



CVIS AT ICT IN LYON





Status of the Project



- Passed mid-course (Feb.2006 – Feb.2008)
- Technology platform ready: integration of communication, positioning and software components
 - presentation to the public on 10-11 December 2008 during a launch event in Berlin
- Test site integration and preparation for field trials in January 2009



Technology developments

CVIS Reference Platform



- CVIS presents its universal **reference execution platform** for vehicle-to-vehicle and vehicle-to-infrastructure communication and services:
 - multiple communication interfaces, precise positioning and software support
 - Based on a car PC running OSGi on a JAVA run time environment
 - First CALM compliant implementation for short-medium range communications (IR, M5 (802.11p))



Technology developments

CVIS Core Software

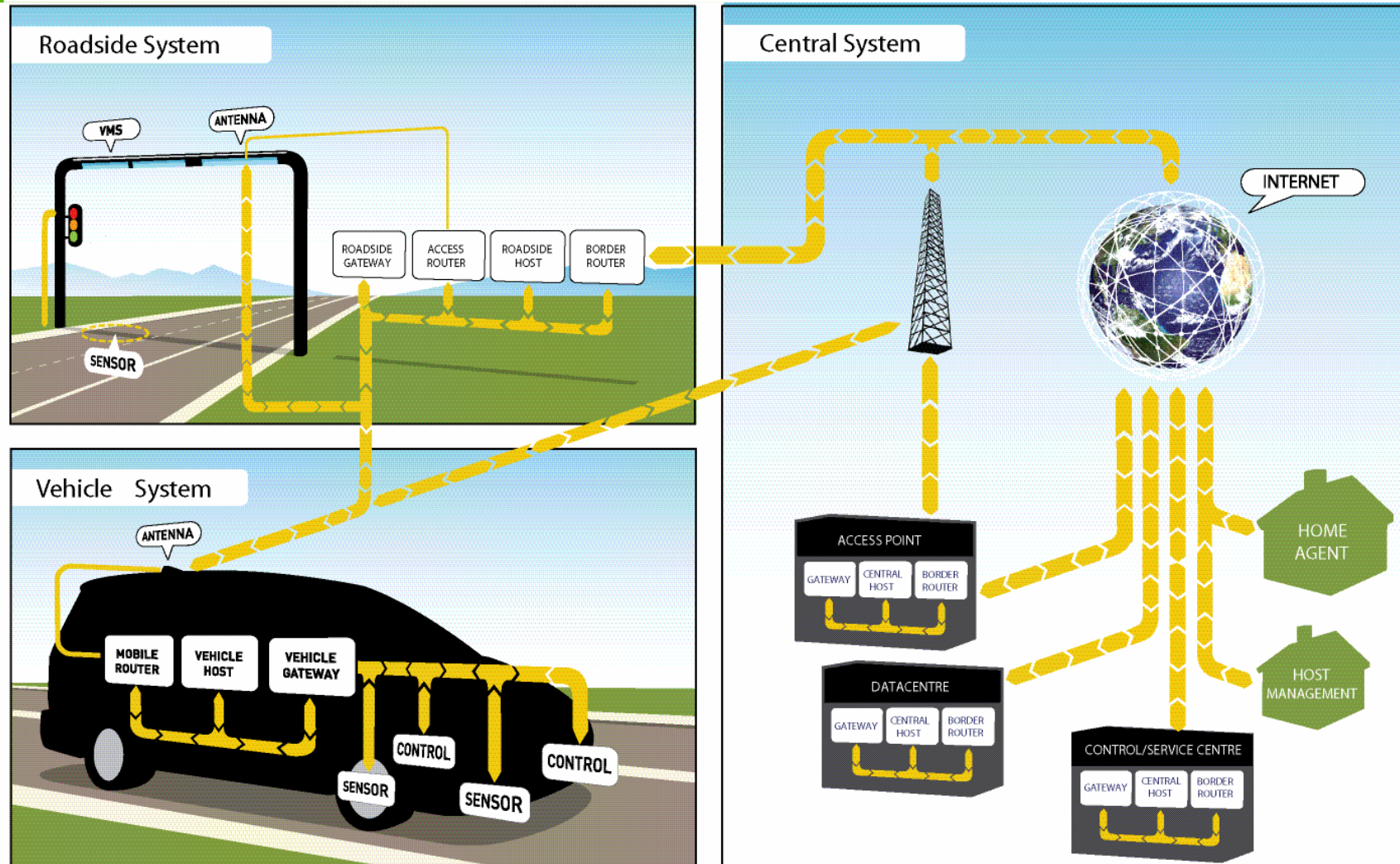
The CVIS Core Software toolkit offers

- vehicle-to-vehicle and vehicle-to-infrastructure communication protocol stack
- channel-switching (3G, 802.11p, IR)
- software provisioning and service announcement
- life cycle management of services and applications
- quick and easy application creation
- software freely available for other projects and users under the CVIS license agreement





