SCORE@F

Cooperative ITS and Datex II for road managers and drivers

CEREMA / DterIdF

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European Commission
Mobility & Transport

Système Co-Opératif Routier Expérimental Français
French Experimental Cooperative ITS

Contents

- The project
- Aim and use cases
- System Architecture
- Datex II in SCORE@F
- And now… ?

The project

SCORE@F Co-ordination

SCORE@F Technical Platform and Motorway, CG78 Field Operational Tests

CO-DRIVE Agreement for Integration in Expérimentation @France

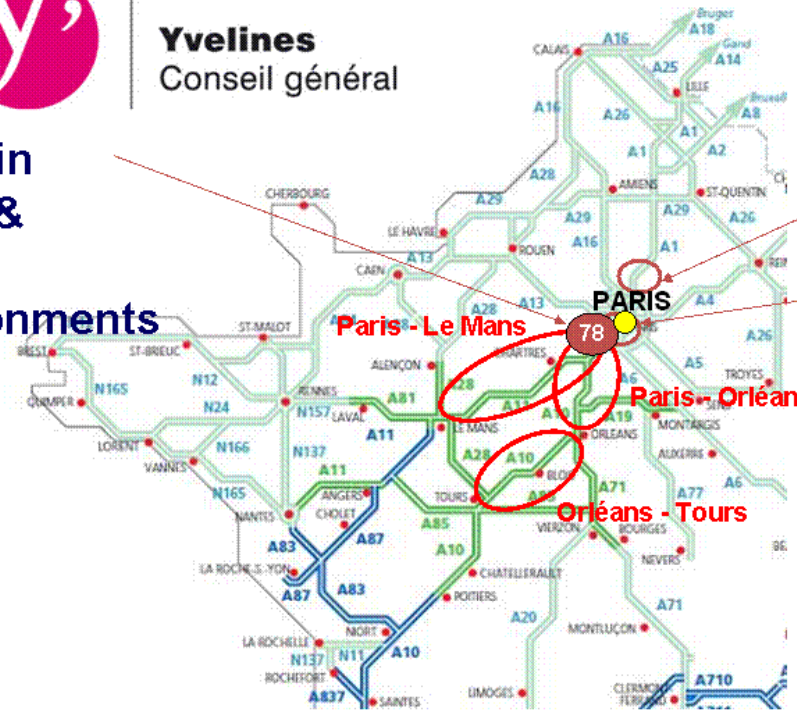
Other Projects, CG38, CG91

....

DRIVE C2X
PRESERVE
FOTNET

Yvelines
Conseil général

Tests in Rural & Urban Environments



Validation / Certification UTAC

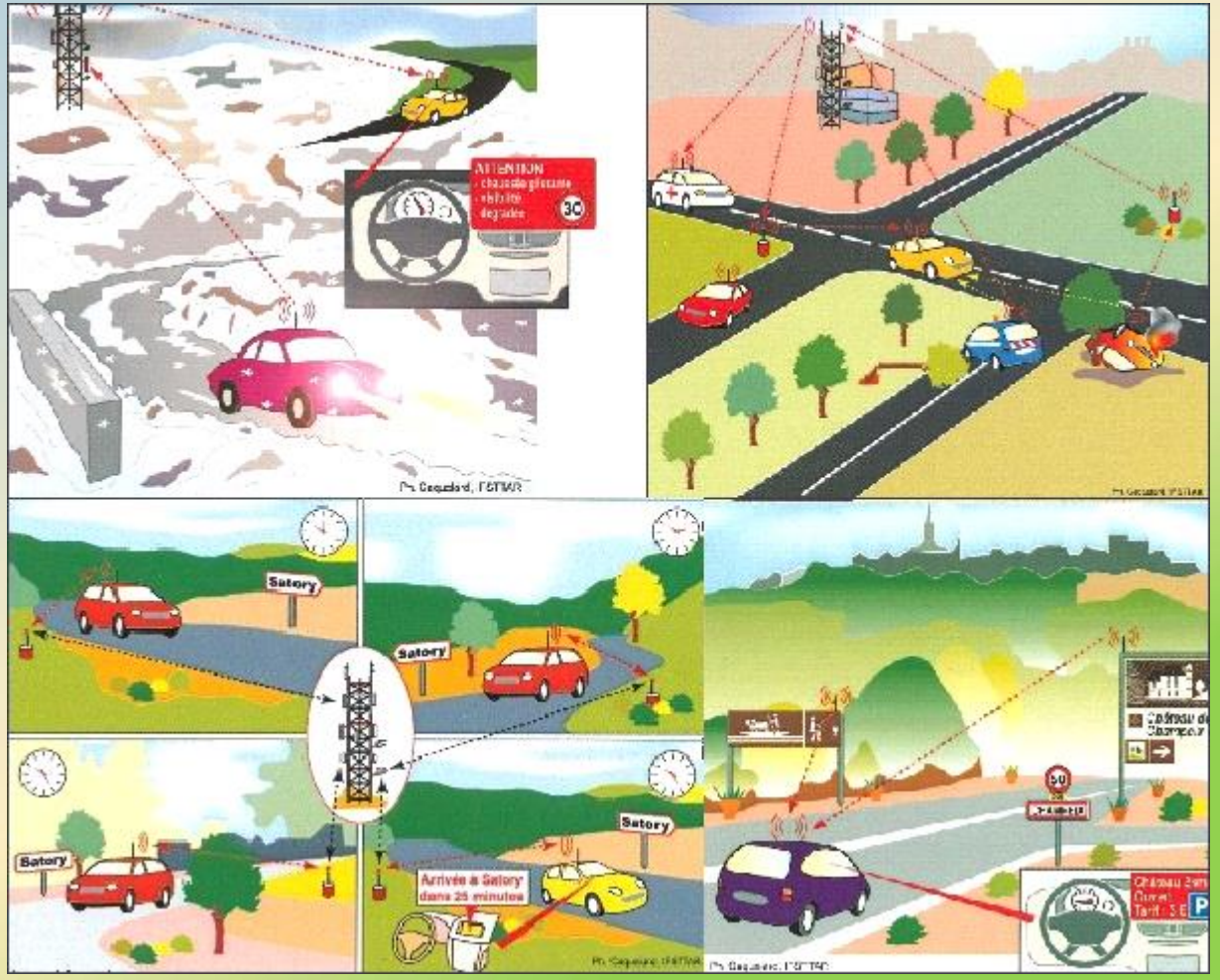
Satory Tests Circuit IFSTTAR

COFIROUTE
Tests on Motorway

- Duration: 30 months
- Start : 1 September 2010
- Total Budget: 5.6 M€
- Support : 2.7 M€
- More than 20 Partners

