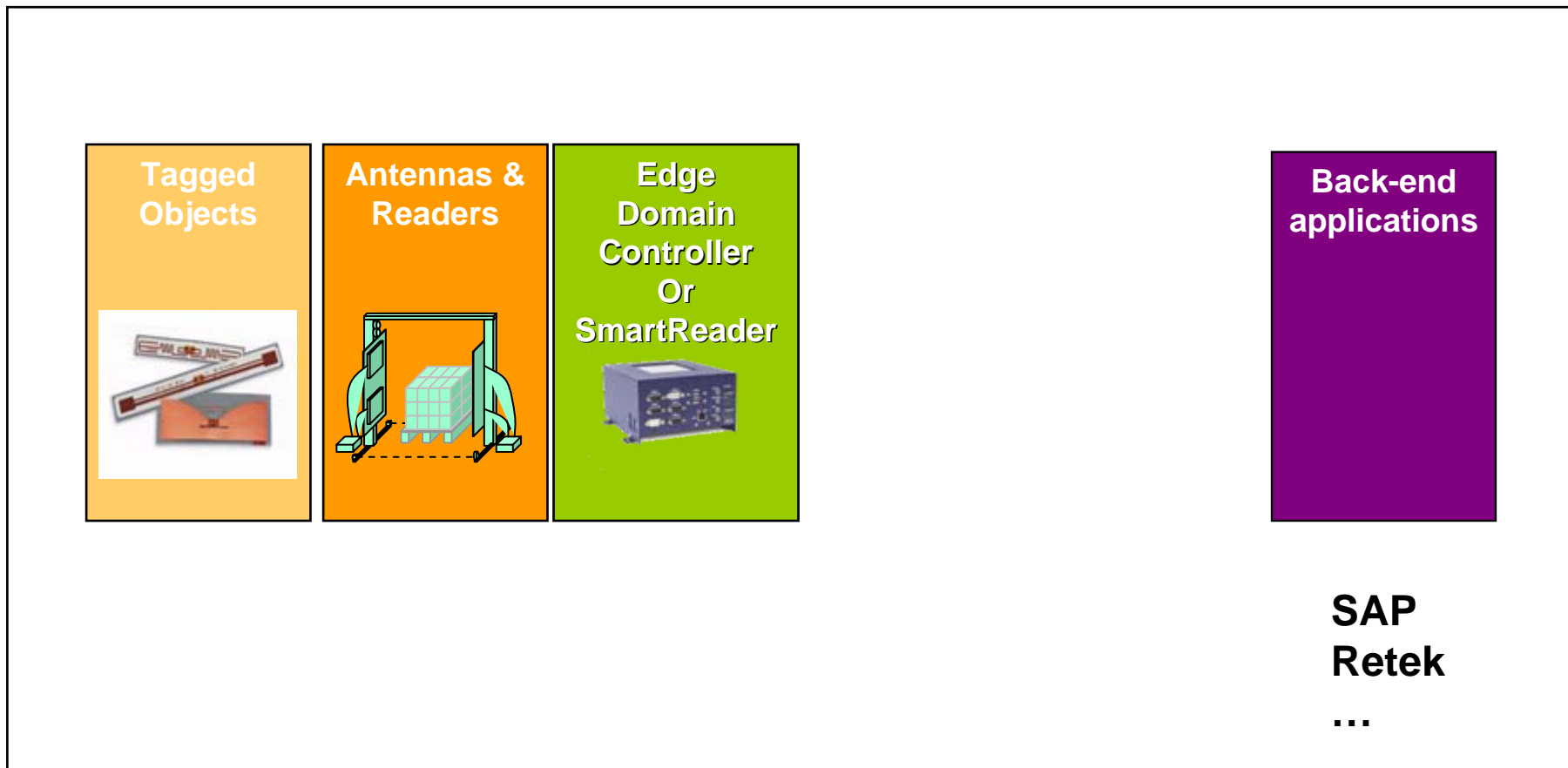


Sample RFID setup for dock-door: more than just a reader...