CVIS Communication Architecture

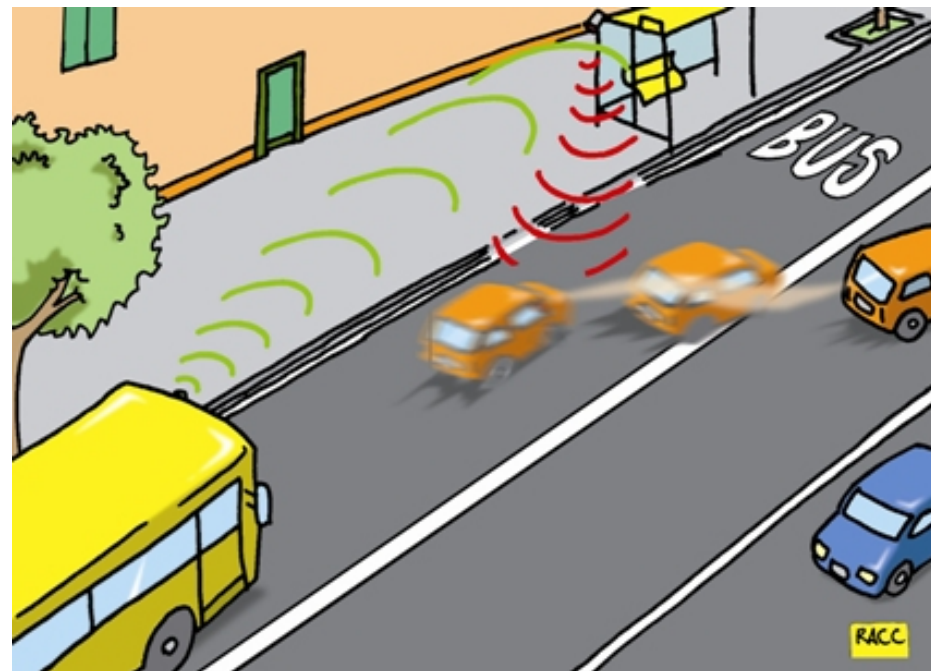




CVIS Applications

Urban area applications

- Cooperative network management
- Cooperative area destination-based control
- Cooperative acceleration/deceleration
- Dynamic bus lanes

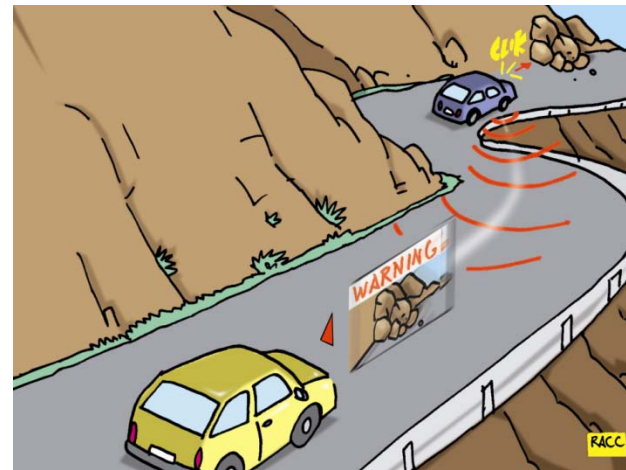
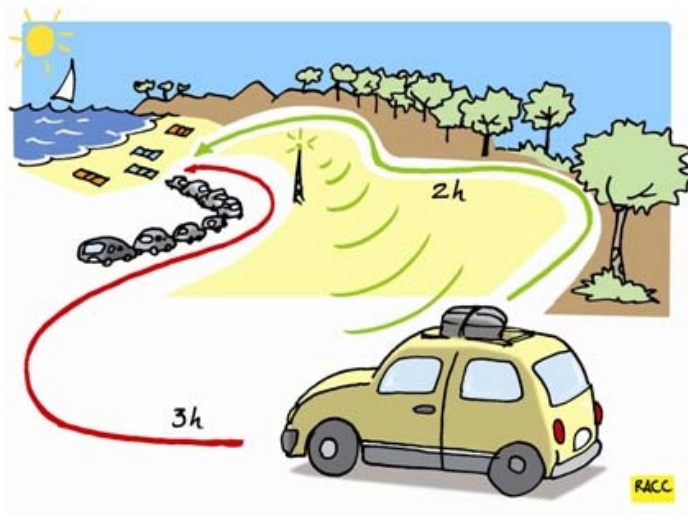




