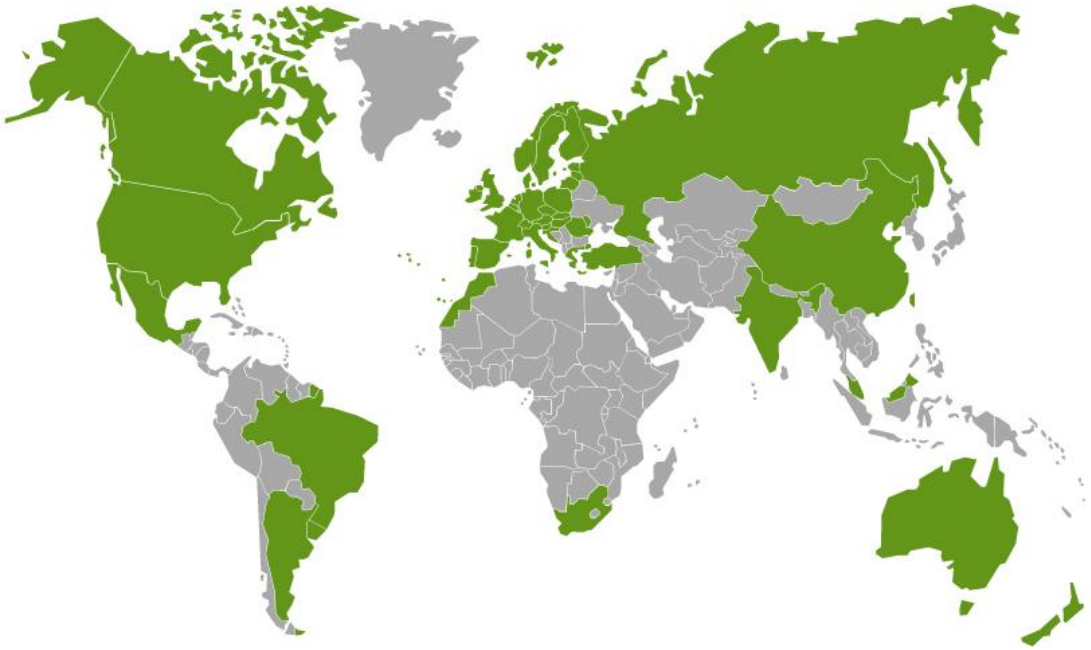
Changing Roles in Traffic Management

Datex Forum 2012 – Stockholm

Carlo van de Weijer, TomTom International

TomTom

- **Founded 1991**
- **Revenue:**
  - 2001: 2M,
  - 2002: 8M
  - 2003: 40M
  - 2004: 192M
  - 2005: 720M
  - 2006: 1364M
  - 2007: 1737M
  - 2008: 1674M
  - 2009: 1480M
  - 2010: 1521M
- **Core activities:**
  - **Customer support**
  - **R&D**
  - **Marketing**



Countries where we sell our PNDs

tomtom (de (m.); -s) autonavigator, m.n. van het merk TomTom®
tomtommen (onoverg.; tomtomde, h. getomtomd) met een navigatieapparaat in de auto rijden, syn. *navigeren*

