RFID in the Port of Göteborg:

Railcars and SECU in the NETSS concept. (StoraEnso)
Gate security in the Oil terminal
AIS

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Trailer identification in the Ro/Ro-terminal; Chalmers. 2 studies
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Smart Seals – Pre Study 2004
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Secure Trade Lanes – Project with IBM and others
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World Shipping Council
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Us Dept of Homeland Security

RFID in the Port of Göteborg

• Focus:

• Intermodal and international transport of unitised cargo!
The SECU box

StoraEnso – the baseport concept
Purpose

• Provide the customer with information about incoming and outgoing SECU-boxes and wagons.
  – SECU id
  – Waggon id
  – In/out
  – Date
  – Time
The Normal Case

:1:SEPL1000622D..  
:2:317445510884..  
:1:317445510447..  
:2:SEPL1001059...  
:1:SEPL1000793D..  
:2:317445510447..  
:1:317445511056..  
:2:SEPL1000622...  
:1:SEPL1001228D..  
:2:317445511056..

Previous waggon & SECU

Next waggon & SECU

Problems

• Missing or broken Tags
• Tags with the wrong information
• Tags read by both antennas simultaneously
• Train reverses without tags being read by antenna no. 2.
• ...
20 possible cases

- Correct recorded waggon and SECU
- Correct recorded empty waggon
- Railcar with SECU with waggon tags missing or broken
- 6 cases where two tags are missing or broken
- 4 cases where one tag is missing or broken
- 4 cases where one tag has the wrong information
- 2 cases where one SECU tag is read by both antennas
- Train reverses before both antennas have read all tags on waggon and SECU
ISO standards

- ISO 10374 Permanent Container Tag
- ISO 17363 e-Seal Supply Chain Tag
- ISO 18185 e-Seal Shipping-Line Tag
ISO 10374 Permanent Container Tag

Tag to be fixed on:

- All existing containers W.W.
- New built containers

Tag is a RFID readable Tag: 433 mhZ

ISO 17363
e-Seal Supply Chain Tag

- Frequency 433 mhZ
- Will be used for the total supply chain, from shipper/manufacturer to receiver of the goods/container
RFID in transport

• 3 types of tags

• 1 frequency 433.92 mhZ
  » =
  – 1 reader

RFID in transport

World Shipping Council will ask for:

• Gate-in and gate-out confirmation
• Based on ISO 10374 and ISO 18185
ISO 17363 e-Seal Supply Chain Tag

Port of Origin: Example Security Process Flow

Key
- Physical Flow of Container
- Diverted Flow of Container
- Transport Security Solution

Fix SmartSeal/Upload Tag Data

Shipment Info Forwarded to Customs

Fix SmartSeal/Upload Tag Data

Shipment Info Forwarded to Customs

If Tamper Event Detected or Customs Request, Divert to Inspection

Intrusive/Non-Intrusive Inspection

Clearance Prior To Departure

Continuous Monitoring for Tamper Events

Loading

Staging

Fix SmartSeal/Upload Tag Data

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Advancement of Security Device

Broad Agency Announcement 04-06 (BAA04-06)

Department of Homeland Security

Homeland Security Advanced Research Projects Agency (HSARPA)

May 7, 2004

For Questions Regarding This Solicitation:

BAA04-06@dhs.gov
### Schedule
The schedule and periods of effort given are considered the maximum times allowed for development and initial fielding of systems for test and evaluation. Accelerated efforts, that compress the time schedule to prototype field testing will be considered consistent with the development objectives and requirements. With that caveat, the schedule and approximate milestone dates are as follows:

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<th>Phase</th>
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<td><strong>Phase I</strong></td>
<td>Kick-off</td>
<td>September 2004</td>
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<td>System Requirements Review (SRR)</td>
<td>October 2004</td>
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<td>System Architecture Review (SAR)</td>
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<td>Preliminary Design Review (PDR)</td>
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<td><strong>Phase II</strong></td>
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<td>Critical Design Review (CDR)</td>
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<td><strong>Phase III</strong></td>
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