



SMART Container Chain Management

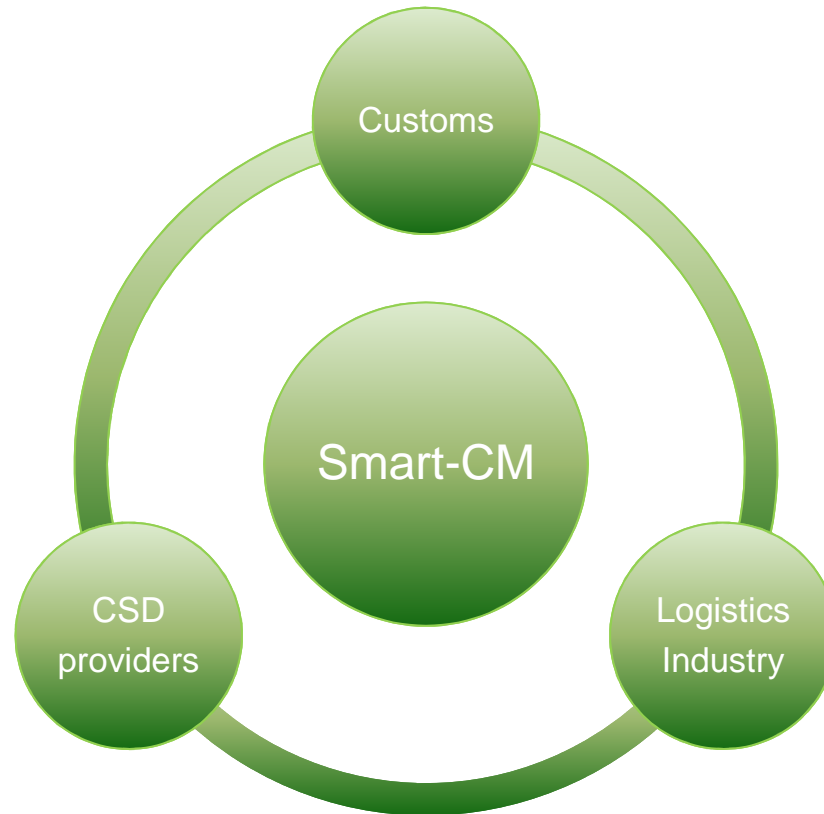
Technology Results



4th ECITL
Thessaloniki, 13-14 October 2011



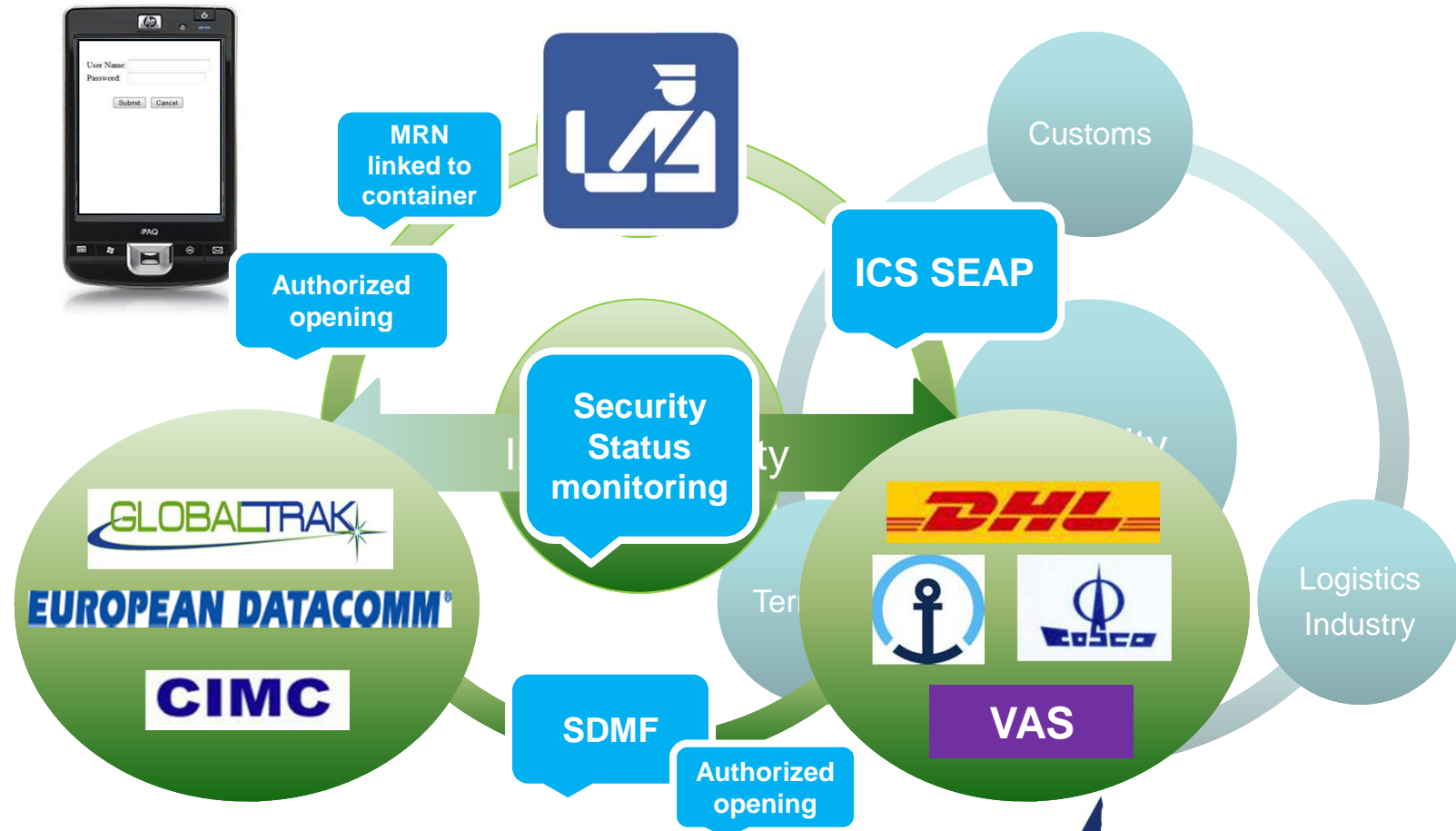
Smart-CM platform



Smart-CM platform



Smart-CM platform



Neutral Layer GUI

Search

Transport Lane :

Container ID :

Event Type :

Device Type :

Transport Movement ID :

Date From (GMT):

Date To (GMT):

Reader ID :

CSD ID :

Action Type :
Send

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1
▶▶
of 2

Export to CSV

Transport Lane	CSD ID	Container ID	Trip Started (GMT)	CSD Status	Customs Status	Las
SMARTCMDHL	900000000000030	JVNU9000030	09/04/2010 15:53	sealed	ARNPND	09/
SMARTCMCOSCO	1000004C	TCNU9036503	15/11/2009 03:01	sealed		08/
SMARTCMCOSCO	10000048	CBHU1747625	21/11/2009 03:40	sealed		08/
SMARTCMCOSCO	10000047	CBHU9906106	15/11/2009 02:40	sealed		08/
SMARTCMCOSCO	10000049	CBHU8657586	15/11/2009 02:52	sealed		08/
SMARTCMCOSCO	10000046	CAIU2398174	21/11/2009 03:19	sealed		08/
SMARTCMKN	10000043	kkfu7467546	01/12/2009 07:06	sealed		04/
SMARTCM EU-AP	900000000002005	PTHU9002005	20/07/2009 12:00	sealed		01/
SMARTCM EU-AP	900000000002004	PTHU9002004	20/07/2009 12:00	sealed		01/
SMARTCM EU-AP	900000000002003	PTHU9002003	20/07/2009 12:00	sealed		01/





ICS SEAP

Home Filings Diversions Arrival Notifications Admin Help

List Filing

▼ List Filings

Date Type: Created Date
 Ref. No. Type: Filing Number
 Conveyance Ref. Number:

From:
 Reference No.: _ICS_
 Loading Location: (...)

