



## EPCIS Explained





# Agenda

- What is EPCIS?
- Business Needs for EPCIS
- EPCIS Benefits
- Clarification of technology around Spime/  
“Internet of things”
- How EPCIS Works
- EPCIS Implementation case studies
  - GS1 Colombia
  - EPCglobal Phase 3 TLS Pilot
- Discussion Points and Next steps



# Introducing EPCIS





# What is EPCIS?

- Defines standard set of messages for both data capture and data exchange
  - Caters to event related information with location and time attributes
  - different from traditional set of e-com messages which only defines data exchange
- Data exchange standards have (Vocabulary and Schema) that governs B2B transaction for EPC information, similar to other messaging standards.
  - In addition it EPCglobal Network has a Data Synchronization (GS1Net) style infrastructure – with ONS (Registry), Discovery Services (Search tool)
- Traditional messaging standards are driven by process; EPCIS is driven by real time EPC events
  - Not a replacement to the e-com messages (PO, Dispatch Advices, RCIT)
- Standard does NOT represent a specific database, data storage or any other form of data structure
  - Data captured and stored by existing mechanism can utilise the EPCIS infrastructure to share information
  - EPCIS provide standard rules for synchronised and asynchronised data transfers



Why is EPCIS Important piece  
of the puzzle for data sharing?





# Why is EPCIS valuable?

- Provides **standard** capture & query interfaces to enable track and trace, product authentication, diversion detection, and other use cases across supply chain partners across multiple industries
  - A standard interface is a much lower cost interface than multiple, custom, partner-specific mappings
- Security is a core concept – **Each trading manages their data** – events remains distributed with trading partners only moving / sharing data elements they wish to share on an on-demand basis
  - Authentication, authorization, encryption
  - Support for both AS2 and secure web services
- Can readily **route events to existing enterprise applications**
  - Layered architecture can support long-term scalability and flexibility
- **No vendor lock in** - 20+ companies certified EPCIS product available –
- **Already in use today** in FMCG, TLS and Healthcare





# EPCIS Business Needs





# Why is EPCIS valuable?

- **Shrinkage:** up to 40% of certain products vanish in the supply chain (est. 100 billion USD in Food Retail worldwide)
- **On shelf availability:** average of 90 - 93%
- **Counterfeit:** 8-10% of sales concerns fake products (est. 500 billion worldwide)
- 98% of consumers hate check out lines
- Growing need for tracking and tracing system (e.g. EU Food regulation)





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# EPCIS, ONS, Discovery Service... Terminology Clarification





# EPCIS, ONS, Discovery Service... Terminology Clarification

## Root ONS (Object naming service) –

- Given a company prefix, which Company ONS is authoritative/ have the company prefix registered first?