Integration and Deployment

A reading point controller or Edge controller domain

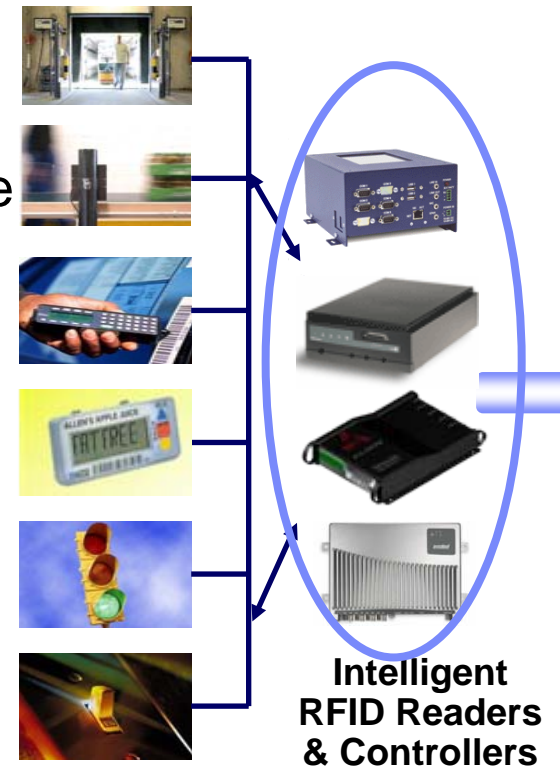


IBM WebSphere RFID Device Infrastructure *(OEM only)* *Embedded at the Edge in RFID Intelligent Readers and Controllers*

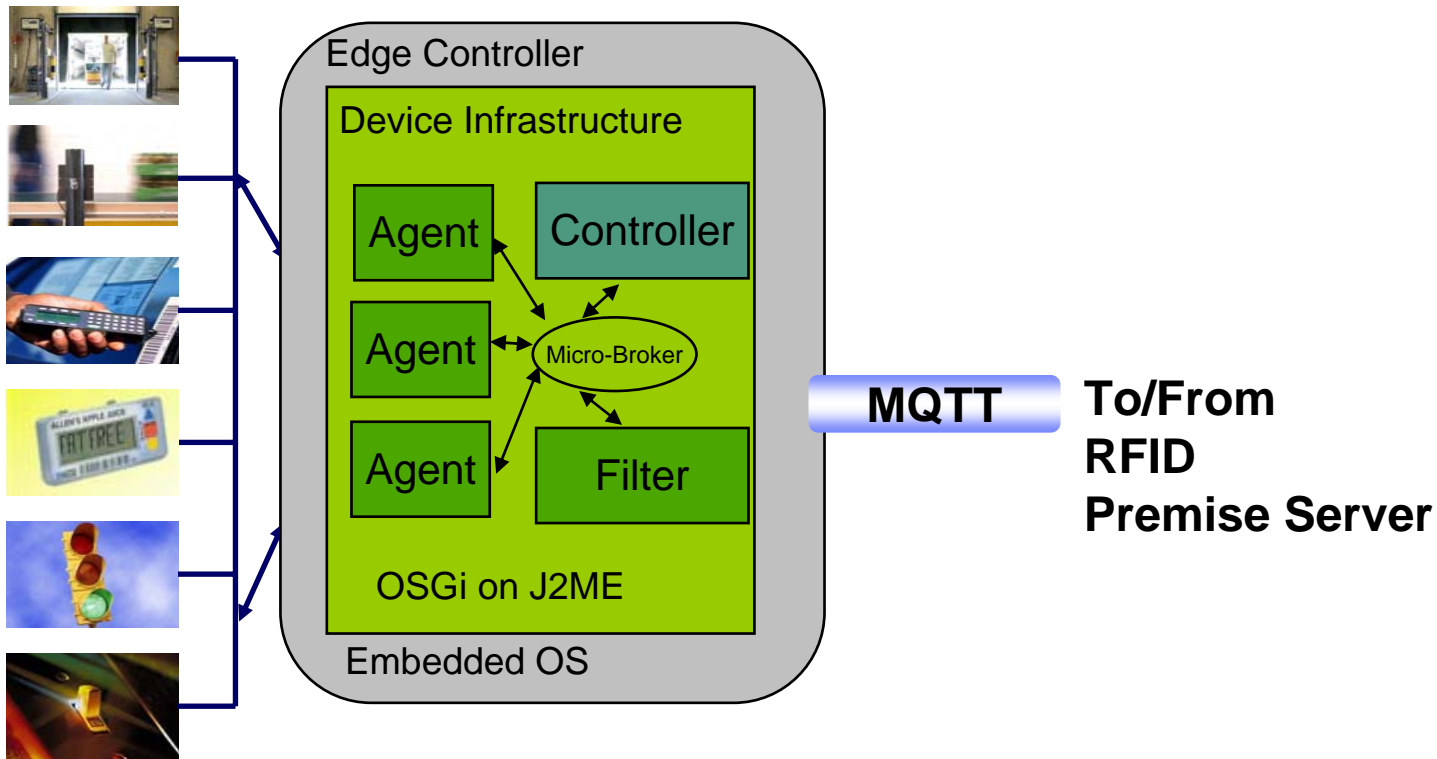
RFID event collection and reporting at the edge of the network:

- Filters data close to the readers for event collection and reporting
- Platform for implementation of operational processes and integration of industrial equipment
- Reliable Delivery of RFID data and events
- Secure, reliable, platform for always-on performance
- Enabled for remote software distribution
- Supports a variety of RFID readers

Licensed through OEM agreements to
RFID Device Manufacturers

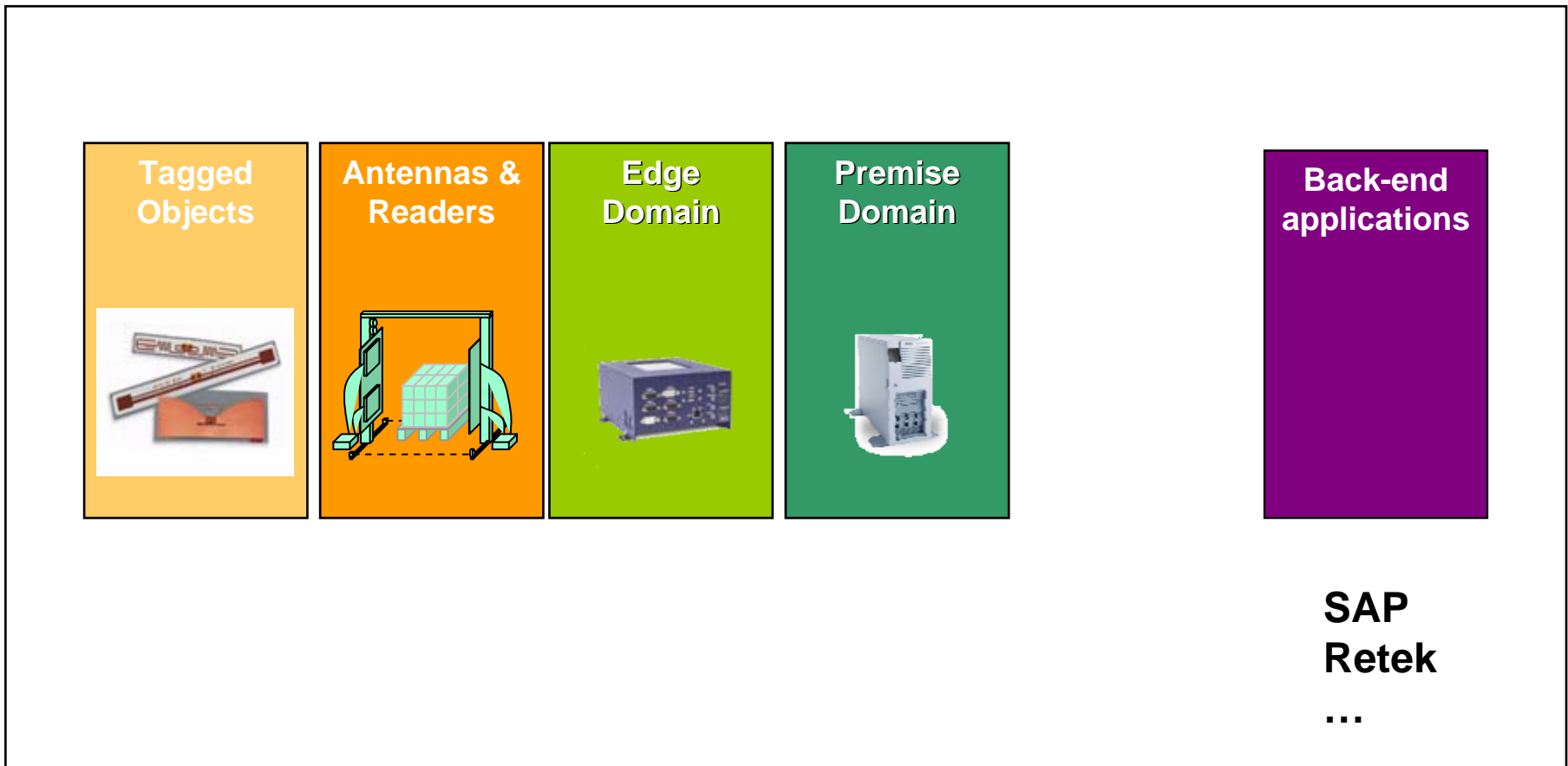


IBM WebSphere RFID Device Infrastructure



Integration and Deployment

A middleware to manage the different reading points and to convert physical events read in business events



IBM WebSphere RFID Premises Server *(PPA product)* *Integrating the Edge with the Enterprise*

