

RFID in the Green Sector distribution channel



Reusable Container Tracking
Supply Chain Visibility and Optimization for a smarter planet

The purpose of this session is to provide an overview of a very significant RFID-initiative targeted the Green Sector in Europe

- The Context & the Business Problem
- The Solution
- Scenarios
- Next Steps



THE CONTEXT & THE BUSINESS PROBLEM





GROWER: GREENHOUSE



GROWER: PLANT OUT ROBOT



AUCTION: TRADING FLOOR



AUCTION: STORAGE AREA



AUCTION: INTERNAL LOGISTICS



AUCTION: TRANSPORT ROBOT



EXPORTER: REPACKAGING



CC DEPOT: INBOUND/OUTBOUND



CC DEPOT: SHELF STORAGE

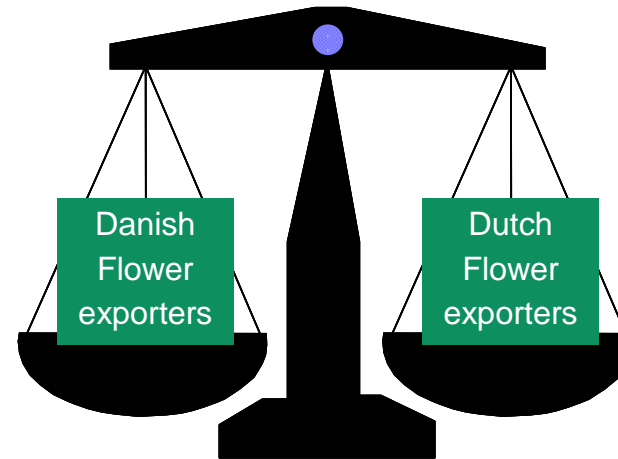
The Flower Container is the de facto standard for transports of flowers and potplants across Europe

- Started in 1976, the Container Centralen system was created due to demand for a returnable transport item solution
- Based on an exchange and balancing system leading to increased efficiency and lower number of items needed
- 3,5 million containers in use, 22M shelves
- 80.000 users across 22 countries in Europe and nearby, e.g. growers, auctions, transporters, wholesalers, retailers



Container Centralen

- Activities started up in 1976 under GASA Group and other Danish flower exporters
- 1980: Container Centralen AmbA founded in Denmark
- 1989: Container Centralen A/S founded (limited company) with Dutch flower exporters as co-shareholders



Some key figures

- Head office in Odense, Denmark
- About 140 employees worldwide
- Serving more than 23,000 customers across 40 different countries
- Every day, we help more than 80,000 users to move products
- Turnover in 2008 71M €

The problem: Containers are being counterfeited leading to severe problems for all involved supply chain partners – from grower to retail



- Containers are counterfeited by 3rd party
- Assumed 10%, i.e. 350.000 units
- Counterfeit operation very fast, competent and until now unstoppable

- Low quality clones causes severe problems in supply chain
- Primary: Large robots in auction houses, transport chain, loss of products

- Container Centralen responsible for repair & maintenance, but counterfeits does not have associated contracts

THE SOLUTION



TECHNICAL CHALLENGE:

Make impossible to clone, copy, break and use as widespread logistics solution at the same time. Also support use in very demanding industrial heavy metal extreme and high-humidity environments.



APPROACH:

- Tag all containers with secure tag to count and authenticate
- Implement CC RFID inhouse solution
- Extend to supply chain partners, e.g. Growers, auction houses, transporters, exporters, retail
- Prepare for future track & trace solution across the Green Sector

The overall purpose of the RFID solution is to address a set of business problems – but also to initiate a larger vision of improved efficiency and collaboration in the Green Sector

THE CHALLENGE

Containers are being counterfeited and injected into supply chain

Increased cost to handle repair and maintenance

Lower quality containers leading to handling problems in Green Sector

THE PROCESS

Engage stakeholders in Green Sector to participate

Spread solution to partners to enable authentication

Deliver framework to allow partners to build own applications using CC authentication

