

GeoNet

Geographic addressing and routing for vehicular communications

Talking Cars

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Coordinator

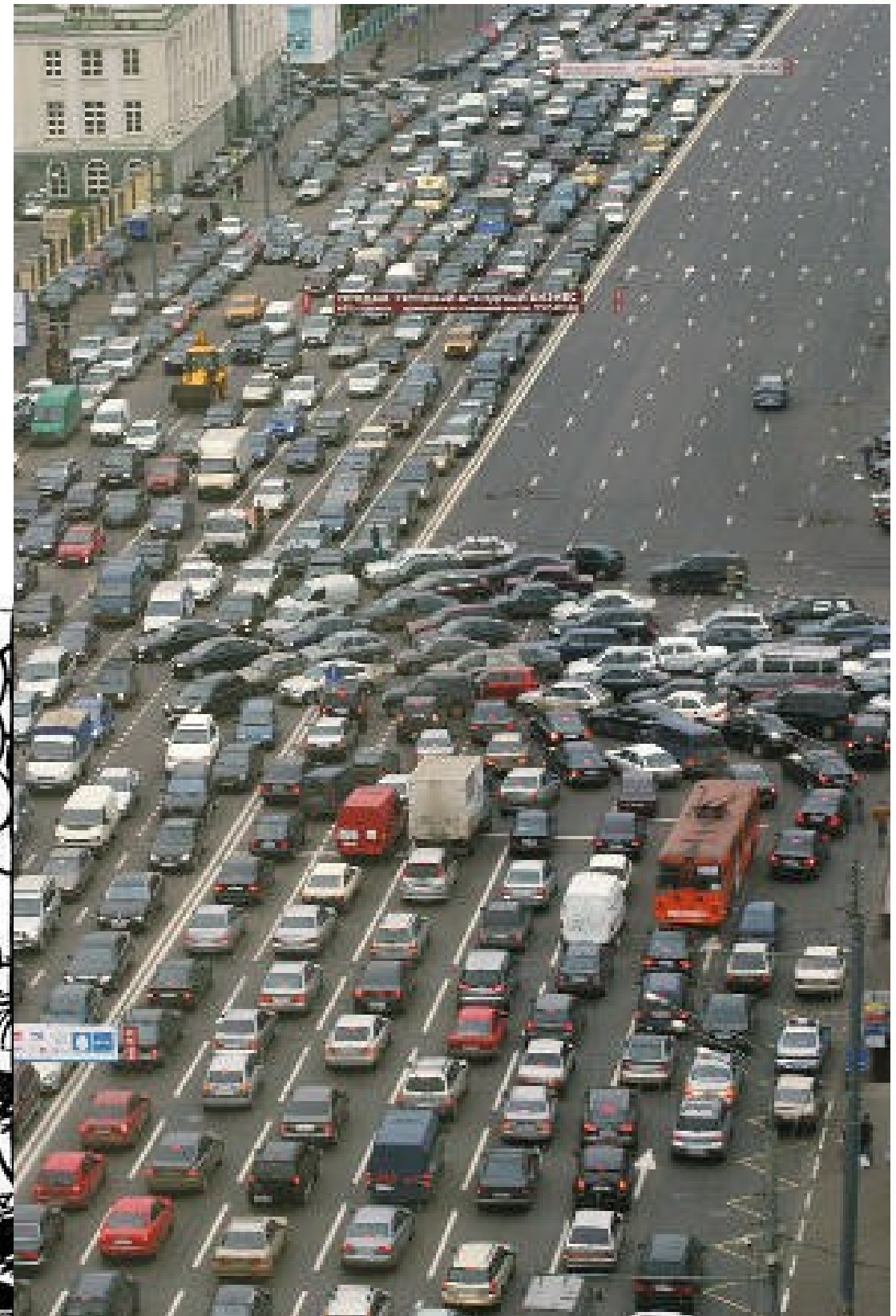
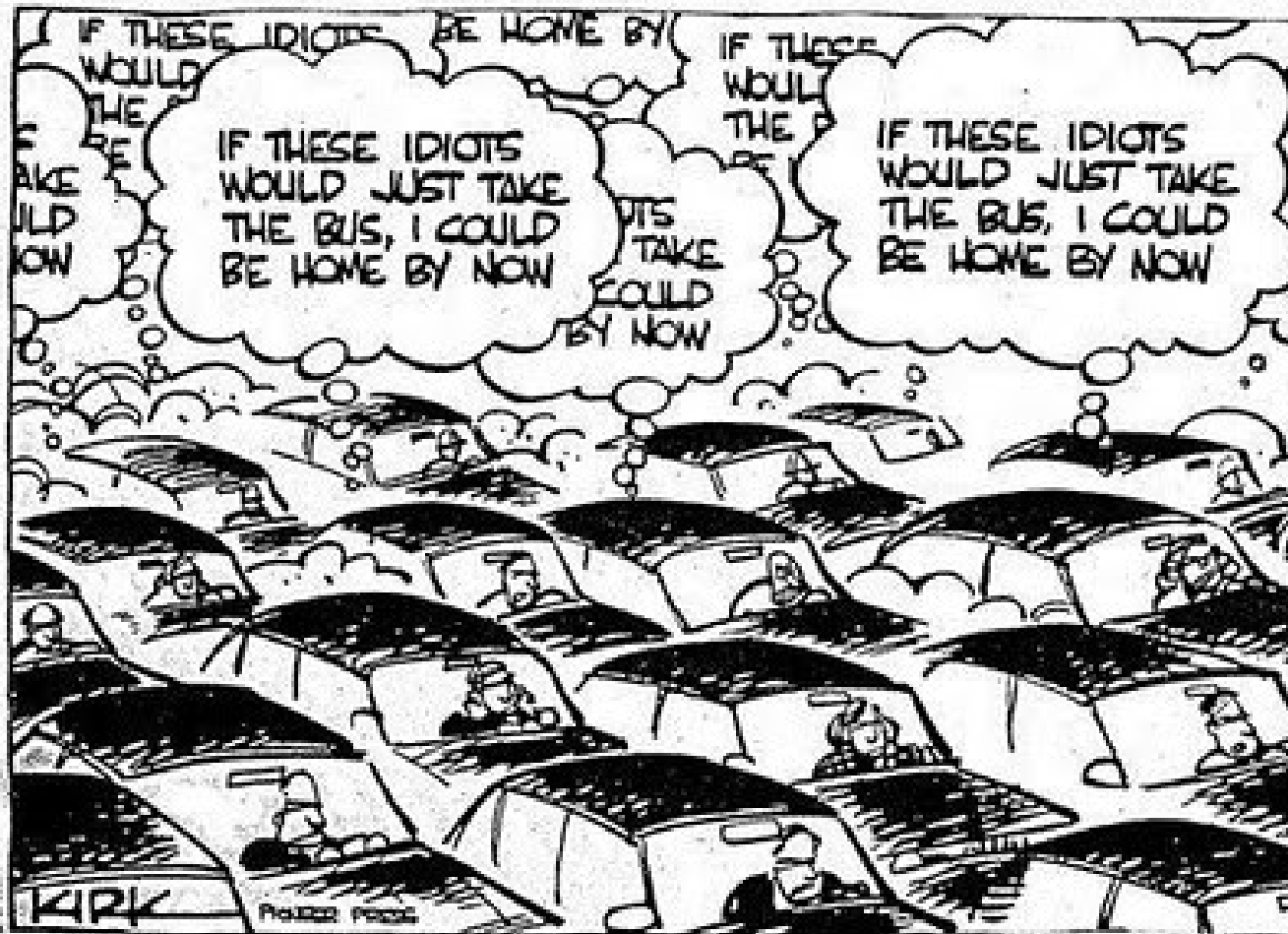
Talking cars?