CVIS Applications

Interurban area applications

- Cooperative travellers' assistance
- Enhanced driver awareness

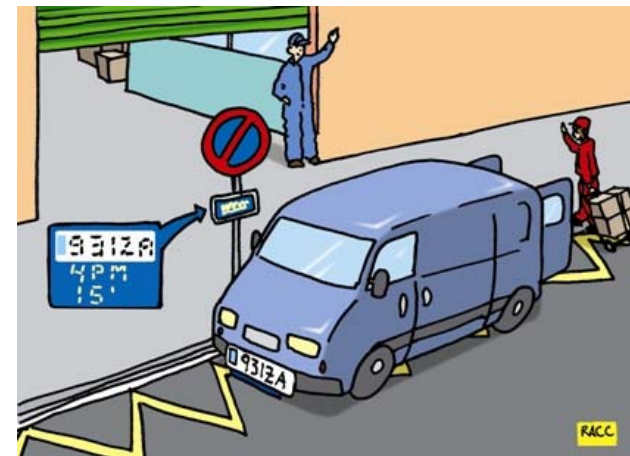
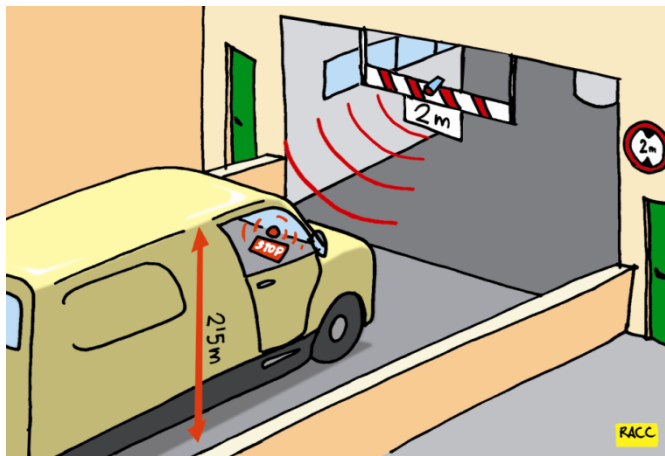




CVIS Applications

Freight & Fleet applications

- Access control
- Dangerous goods
- Delivery space / parking booking





CVIS Exhibition



- The CVIS exhibition illustrates the communication architecture:
 - Subsystem components splitted on different locations
 - 1 central system on CVIS booth (K1)
 - 1 light roadside system running on the ANEMONE booth (J8)
 - 2 vehicles on ANEMONE booth (J8) and outside main entrance (“parvis E”)
 - The Systems are connected through a native IPv6 link



CVIS Exhibition: Vehicles



- 2 CVIS-equipped vehicles demonstrate IPv6 in-vehicle networking:
 - IPv6 CVIS mobile router: communication unit maintaining permanent IPv6 addresses within the vehicle and internet connectivity (NEMO)
 - IPv6 CVIS host (application unit) running the traffic hazard warning application sending warning messages to CVIS server.