THE LONG-TERM VISION

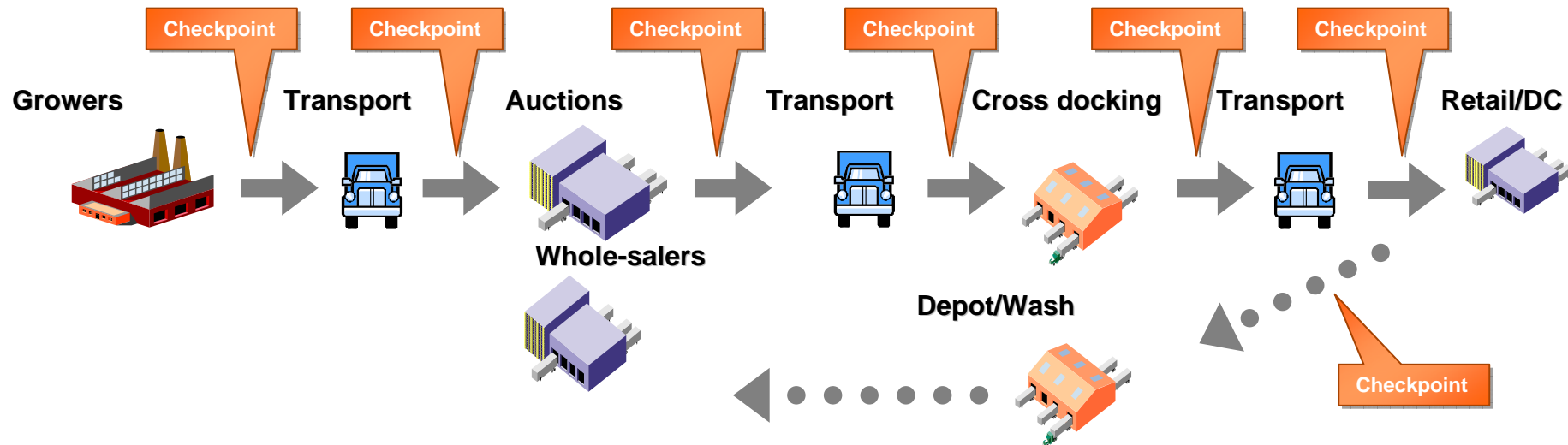
Extend solution to handle track & trace

Enable infrastructure to allow for cross-partner integration

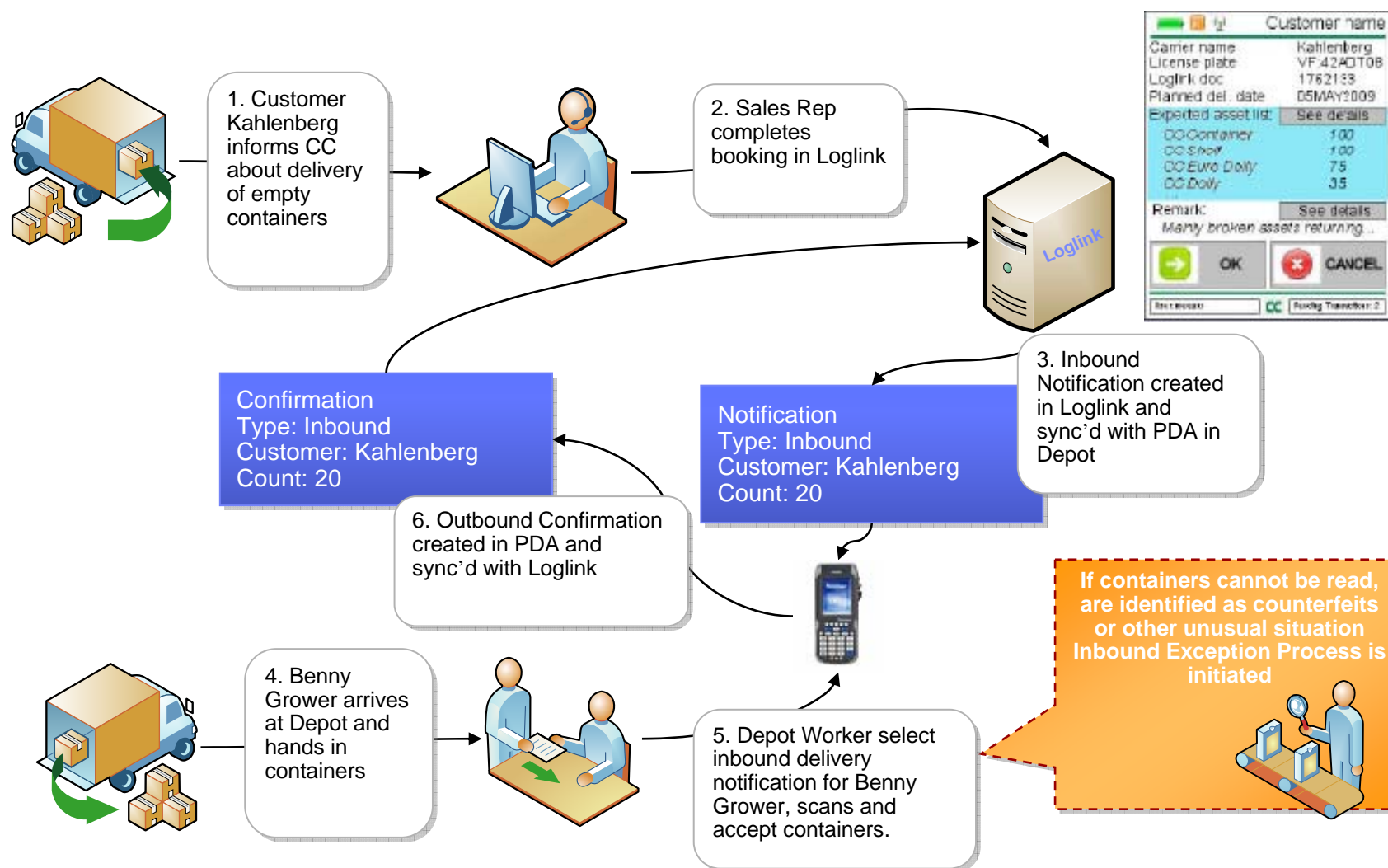


The core of the solution will provide a mechanism to ensure full trust among partners in the Green Sector supply chain

- Authenticate equipment to build trust and ensure genuine equipment in all handover-situations in the supply chain
- Deliver solutions and software components to allow for Green Sector partners getting easy access to use of RTI authentication



Internally in the CC depots the solution will streamline and control processes around handling containers



For the supply chain partners the CC RFID Solution provides several mechanisms to perform authentication and other functions either out of the box or as custom developed solutions