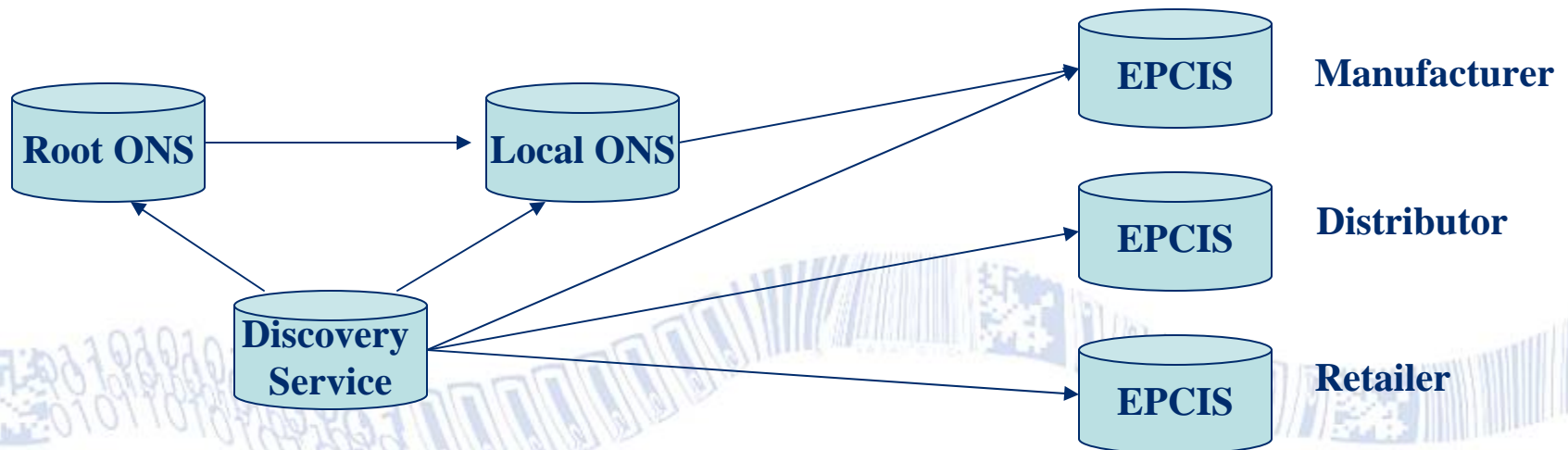
## Local ONS –

- Given an EPC code, which EPCIS is authoritative? / Where the EPC is first commissioned? typically at product manufacturing

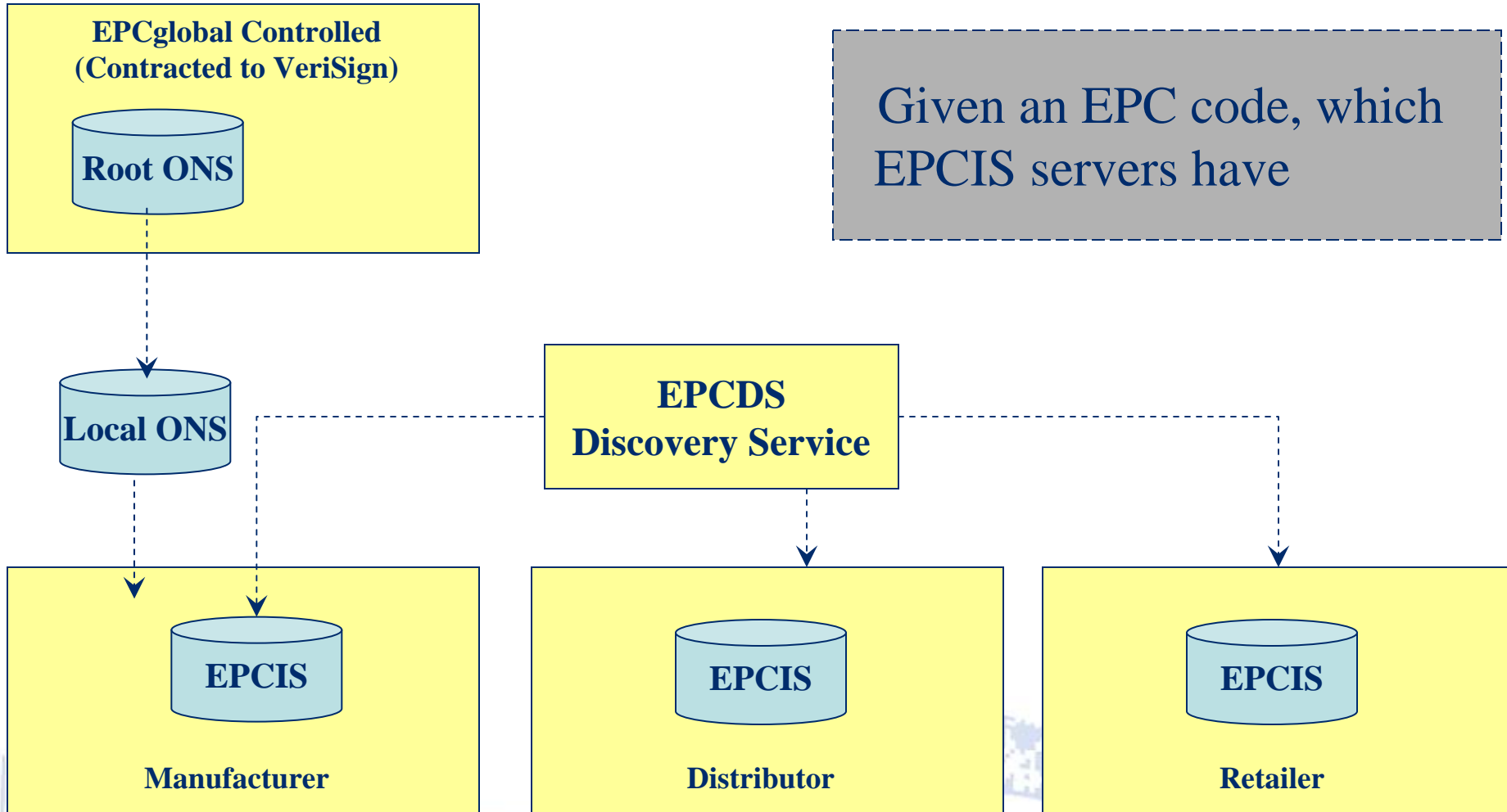
## EPCDS (Discovery Service) – (TBD)

