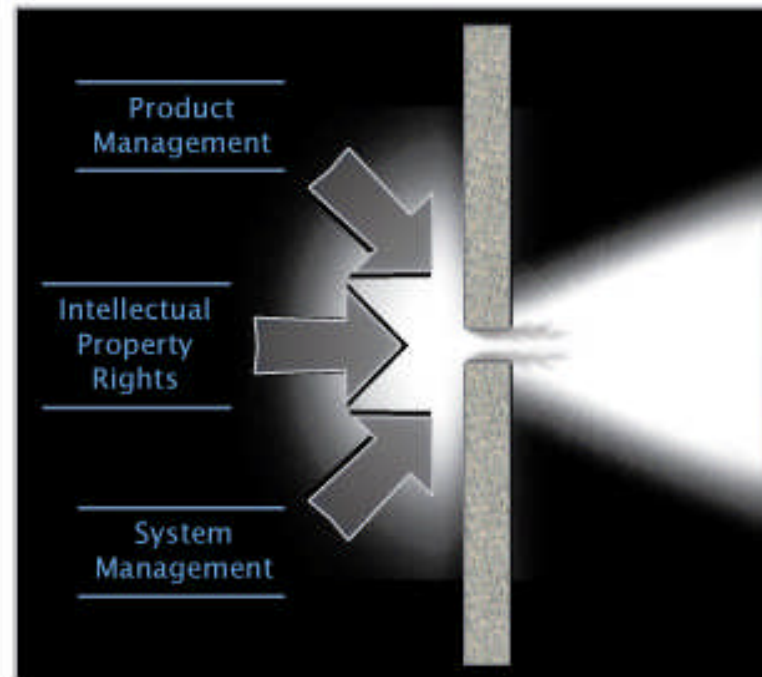


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CALM for Safe, Clean and Efficient Transport Services



by Timo Pohjanvuori

Agenda

Brief Technology Overview

CALM Market segmentation

CALM Applications per market segment

CALM Market today and tomorrow

The objective of this presentation is to visualise a CALM product roadmap enabling Safe, Clean and Efficient transport services which hold opportunities for Automotive, Telecom and Service providers

Brief Technology Overview

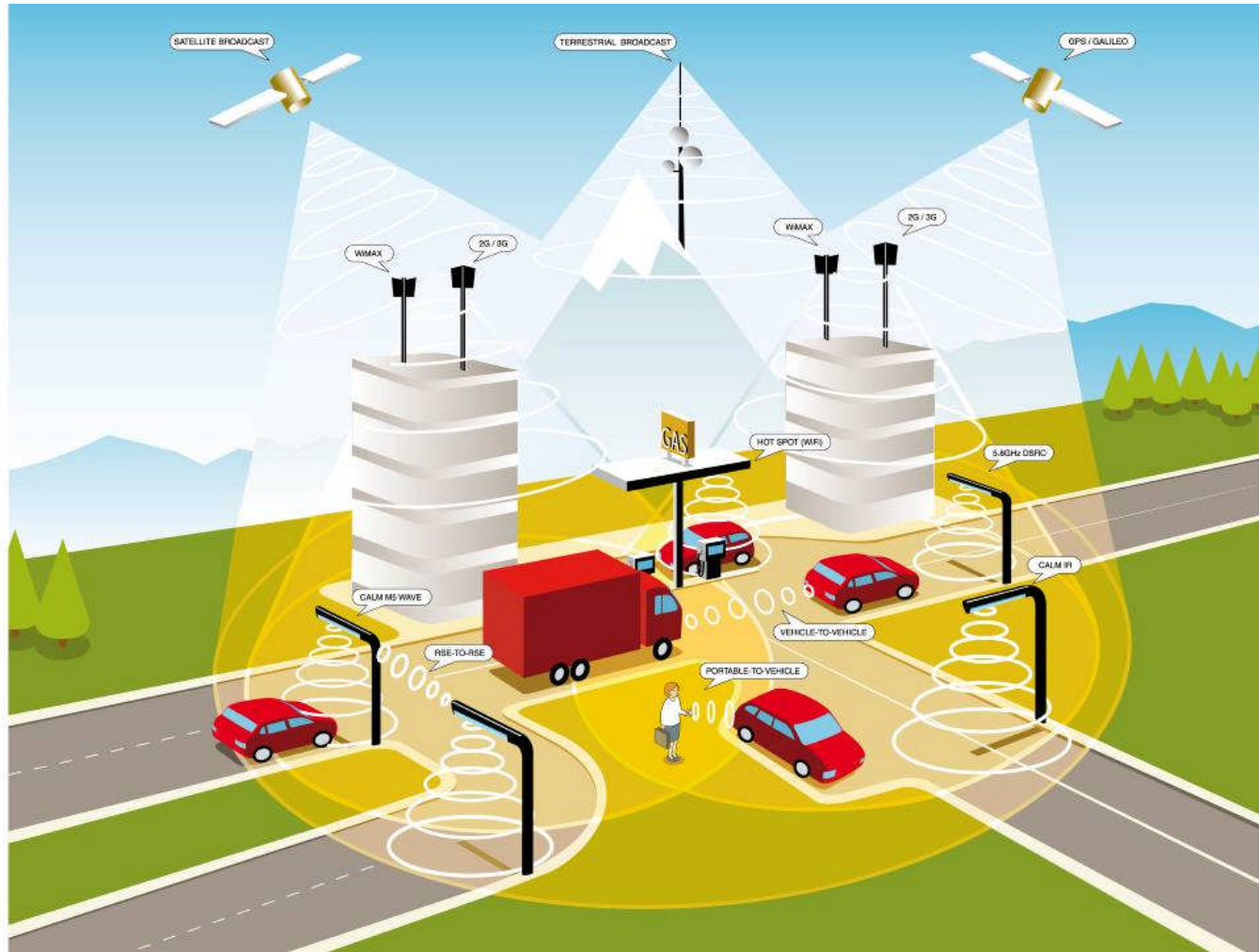
The **CALM standards** are being developed by ISO TC204 WG16

CALM system is validated in the research project **CVIS** (6FP)

The **CVIS** objectives are:

- open application framework in the vehicle and roadside equipment
- unified technical solution allowing vehicles and infrastructure elements to communicate

Brief Technology Overview



What are the markets , what are the drivers??