Uses Cases

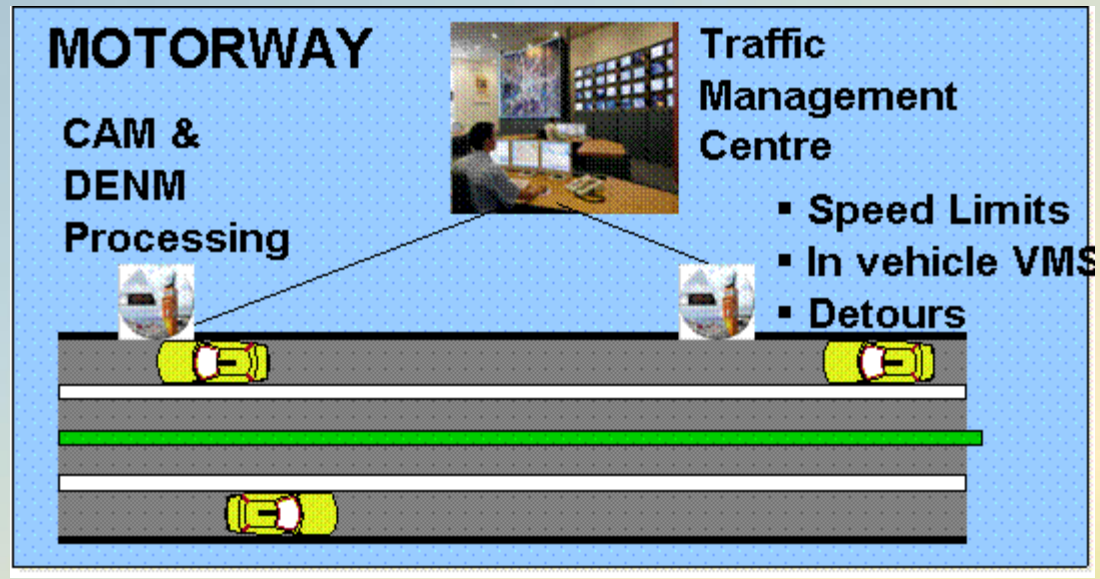
- Traffic Management
  - Collect of trafic information and centralization to the management center (GT01)
  - Legal and contextual speeds limits (GT02)
  - In-vehicle signage (MC01)
- Road Safety
  - Road works warning (SR01)
  - Information about obstacle on roads (SR04)
  - Information about humans on roads (SR05)
- Mobility and Comfort
  - Point of interest notification
  - Carpooling...



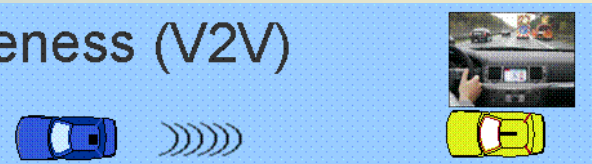
Uses Cases

The tests focus on :

- Alert driver application
- Collision risk warning
- Traffic data exchange



Co-operative Awareness (V2V)
(Info to driver)

