

Vehicular-based Cooperative Traffic Information Systems

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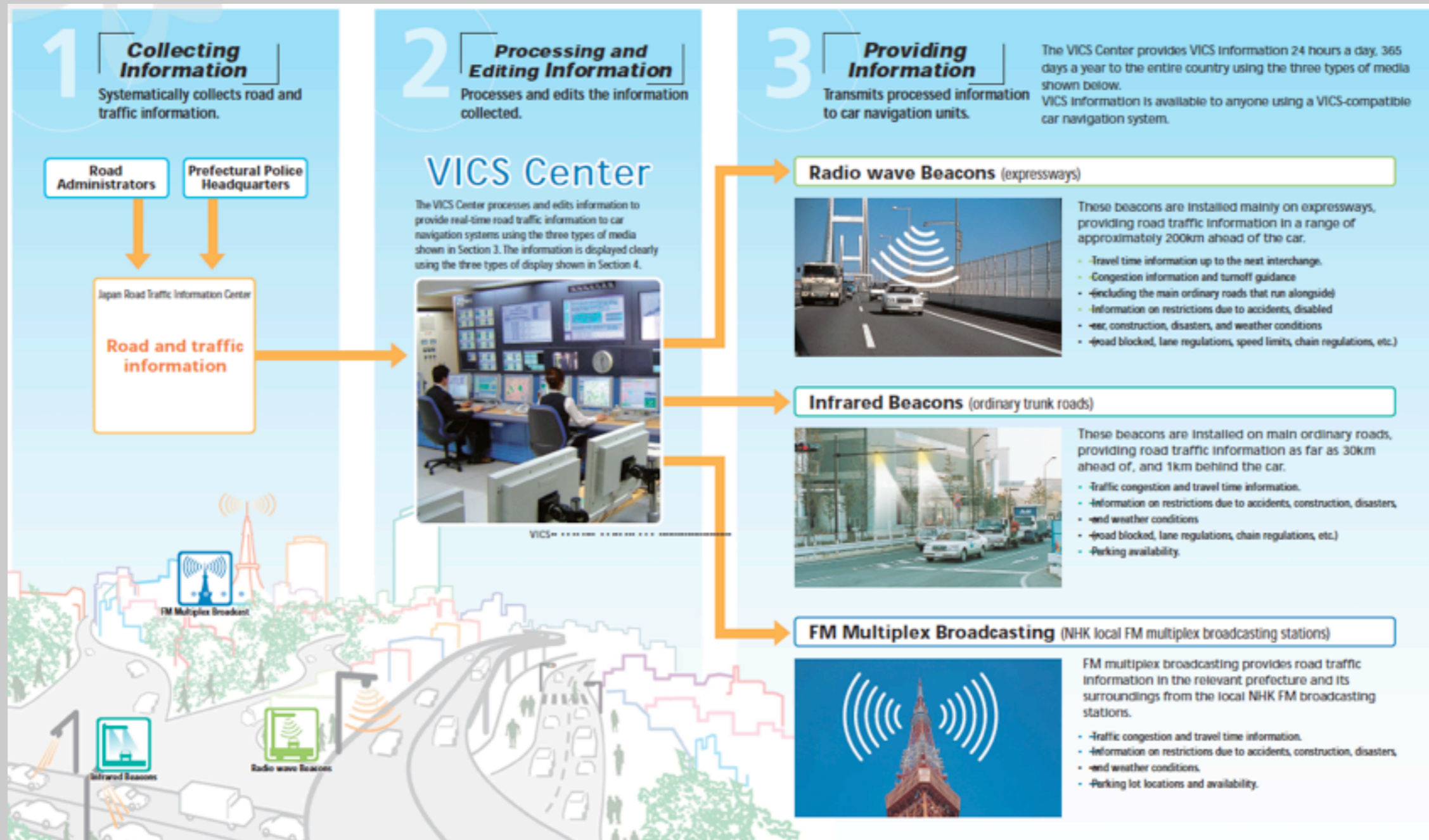
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Motivation -- great VANET simulation tools developed by Yoann and Gregoire

Goal: **cost-efficient** traffic information collection and exchange using **VANETs**