- Given an EPC code, which EPCIS servers have events? / Who in the supply chain deals or touches the product with the EPC code

## EPCIS (Information Sharing) – Given an EPC code, what events are recorded?



# EPCIS, ONS, DS – Putting together!



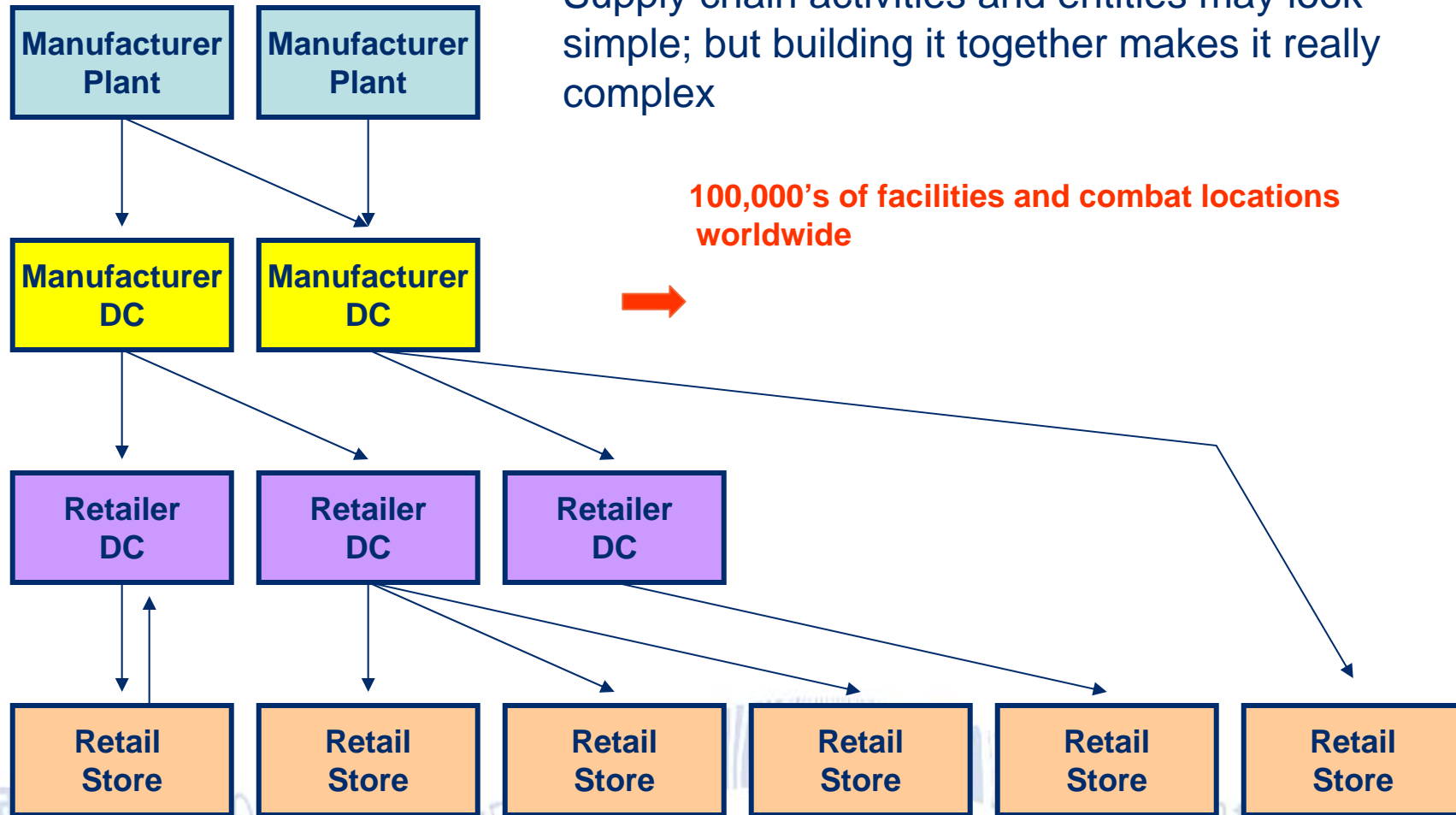


# How EPCIS Works?

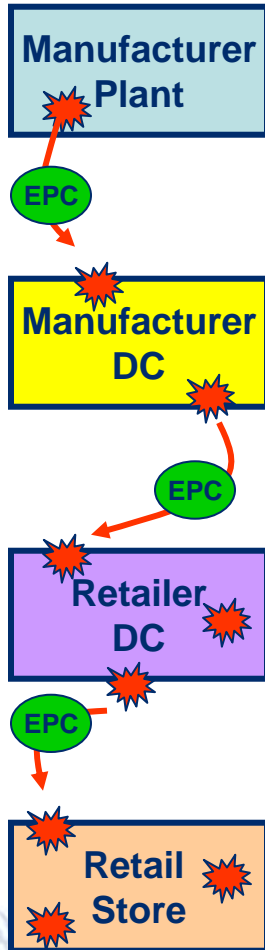


# EPCIS in a Supply Chain

Supply chain activities and entities may look simple; but building it together makes it really complex



# EPCIS – What is typically captured at each facility??



## Tag Observations

Observed

Observed

Observed

Observed

Observed

Observed

Observed

Observed

## Business Transactions

Shipped

Received

Consumed/ Sold



# EPCIS Event Data Captured

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optional optional

EPC	GTIN	TIME-ISO Date/Time +Offset GMT	GLN	Sub-Loc	Sub-Loc Extension	Read Point Type	EPCIS EVENT TYPE
-----	------	--------------------------------------	-----	---------	----------------------	--------------------	------------------

099923	1124	12:00:10	5478	01		portal	Added
--------	------	----------	------	----	--	--------	-------

099923	1124	14:20:00	3456	02		door	Observed
--------	------	----------	------	----	--	------	----------

099923	1124	16:00:10	3456	01		door	Observed
--------	------	----------	------	----	--	------	----------

099923	1124	08:30:10	3232	02		door	Observed
--------	------	----------	------	----	--	------	----------

099923	1124	09:00:50	3232	01		conveyor	Observed
--------	------	----------	------	----	--	----------	----------

099923	1124	02:14:31	3232	01		door	Observed
--------	------	----------	------	----	--	------	----------

099923	1124	07:03:59	6133	03		door	Observed
--------	------	----------	------	----	--	------	----------

099923	1124	10:04:23	6133	04		Shelf	Observed