To:
 Filing Country: GR (...)
 Unloading Location: (...)

Application Status: All
 Customs Status: All
 User Name:

List Report Create Belgium (BE)

Displaying records 1 - 3 of 3
 First | Previous | Next | Last

	Filing Number ▲	LRN	MRN	Expected Arrival	Filing Country	Customs Status	Application Status	Created	Created By	Modified
[View] [Status]	_ICS_COSU6051553580	_ICS_GR110730368291	11GREN400500017970	08/23/2011 07:00	GR	Accepted	Accepted	08/12/2011 07:30	MDUHAMEL	08/12/2011 07:30
[View] [Status]	_ICS_COSU6051554420	_ICS_GR110806380171	11GREN400500017961	08/30/2011 07:00	GR	Accepted	Accepted	08/12/2011 07:29	MDUHAMEL	08/12/2011 07:29
[View] [Status]	_ICS_COSU6051736890	_ICS_GR110806380301	11GREN400500017953	08/30/2011 07:00	GR	Accepted	Accepted	08/12/2011 07:28	MDUHAMEL	08/12/2011 07:28





Conclusions

1. Support for Customs and Logistics procedures in secured trade lanes
2. Neutral character
3. CSD as the main data source
4. Standardization
5. Platform Interoperability





VAS





Content of presentation

1. Value-Added services concept
2. VAS description
3. Functionality Demonstration
4. Conclusions



Value-Added services concept

Industrial partners expectations:

- Better manage the complete chain to avoid conflicts & bottlenecks
- Get early notifications on exceptions/anomalies
- Have the possibility to react to the above
- Provide the means to handle & prevent exceptions





Value-Added services concept

- Use information provided by Information Gateway
 - The information is CSD-originated (location/time/status)
 - Alternative sources (AIS, load/unload status from TSPs)
- Interface with other sources
 - Direct interfaces to terminal information system
 - Combination of data sources
- Provide useful functionality/information to end-user
 - Provide configuration means
 - Translate location/time of container to logistics-meaningful information
 - Notify on deviations/exceptions