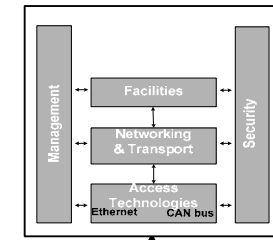
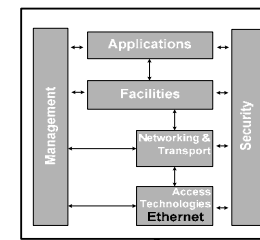
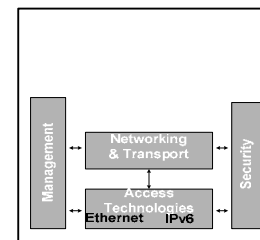
CVIS Exhibition: Vehicles



Mobile Router

Vehicle Host

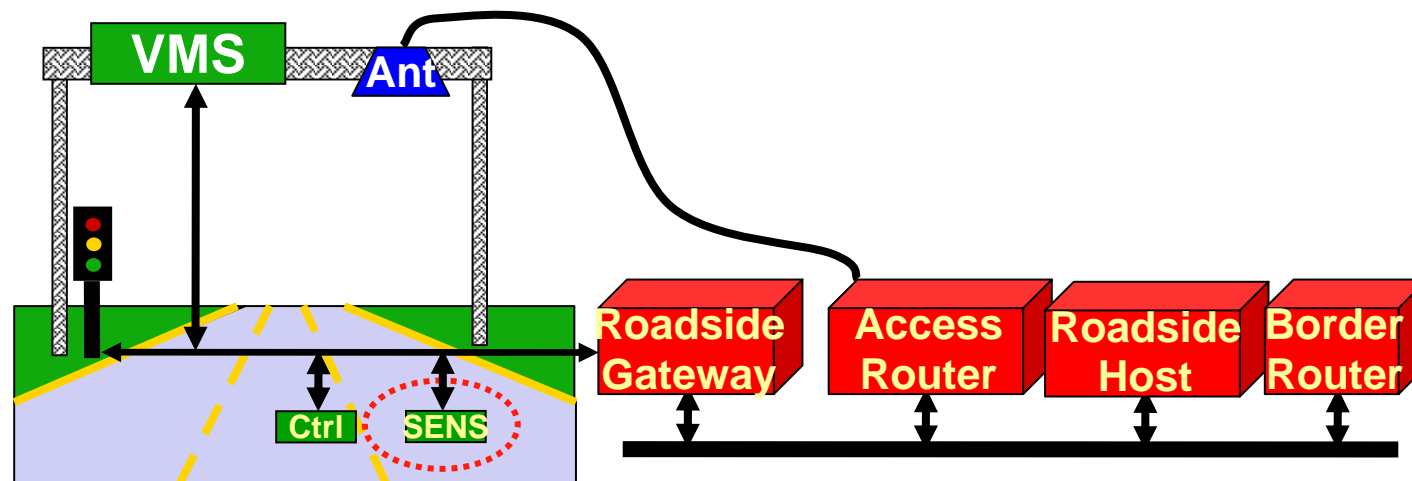
Vehicle Gateway





CVIS Exhibition: Roadside

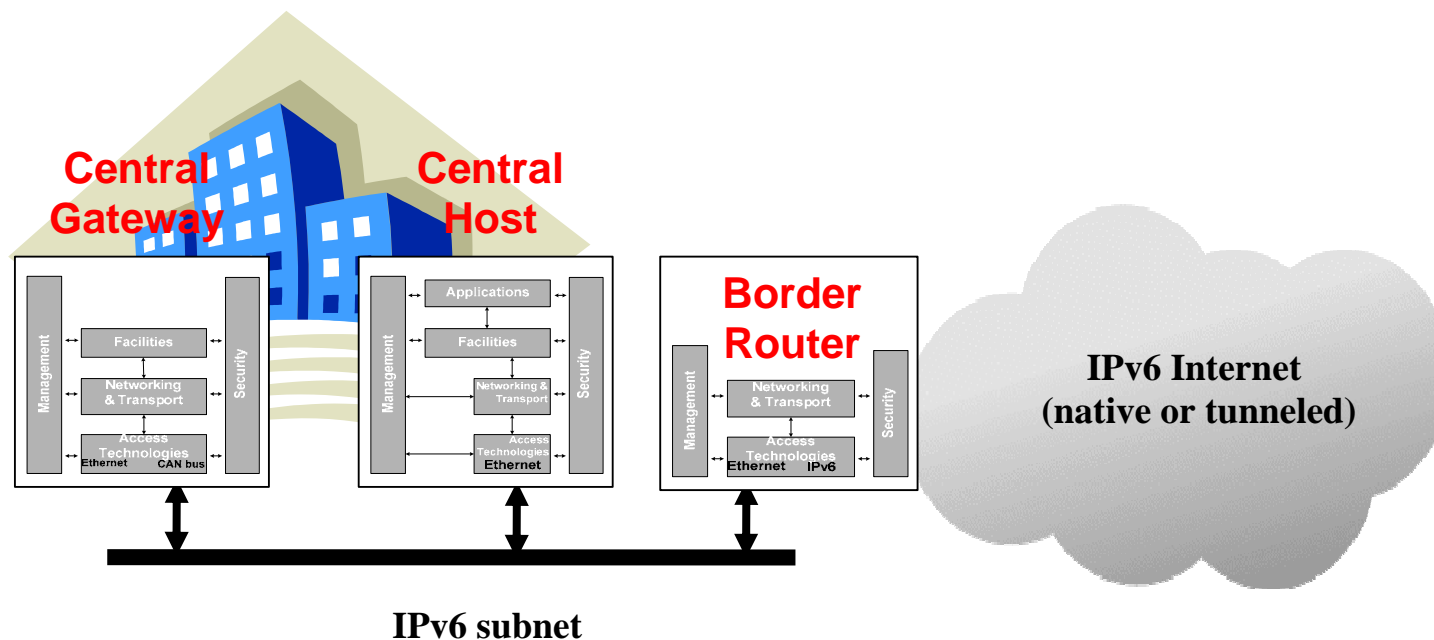
- Light roadside system providing short-range wireless connectivity to the vehicle (802.11b only due to lack of timely delivery of M5 cards and antenna)