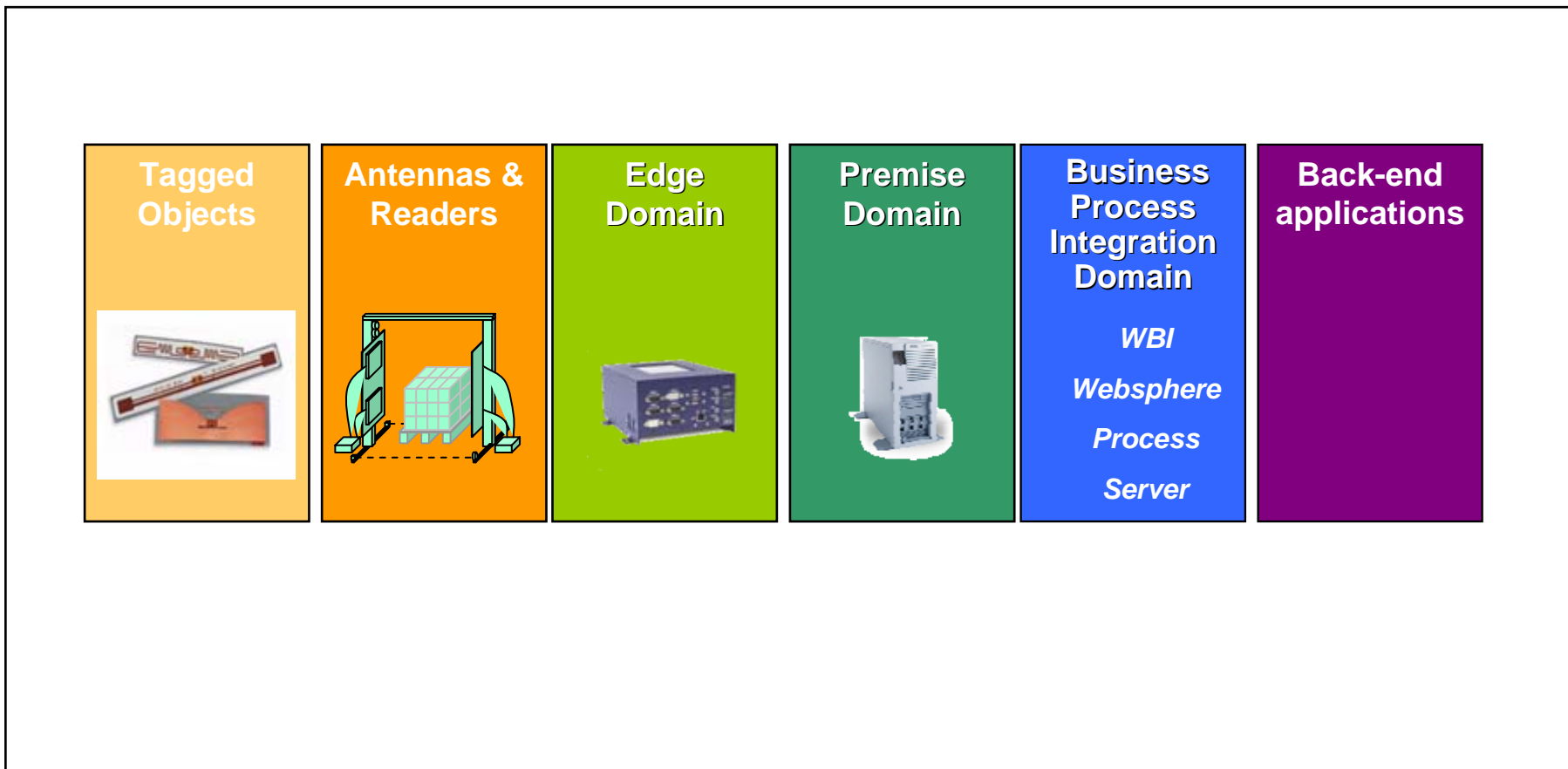
Platform for deployment of RFID enabled applications:



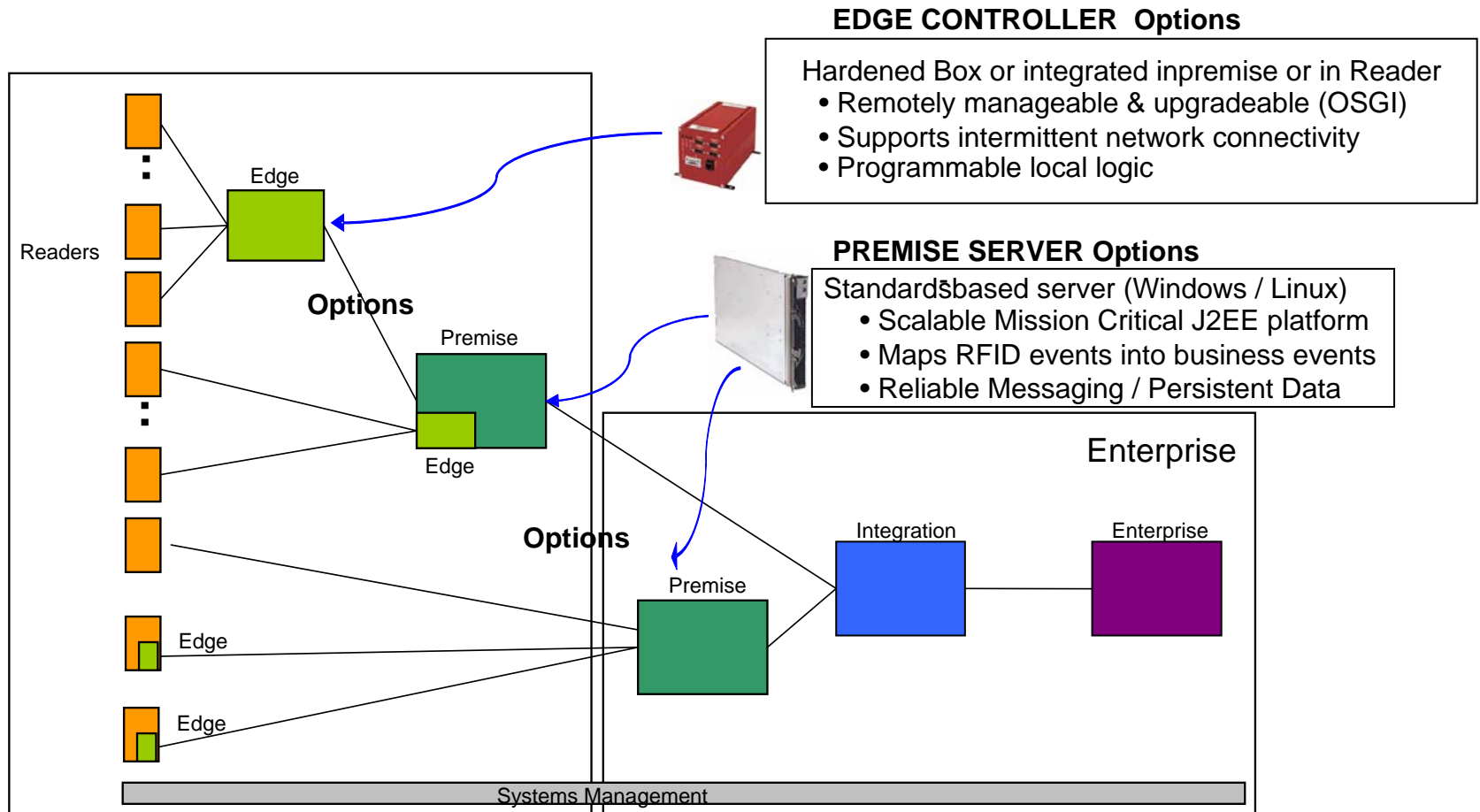
- Enables correlation of RFID events and business rules
- J2EE Application Platform for RFID business applications
- Creates and maintains a “system of record” for RFID events
- Secure, reliable messaging for integration with enterprise
- Enabled for remote system management
- Built on WAS, MQ, DB2, Tivoli monitoring, config agents
- Includes Dock Door Receiving Starter Kit
- Includes Print Verify Ship Starter Kit

Integration and Deployment

An integration domain with easy creation / modification / monitoring of business processes

