Cassandra – Analysis of Information requirements

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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 study - 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
October 2006
Volvo Logistics Arendal
Merkatordok
Henrik Sternberg
Logistik & Transport

Transportsäkerhet och effektivitet 15
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
Service based system architecture

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

Position

GPRS

GPS

Restriction/information

Transport Management

Map

Image of satellite

Image of truck

Image of control room
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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