

Cassandra – Analysis of Information requirements

R&D FOR INCREASED TRANSPORTATION SECURITY

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Background

Today's logistics setups require:

- Management of increased complexity and increasing distances
- Development of safer and more cost effective transport solutions

→ HOW can we achieve this?

→ Where does RFID come into the picture?

Cassandra

- Cassandra is a co-operation between Volvo Technology, Volvo Logistics, Ericsson Microwave Systems and Chalmers University of Technology
- Efficient solutions for goods and vehicle communication in order to decrease security risks in transportation.
- Research and development on a solution including:
 - intelligent goods
 - intelligent truck
 - flexible service based architecture
 - dynamical route planning and
 - deviation management: population density, crime rate goods data

Agenda

- The requirements analysis
 - Method
 - Participants
- Solution
- Future

Questions

- What does the information flow look like today?
- What information is missing in today's transportation setup?
- What information is necessary to support efficient transport operations?

Method

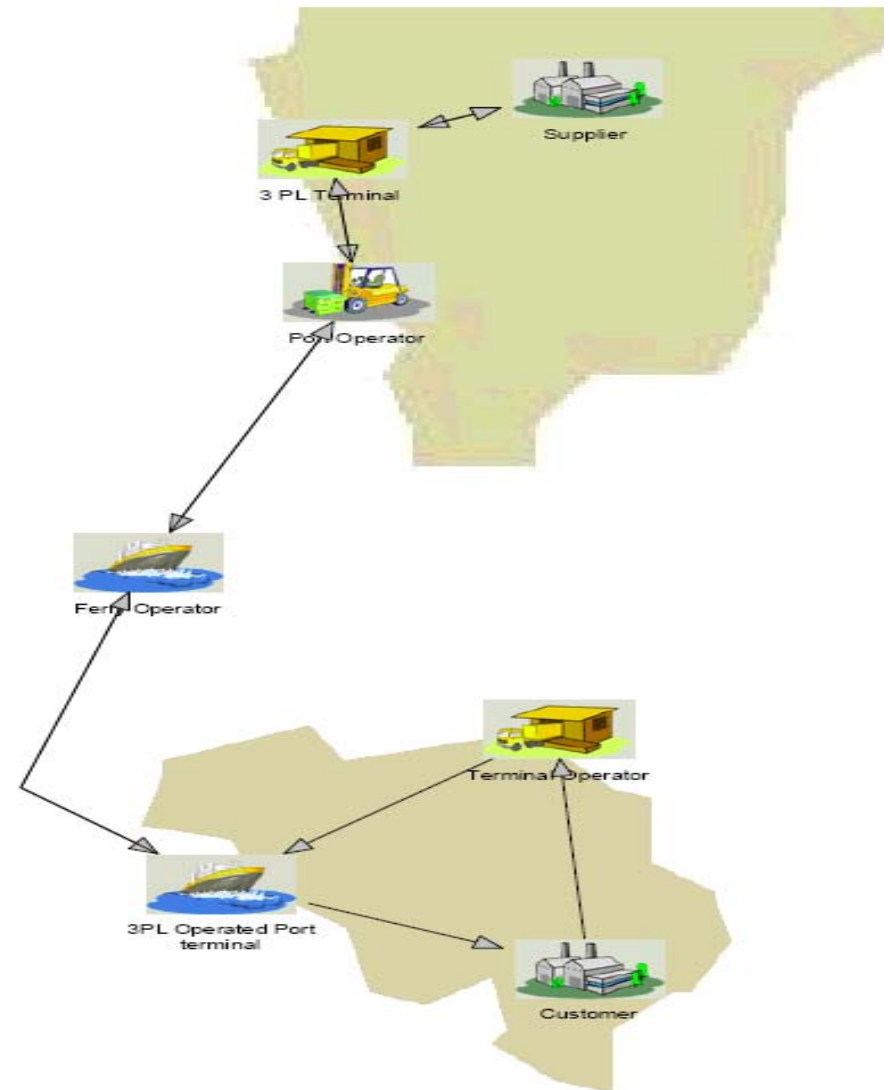
- What have been done by others?
- Case studie - Washer fluid liquid from Hindås (Sweden) to Ghent (Belgium)
- Over 50 interviews with all involved parties:
 - Need for information
 - Mapping between information and activities
- Travels and observations of both the physical and the information flow, all the way from supplier to goods receiver (9 months)