Handheld devices

- Selected standard handheld devices with basic application functionality to perform authentication of RTI's
- Currently two models available – for small-scale and larger scale use



Fixed gate

- A standard fixed gate-setup containing all components to provide authentication and counting when RTI's are passing dock-door or other entry



"Blackbox"

- A software component to provide authentication and security update functionality to existing partner applications
- Integrate into inhouse or standard applications



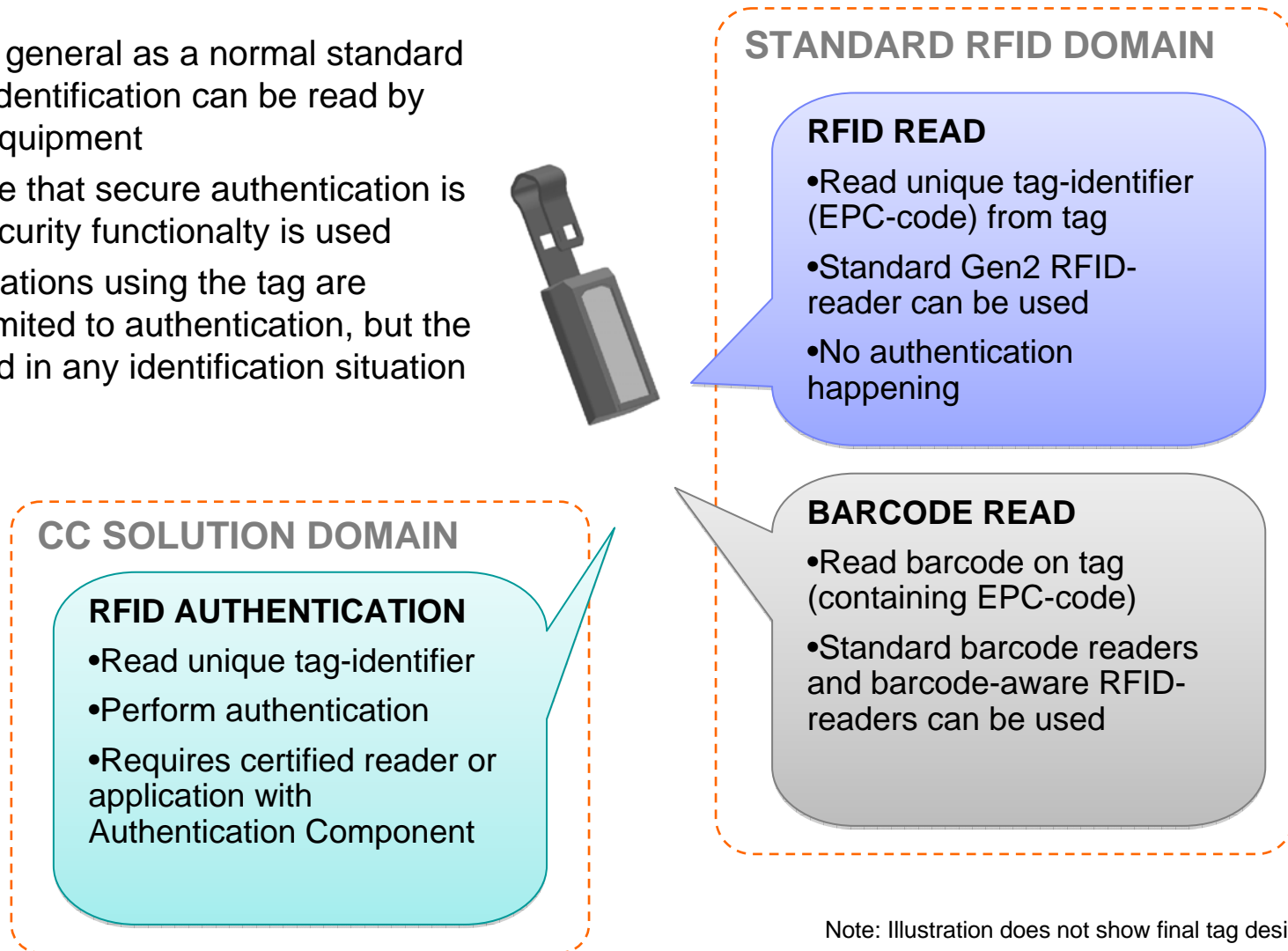
All devices, solutions, components delivered via an eco-system of hardware-, software-partners and system integrators