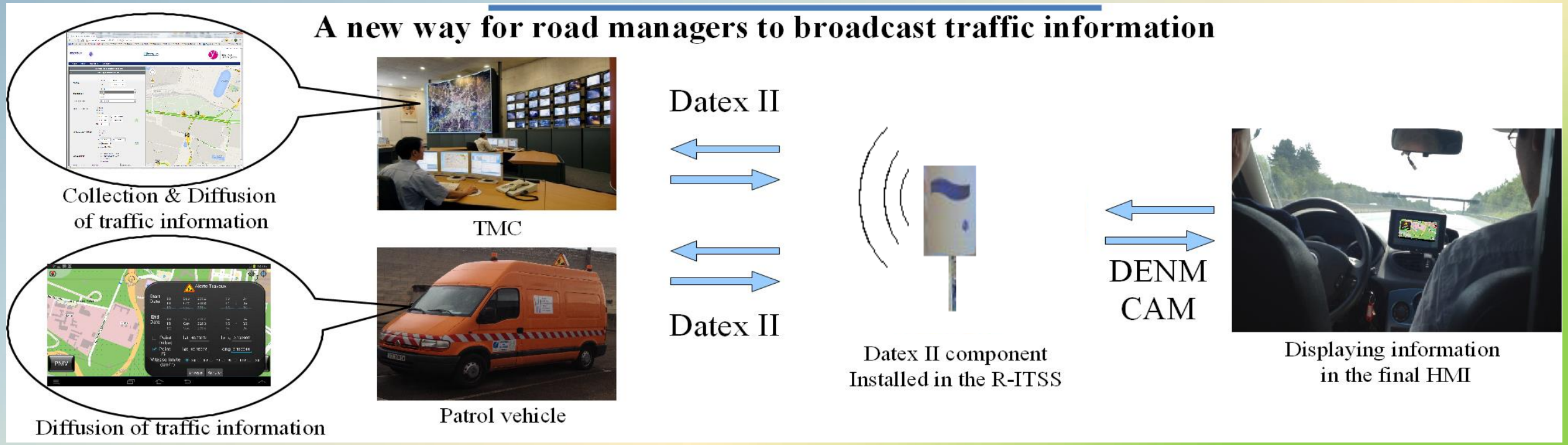


Longitudinal Collision Risk Warning

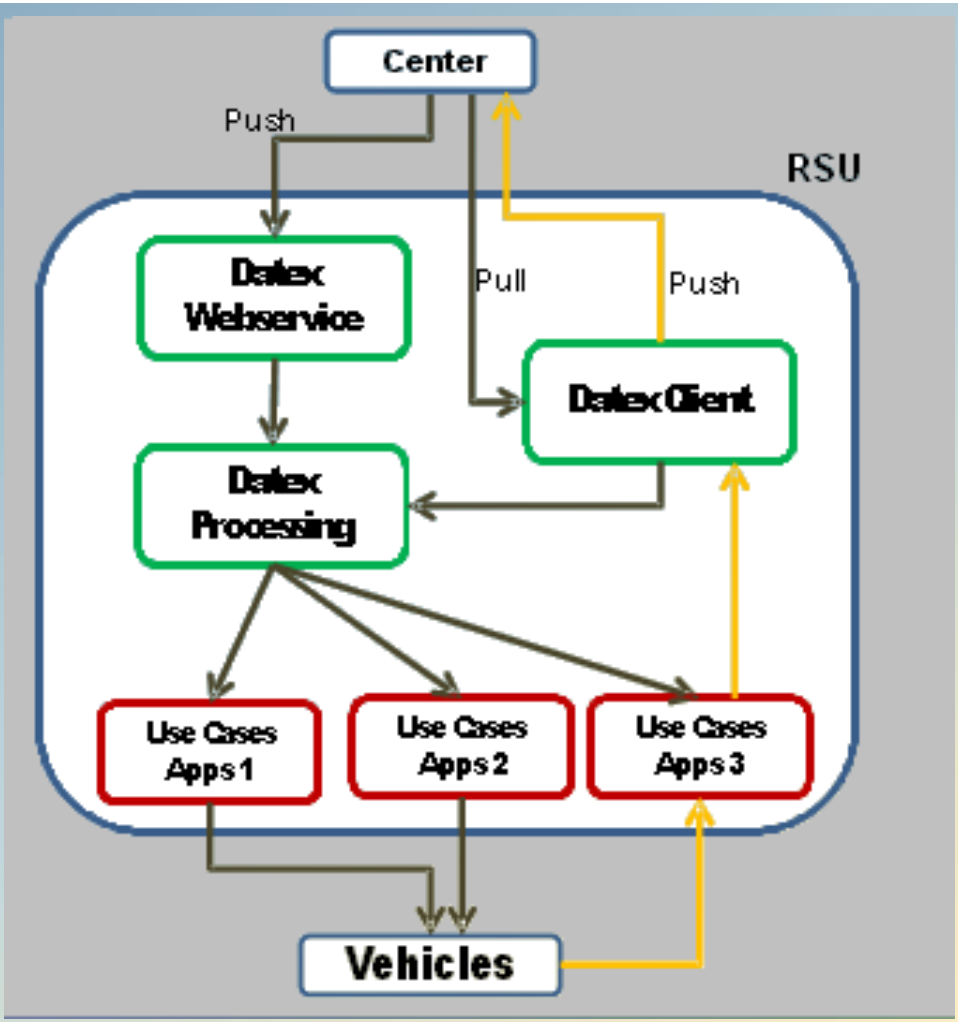
Intersection Collision Risk Warning

General Architecture

Information can come down from the manager center or a patrol, or up from vehicles.



RSU's Internal Architecture



The architecture is in two Part : Datex II Gateway and The uses cases apps.

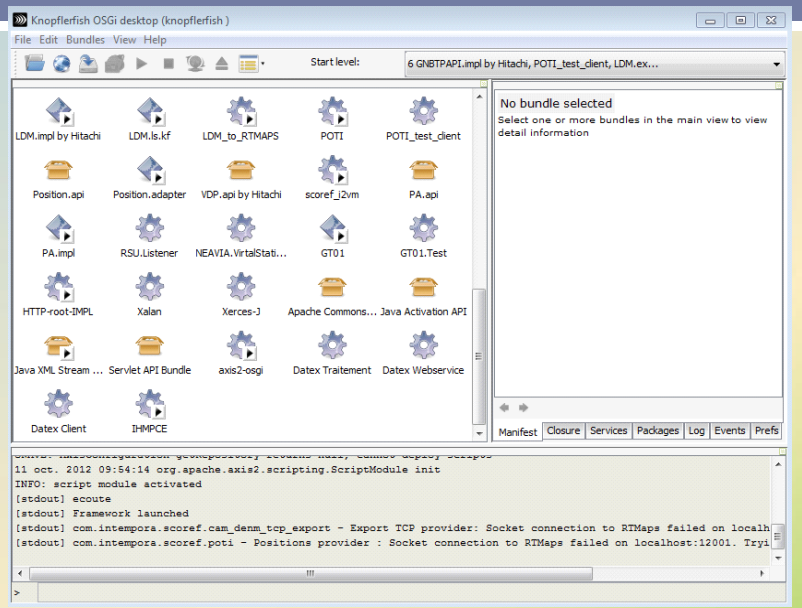
Datex Webservice: provides an Internet service that can receive message in Datex II format from the Road Mangement Center. (PCE in french). It forwards the message to the next bundle for traitement.

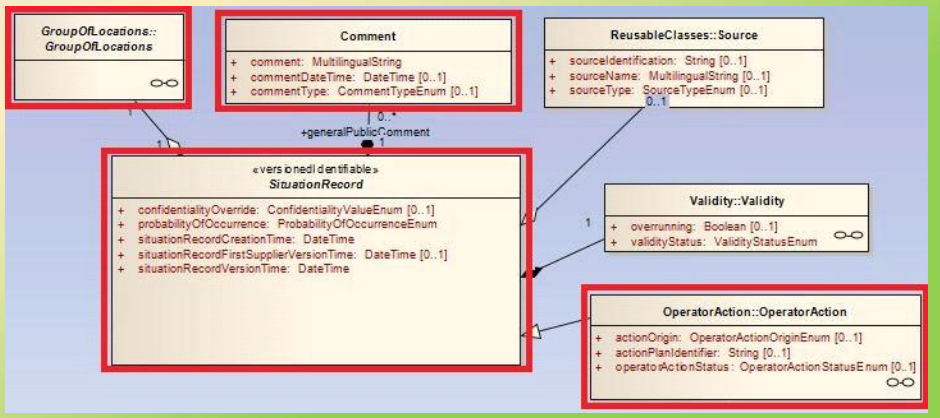
Datex Processing: can read the line from the Datex II message, extract the useful information and create new object for storage.