- Is it a vision?
- Is it a need?
- Does it exist?
- Lots of questions:
 - ◆ When?
 - ◆ How?
 - ◆ Where?
 - ◆ With who?
 - ◆ How much?
 - ◆ And my privacy ?
 - ◆ ...



Cooperation

- Cooperation is needed
 - ◆ Safety
 - ◆ Efficiency
 - ◆ Impact (pollution...)
- Cooperation requires talking



Cooperative systems



- Bidirectional move
 - ♦ Fact: communication will be everywhere
 - ♦ Vision: better mobility through cooperation

- On the political agenda
 - ♦ Ensure competitiveness: logistics, mobility of people...
 - ♦ Enhance attractiveness: quality of life, nice cities...
 - ♦ Cope with transitions: jams, oil price, pollutions...
 - ♦ Initiatives to develop such systems all over the world

- Technically and economically feasible
 - ♦ Progress in communication, sensing, processing...
 - ♦ Integration in systems
 - ♦ Business cases

Cooperative systems



- European & international initiatives
 - ♦ FP6 projects: Safespot, CVIS, COOPERS, COMeSafety...
 - ♦ FP7 & FP8: ELSA...
 - ♦ Car 2 Car Communication Consortium
 - ♦ Standards: ETSI, IETF, ISO
 - ♦ Lots of smaller or national projects

- Convergence toward interoperability
 - ♦ Fragmented system: ad hoc solutions
 - ♦ Integration into demonstrators
 - ♦ Integration into systems
 - ♦ Conformance to standards

- GeoNet project aims at ensuring convergence
 - ♦ IPv6 and GeoNetworking

Birth of GeoNet



- Launched by technical partners who foresaw the need
 - ♦ IPv6 architecture in CVIS (non-safety critical): ISO CALM
 - ♦ Non-IP GeoNetworking in C2C-CC and Safespot
 - ♦ Risk of divergence

- Supported by C2C-CC, Safespot, COOPERS, CVIS
 - ♦ Were aware of the risk
 - ♦ Will to integrate GeoNet development into their architecture

- Close contacts with many partners
 - ♦ Projects, standardization organization...

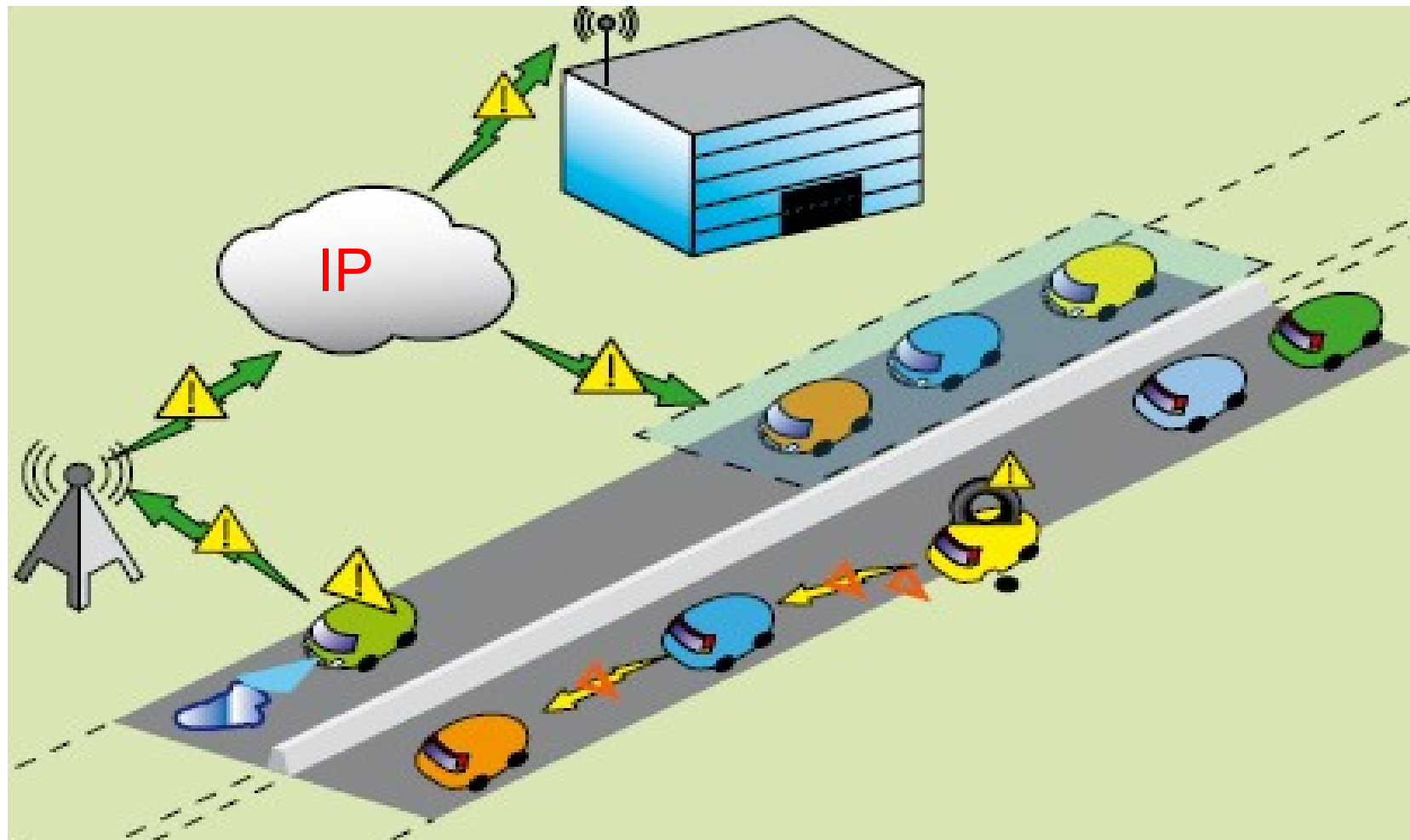
- GeoNet was a good opportunity
 - ♦ Theme: need for convergence effort
 - ♦ Timing: in line with projects and standards