Brief Technology Overview

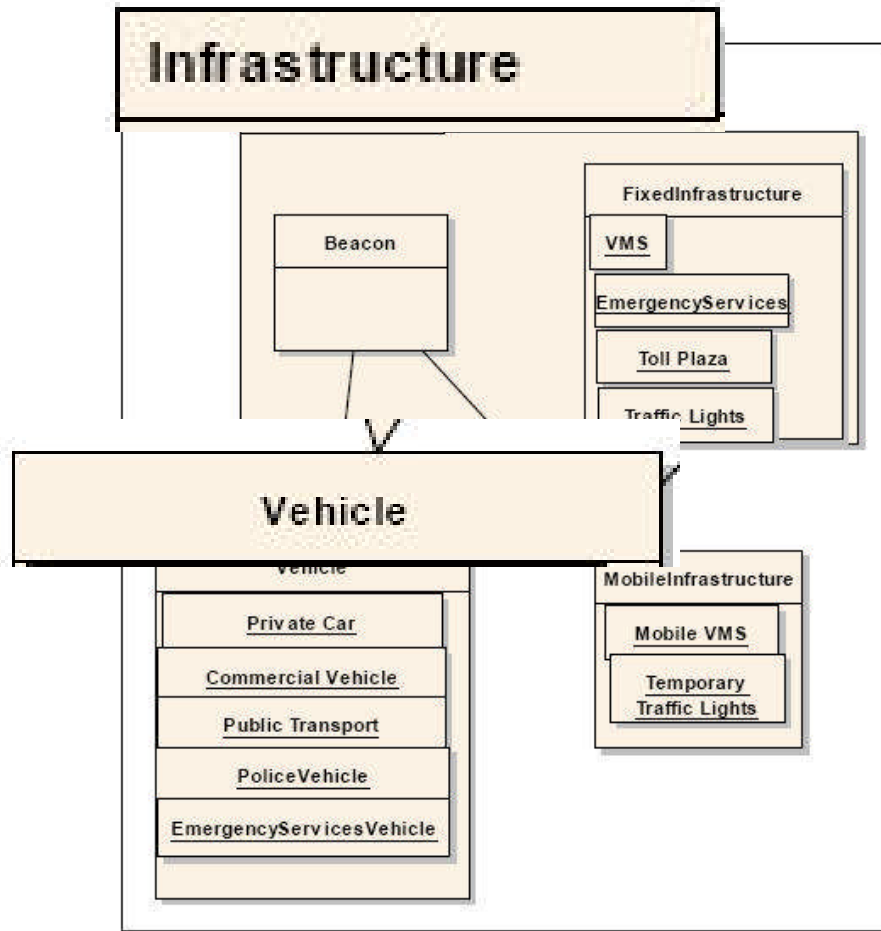


Figure 3: Infrastructure-Vehicle-Equipment Architecture Class Diagram

Open Application Framework

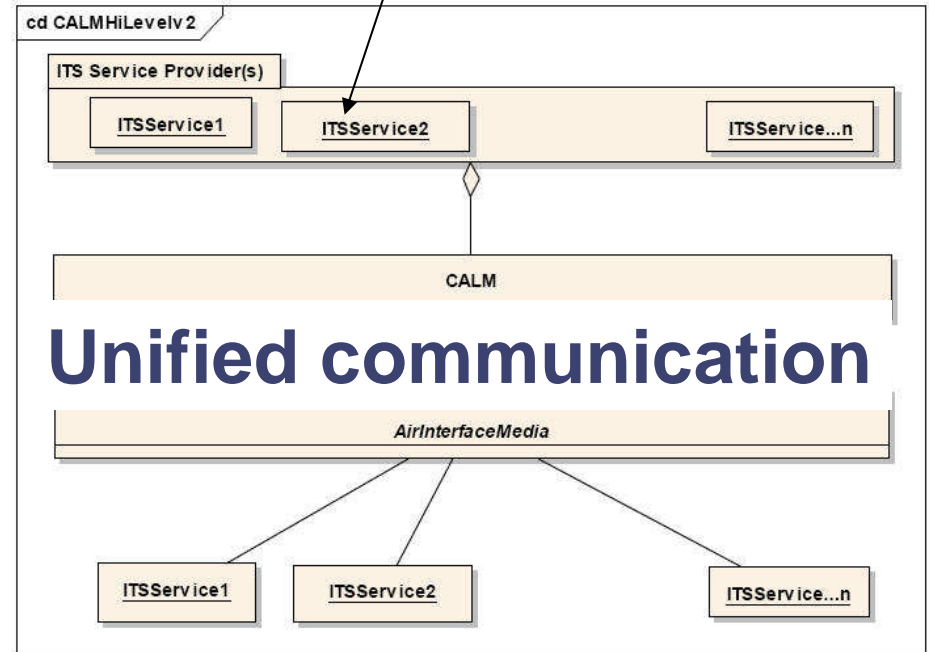