Datex Client: can pull informations messages from the Road Management Center and send traffic data messages gathered by RSU to the Management center.

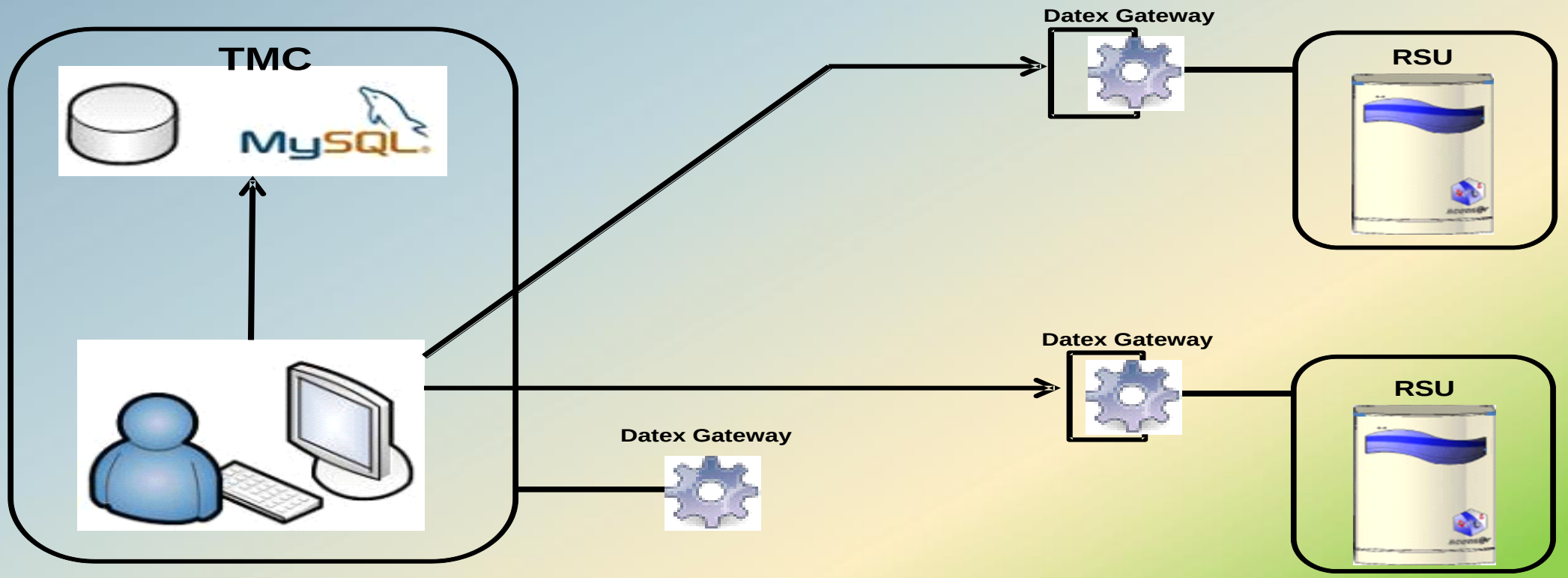
Specification of the Datex II Gateway

- Developped as a Webservice
- Deployed in the RSU, in a OSGI environment
- Communication with the SOAP protocol
- Messages defined for each use case from the Data model in Datex II