The GeoNet Project



- FP7 European project (DG INFSO)
- 1 Feb. 2008 – 31 January 2010
- 3 M€ budget
- 7 partners:
 - ♦ INRIA (coordinator, France): Research Institute
 - ♦ EFKON (Austria): Industry
 - ♦ HITACHI Europe (France): Industry
 - ♦ NEC Europe (UK): Industry
 - ♦ Broadbit (Hungary): SME
 - ♦ Lesswire (Germany): Industry
 - ♦ IMDEA Networks (Spain): Research Institute
- Web: <http://www.geonet-project.eu>
- Objective: IPv6 GeoNetworking

IPv6 GeoNetworking will allow both IPv6 and non-IPv6 communications



Enabling technology for:

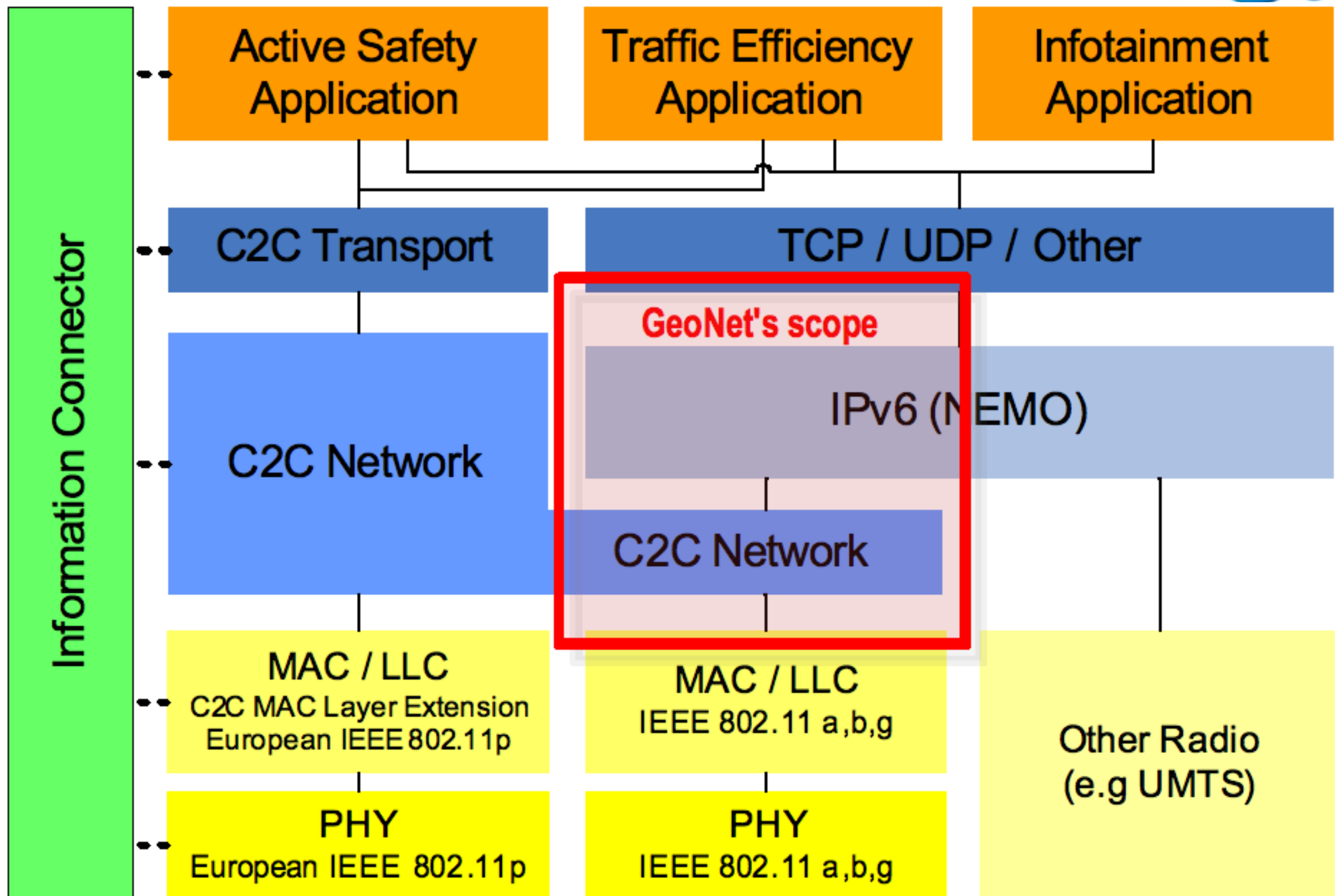
- Road safety
- Traffic efficiency
- Value added services

The GeoNet Project



- The GeoNet's 3 main axes:
 - ♦ **Knowledge:** GeoNet will elaborate a unified geo-networking solution compliant with best practices in vehicular communications;
 - ♦ **Standards:** GeoNet will produce a reference geo-networking specification and push it in standardization organizations (particularly IETF, ISO and ETSI);
 - ♦ **Software:** GeoNet will produce two prototype implementations and will disseminate it to existing consortia (particularly SafeSpot, CVIS, COOPERS and C2C-CC).