--------	------	----------	------	----	--	-------	----------

099923	1124	09:26:05	6133	05		POS	Deleted
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# GS1 EPCIS Managed Services





# GS1 EPCIS Managed Service - Benefits

- Standard Complaint and caters to technology evolution and upgrades
  - Provisions to allow multiple data carriers (Agonistics) – GS1 Barcodes, GS1 EPC/ RFID tags
  - Protects users from technology and standards obsolesce
  - No vendor lock-in; SLA with GS1
- Consistent bi-directional traceability system
  - Two way traceability system for forward and reverse link
  - Link with international traceability/ EPCIS systems – eg HK EPCIS Link (Catering to Chinese)
- Lower Total cost of ownership
  - GS1 Managed EPCIS service would be based on SaaS (Software as a Services), which would run on a OPEX plan rather than a capital expenditure.
  - Access to multiple applications eg – traceability, e-POD, asset management



# GS1 EPCIS Managed Service Security

## Secured information sharing with multiple trading partners

- Integrity - **Ensure that data is not altered by unknown entity**
  - **Individual user profile and partitioning**
- Authentication - **Ensure that a user's identity is truly what the user claims to be**
  - **User registration (digital signatures)**
- Authorization - **Determine what actions/queries a user is allowed to perform after being granted system access**
  - **Event level disclosure control**
- Non-repudiation - **Action is bound to the user—he/she cannot deny having performed the action**
  - **Logging (auditing)**





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# CABASnet EPCIS

## EPCIS – GDSN Connectivity:





## Objective

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Show the GS1 Colombian EPCIS