SCENARIOS



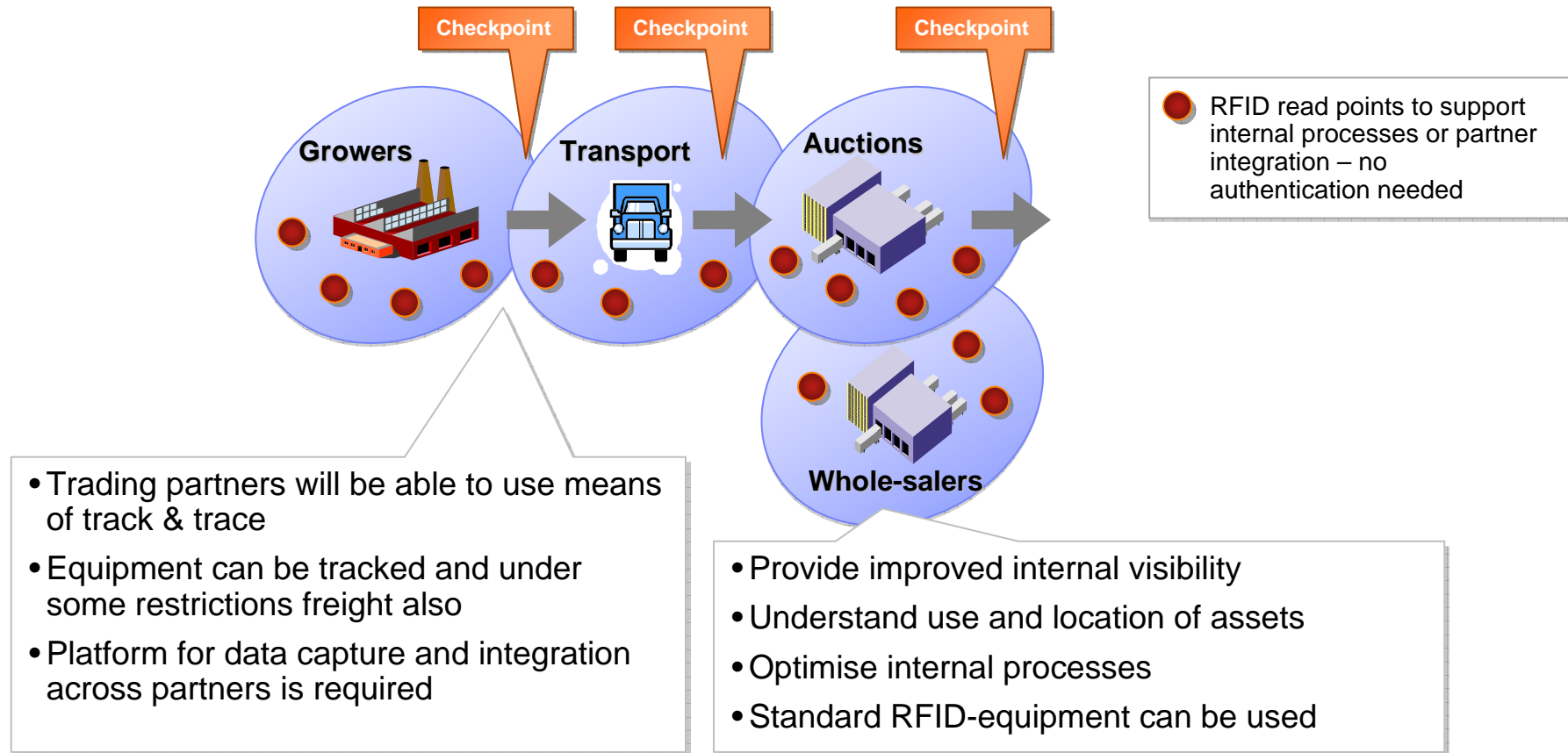
The tag can be accessed in several ways, resulting in several possible usage scenarios

- The tag acts in general as a normal standard RFID-tag and identification can be read by any standard equipment
- Only in the case that secure authentication is needed, the security functionality is used
- Possible applications using the tag are therefore not limited to authentication, but the tag can be used in any identification situation



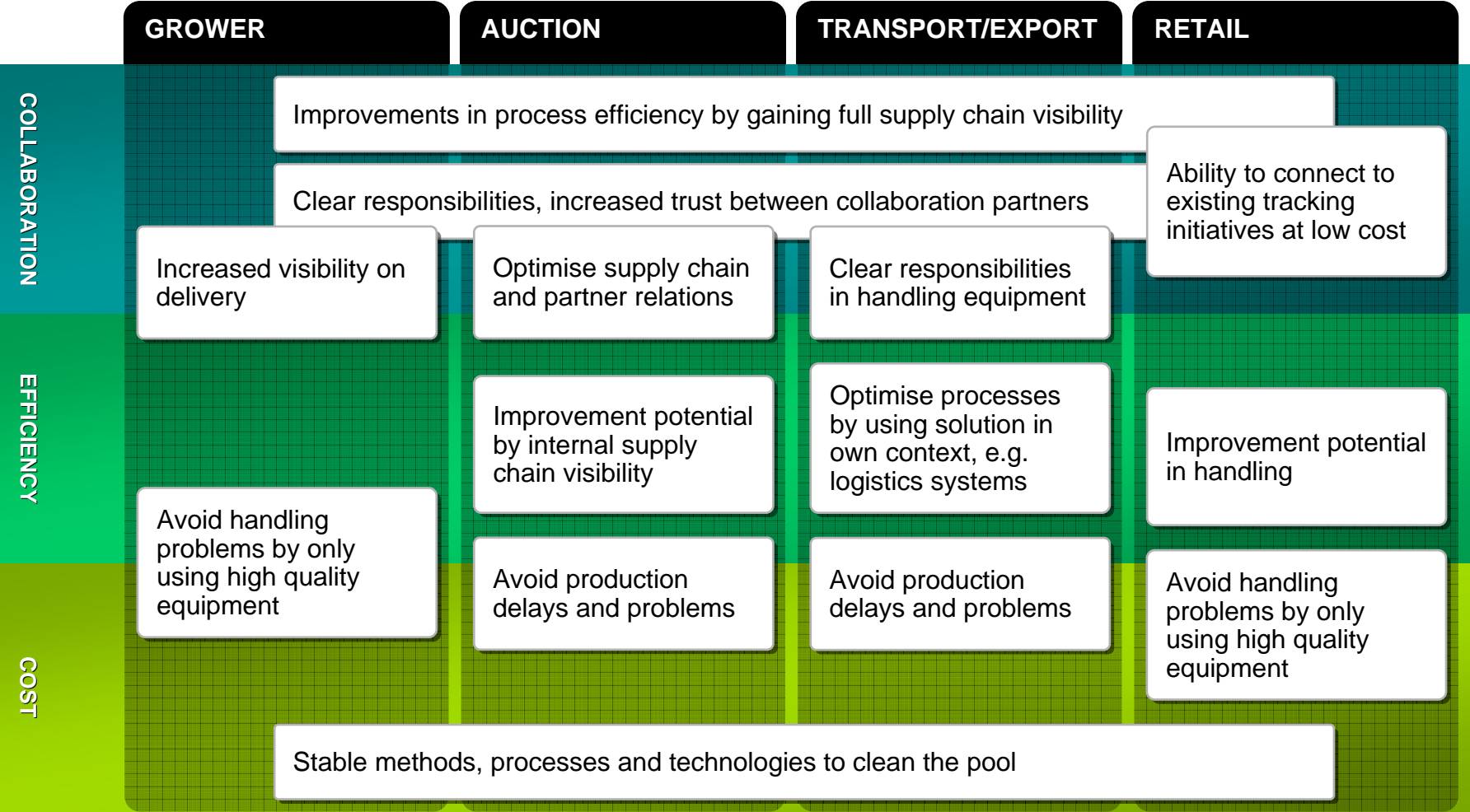
Note: Illustration does not show final tag design