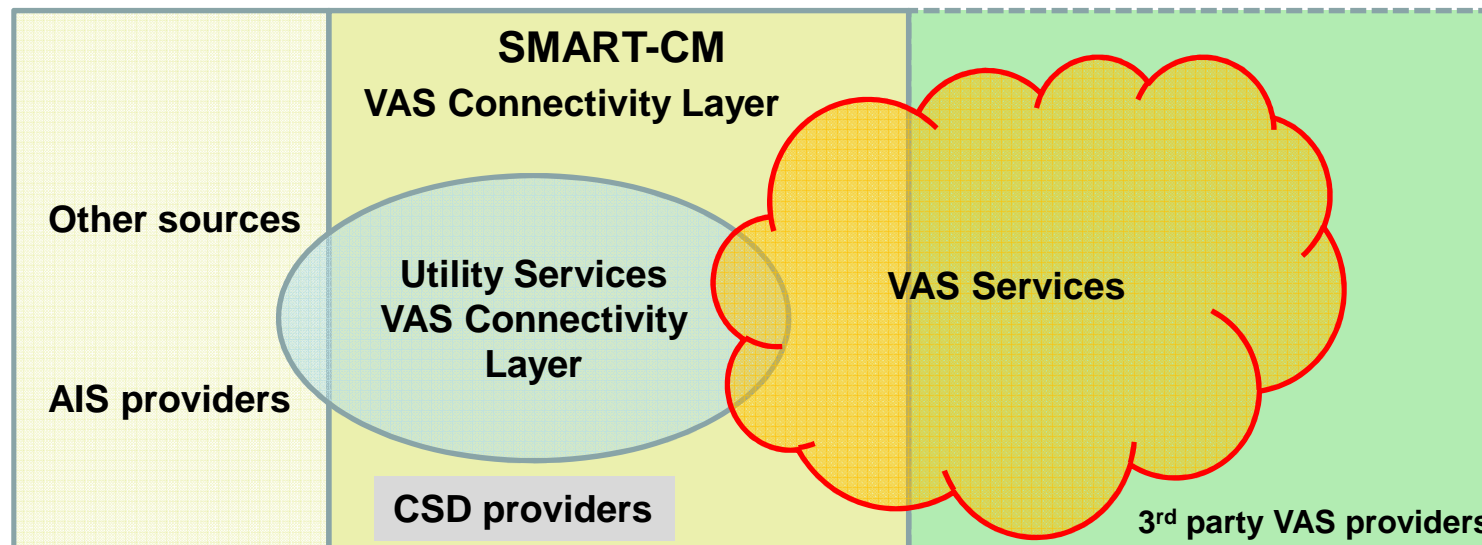


VAS description



What Services SMART-CM Offers?

- The SMART-CM has developed the **VAS Connectivity Layer**, which is an **interoperability-service-utility (ISU)** layer on top of the current Internet and the web that supports information exchange between diverse information sources, software applications and web services.
- SMART-CM has also developed **VAS services (ETA, geo-fencing, flags/warnings)** building on the **interoperability-service-utility (ISU)**.





SMART-CM utility services

- It is possible to discern **different types of SMART-CM utility services (in the VAS connectivity Layer provided by LVC)**, based on their functions within the overall system (the infrastructure). Three types of utility services can be tentatively defined:
 - **Type 1: Generic Business Services** - Contains services that are needed to access and execute routine business functions. They include **authorization, security** and **communication** functionalities. (**Notifier / Mailer**)
 - **Type 2: End-to-End Management Services** - Contains services that are needed to manage the end-to-end linking and processing of value added services. They include search/discovery and information management support (**API to K&N, Configurator**).
 - **Type 3: Information Exchange and Resource Visualisation Services** - Contains services that are needed to automate the exchange of information between value added services and support for resource sharing and access. They include information matching, mapping, resource sharing and management (e.g. **GUI LVC, NL client, Terminal Client, Info matching combining AIS - CSD**, etc).