How it connects to the GDSN Catalogue CABASnet

How the clients can see the traceability through all the value network





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## GS1 Colombia Initiative

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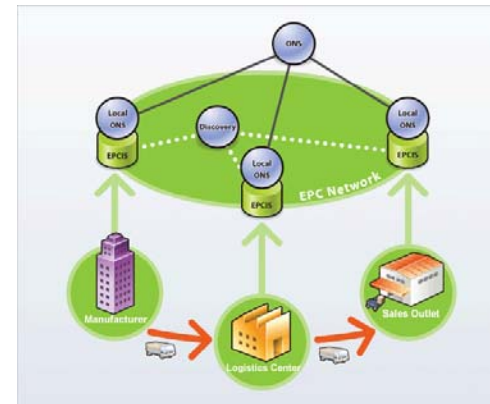
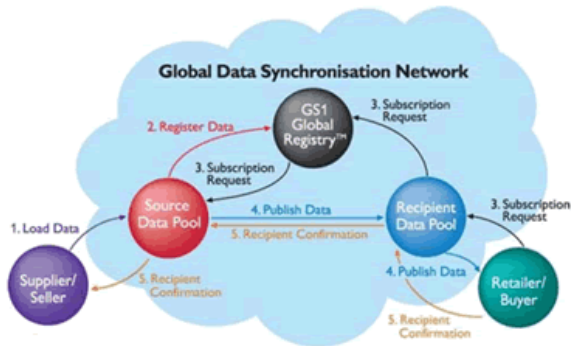
CABASnet EPCIS was created as an important support tool that enables collaboration relationships among companies that are active in EPC initiatives.

More than 90 % of Colombian companies are SMEs and they are able to take advantage of resources and initiatives held by GS1 COLOMBIA



# GS1 Australia

## Our Goal .....



**CABASnet EPCIS**

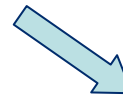
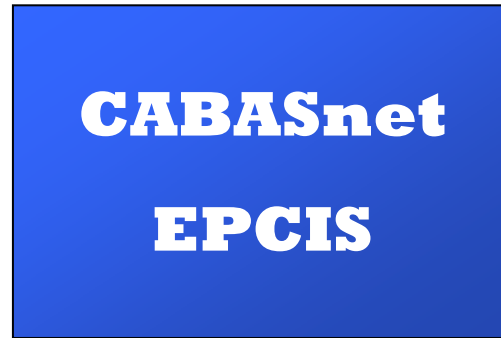
**RETAIL MODULE**

**TRANSPORT AND LOGISTICS MODULE**



## EPCIS – DDVI (Sales and Inventory data) Integration

**CABASnet**  
DDVI



http://200.31.13.89/EPCIS\_V2/Reportes/ConsumoMasivo/Tiempos.aspx

Google lan chile Ir Marcadores Pop-ups permitidos Corrector ortográfico Traducir Enviar a lan chile

McAfee SiteAdvisor Time Report

→ EPCIS

→ Administrator

- Users
- Inventory Policy
- Service Promise
- Alarms
- Reports by User
- Animal Unit

→ Reports

→ Fast Moving Goods Report

- Historic
- Receipt
- Shipping
- Inventory
- Traceability
- Time
- Service Promise
- Product Rotation

## Time Report

→ Close → Help

Los campos identificados con (!) son obligatorios

! Initial company: 3M COLOMBIA S.A. - 860002693 ! Initial node: CENTRO DISTRIBUCION 3M BOGOTA - 7702098000181

! Initial lecture point: CEDI 3M BOGOTA MUELLE DESPACHO - 7702098.000018.1

! Final company: ALMACENES EXITO S. A. - 890900608 ! Final node: EXITO ENVIGADO - 7701001003504

! Final lecture point: EXITO ENVIGADO TRASTIENDA RECIBO - 7701001.003504.1

! Reference: ESPONJILLA SCOTCH BRITE X - 17702098005805

! Initial day: ! Final day:

View Report

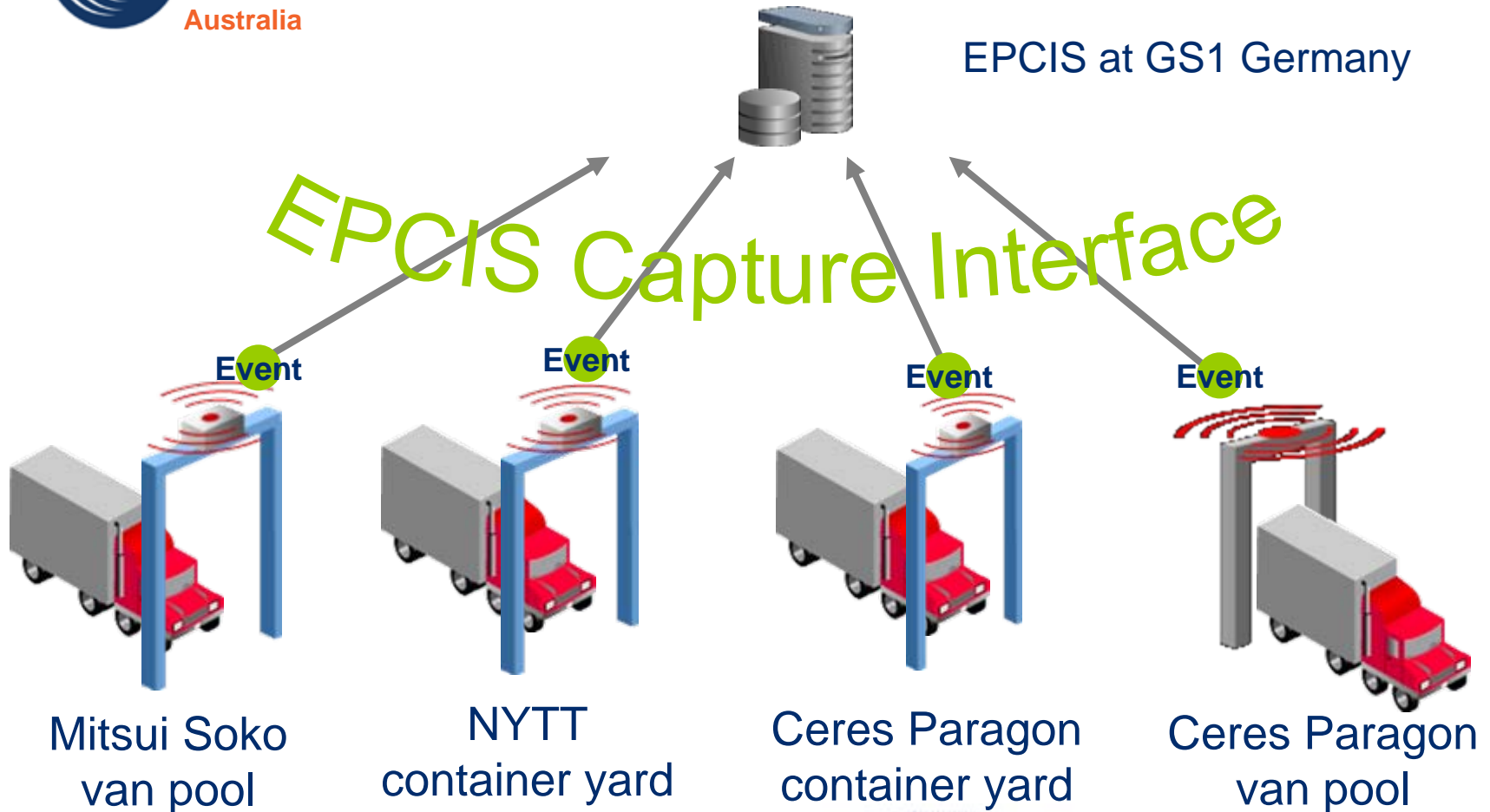
CEDI 3M BOGOTA MUELLE DESPACHO - CEDI 3M BOGOTA MUELLE DESPACHO			Cantidad	Promedio Dias	Promedio Horas
Codigo: 17702098005805 - ESPONJILLA SCOTCH BRITE X			8	3.55	85.13
Fecha	Codigo	Descripcion	Serial	Tiempo Dias	Tiempo Horas
2008-07-17 16:38:11	17702098005805	ESPONJILLA SCOTCH BRITE X	6	2.02	48.39
2008-07-21 17:34:47	17702098005805	ESPONJILLA SCOTCH BRITE X	5	2.57	61.78
2008-07-28 17:02:58	17702098005805	ESPONJILLA SCOTCH BRITE X	2	2.61	62.72
2008-08-04 17:55:33	17702098005805	ESPONJILLA SCOTCH BRITE X	10	3.51	84.35
2008-08-11 15:12:11	17702098005805	ESPONJILLA SCOTCH BRITE X	4	2.63	63.14