Method (2)

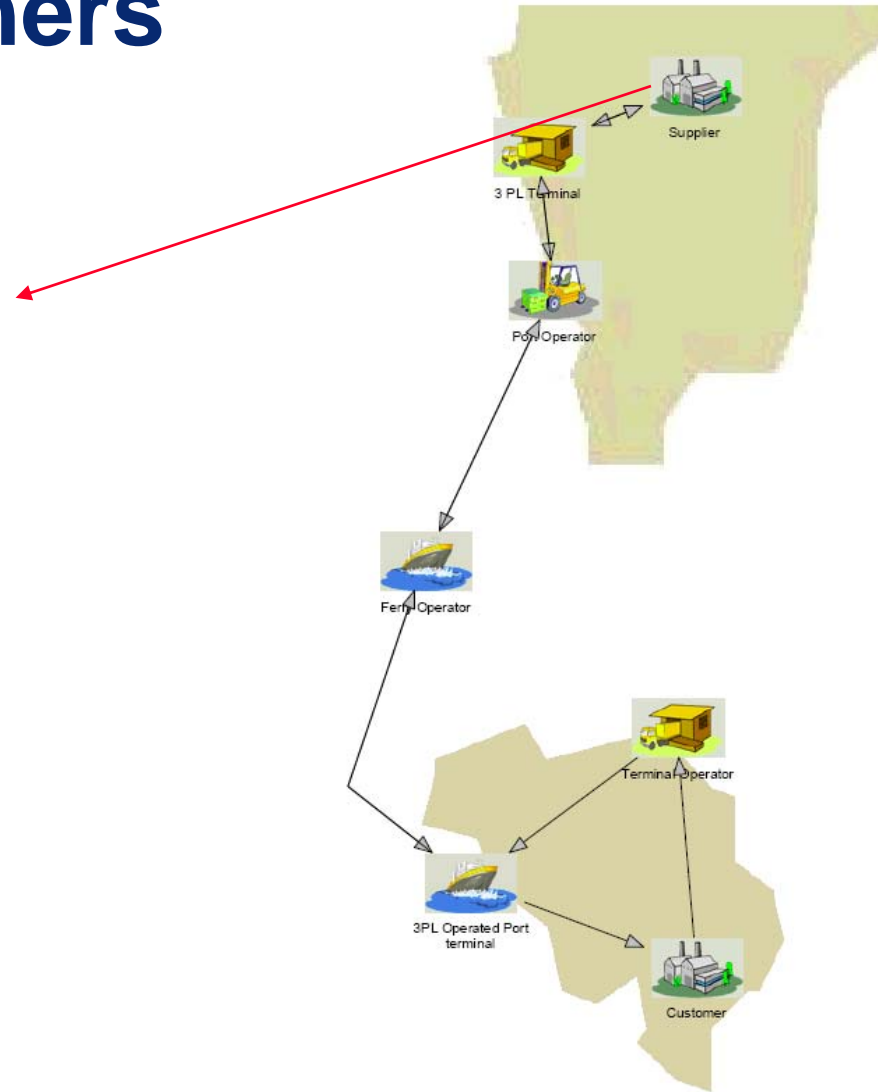
- Validation - Comparison of results with other studies
- Looking at general problems for international transport chains – excluding case specific problems