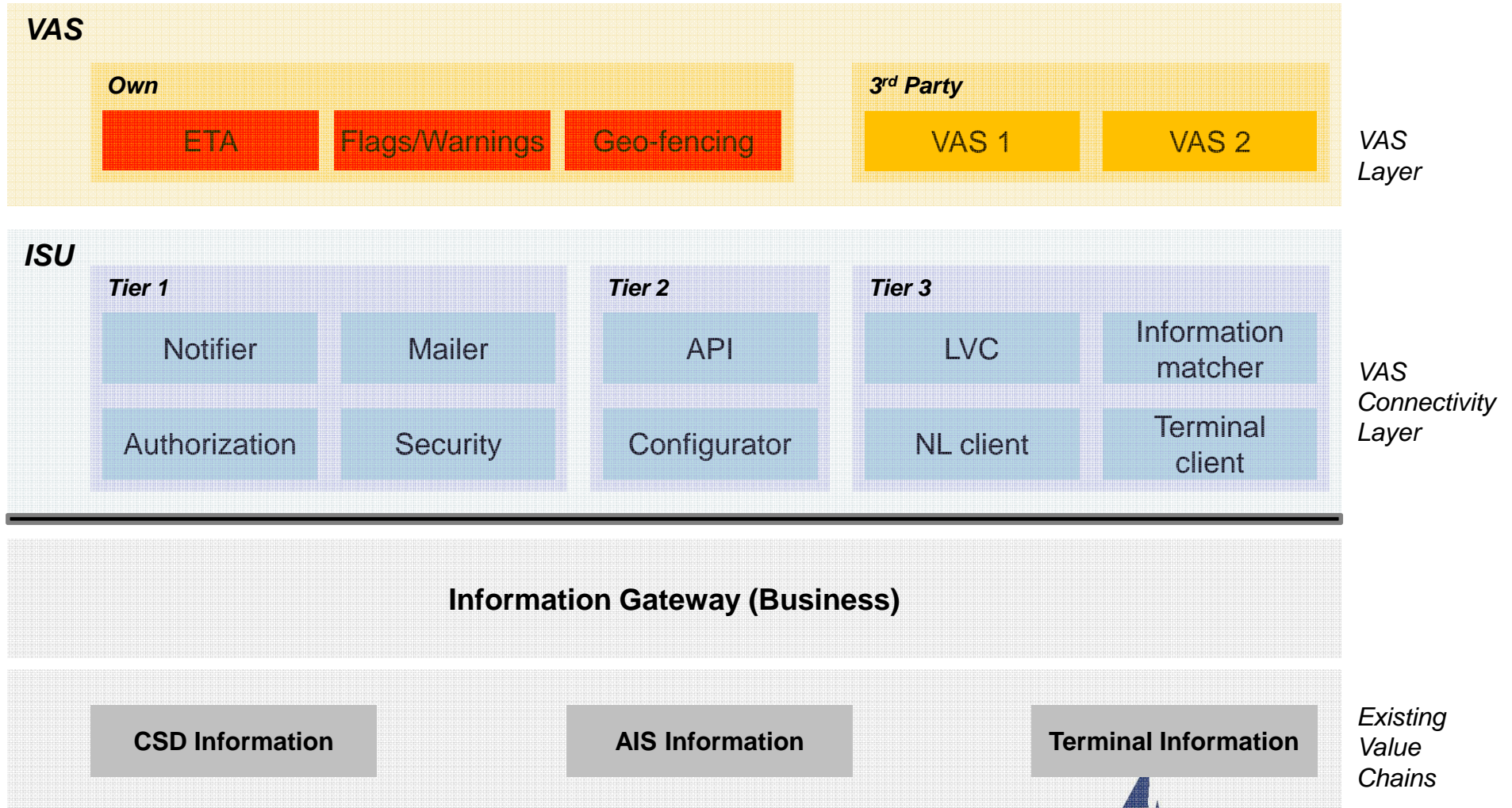


SMART-CM Value Added Services

- SMART-CM developed **VAS** include:
 - **ETA**: updates on initial ETA based on the actual location received by CSD and comparing against initial plan
 - **Geo-fencing**: radius or polygon based either on nodal points (e.g. port) or intermediate waypoints and check for container entering/exiting geo-fenced area
 - **Flags/Warnings**: Critical alerts e.g. when a container has exceeded time thresholds in predefined zones



VAS – Utility Services





Overall functionality



Initial configurations

User Registration

Fields with * are required...

* username:

* password:

* confirm password:

* full name:

* email:

register

Registrations to the application

User Management | Other Registrations

Carrier Registration | **CSD Registration**

CSD Identification Number:

CSD Manufacturer:

Register CSD

Carrier Identifier:

Carrier Description:

Register Carrier

Registered Carriers:

- COSCON
 Batsis Inc.
 carrier unknown
 New carrier

Save

Description:
COSCO Container Lines, belongs to COSCO Group

Definition of nodal points

Manually geo-fenced

The screenshot shows a map of Brussels with a large orange circular geofence centered on the city. A 'Locations' dialog box is open, showing the configuration for 'Brussels Warehouse':

- Location Name: Brussels Warehouse
- Geofence Options: Range
- Range (m): 1200
- Preview Range:
- Idle Time Threshold (h): 24
- Lat: 50.8423157700394
- Lon: 4.383416675842287

Below the dialog, a search results box shows 'Brussels, Belgium'.

Radius-based

The screenshot shows a map of Antwerp with a manually drawn orange polygon geofence around the port area. A 'Locations' dialog box is open, showing the configuration for 'Antwerp port':

- Location Name: Antwerp port
- Geofence Options: Manual Geofence
- Click on the map to draw the geofence...
- Idle Time Threshold (h): 48
- Lat: 51.295941026431805
- Lon: 4.257071795751934

Below the dialog, a search results box shows 'Antwerp, Belgium'.

Designing a transport leg

Locations

Legs

selected, click on any of the waypoints (markers with gray color) to view the waypoint's geofence.