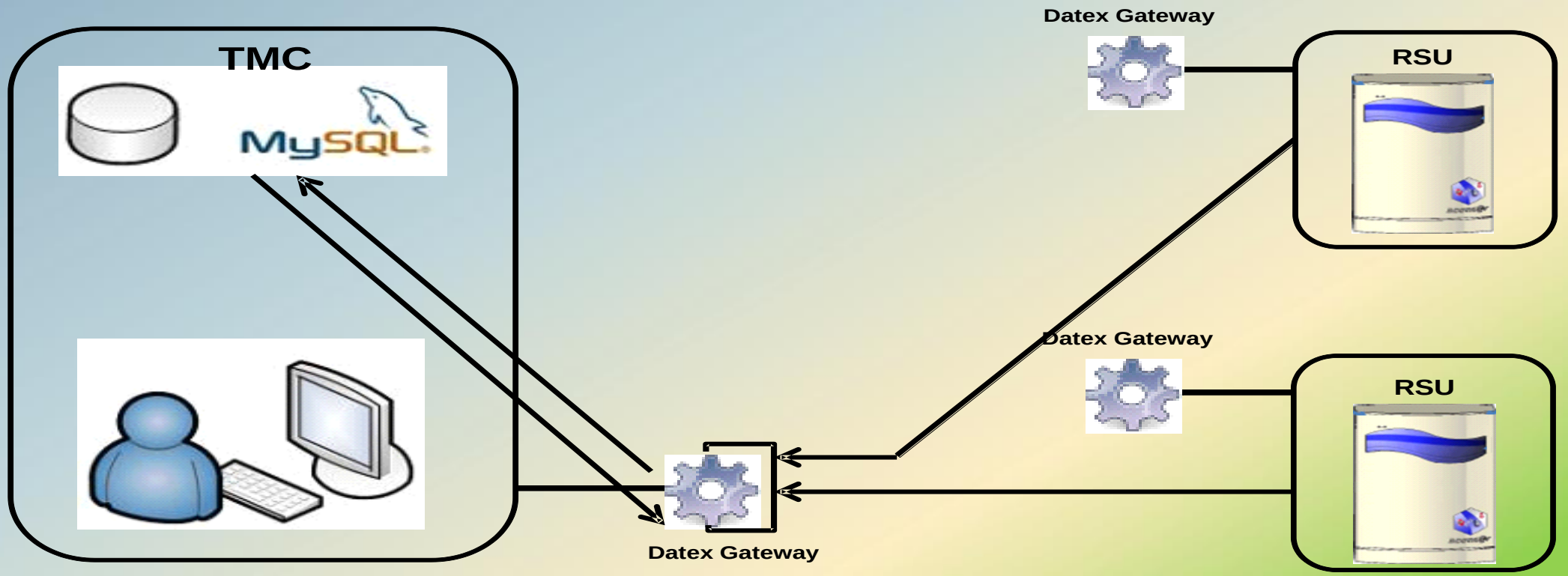




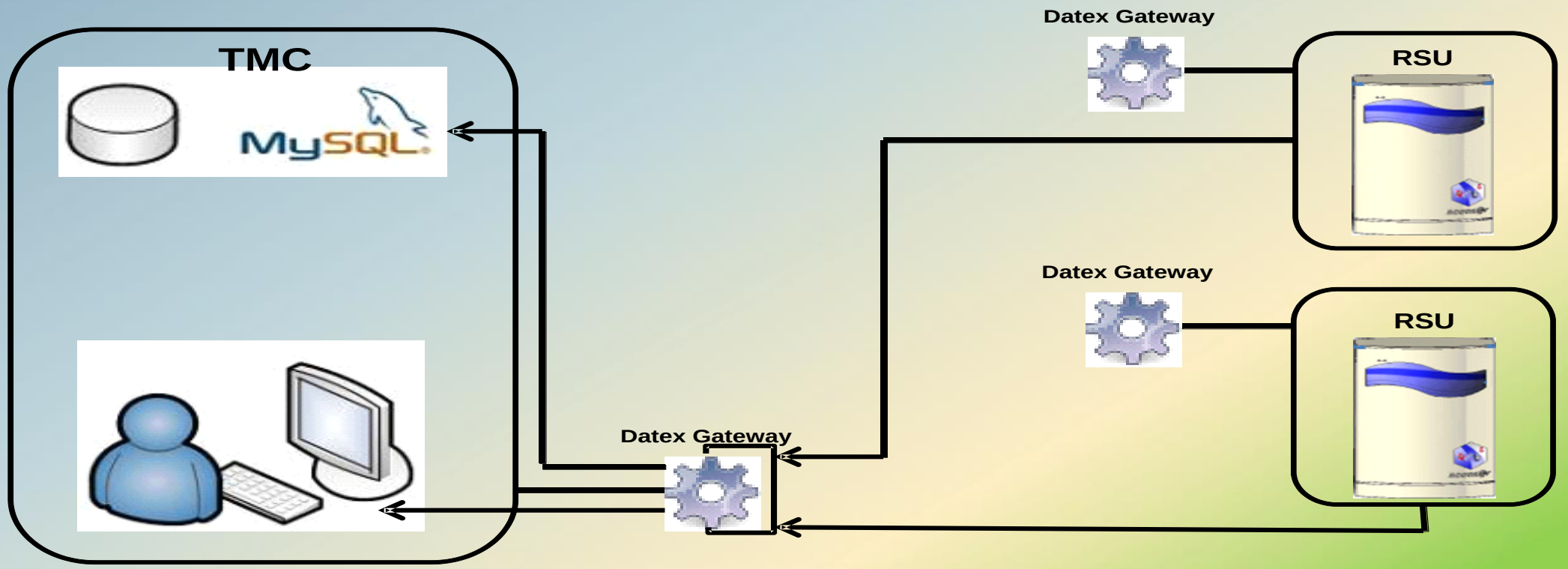
Push Mode – Center to RSU



Pull Mode – Center to RSU



Push Mode – RSU to TMC

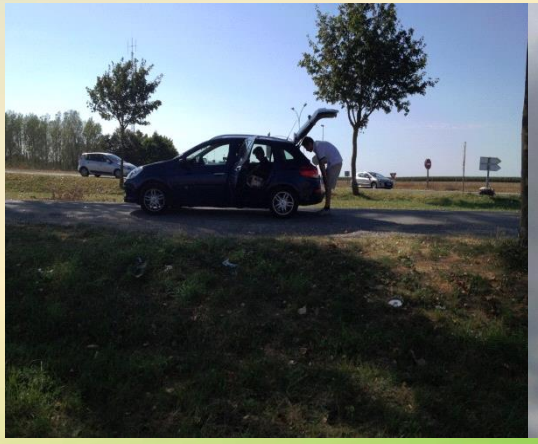


Full scale tests

Various tested environments

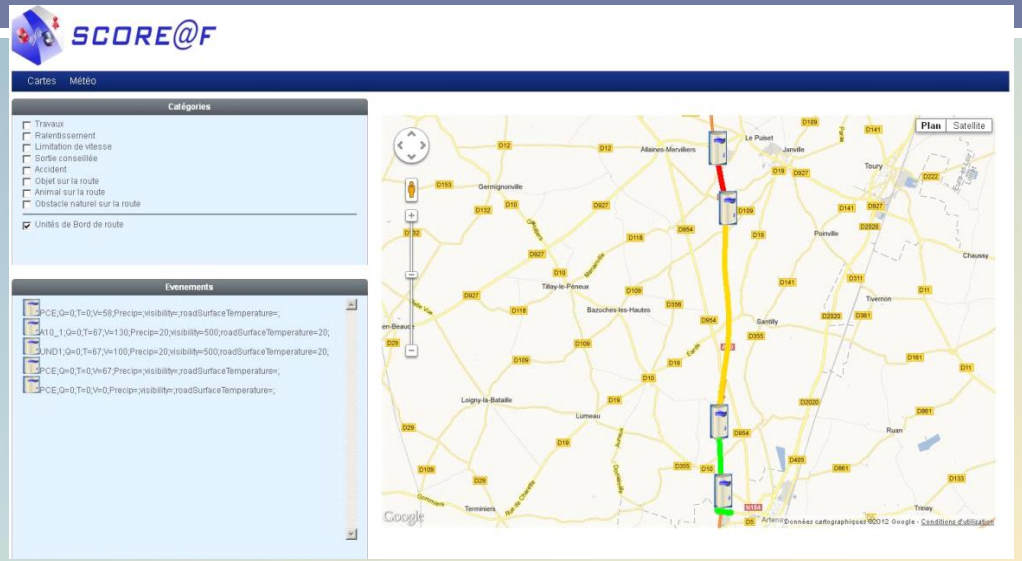
- Closed track in Satory : to validate the system and Road Safety use cases.
- Motorway (A10, A86)
- Surbuban roads (RD91)
- Urban roads (Versailles)