Example: The consequence is that variations of track & trace can be implemented using the basic CC RFID solution as the foundation



However, it is important to note that the CC RFID solution does not provide track & trace in itself today. It is the task of the partner to build applications, integration and infrastructure as needed.

The solution will lead to a variety of benefits across the Green Sector



NEXT STEPS



The solution will be finally rolled out in November 2010

- Internal CC solution ready
- Standard RFID-products for users being finalised and will be available via webshops
- API's and solution components made available to partner eco-system
- All RTI's will be tagged October 2010
- Start November 1st 2010

- Activities towards the Green Sector track & trace scenario have been initiated

The screenshot shows the website for CC Containers' RFID solution. At the top, there is a banner with the text "Be ready for November 1, 2010. All CC Containers will be RFID tagged!" and a photo of a woman in a greenhouse. Below the banner is a navigation bar with links for Home, FAQ, Contact, Search, Sitemap, Webmaster, and RSS. The main content area features a large article titled "Be ready to reap the benefits of RFID by November 1, 2010!" with a sub-headline "New identification tag on the CC Container". To the right, there is a "News >>" section with several news items, including "Information about handheld RFID scanners is now available!" and "RFID implementation on CC Containers is still moving full steam ahead!...". At the bottom right, there is a "RFID Demo" section with a small video player.

Get more info at www.cc-rfid.com

THANK YOU



Karim Jawad

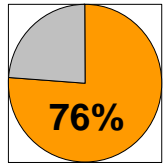
Karim.jawad@nl.ibm.com

+31 6 512 56789

The Challenge

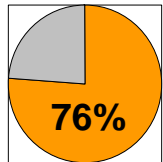
Lack of Visibility Results in High Costs and Risks

Product Counterfeiting & Gray Markets

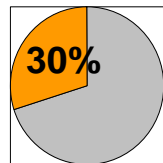


Containers used in critical business or consumer applications tend to get counterfeited leading in monetary as well as possible public safety issues

Asset Utilization & Supply Chain Visibility



76% of companies have problems tracking returnable containers leading to poor asset utilization



Annual shrinkage loss rates are between 15% to 30%
Lack of visibility leads to higher safety stock levels for containers as well as inventory

Containers represent a considerable investment for manufacturing, distribution, transportation and logistics companies. Monitoring is difficult and tracking is often not in place.