The actors in the flow

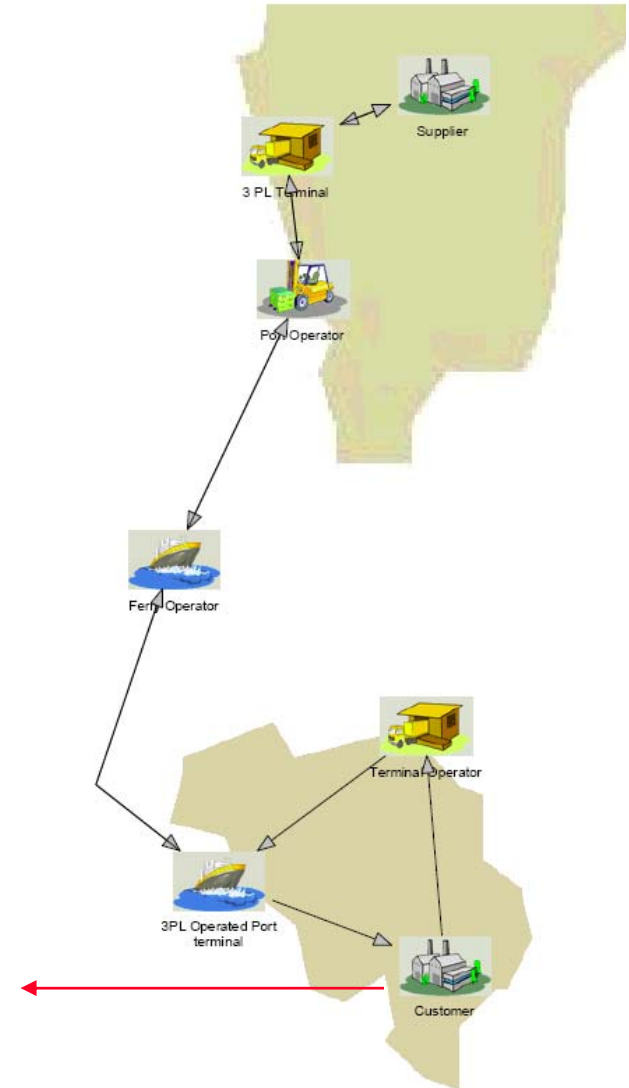
- Aspen Petroleum
- LBC Borås
- Volvo Logistics
- Volvo Cars
- DFDS
- Port of Gothenburg
- Merkatordock
- GHD
- Trailer Operator
- Belgian trailer puller
- Swedish trailer puller



