ImFlow – Policy based Traffic Management

Jan Casteleijn
Managing Director Imtech Traffic & Infra

Intertraffic INNOVATION AWARD 2012 WINNER

Contents

- Imtech Traffic & Infra - Peek
- Challenges in Traffic Management
- ImFlow – Policy based Traffic Management
- ImFlow and cooperative technology

Imtech Traffic & Infra

URBAN MOBILITY MANAGEMENT

INTER-URBAN MOBILITY MANAGEMENT

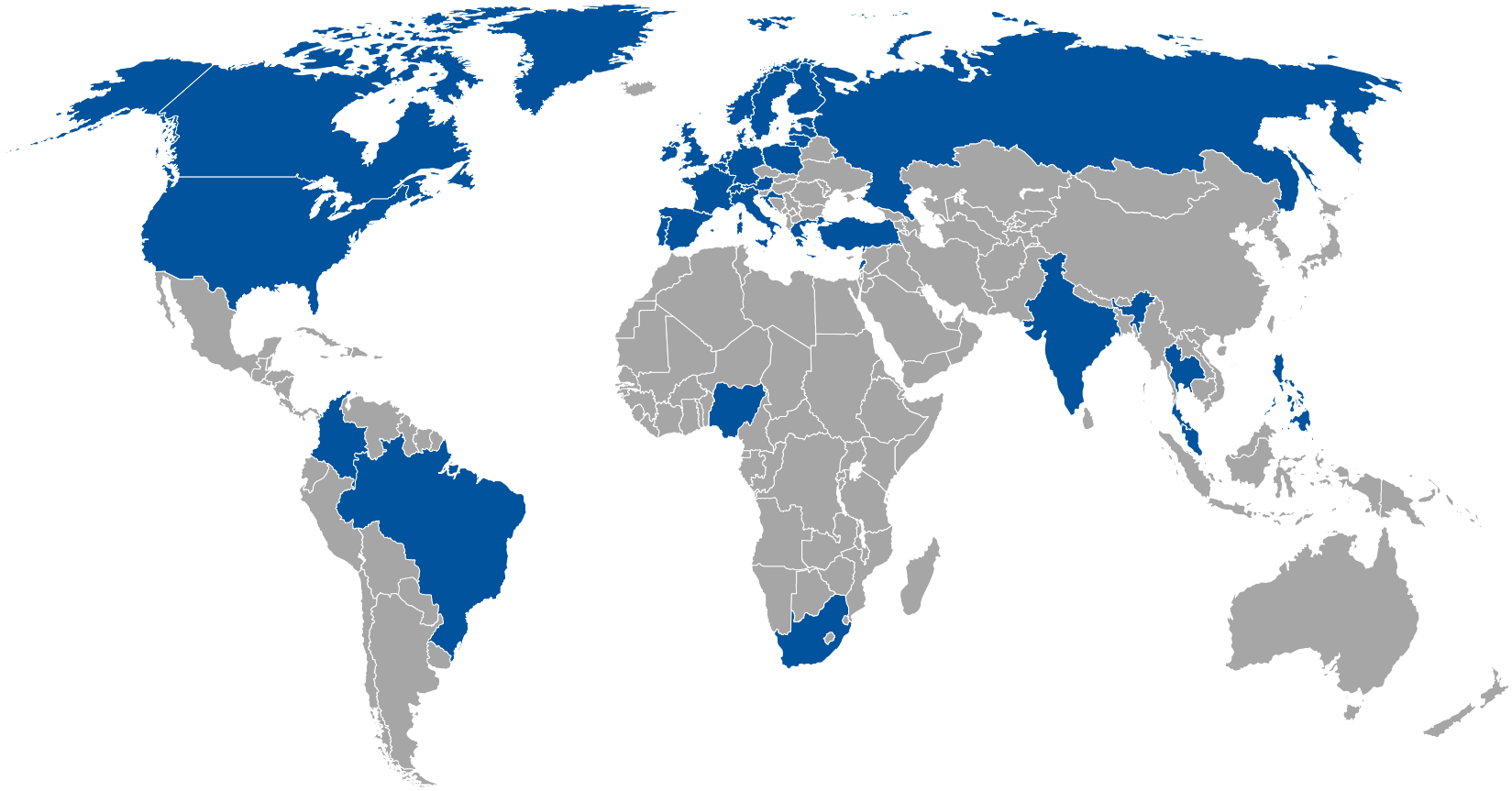
OBJECTS (BRIDGES, TUNNELS, LOCKS)