CVIS Exhibition: Central System

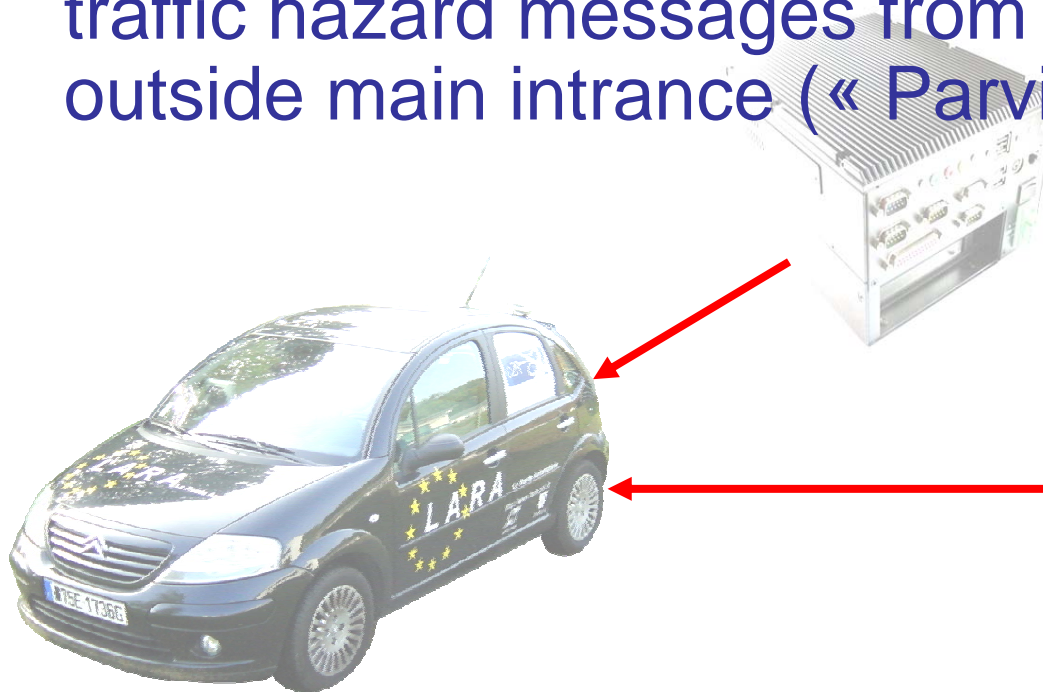
- CVIS host receiving and relaying hazard warning sent by vehicles





CVIS Exhibited Scenario

Mock-up car on CVIS booth detects traffic hazard (e.g. ghost driver) and sends this information to the vehicle on ANEMONE stand (Blue C3 on J8 booth), which also receives traffic hazard messages from the Volvo truck outside main entrance (« Parvis E »).