Opportunity for Incremental Revenue

Better visibility can drive enhanced product quality and customer service levels

Proof of Delivery

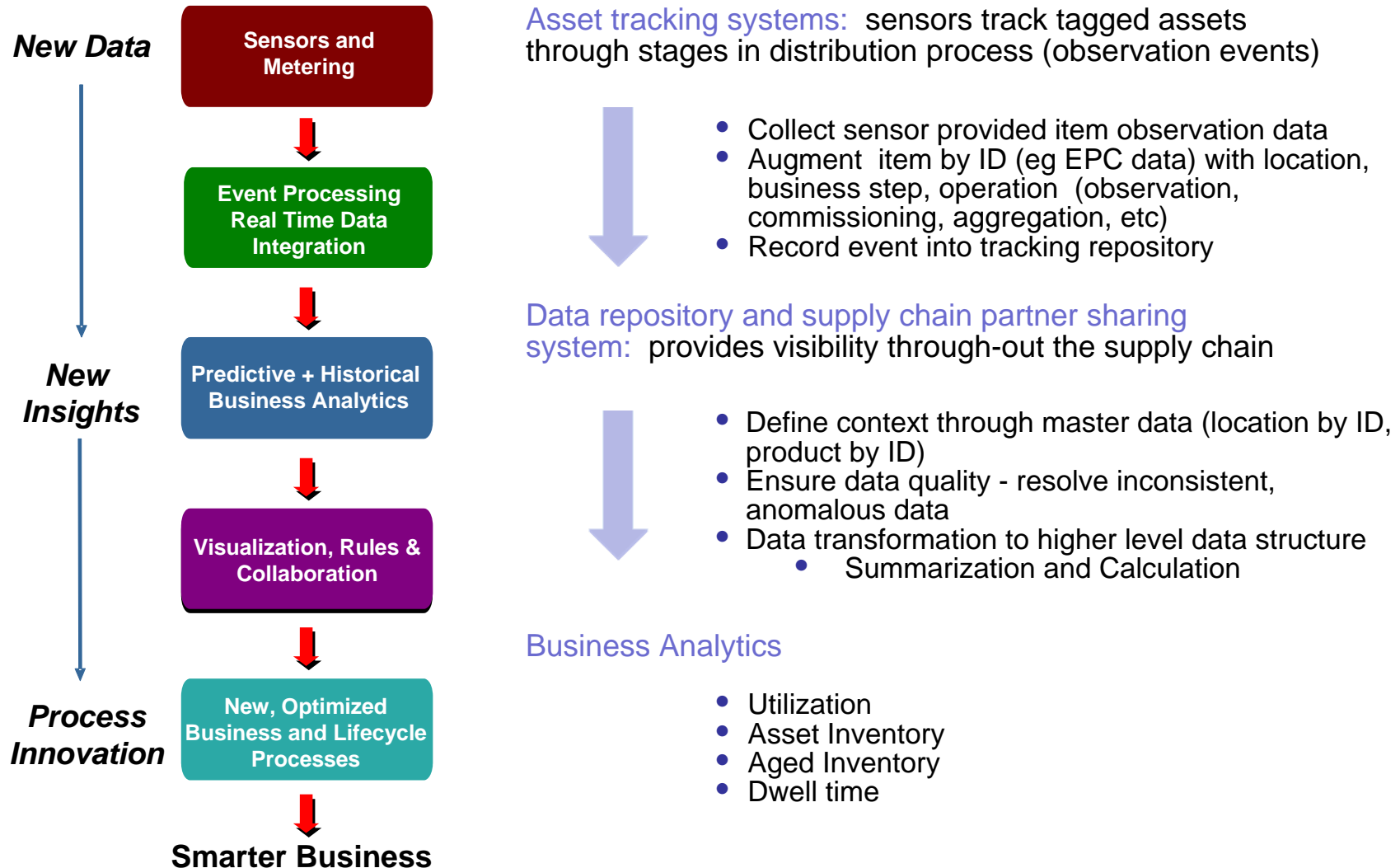
Automated confirmation of the shipping and receipts of containers used as a proof of delivery of its contents

Enhances Traceability & Agility

Automated tracking of serialized containers and associating them with products through various stages of supply chain enhances supply chain agility, traceability, and ability to do targeted recalls

Returnable Asset Management Solution

Optimize utilization of returnable assets



IBM Experience say

Automobile OEM

Improved returnable container turnaround time	→	20% (of total)
Reduced losses and shrinkage	→	5 – 15% (of total)
Reduced returnable container inventory	→	10% (of total)
Savings in inventory carrying cost	→	30% (of total)
Reduction in reconciliatory processes	→	75% (cost reduction)
Better control over transportation	→	5% (cost reduction)
Reduction of one-time packaging	→	80% (of total)
Inventory visibility and cycle counts	→	65% (cost reduction)

Sources: Aberdeen Group, June 2007 "Where's my stuff?!" Managing Work-in-Process with RFID, survey of 220 organizations

Returnable Container Management: Optimizing Logistics for Manufacturers
http://www-01.ibm.com/software/sw-library/en_US/detail/C924949R74553T28.html

RFID-Enabled Returnable Container Management: Solution to a chronic and wasteful automotive industry problem
http://www-01.ibm.com/software/sw-library/en_US/detail/C924949R74553T28.html