TRAFFIC MANAGEMENT CENTERS

PARKING

PUBLIC LIGHTING

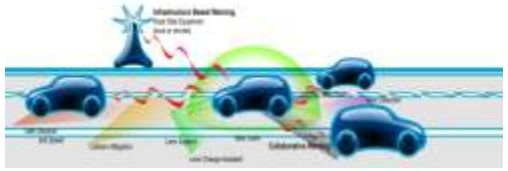
Imtech Traffic & Infra > world wide activities

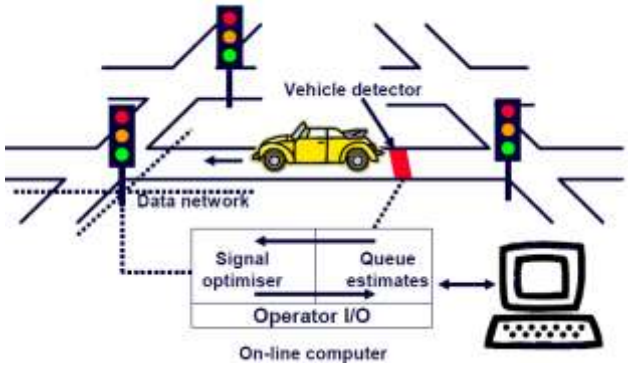


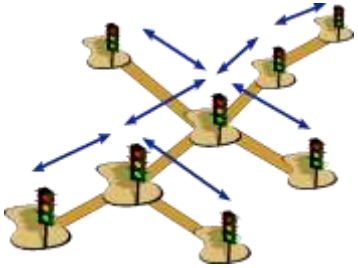
Challenges in Traffic Management

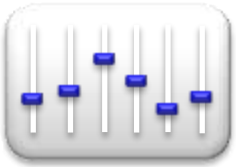
Traditional challenges	Environmental challenges
Maximising use of current infrastructure	Reducing CO_2 emissions
Balancing conflicting traffic flow demands	Reducing health-affecting emissions
Providing predictable journey times	Encouraging use of low-emission transport
Adaptability to policy changes	Balancing priorities

History and Innovation in Urban Traffic Control









Fixed Time Control

Plan Selection

Real-time Adaptive Control

Policy based Adaptive Control

Cooperative Systems

ImFlow
Next generation UTC System

Isolated intersections

- Providing real-time adaptive control

Adaptive networks (areas)

- Real-time optimisation of traffic flows at network, route and intersection level
- Conditional public transport priority