# Transportation and Logistics Pilot – Phase 3: EPCIS



# EPCIS capture of supply chain events



WHAT: GIAI 4912345.0101401CAXU8052010

WHERE: SGLN 8712345.67813.213

WHEN: 16.02.2008 09:25:00 UTC+1

WHY: Inspecting

XU8052010

9  
←  
UTC+1

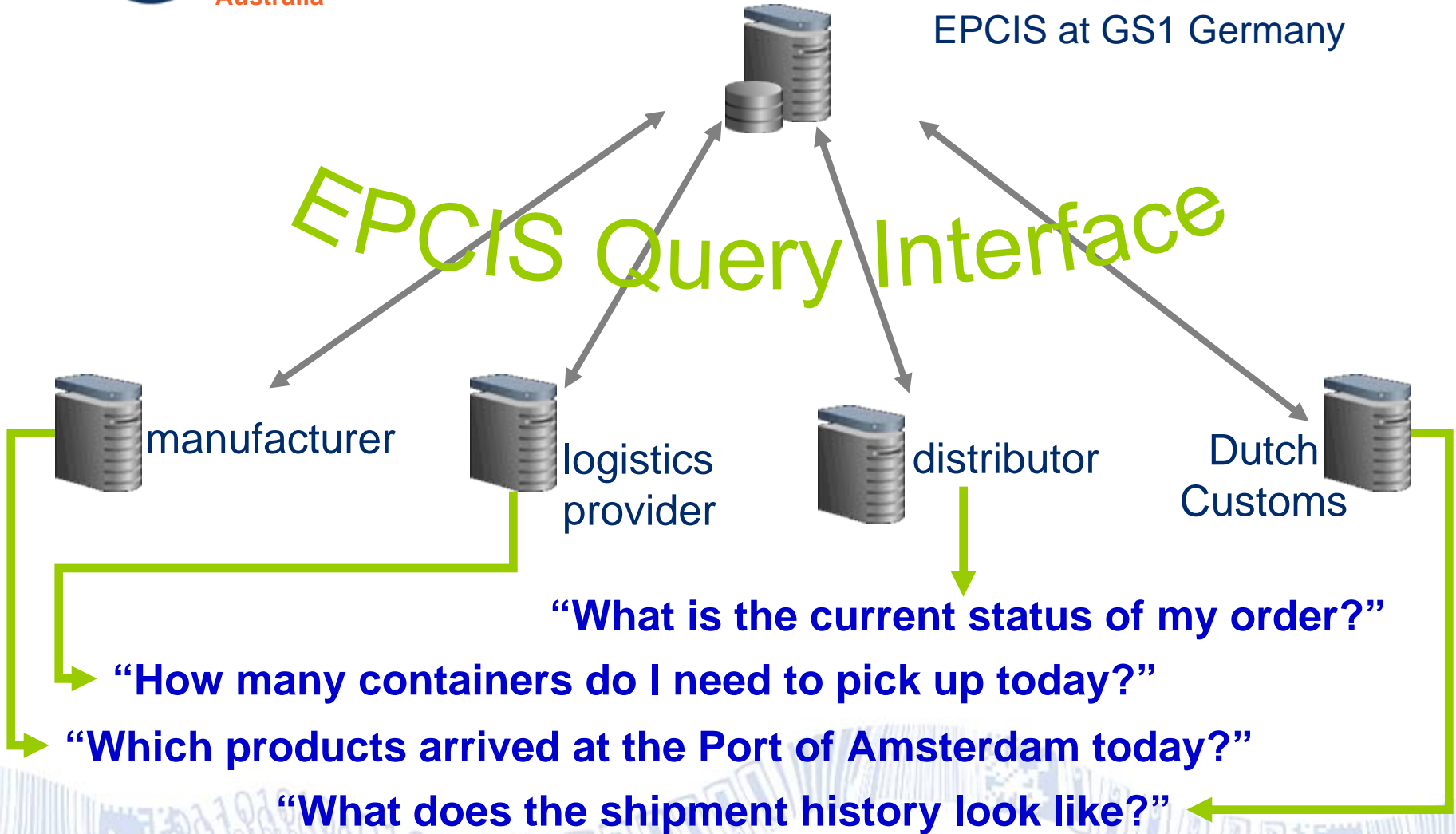
AXU8052010

13  
←  
UTC+9

# EPCIS query of supply chain events

EPCIS at GS1 Germany

## EPCIS Query Interface



“What is the current status of my order?”