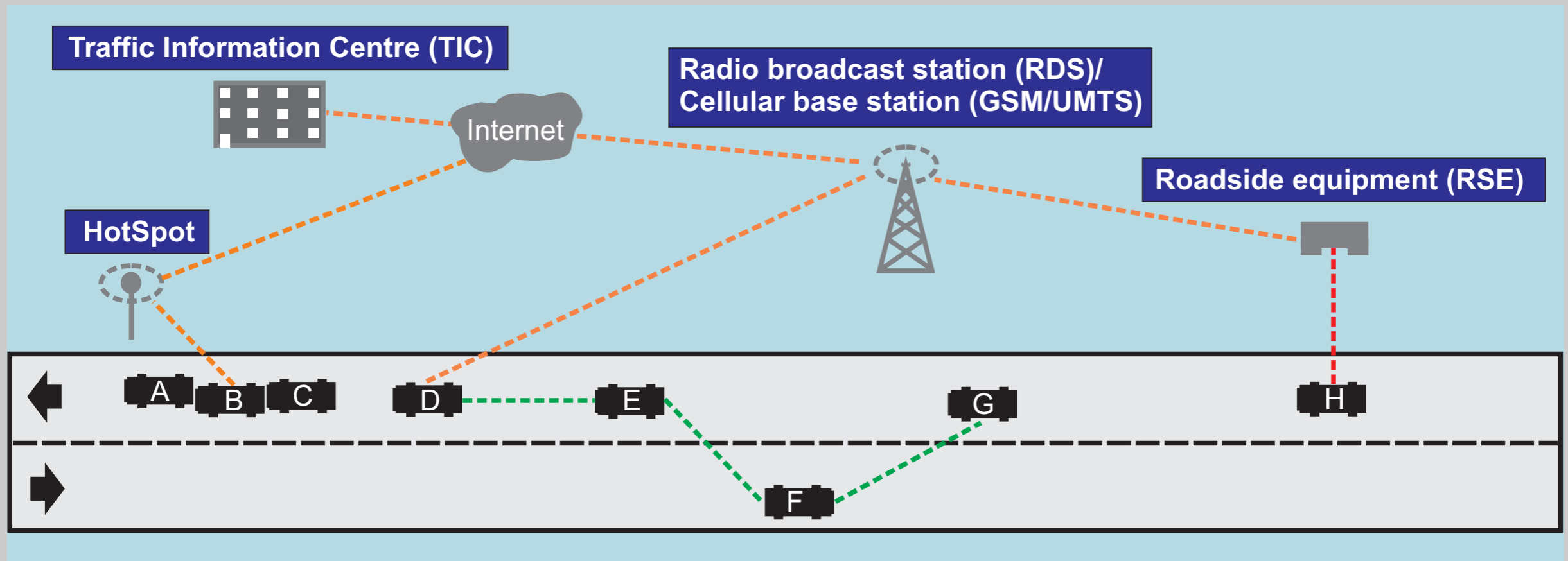
Present -- infrastructure-based approaches -- VICS (JAPAN)



Drawbacks:

- (i) Completely centralised. (ii) Based on a fixed and costly infrastructure.
- (iii) Limited to the main roads (iv) Information updates are far from real-time (delay ~ 20–50 minutes).

Future: complementary (**cooperative**) approach



Communications types:

----- Vehicle to Vehicle communication (V2V)

----- Infrastructure to Vehicle communication (I2V/V2I)

----- Vehicle to backoffice (V2B)

Classification of TIS:

Infrastructureless CTIS

Infrastructure-based CTIS

Client-server

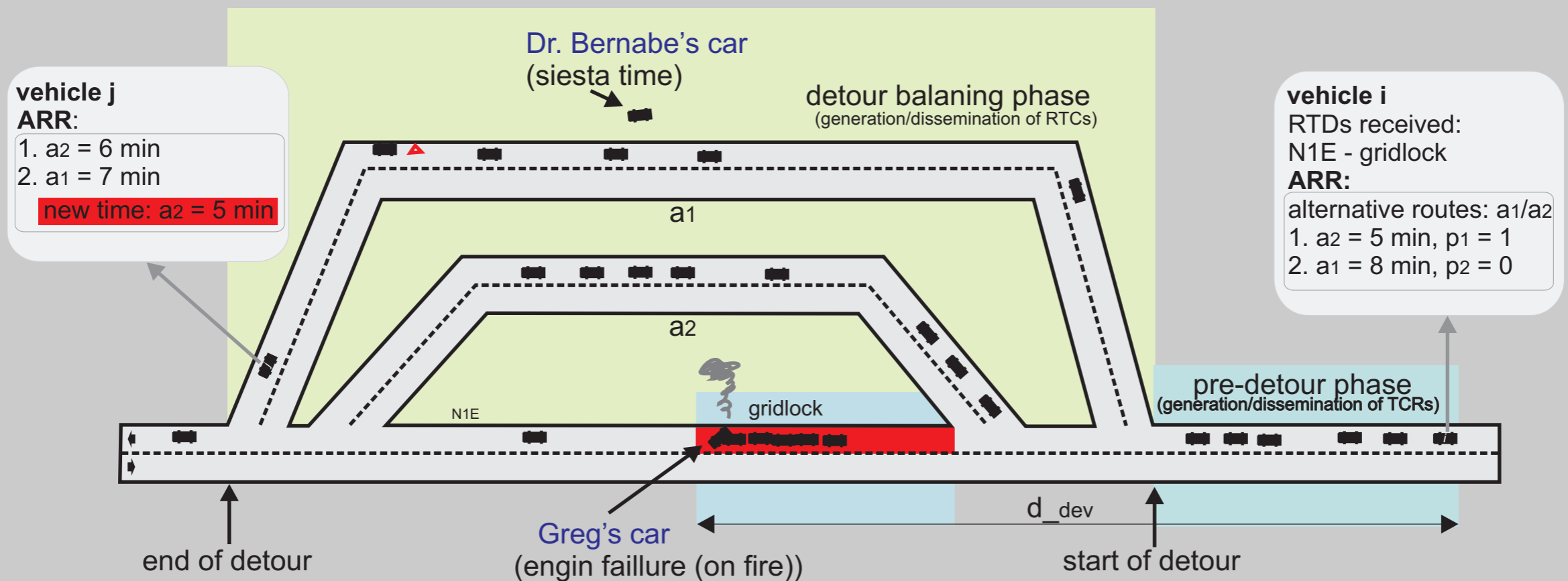
P2P

Current work: user equilibrium

User equilibrium - each vehicle optimises its traveling time

System equilibrium - the use of the whole network is optimised

V2V-based traffic information exchange & collaborative re-routing selection



Future work: system equilibrium

user equilibrium+incentives \rightarrow system equilibrium \rightarrow optimisation
(from game theory to optimisation)

traffic information system based on cloud computing

other related areas -- community/trust management