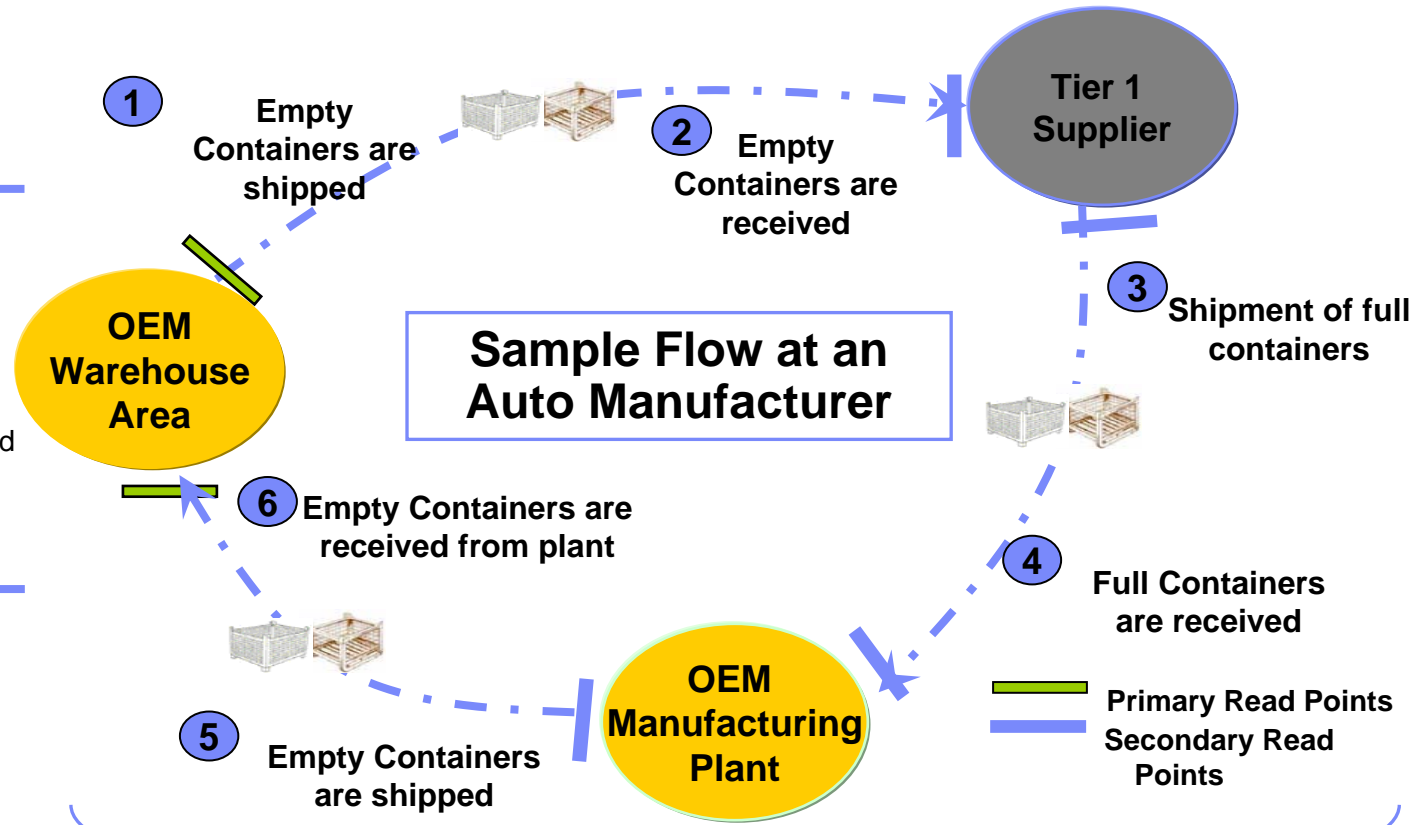
Returnable Container Management: The Solution enabling companies to track their reusable assets in their manufacturing processes, inbound and outbound supply chains, and finished good supply chains.

Solution Benefits

- Reduce capital investments by eliminating unnecessary safety stocks
- Identify and correct sources of loss and theft
- Reduce operating expenses related to one-way packaging and expedited shipping costs

Solution Capability

- Automated asset tracking and tracing
- ERP and EAM integration for inventory management, procurement, and repair
- New and replacement procurement
- Analytics increase visibility to inventory, utilization and exception metrics