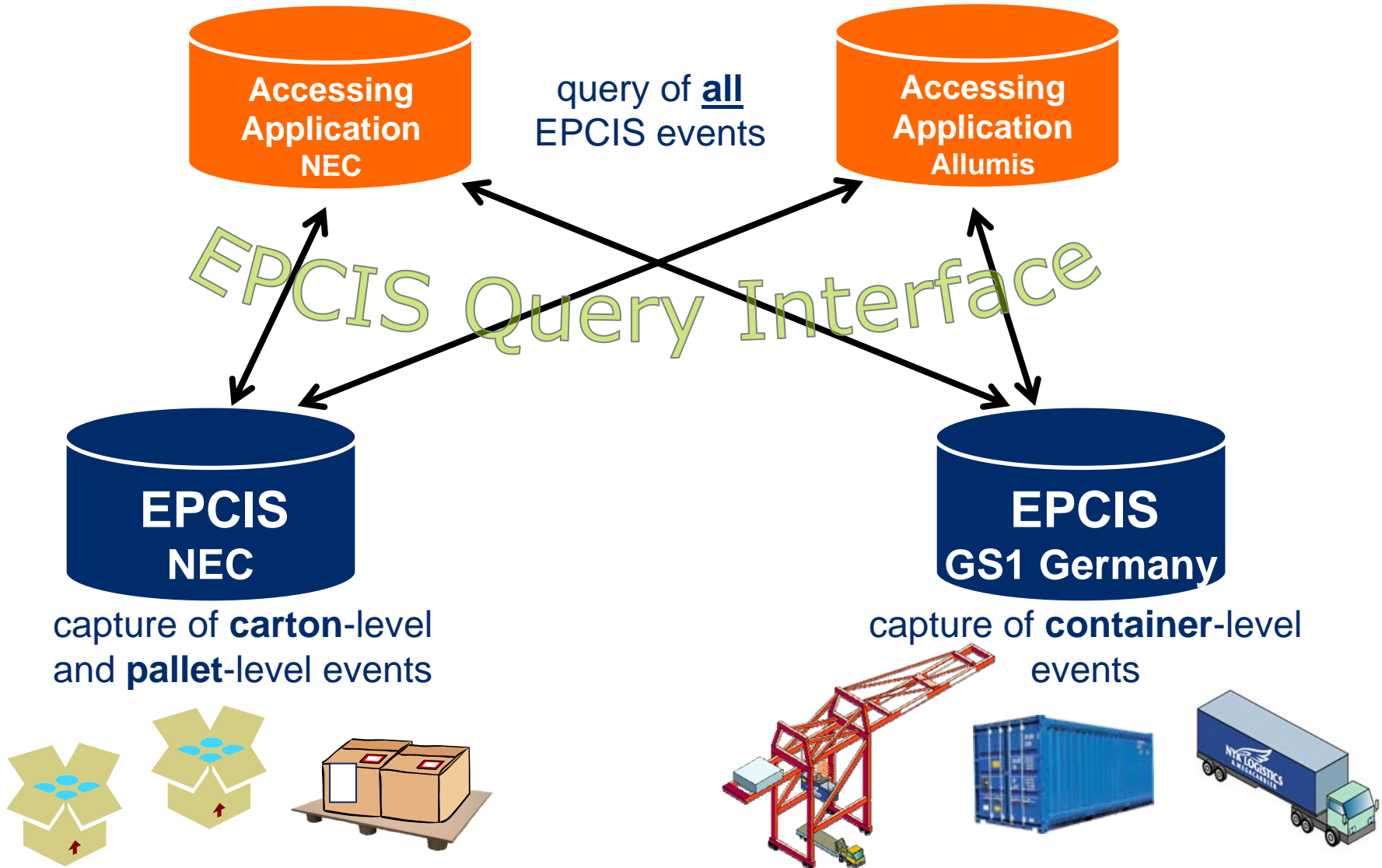
“How many containers do I need to pick up today?”

“Which products arrived at the Port of Amsterdam today?”

“What does the shipment history look like?”



# Retrieval of EPCIS event data gives stakeholders supply chain transparency





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# **EPCIS Discussion Points**

- Business Requirements**
- Technical Requirements**



# EPCIS Discussion Points

## Business Requirements

- Traceability Needs
- Retail Supply chain (RSC) Link
- Common system governance
- TCO
- Number of business application
  - eg. ePOD, Asset management, promotions tracking, inventory, traceability.
- Mandate driven
- Timeframe and project management

## Technical Requirements

- Shared SaaS Based service
- GS1 Standard based
- GS1 Data carrier agonistic
- Integration requirements
- Security requirements
- SLA 's



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# Contact Details

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