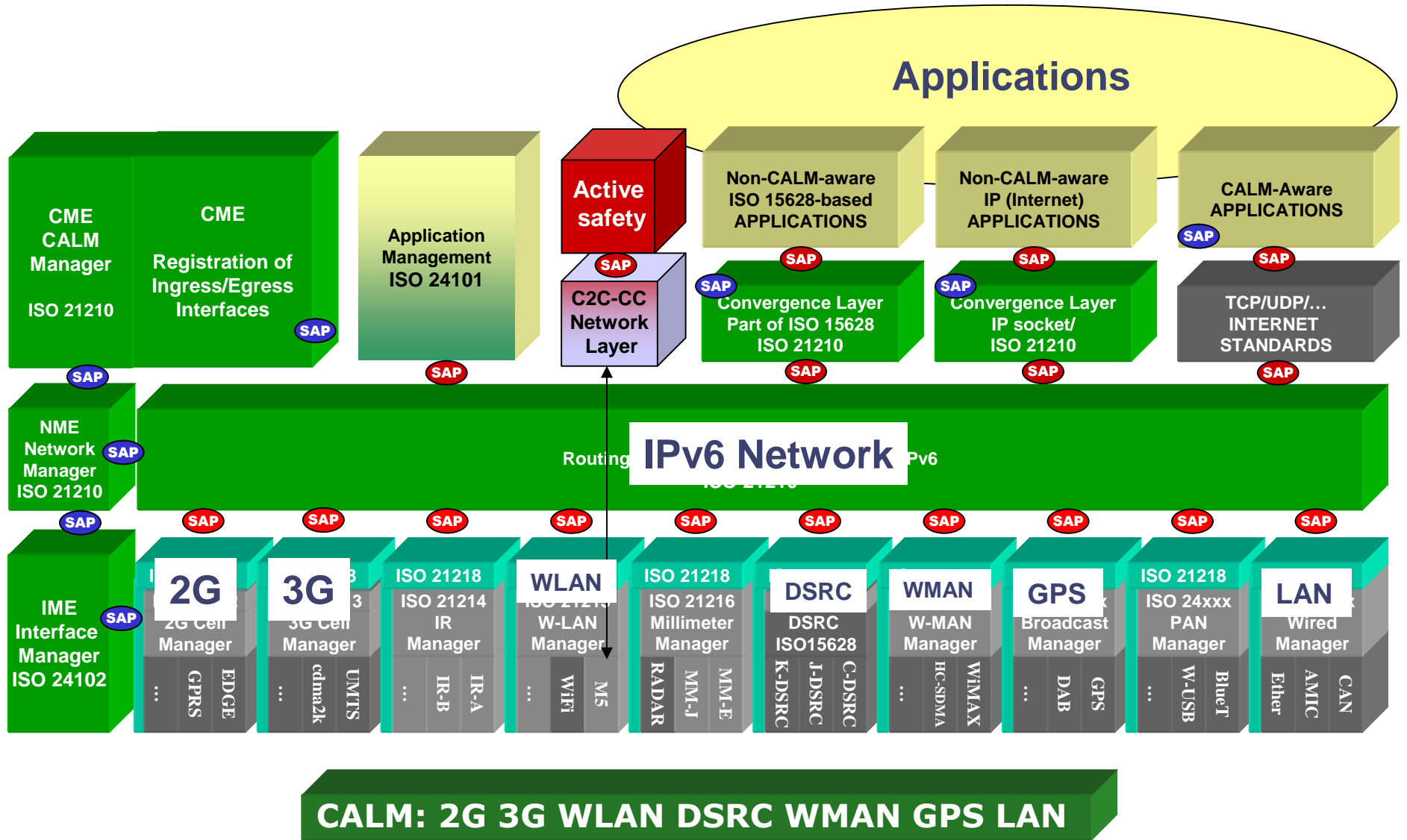


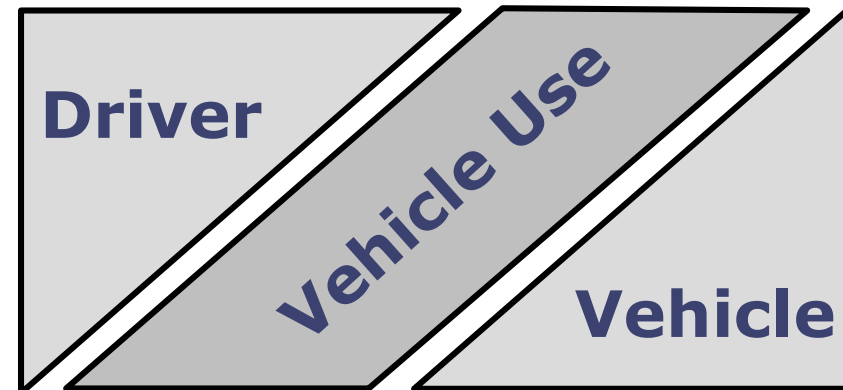
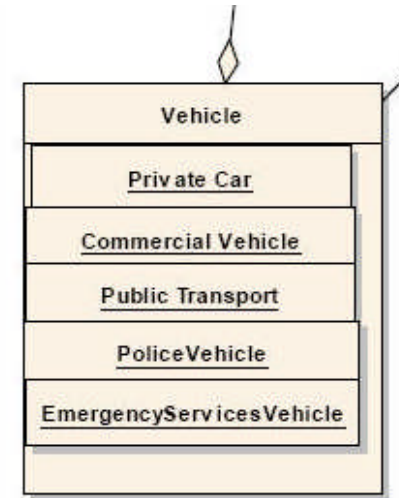
Figure 4: The CALM concept at the highest level of abstraction