Dwell Time History



Current Asset Inventory



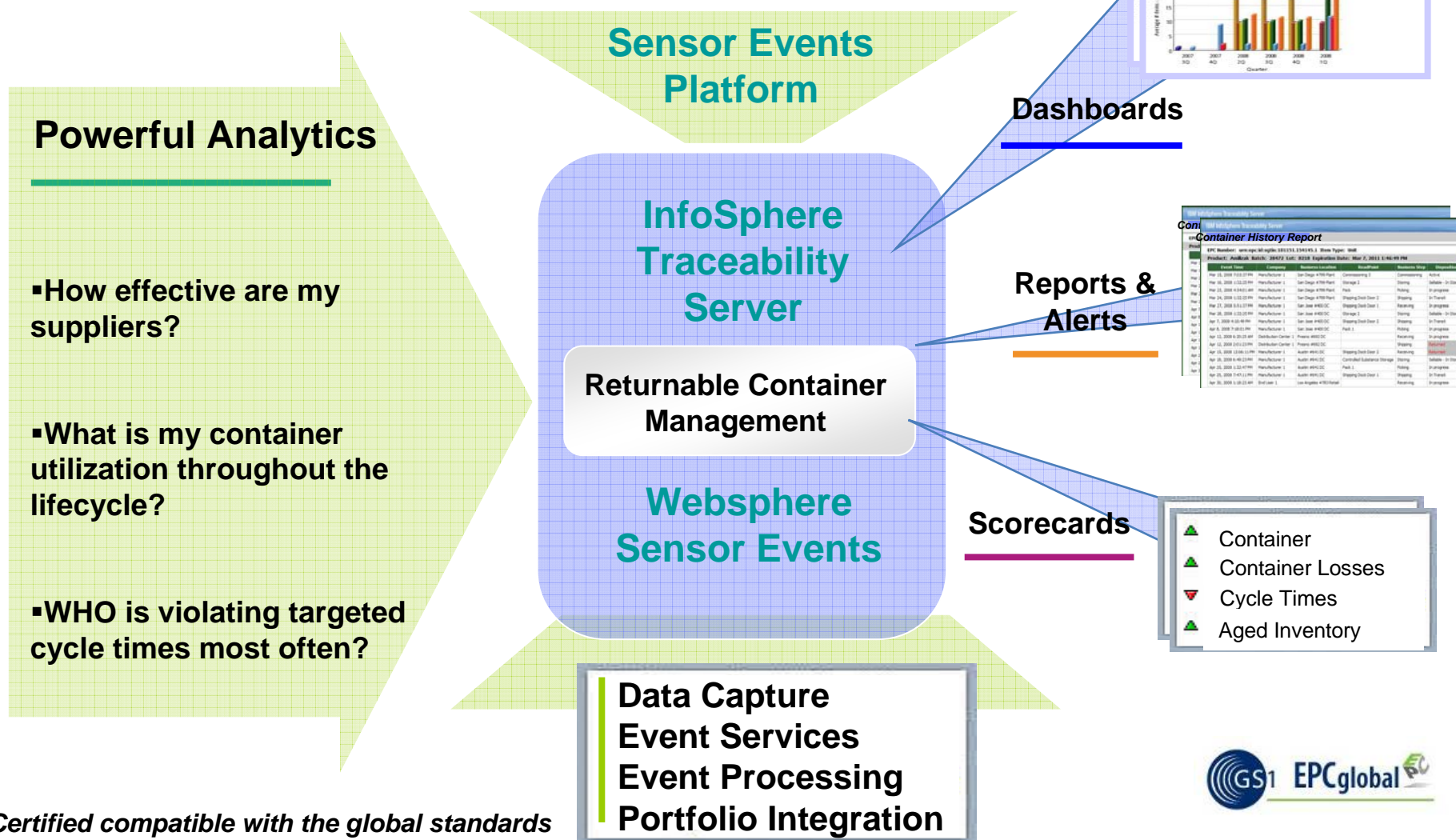
Asset Inventory History



Aged Asset Inventory



IBM Reusable Container Management Solution



Powerful Analytics

- How effective are my suppliers?
- What is my container utilization throughout the lifecycle?
- WHO is violating targeted cycle times most often?

Sensor Events Platform

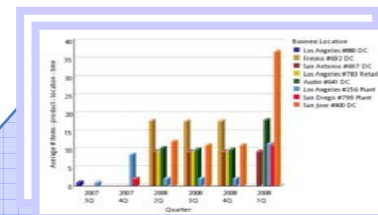
InfoSphere Traceability Server

Returnable Container Management

Websphere Sensor Events

Data Capture
Event Services
Event Processing
Portfolio Integration

Dashboards



Reports & Alerts

Container History Report

Date	Company	Business Location	Product	Product Qty	Disposition
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 1	Component 1	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 2	Component 2	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 3	Component 3	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 4	Component 4	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 5	Component 5	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 6	Component 6	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 7	Component 7	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 8	Component 8	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 9	Component 9	OK
Mar 10, 2008 11:03:07 AM	Manufacturer 1	San Diego #750 Plant	Component 10	Component 10	OK

Scorecards

- ▲ Container
- ▲ Container Losses
- ▼ Cycle Times
- ▲ Aged Inventory

Certified compatible with the global standards



The increased use of Sensors like RFID is providing Visibility to the Physical World enabling “Supply Chain & Asset Optimization”

RETURNABLE ASSET MGMT.

Managing returnable containers - reusable assets in a company and across the supply chain



Asset Optimization

SUPPLY CHAIN VISIBILITY

Tracking parts, components and goods, both in-house and across a supply chain



Supply Chain

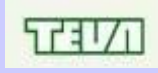
REAL-TIME ASSET OPTIMIZATION

Managing critical resources - people and equipment - through real-time visibility



PRODUCT TRACEABILITY

Track & trace products across the supply chain (e.g. drug, food)



Questions?

Container Tracking Metrics

Asset Management

Metric	Description	How to derive
Container inventory level (count)	Number of containers at locations	Derived from last read point of each container
Throughput	Containers processed per day	Derived from last read point of each container
Inventory level (days inventory)	Inventory levels expressed in days worth of inventory	Ratio of inventory level divided by throughput
Container dwell time	Length of time a container spends at a given location	Elapsed time from shipping event to a given location until it is received again
Container utilization	Amount of time a container is in use	Elapsed time from picking start event to customer delivery
Container loss rate	Identify slow moving, non-moving containers which may be lost	Containers which have not changed location or been read in the last N days
Container cycle time	Elapsed time of container round-trip	Elapsed time from receipt event to subsequent receipt event
Maintenance cycle times	Identify abusive container use and efficacy of preventative maintenance.	Length of maintenance and repair processes
Container lifetime	Identify abusive container use	Elapsed time container commissioning to decommissioning
Container age	Age of container inventory	

Container Tracking Metrics

Supply Chain Processes

Metric	Description	How to derive
Storage processing cycle time	Time to receive empty containers and put them into inventory so that are available for new orders	Elapsed time from receipt event to inventory read event
Order receipt-to-pick cycle time	Elapsed time from order issued to pick complete	Elapsed time from order queued to pick complete
Order picking cycle time	Elapsed time from order issued to pick complete	Elapsed time from first pick/aggregation event to final pick/aggregation event
Order pick-to-ship cycle time	Elapsed time from pick complete to shipment	Elapsed time from last pick event to shipped event
Total order fulfillment cycle time	Elapsed time from order issues to shipment	Elapsed time from order queued to shipped event
Order accuracy	Actual quantities shipped versus quantity ordered.	
Shipping in-transit time	Elapsed time from order shipment to order receipt	Elapsed time from order shipped event to receipt event