CVIS Exhibition: Application

- The demonstrated application features enhanced driver awareness:
 - dynamic speed alerts
 - traffic hazard and
 - ghost driver warnings



Traffic Hazard Warnings

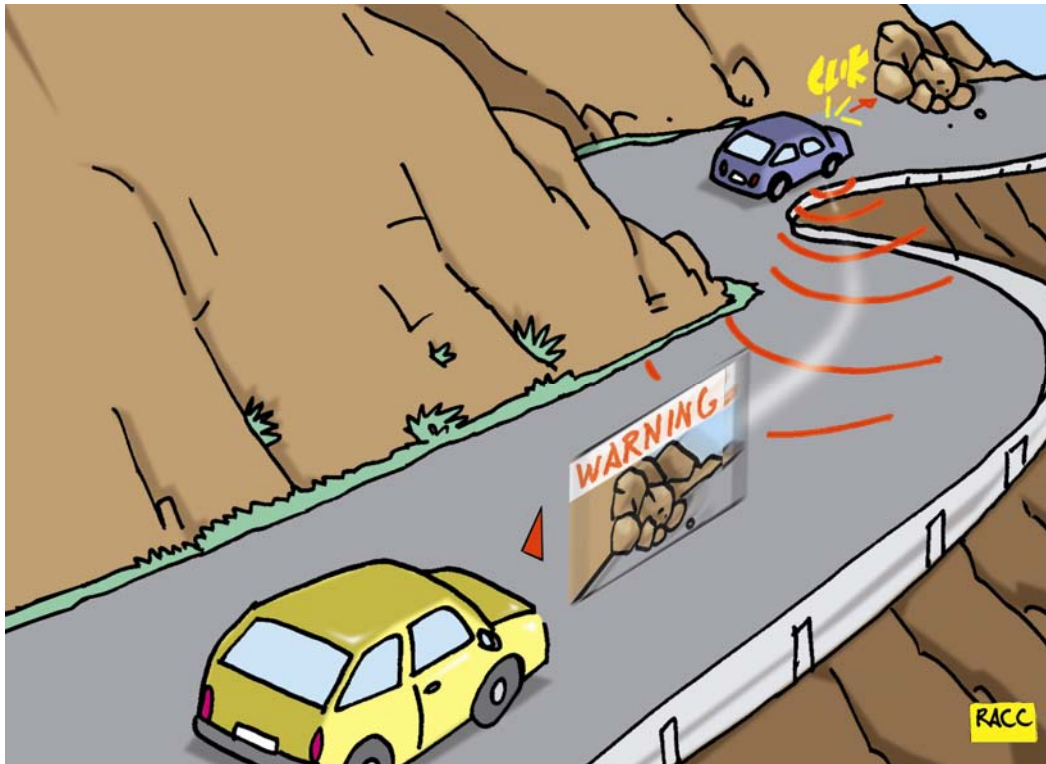


Traffic Hazard Warnings





Enhanced Driver Awareness



The EDA Traffic Flow Information service deals with the detection of slow down or abnormally stopped vehicles on the road (e.g. traffic jams, broken down vehicle) and the notification to other nearby vehicles.



EDA application



- In the CVIS project, the application is deployed only within in-vehicle systems. Thus it involves mainly ad-hoc vehicle-to-vehicle communication enabling a short term/short distance warnings notification
- The design of the service complies with upcoming IPv6 network solutions for more efficient notification of warnings (intelligent broadcast over long distance using multicasting or even geocasting)



Volvo Truck Demonstrator (Parvis E)



25-27 November 2008

ICT in Lyon

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Volvo Truck Demonstrator (Parvis E)



Volvo's demonstrator truck is a research platform to evaluate cooperative systems applications from different R&D initiatives (C2C CC, SafeSpot and CVIS) and their added value for transport safety and efficiency.