Brief Technology Overview



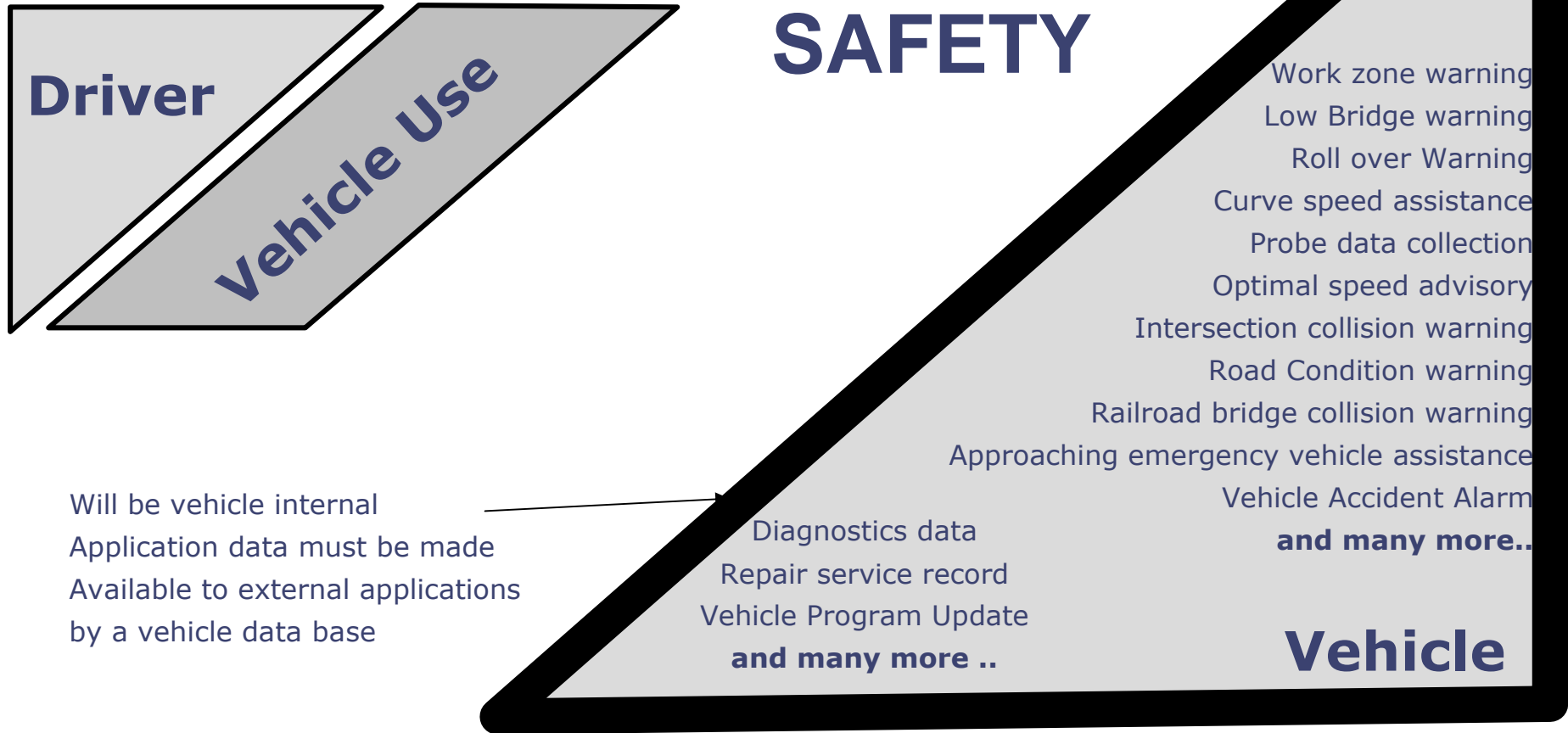
CALM Market Segmentation

- **Driver, Passenger** (Private Car)
- Commercial Vehicle
- Public Transport
- Police and Emergency
- **Vehicle**