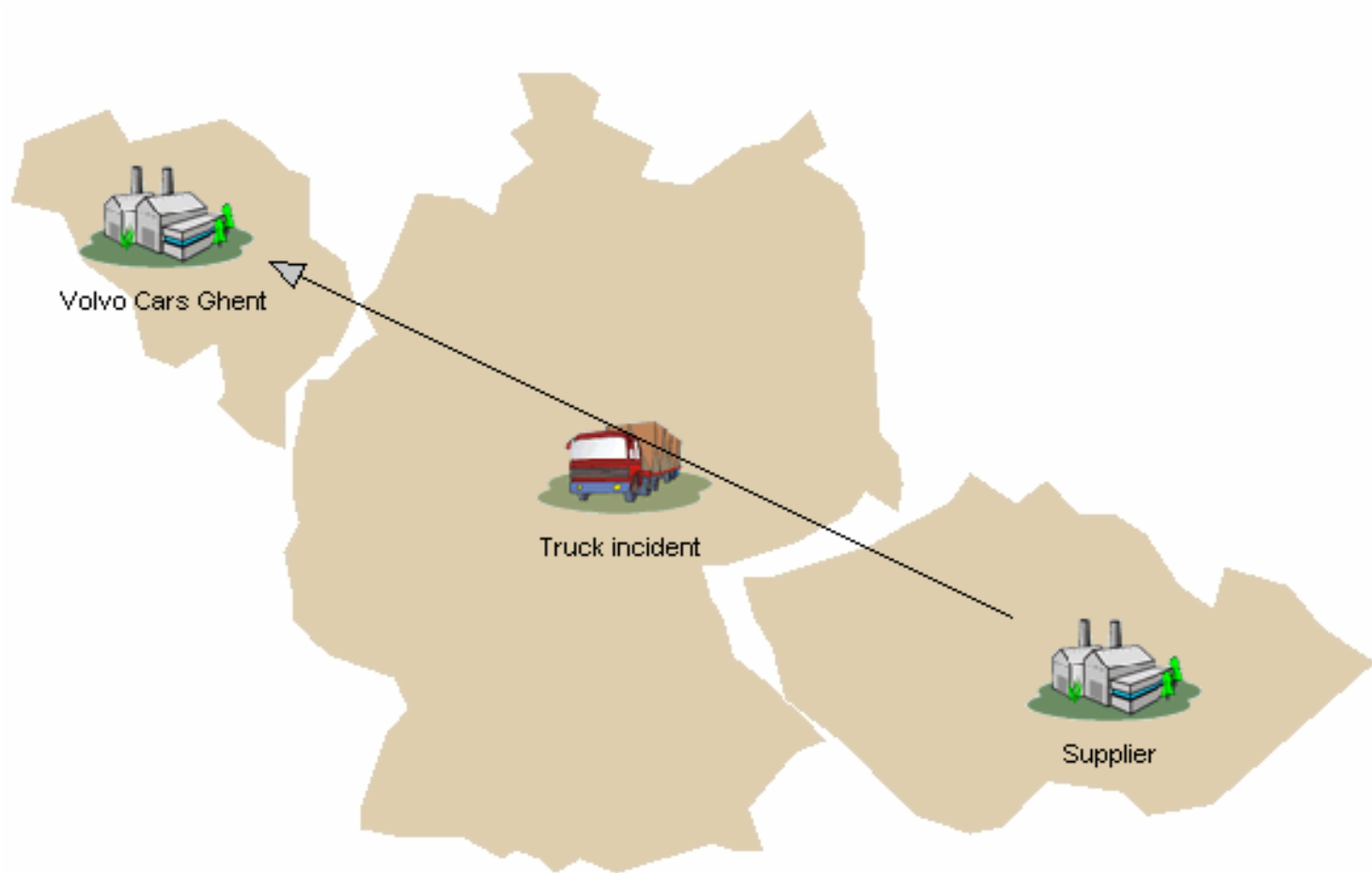
IBC Containers



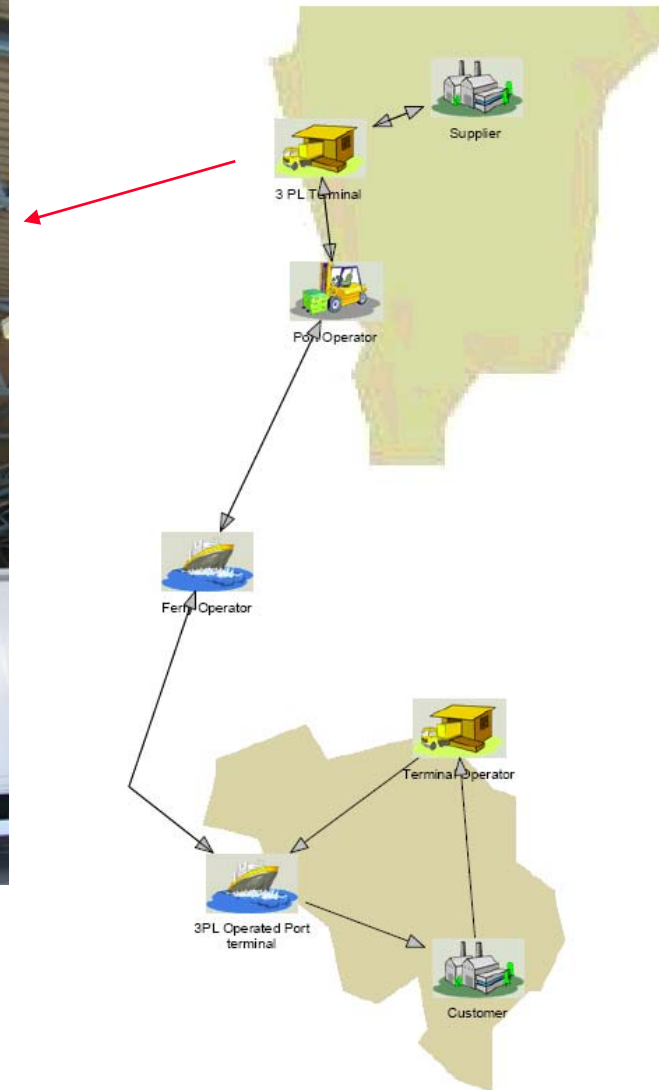
Volvo Cars Gent



October 2006

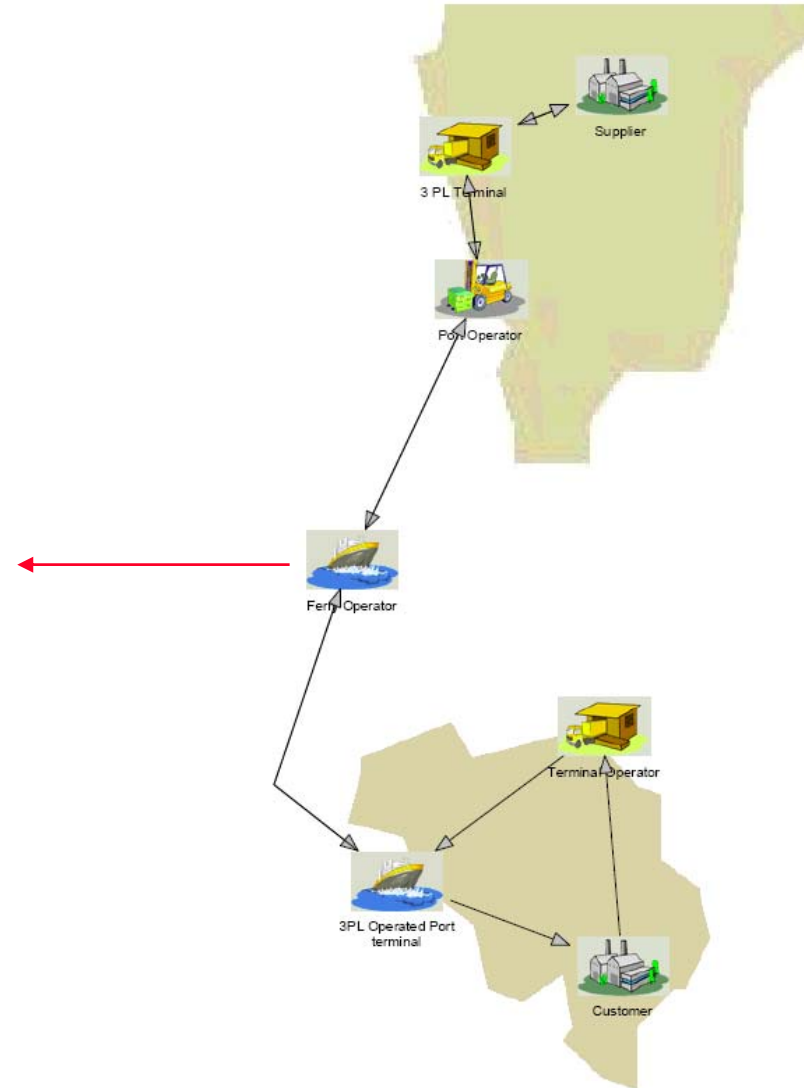


Volvo Logistics Arendal

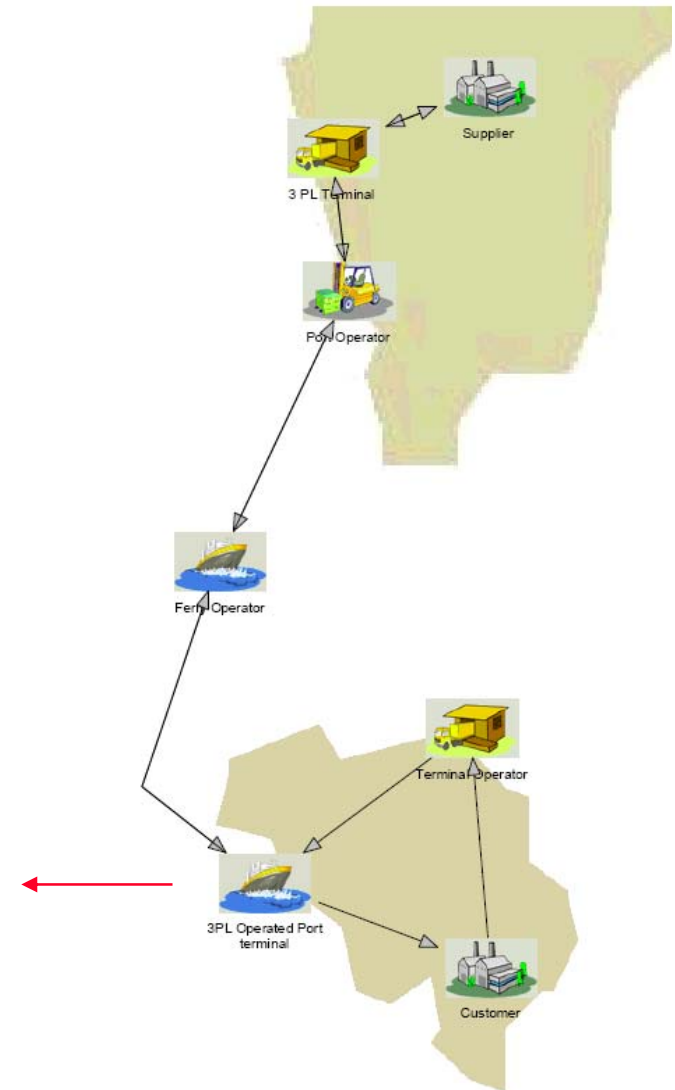




DFDS

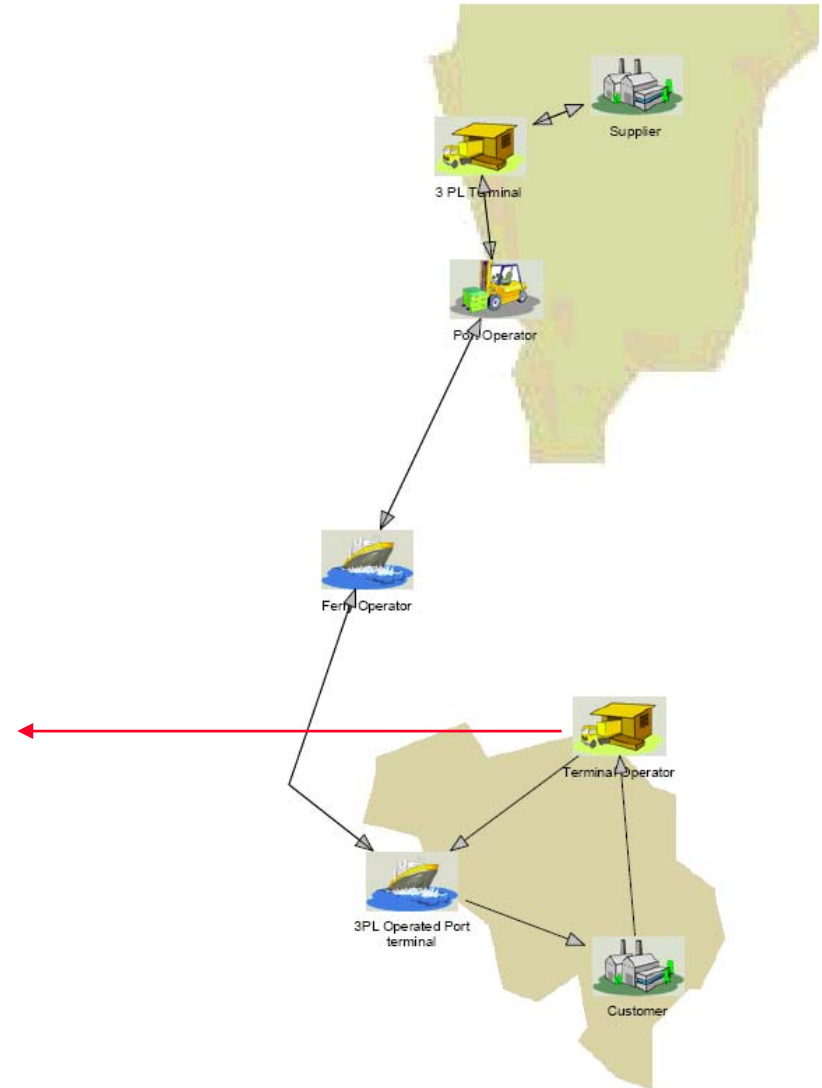


Merkatordok





GHD

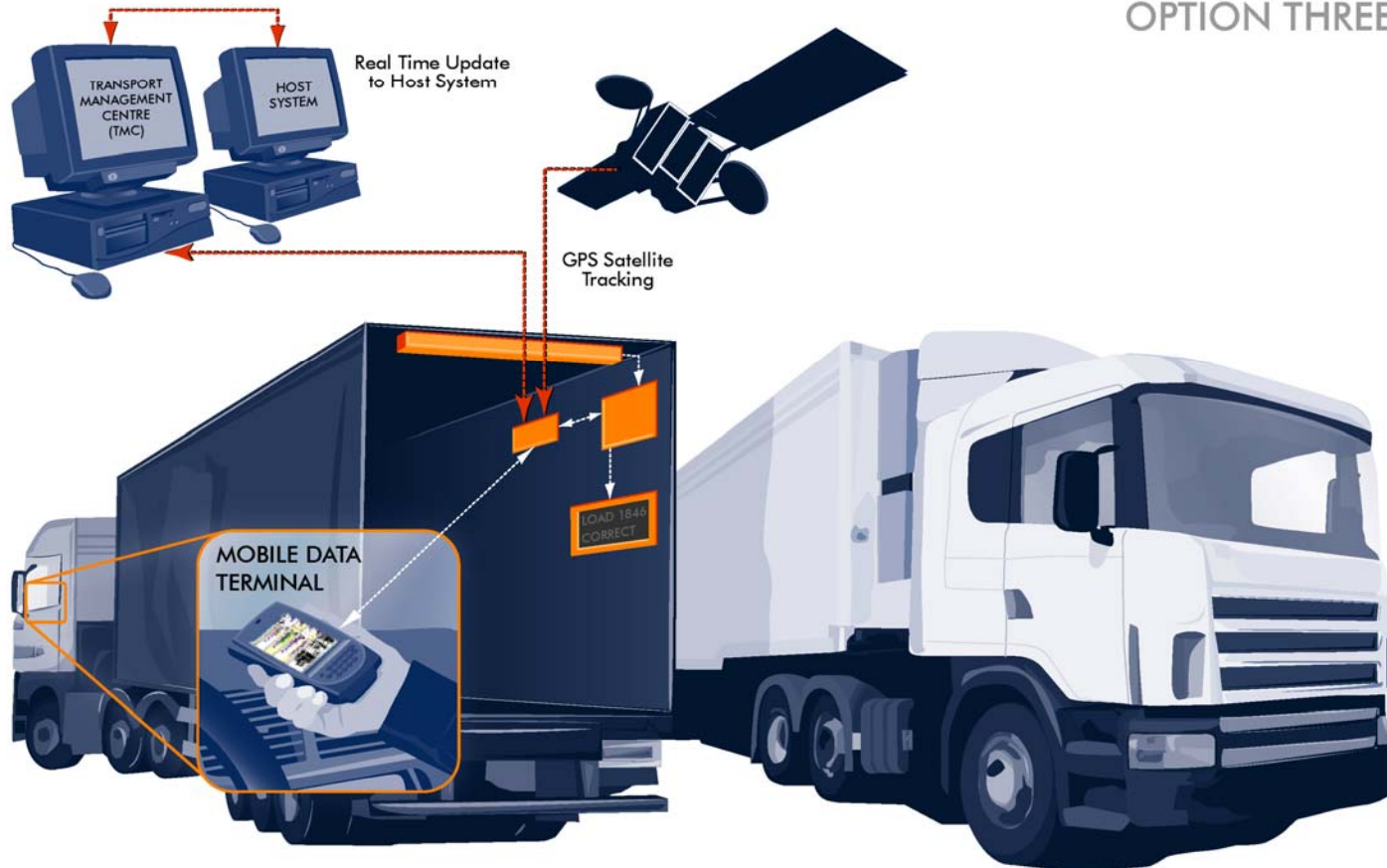


Summary of Analysis

- Slow reactions on delays (lack of information)