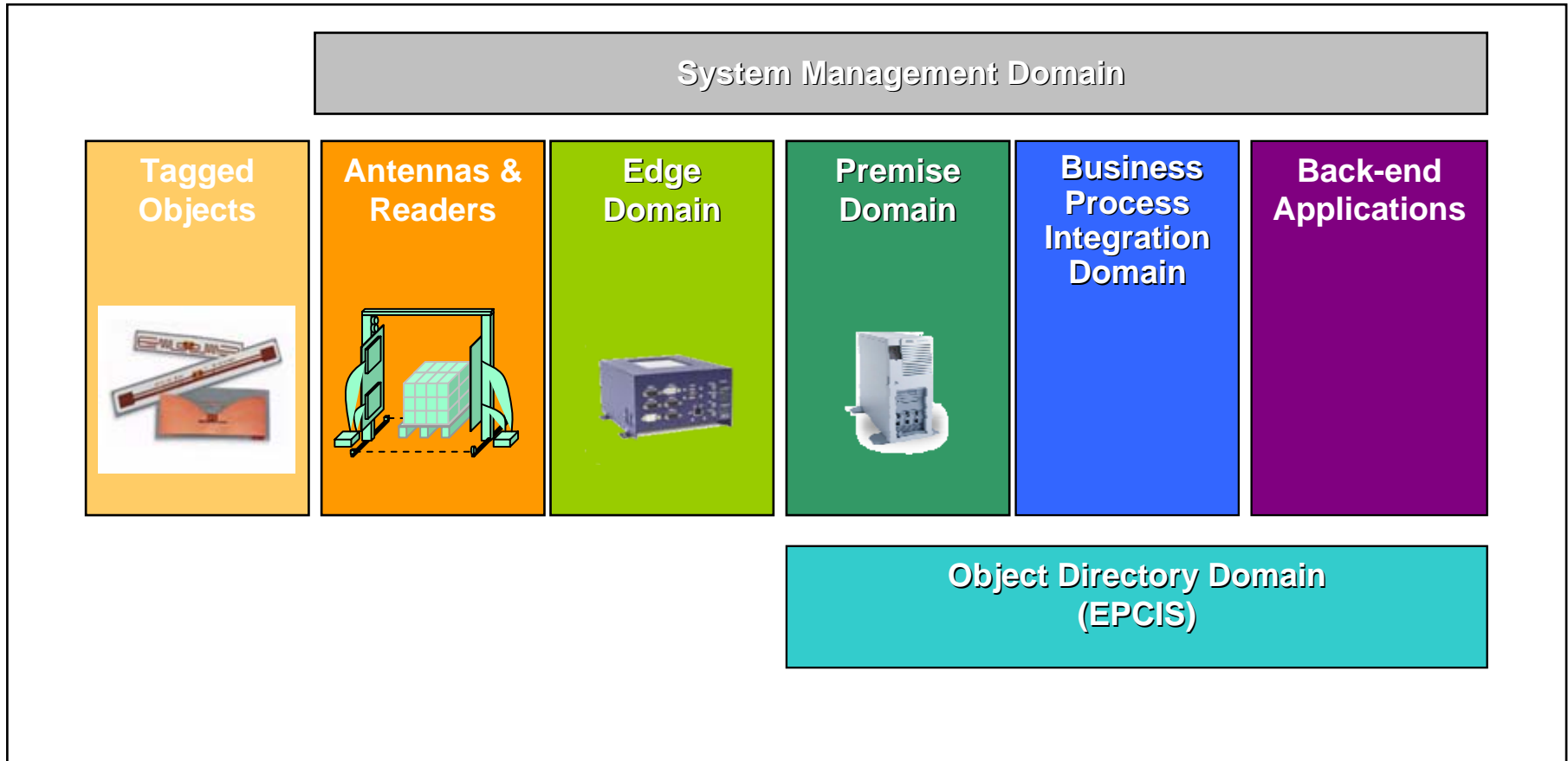


A Flexible architecture

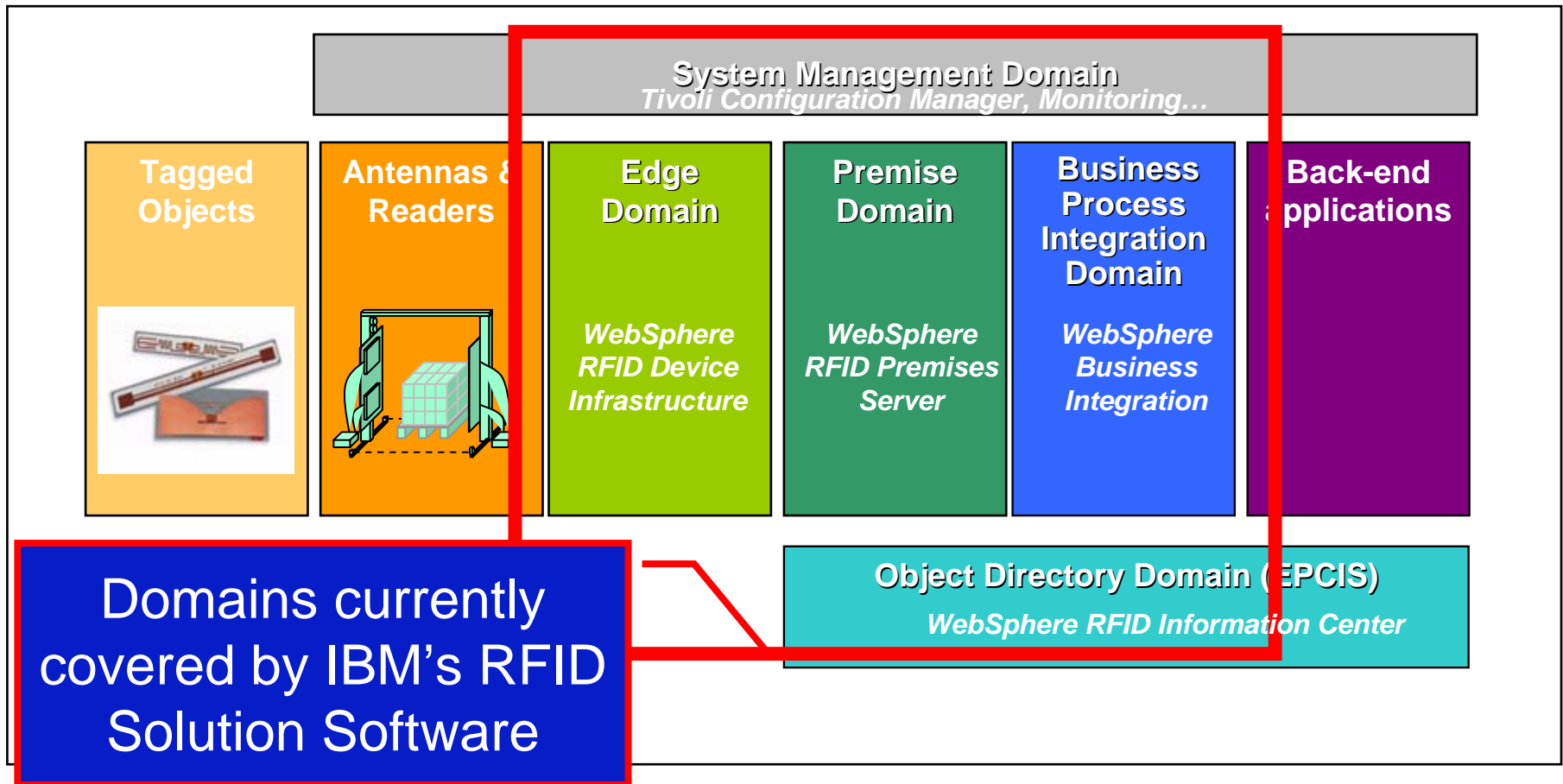


Integration and Deployment

System Management: Alarms, heartbeat, configuration, software download...



Domains covered by IBM middleware offering



IBM's RFID Solutions integrate Software, Services and Partner Capabilities



Tags



RFID Readers, Controllers



Premises Server



Enterprise IT System



Enterprise Applications

IBM WebSphere RFID Device Infrastructure

Embedded infrastructure for smart readers and controllers

OEM Only

IBM WebSphere RFID Premises Server or RFID Add-On for Remote Server

Open standards RFID middleware for remote servers located at stores, DCs, warehouses, manufacturing locations

PPA #D54SLLL (or Add-On # D54SNLL)

IBM WebSphere Portal Server

IBM WebSphere Process Server

IBM Tivoli Systems Management

IBM DB2 Information Integrator

WebSphere RFID Information Center (EPCIS)

IBM Global Services Integrated Technology Services

IBM Global Services Business Consulting Services

IBM RFID Solution Software Differentiation

RFID events become business transactions

■ Robustness

- Reliable Messaging Infrastructure
- Persistent Data for Intermittent Networks

■ Scalability

- Pilot to production implementations
- Distributed Implementation

■ Flexibility

- Integration to additional applications is key to realizing business value: Legacy and New
- Platform for Business Innovation

■ Manageability

- Remote deployment, configuration and updates of distributed infrastructure

Robust, proven platform for innovative business capabilities

Thank you....

Espen Braathe

Sensors & Actuators Solutions EBO Norway

braathee@no.ibm.com