CALM: 2G 3G WLAN DSRC WMAN GPS LAN

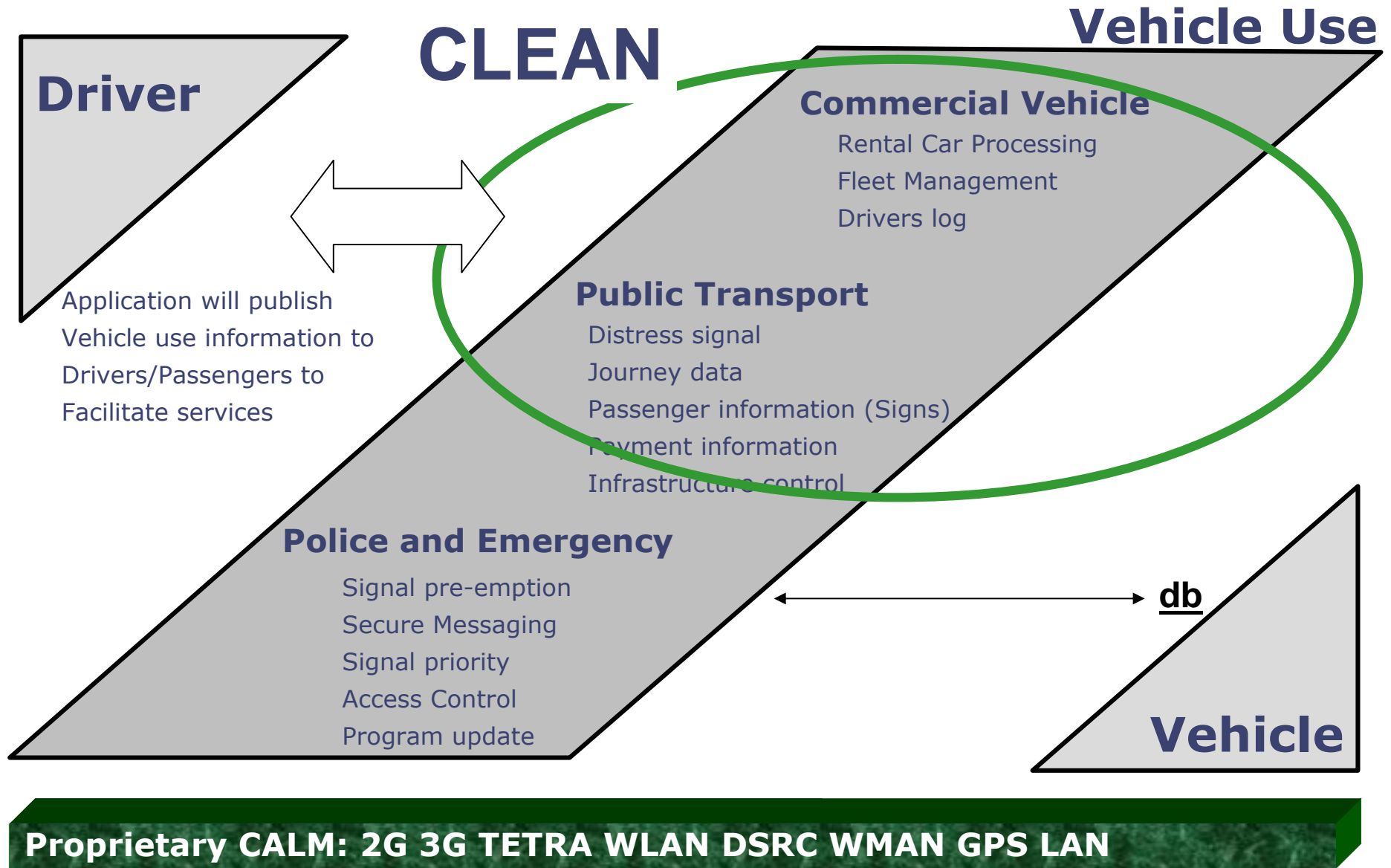
CALM Applications per market segment



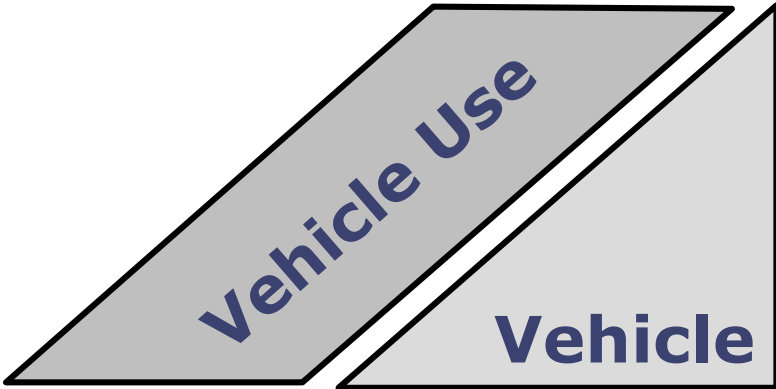
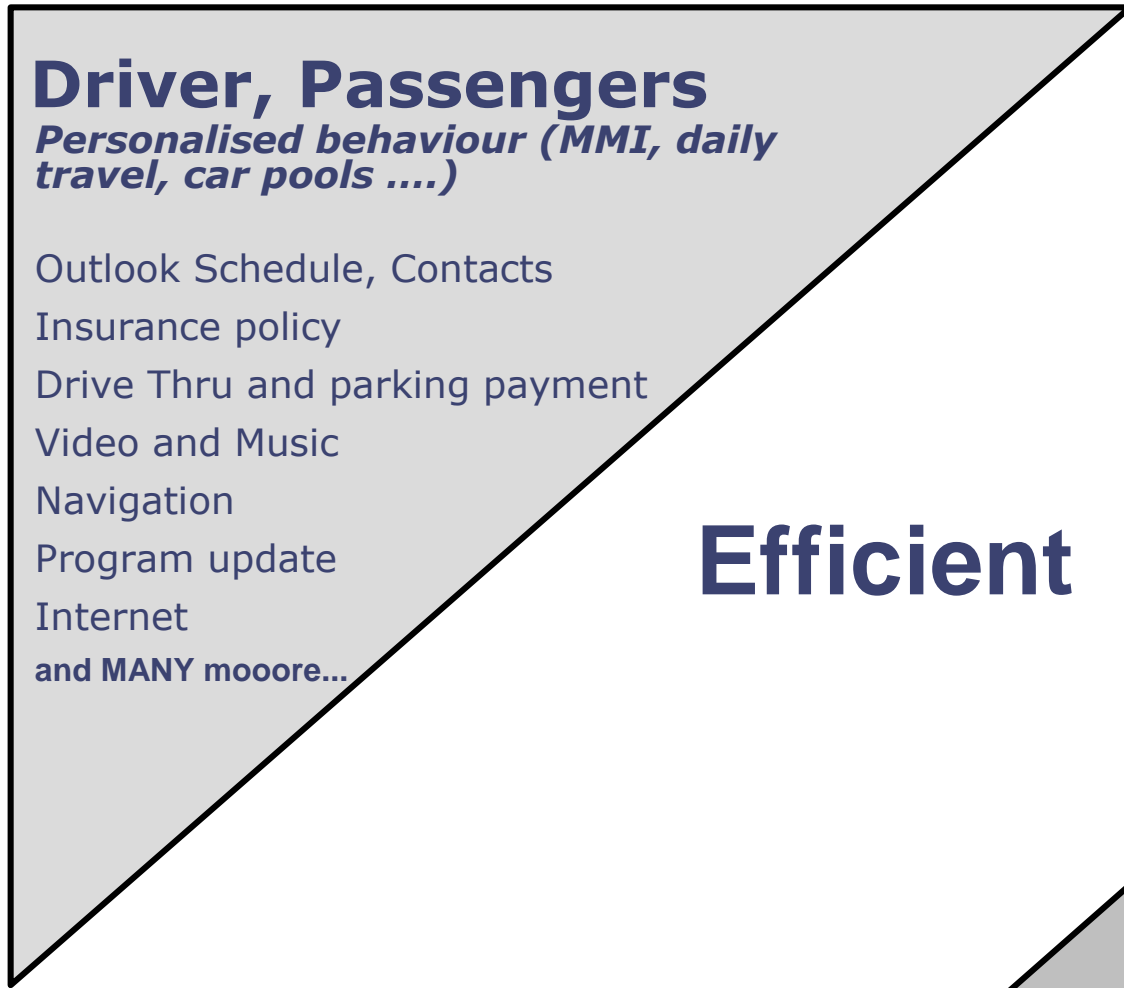
**Real time requirements
Safety Critical systems**