Legs List:

Antwerp Port - Singapore Port (Sea, Car)

Total Distance: 16000 Km
Standard Duration: 17 Days
ETA to final destination: 2 Days

ID	Container Description	Timestamp	Latitude	Longitude	Initial ETA	Updated ETA	Deviation

B. Select a leg to view on map. When a leg is selected, click on any of the waypoints (markers with gray color) to view the waypoint's geofence.

Legs List:

Antwerp Port - Singapore Port (Sea, Car)

Total Distance: 16000 Km
Standard Duration: 17 Days
ETA to final destination: 2 Days

ID	Container Description	Timestamp	Latitude	Longitude	Initial ETA	Updated ETA	Deviation

Manually geo-fencing an intermediate waypoint

Building-up a chain & setting alerting

Chain Builder

Add New Chain

Chain Name:

Drag legs from the list with the **Available Legs** to the Assigned Legs list, to build a new Chain...

Available Legs:

- Antwerp port area - Dubai port area (Sea, Carrier: DHL)
- Antwerp port area - Jebel Ali port (Sea, Carrier: DHL)
- Antwerp port area - Nhava Sheva port (Sea, Carrier: DHL) **Selected**
- Antwerp port area - DHL Antwerp Warehouse

Assigned Legs:

- DHL Antwerp Warehouse - Antwerp port area
- Antwerp port area - Nhava Sheva port (Sea, Carrier: Hapag Lloyd) **Selected**

Alert Recipients: **Add**

Added Recipients(s):

[Reset Chain](#)

Add New Chain

Chain Name:

Drag legs from the list with the **Available Legs** to the Assigned Legs list, to build a new Chain...

Available Legs:

Assigned Legs:

- DHL Antwerp Warehouse - Antwerp port area
- Antwerp port area - Nhava Sheva port (Sea, Carrier: DHL)
- Nhava Sheva port - GDL CFS (Road, Carrier: DHL)

Alert Recipients: **Add**

Added Recipients(s):

[Reset Chain](#)

User Notifications

For User: **DHL-TREDIT**

select all

Notification Types:

- ETA Timing Alert
- Geofence Area Alert
- Idle Time Alert

select all

Select Leg(s):

- DHL Antwerp Warehouse - Antwerp port area
- Antwerp port area - Nhava Sheva port (Sea, Carrier: DHL)
- Nhava Sheva port - GDL CFS (Road, Carrier: DHL)

Adding a new container

Add New Container

Container ID Number:

CSD:

Chain:

ETA delay threshold (h):

Alert Recipients: **Add**

Added Recipients(s):

User Notifications

For User: **DHL-TREDIT**

select all

Notification Types:

select all

Select Leg(s):

Can be also automatically inserted and traced by the VAS system

Possibility to alter alerting configuration on container basis

Alerting configuration per user

User defined final alerts

Container List:

- (ID: 34) LOGU1111111-completed
- (ID: 35) LOGU2222222-completed
- (ID: 36) LOGU3333333-completed

View History

ID: 36
 CSD ID: 2
 CSD Code: unavailable
 Status: **completed**
 Chain: Antwerp-Singapore
 ETA delay threshold (h): 36

Add New Container
Edit AIS Codes
View My Alerts

My Alerts

number of alerts: 32

- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**
- Antwerp Port - Singapore Port (Sea, Carrier: A.carrier) **ETA Timing Alert**

Viewing container movement

Logistics Visibility

Containers

Container List:

- (ID: 209) HXLU6322578-22 Aug 2011
- (ID: 215) HXLU3476944
- (ID: 218) FSCU9972358
- (ID: 222) SUDU5741962-17 Jun 2011
- (ID: 223) SUDU6788136-11 Jul 2011
- (ID: 224) SUDU5702966-11 Jul 2011
- (ID: 225) TCNU8808515-11 Jul 2011

View History

ID: 218
 CSD ID: 152
 CSD Code: 355715010011967
 Status: **running**
 Chain: DHL-ANR-BOM
 ETA delay threshold (h): 24