Metropolitan cities

- City divided in areas

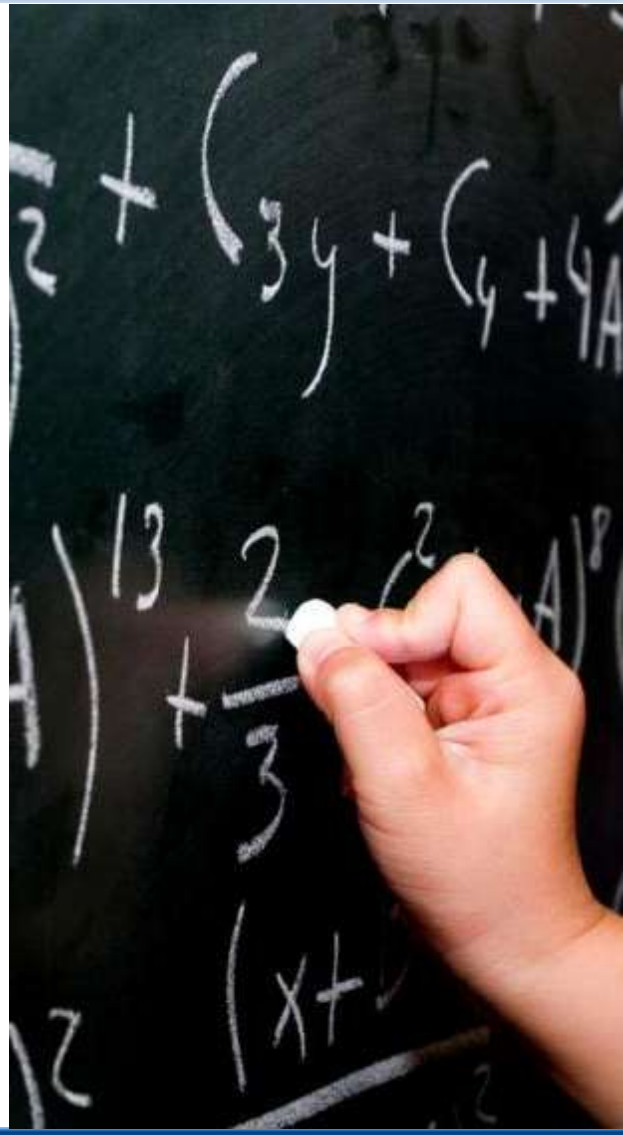
State-of-the-art adaptive algorithm

Multi-criteria optimisation:

- Vehicles
- Pedestrians, Cyclists
- Public Transport
- Emergency vehicles
- Heavy trucks

Multi-level optimisation:

- Network
- Route
- Intersection



Management of priority vehicles

Emergency services

- Absolute priority for fire-brigade, ambulances and police

Public Transport

- Conditional priority to optimize PT services and minimize impact on traffic flows

Commercial Fleets

- Priority to encourage Eco-driving for heavy trucks (using cooperative technology)

ImFlow – Closing the gap

Real-time optimisation based on user defined policies
Superb traffic performance

ImFlow Pilot – Helmond Kasteel Taverse

Operational since September 2011

Simulation results – ImFlow versus UTOPIA

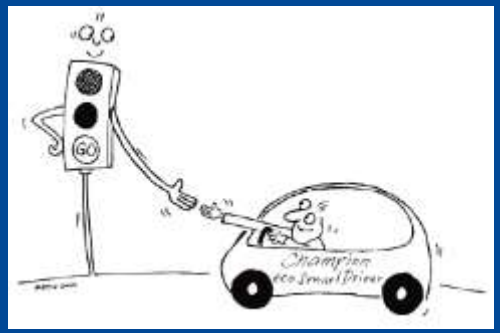
Evening rush hour

Average [s]	ImFlow	UTOPIA	Improvement
Network delay	45	59	24%
East-West delay	17	34	50%
East-West travel time	77	93	17%
West-East delay	21	21	0%
West-East travel time	112	112	0%

Policy based traffic management with cooperative technology

Interaction between individuals & traffic management systems

- Drivers help to effectuate the policies



Positive influence on emission levels by

- Avoiding acceleration, stops and congestion
- Promoting ‘eco’ driving behaviour
- Biasing modal split towards low emission modes

ImFlow - Freilot - Eco-driving

Policy

- Give priority to ‘heavy’ vehicles to encourage eco-driving

Why

- Acceleration for heavy vehicles is expensive

  0,3 – 1,0 litre fuel to accelerate from 0 to 70 km/h

Co-funded by the EC

Our contribution to a smart and sustainable city

Reduces:

- Congestion
- Travel time
- Fuel consumption
- Emissions

Improves:

- Traffic flow
- Public Transport services
- Safety
- Accessibility

Thank you for your attention

Imtech Traffic & Infra

Total Solutions Partner