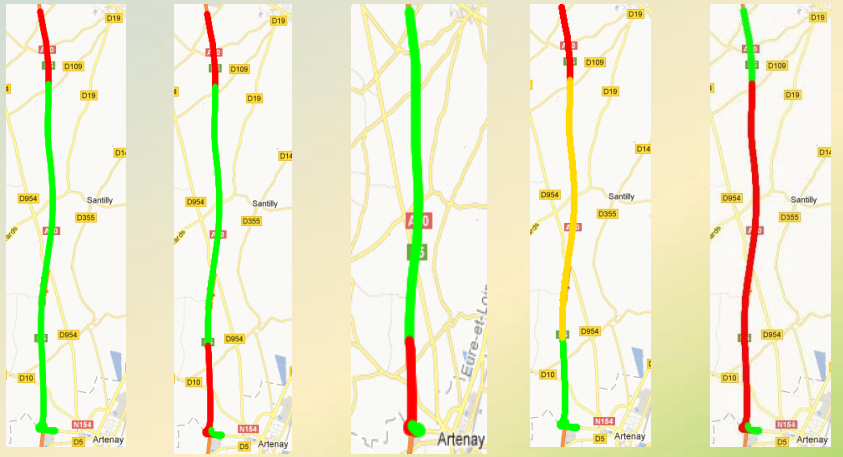
The three last environments were used to test the others uses cases (Traffic management, mobility and comfort)



Use case « Traffic information management » in Datex II

- Tests on open road : 13 km, 2x3 lanes, with a rest area in each way.
- Important traffic 50000 vehicles by day
- 4 RSU
- 8 uses cases tested
- Selected soluntaries to test the system
- Interview with an ergonomist for system improvement





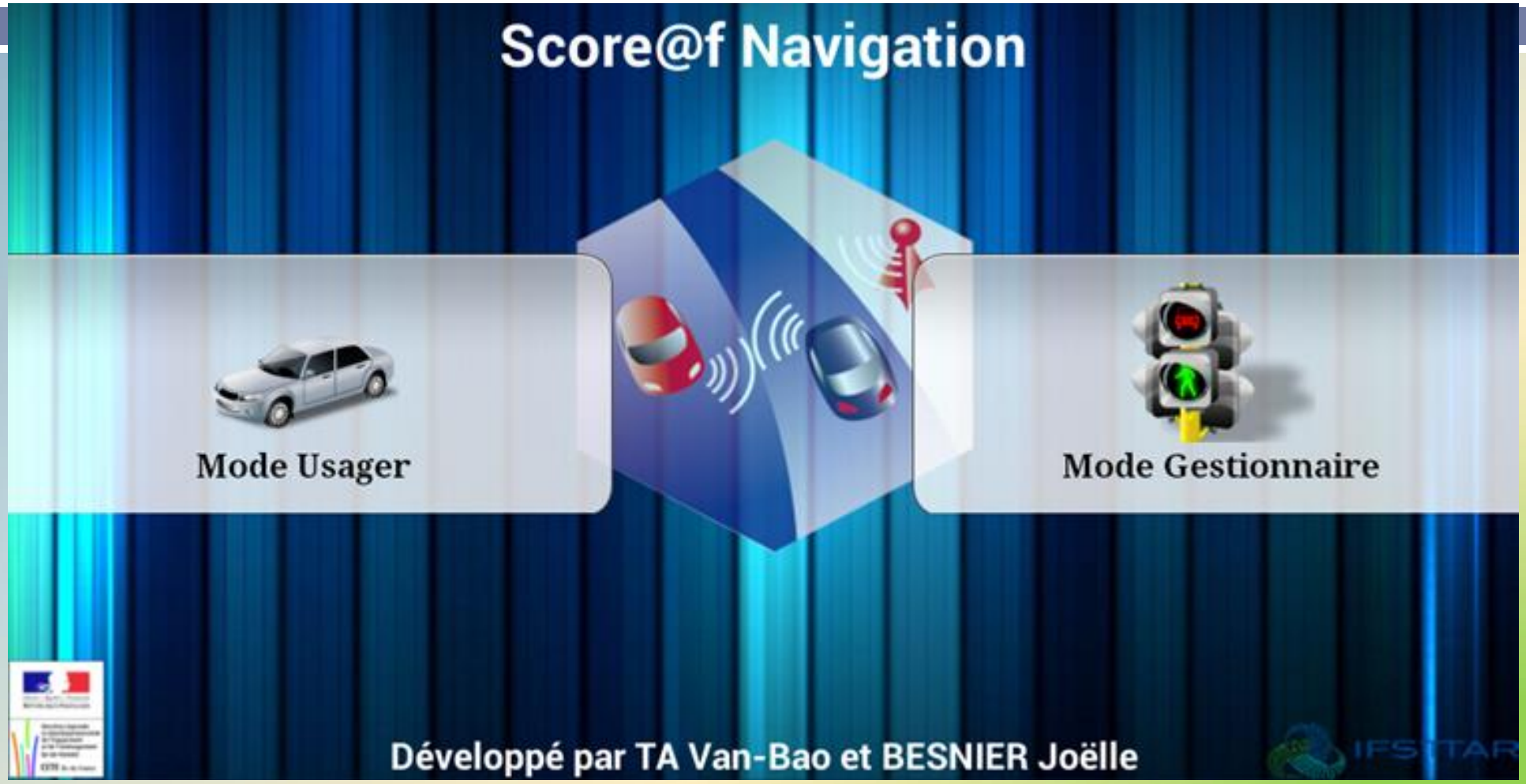
RSU to RMC by the gateway :