CALM: WLAN-M5 DSRC LAN

CALM Applications per market segment



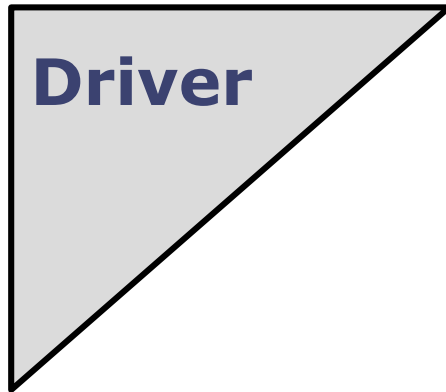
CALM Applications per market segment



CALM: 2G 3G GPS

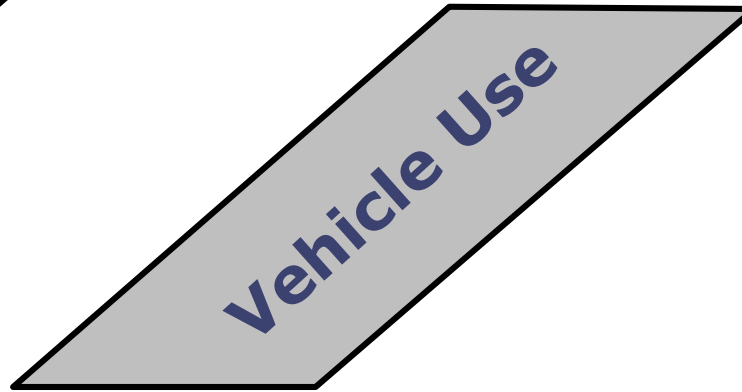
CALM Market today

Efficient



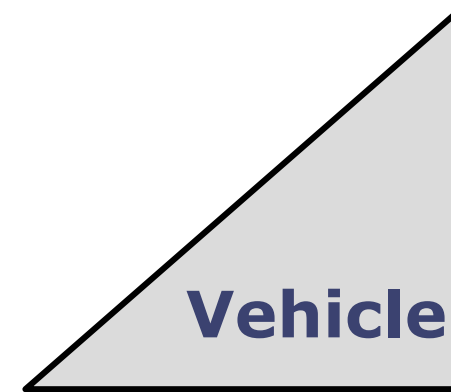
Mass market
Highly Cost efficient and high performance data transfer
User service focused

Clean



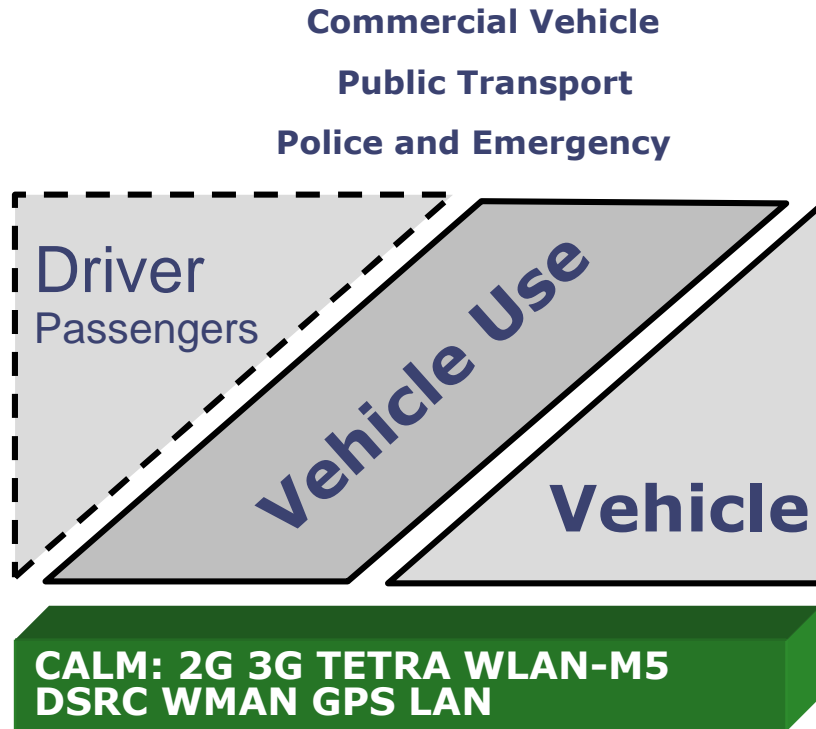
Strong present market for proprietary solutions
High demand for a cost efficient standardised CALM platform
Installed base

