Traffic Information and Control

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The Belgian sister companies Be-Mobile and FLOW design and operate various traffic services:

- We assist commuters by distributing traffic information through many different channels.
- We assist traffic operators by offering them tools to *i)* monitor and configure their traffic management apparatus, and *ii)* make in-depth analysis of traffic flows.

The core of these operations lies in our online traffic platform, responsible for data collection, processing and distribution. Data is collected using a variety of data feeds sourced from third parties or produced by our own internal systems. Continuous data streams from roadside sensors, large fleets of vehicles (GPS data), journalistic information from the driver community (collected by our dedicated call-centers), parking availability, public transportation possibilities, meteo, etc., our platform taps into all these sources of data and does the necessary processing to obtain a detailed and granular view on our mobility.

The data is then distributed via several applications which interact with our system through an extensive API. These applications effectively close the loop and bring traffic information back to the road user using different distribution channels such as: navigation devices, smartphone apps, media (radio & television) and roadside displays.

The first part of the talk will focus on some of our activities in the domain of data collection/processing:

- Floating car data (FCD): The real-time position and speed of millions of driving vehicles are used as 'probes' to detect the traffic flow throughout the entire road network. Vehicle positions are collected using tracking devices based on GPS. These positions are sent in real-time to our traffic platform, which calculates the route and traveltime from every vehicle. All driving vehicle travel times are aggregated on a high precision traffic map. The granularity of this traffic map makes our FCD extremely suitable for traffic management solutions.
- Road tubes & optical fibers: FCD provides speeds & traveltimes for the entire road network. If more detailed information is required, such as traffic counts or vehicle classification, we rely on local measurements using either road tubes (in case of a temporary measurement) or optical fibres (in case of a permanent measurement). Such sensors generate a pulse each time a vehicles passes. We developed algorithms that allow us to convert these pulses into actual vehicles. This way, we can identify 16 types of vehicles and 4 types of bikes.

- Journalistic information: FCD and sensor input can be used to detect and monitor traffic jams, but they do not contain info regarding the cause of the traffic jam. This information is called journalistic data, and it can only be collected by human 'traffic operators'. Journalistic data describes the causes of traffic jams and other related info: accidents, fixed or mobile speed traps, obstacles, road work information, road blockages, road closures, heavy weather reports, wild animals, loss of freight, etc. We developed software used by traffic operators to enter the data into the system in a standardized format, allowing direct integration with the central traffic database. The traffic operators collect their data in various ways: *i)* Information shared by drivers with the operators through our smartphone application (or through phone calls and SMS), *ii)* By searching other sources of traffic info (government websites, weather websites etcetera).

The second part of the talk discusses the use of our traffic information in different markets. We distinguish three major distribution channels: *i)* navigation, *ii)* the media (radio & television), and *iii)* the traffic management market.

We offer different traffic management services through a webapplication that can be considered as a virtual traffic room. This application allows our customers to *i)* monitor and configure their roadside infrastructure, and *ii)* analyse historical traffic data.