GeoNet Scope

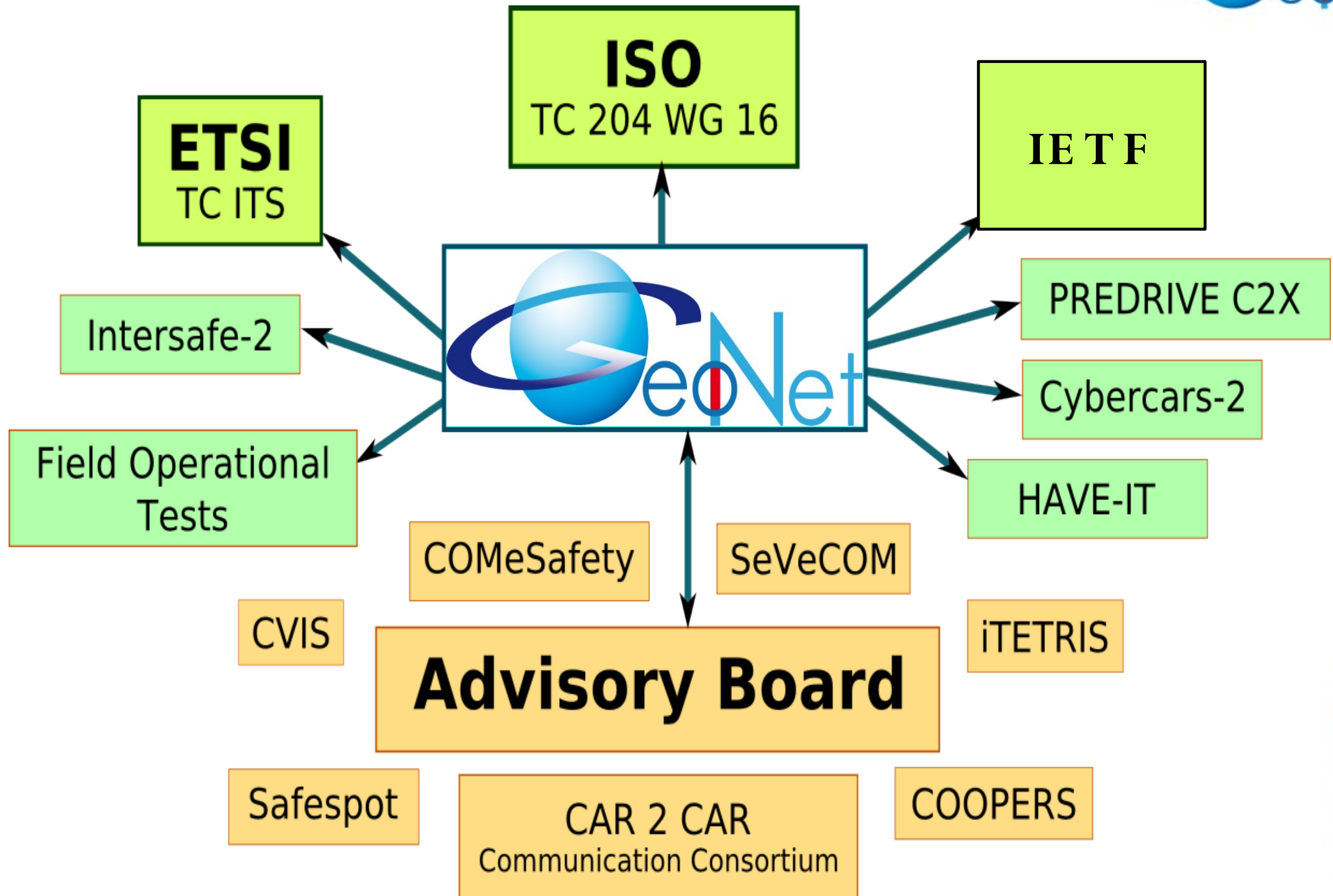


GeoNet Work Packages



- WP0: Management (INRIA)
- WP1: Architecture (INRIA)
- WP2: Specification (Eikon - Broadbit)
- WP3: Implementation (NEC)
- WP4: Conformance testing (Broadbit)
- WP5: Emulation Environment Development (Hitachi)
- WP6: Integration & Porting (Lesswire)
- WP7: Experimental validation (INRIA)
- WP8: Dissemination & use (INRIA)

GeoNet Relationships



GeoNet: Vehicle testbed



- IPv6 & geonetworking are combined
 - ♦ IPv6 multicast hides geonetworking from the application layer
 - ♦ Very few modification required for IPv6 application
 - ♦ C2C-NET provides geonetworking

- Status
 - ♦ 1 reference specification
 - ♦ 2 prototype implementations
 - ♦ Experimentation on a fleet of 4 vehicles
 - ♦ Common specification with CVIS (target platform)

- Standardization challenge

Thank you

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