- Lack of geographical visibility and goods status
- Same information is manually entered into several systems downstream the transport chain
- Waiting times
- Lack of dynamical planning

Intelligent goods / truck / trailer

OPTION THREE

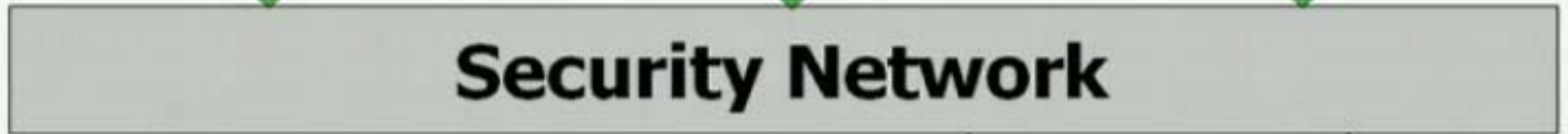


Service based system architecture

- Communication platform – between vehicles and actors
- Ericsson OpenSIS development platform
- Service Oriented Architecture (SOA)
- Connections to different actors and databases



Services



Actors



Route planning / Deviation management

In order to minimize security risks, a route planning concept has been developed.

- Analysis of existing databases on crime and population density
- Development of a dynamical route planning model, based on risk index. .
- Deviation management scenario

Dynamical Geofencing



GPS



Position



Transport Management

GPRS

Restriction/
information



Future

- Information must follow the goods
- Pre-arrival notifications
- Individual planning of each transport unit
- Electronic document flow
- Dynamical planning
- Transparency
- Planning based on information of route

Demonstration

- Demonstration of future's transportation system
- Prototype
- Lindholmen Open Arena
- 18th May, 14:00 (Please contact Cassandra participant before)

Contact Cassandra members

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