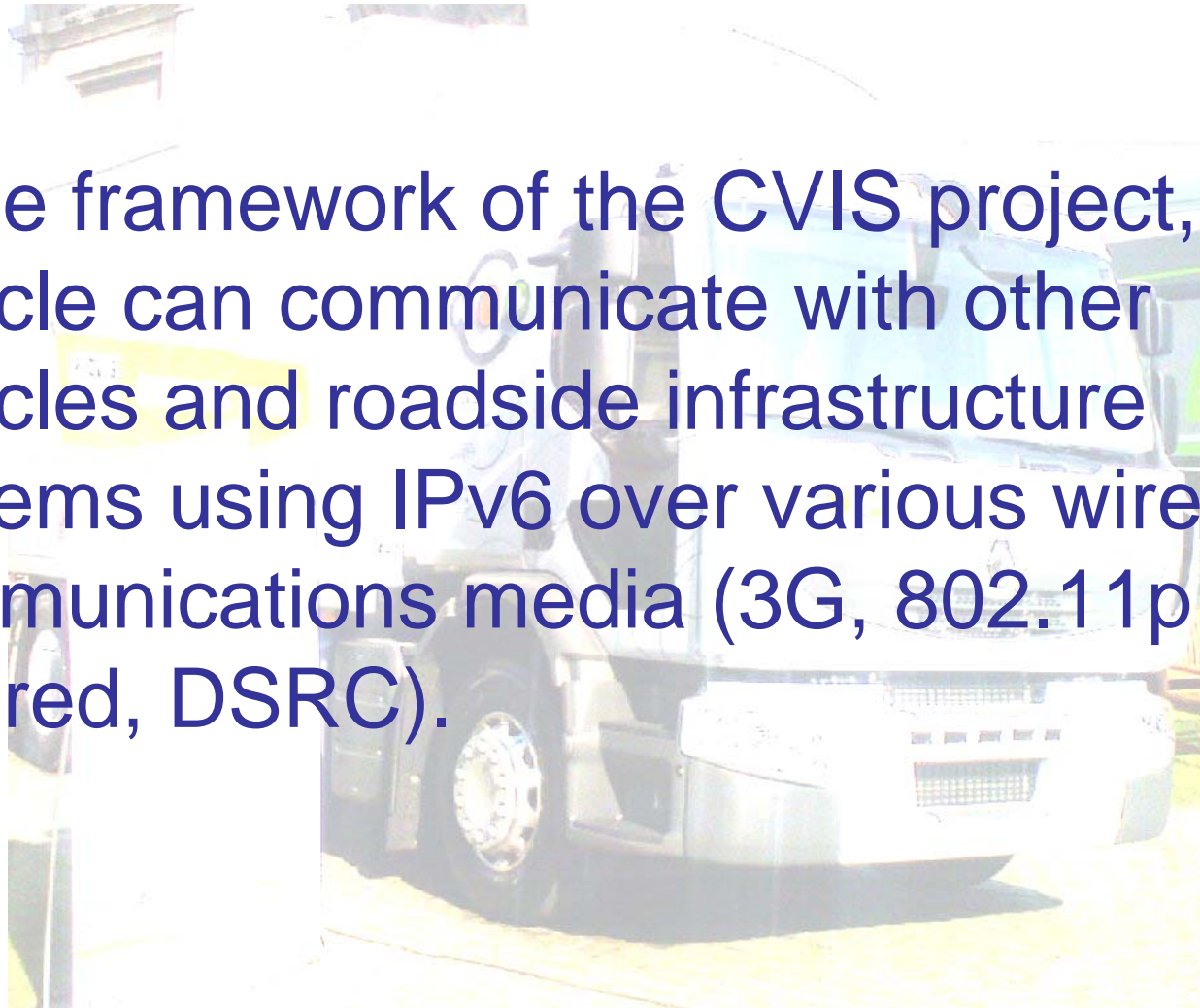




Volvo Truck Demonstrator (Parvis E)



In the framework of the CVIS project, this vehicle can communicate with other vehicles and roadside infrastructure systems using IPv6 over various wireless communications media (3G, 802.11p, infrared, DSRC).





Third party user of Anemone

- Anemone is a pan-European IPv6 mobility testbed opened to third parties (see booth J8)
- CVIS is acting as a third party using ANEMONE's IPv6 infrastructure
 - IPv6 resources (address space)
 - IPv6 services (home agent)
 - IPv6 access network (802.11)
- Permanent IPv6 addressing within the vehicle and Internet reachability of the vehicle is provided by a Home Agent service located in Rennes (French Anemone test bed)





REGISTER HERE FOR

Cooperative Systems Workshop and Product Launch Event

10-11 December, Berlin, Germany

High-profile conference featuring presentations from key initiatives and actors in the field of cooperative systems.

Demonstrations include:

- Short- and medium-range vehicle-infrastructure communication
- Advanced positioning techniques
- Examples of cooperative mobility applications

www.cvisproject.org