Add New Container
 Edit AIS Codes
 Edit time of Arrival
 View My Alerts

Map

Map data ©2011 Basarsoft, Europa Technologies, Geocentre Consulting, Tele Atlas, Transnavicom, OSN, NE - Terms of Use

Live Container Data

ID	Container Description	Timestamp	Latitude	Longitude	Initial ETA	Updated ETA	Deviation	Event type
218	FSCU9972358	14/06/2011 1...	51.3543	4.26314	14/06/2011 8:4	14/06/2011 12:	0 days, 3 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3543	4.26314	14/06/2011 8:4	14/06/2011 13:	0 days, 4 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3545	4.2629	14/06/2011 8:4	14/06/2011 14:	0 days, 5 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3546	4.26316	14/06/2011 8:4	14/06/2011 15:	0 days, 6 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3545	4.26312	14/06/2011 8:4	14/06/2011 16:	0 days, 7 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3545	4.26314	14/06/2011 8:4	14/06/2011 17:	0 days, 8 hours	UPD
218	FSCU9972358	14/06/2011 1...	51.3546	4.26307	14/06/2011 8:4	14/06/2011 18:	0 days, 10 hour	UPD
218	FSCU9972358	14/06/2011 1...	51.3543	4.26316	14/06/2011 8:4	14/06/2011 19:	0 days, 11 hour	UPD

AIS Editor

Sea Legs: Antwerp port area - Nhava Sheva port (Sea, Carrier)

AIS Code: 123456 Save

AIS UPD
 AIS UPD



Alerting samples

[SMARTCM] VAS alert: Container leaving geo-fence area Container: HLXU3476944

From: smart-cm@bpv-ac.de
To: smartcm@tredit.gr
Cc:
Subject: [SMARTCM] VAS alert: Container leaving geo-fence area Container: HLXU3476944

Dear DHL-TREDIT,

An alert addressed to your account has been generated in the SMART-CM VAS layer.

Alert type :Container leaving geo-fence area
Date received :2011-07-03 10:06:18.0 GMT
Current Location :Departed from Antwerp port area
lat: 18.9445 lon: 72.9449
<http://maps.google.com/maps?&q=18.9445,72.9449&>
Data source :EDC
Container number :HLXU3476944
Device mounted :2011-06-06 09:41:04.0
Original ETA :unavailable
Updated ETA :unavailable
STL ID :DHL-ANR-BOM
Route :

Please log into your account for further information.

Sincerely,
SMART-CM Team

[SMARTCM] VAS alert: Container entering geo-fence area ('Mandeb Strait') Container: FSCU9972358 - Message (PL...

From: smart-cm@bpv-ac.de Sent: Tet 29/6/2011 10:29 nu
To: smartcm@tredit.gr
Cc:
Subject: [SMARTCM] VAS alert: Container entering geo-fence area ('Mandeb Strait') Container: FSCU9972358

Dear DHL-TREDIT,

An alert addressed to your account has been generated in the SMART-CM VAS layer.

Alert type :Container entering geo-fence area ('Mandeb Strait')
Date received :2011-06-29 07:15:06.0 GMT
Current Location :Between Antwerp port area and Nhava Sheva port ('Mandeb Strait')
lat: 12.4349 lon: 43.629
<http://maps.google.com/maps?&q=12.4349,43.629&il=12.4349,43.629&ie=UTF8&z=8>
Data source :EDC
Container number :FSCU9972358
Device mounted :2011-06-14 07:46:39.0
Original ETA :unavailable
Updated ETA :unavailable
STL ID :DHL-ANR-BOM
Route :

Please log into your account for further information.

Sincerely,
SMART-CM Team





Conclusions

- Better overview of planned vs. executed container trip provided through SMART-CM VAS.
- ETA updating proved a really needed tool for stakeholders. Essential for better organizing their operational procedures.
- Geo-fenced areas alerting useful for daily operations since only critical nodal points are of interest.
- Supported geo-fence creation/set-up could be useful to avoid misconfigurations through GIS GUI.
- Need for alternative data sources.