Safe



Small present market but with great outlook whereas safety applications is a driver
Drives CALM standardisation

CALM Market tomorrow



Efficient
Clean
Safe

Use this market segment for:

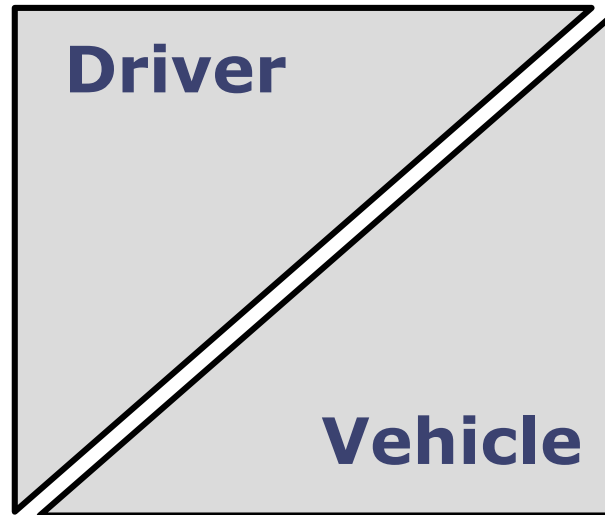
- **R&D**
- **Field trials**
- **Early adaptors**

for both CALM and CVIS concepts

Specific benefits and issues

- **Standardise CALM TETRA interface!**
- **Fixed CALM Management Entity**
- **Fixed proprietary user interface**
- **Focus on Application environment issues**
- **Network hosted services are available today**

CALM Market tomorrow



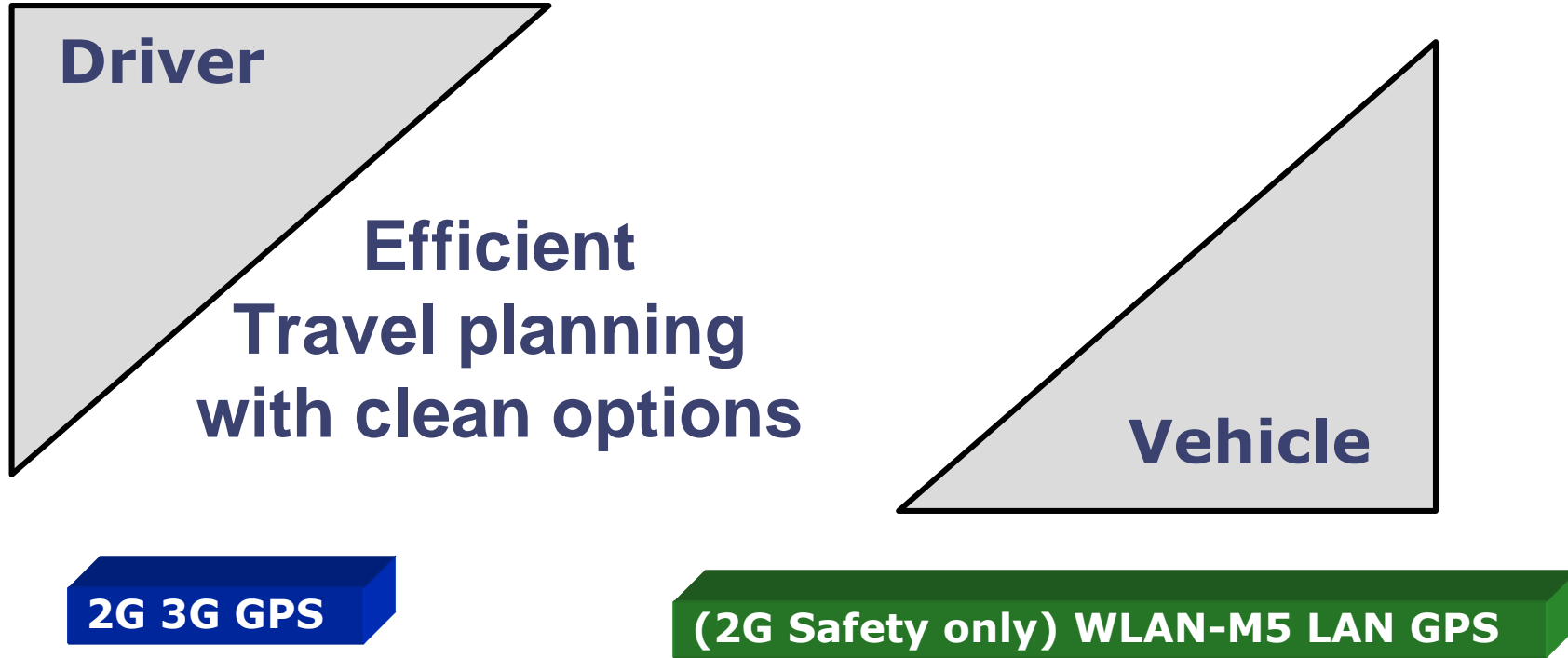
Specific benefits and issues

- Focus on Minimum CALM Management Entity
- Focus on Applications exchanging information for portable or interacting applications
- Driver terminal behaviour adaptations valid for vehicle