- Speeds
- Number of vehicles
- Number of vehicles using the fog lights, the windshield wipers...
- Visibility, Weather

Informations stocked in the RMC's database

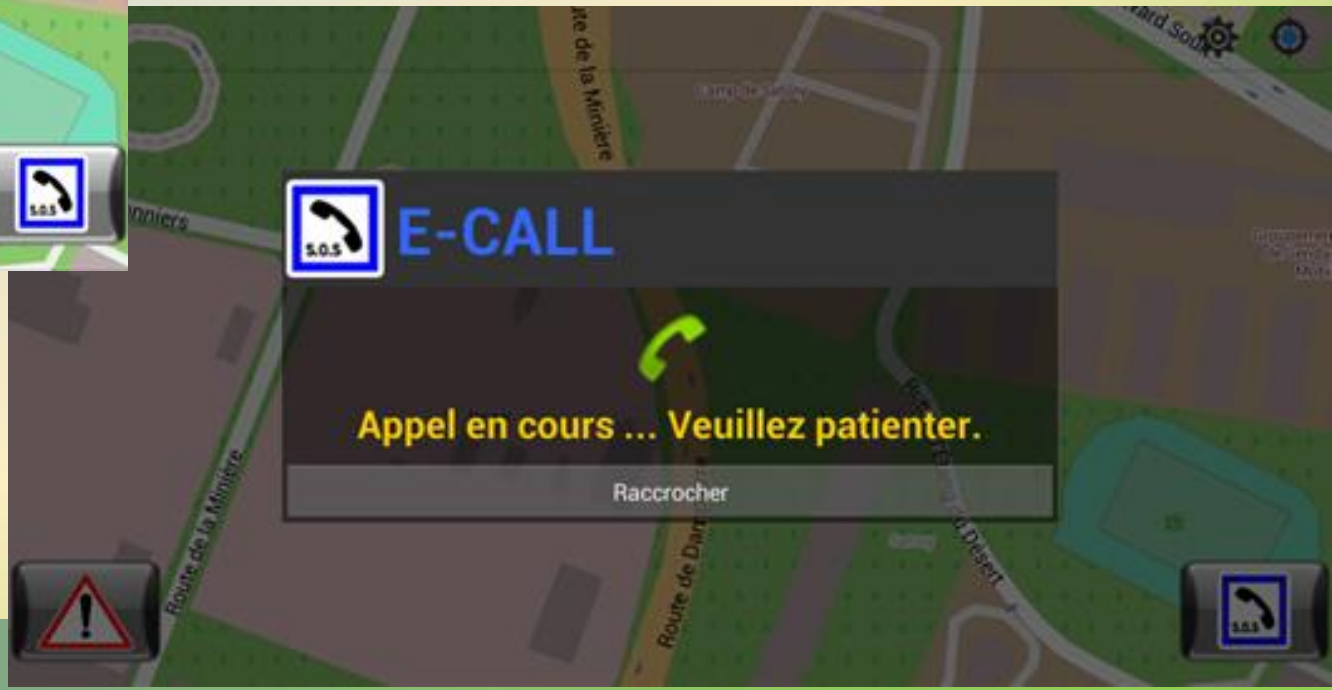
Real time evolution on the RMC's HMI

Not only a HMI but also an OBU



Joint Development – CEREMA/DTerIDF and IFSTTAR/LIVIC

HMI for drivers



Events Alerts / Contextual speeds

Road Work Warning : 20 seconds before the event's localization

Speeds : 10 to 15 seconds before the road sign

Onboard VMS

A 13 Autoroute de Normandie
BOUCHON A 2KM
PRENEZ LE
TUNNEL DE LA
A86
Autoroute de N
S.O.S

HMI for road managers

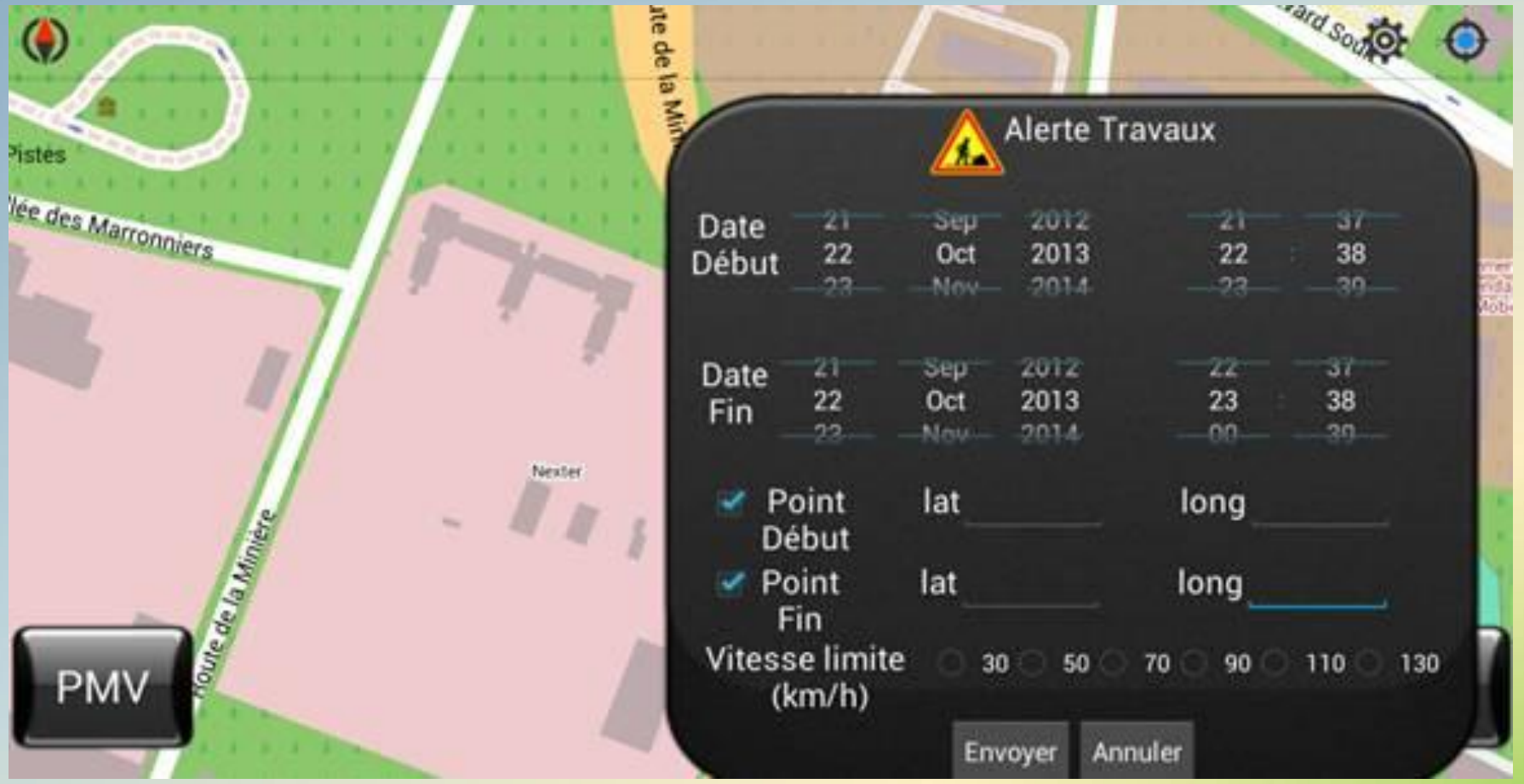
The patrol vehicle can send certified messages, VMS or Alert Road Safety

Sent directly to the RSU and TMC in DATEX II

by G5 or by 3G if not within range of RSU

Alert notification and VMS sent directly to road's users in CAM/DENM format

Road safety alert



Date :

- Begin
- End

Point :

- Begin
- End

Contextual Speed limit

Project Results

Validation of standard technical platform

Engineering process refinement

Viable business model

Societal benefits assessment

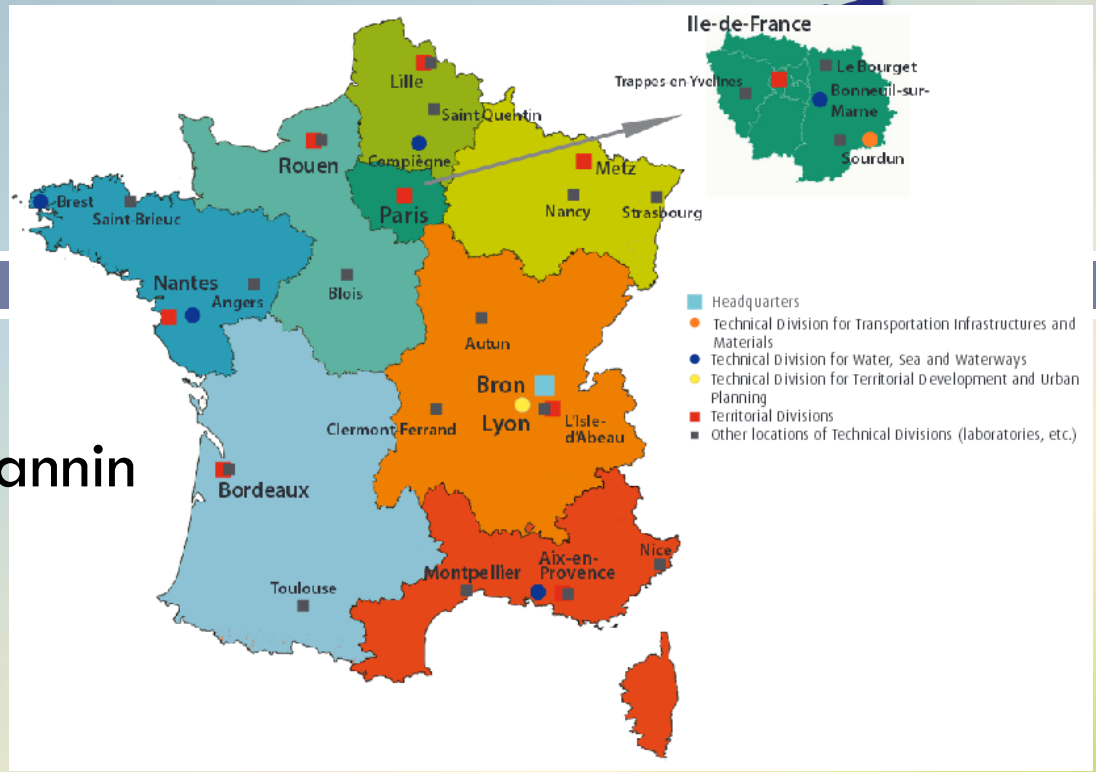
And after that…

SCOOP@F : Experimental deployment of 3000 Intelligent Vehicles over 2000 km of connected roads connected.

Appendix

Cerema

- Centre For Studies and Expertise on Risks, Environment, Mobility, and Urban and Country plannin (*Centre d'études et d'expertise sur les risques, l'environnement, la mobilité et l'aménagement*)
- Our key figures
  - 3100 employees
  - 220 national and international experts
  - € 250 M budget
  - 29 sites in France
  - 180 annual publications
  - 66 national expertise hubs
  - 33 associated research teams



- The Territorial Division of Greater Paris Region is part of the RST, Scientific and Technical Network of the **French Ministry of sustainable Development and Transports**
- In the field of Transports, the Territorial Division manages in particular the **Cluster of Competence and Innovation** about the Dynamic Regulation of Transport Networks.
- We are involved in standardization bodies (C-ITS and DATEX II) and in several French ITS or C-ITS projets : SCORE@F, SCOOP@F, JACINT