CALM: 2G 3G WLAN-M5 LAN GPS

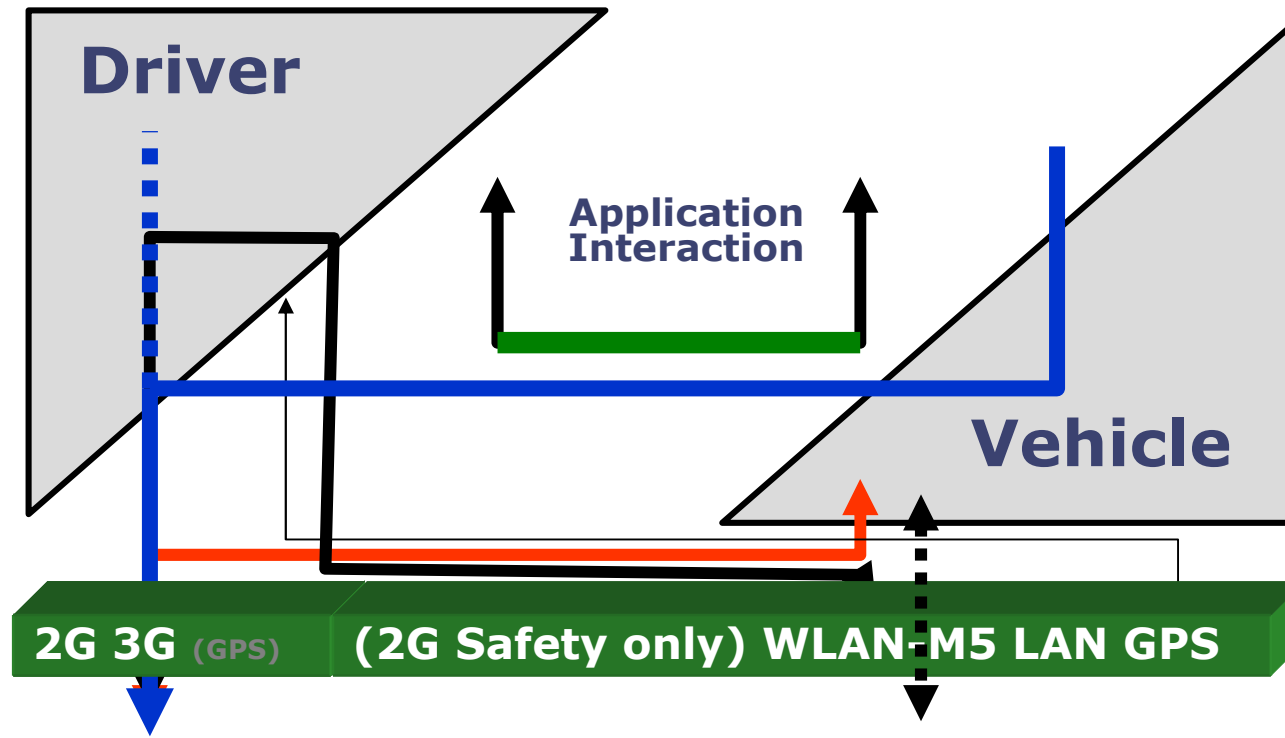
**Efficient
Safe**

CALM Market tomorrow



Efficient travel planning influence on safety?

CALM Market today and tomorrow



- Safety C2C C2I
- Use Vehicle GPS!
- Flat rate subscriber!!! Load updates
- Drive Thru&Parking Payment
- Internet

Summary

CALM will enable a unified technical solution allowing vehicles and infrastructure elements to communicate

- CALM requirements today, lies within Public Transport, Commercial Vehicles, Police and Emergency

Clean

- CALM standard provides opportunities for improved vehicle safety applications

Safe

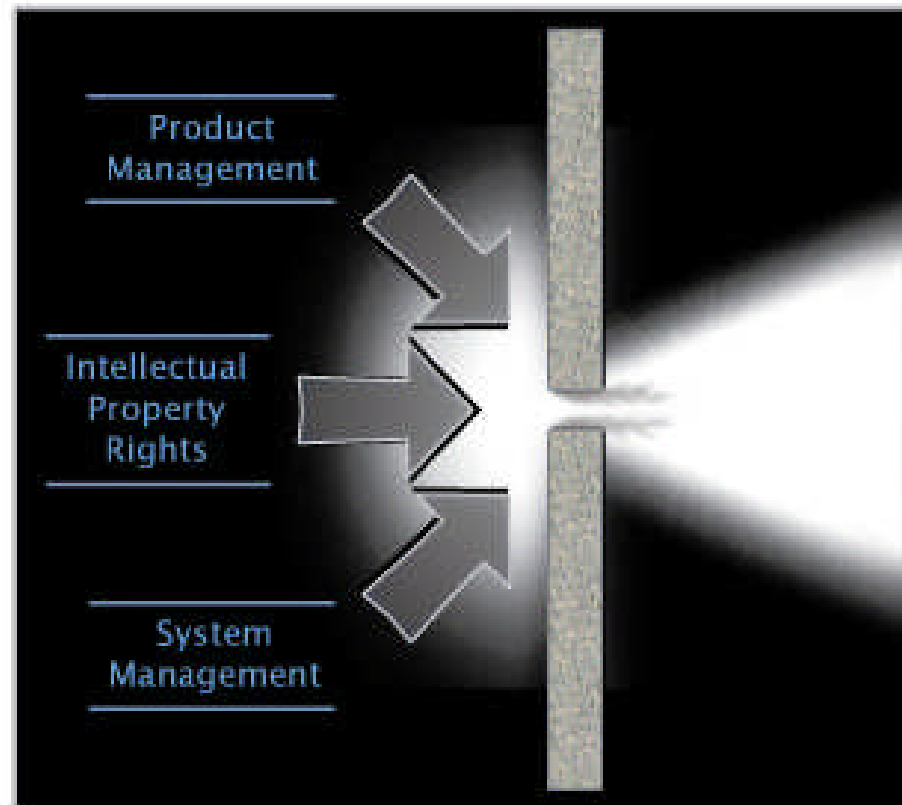
- CALM standard with Application integration provides driver and passenger friendly Transport Services

Efficient

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Thanks for your attention!



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