TOMTOM

Portfolio

Consumer

Automotive

Business Solutions

Licensing

TOMTOM

Using community feedback

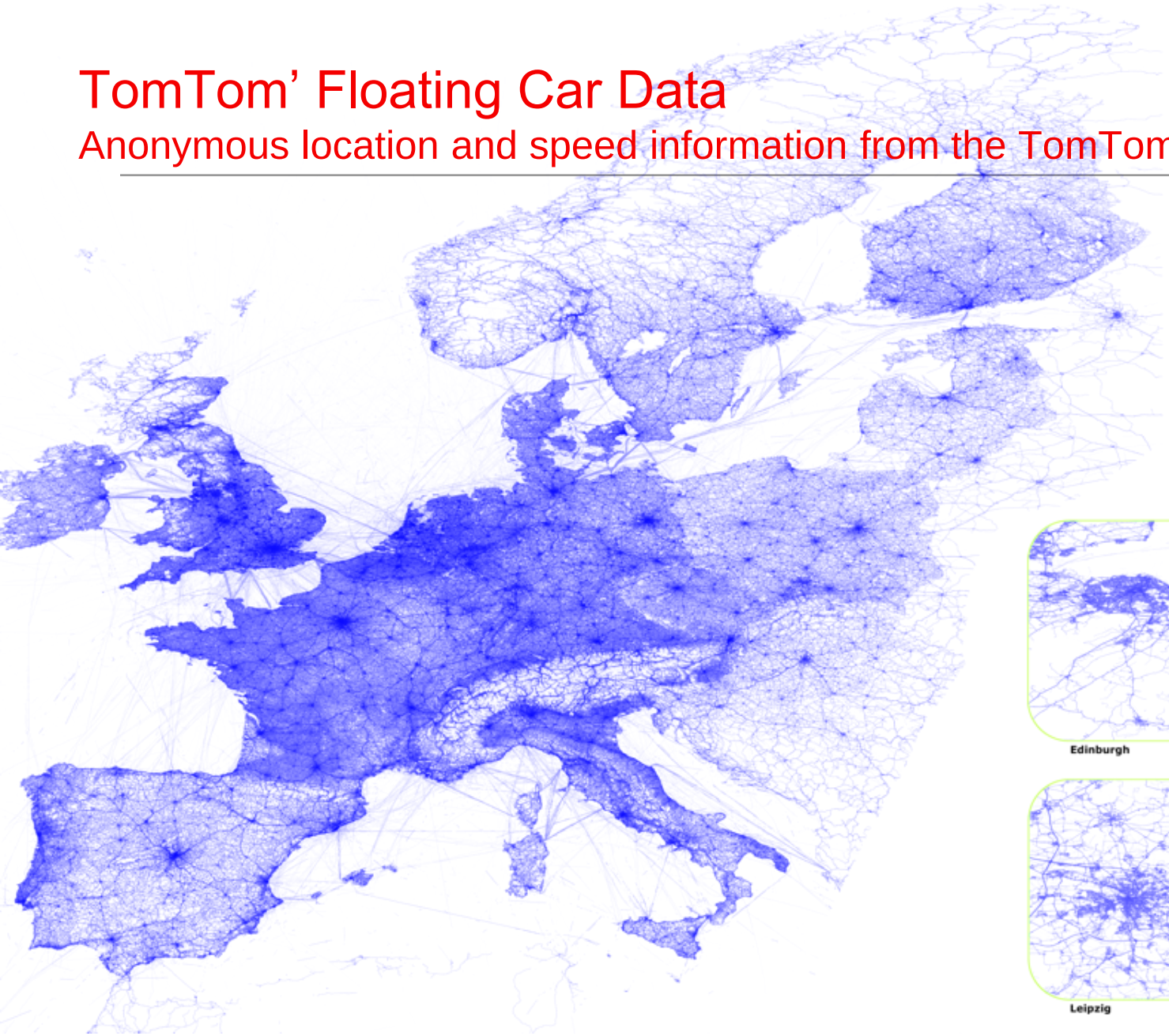
- TomTom has more than 80 Million customers
- Most of them are willing to contribute to make TomTom's systems better
- TomTom uses it's connected navigation strategy to establish this

Off-line connected:
TomTom Home

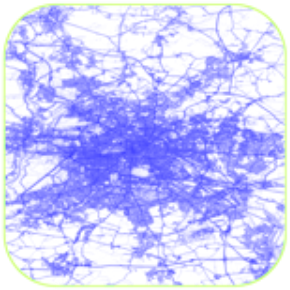
On-line connected:
TomTom LIVE

TomTom' Floating Car Data

Anonymous location and speed information from the TomTom community

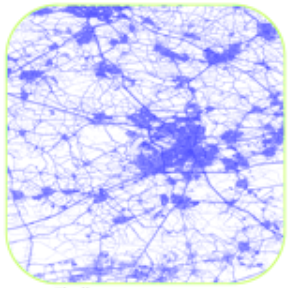


Amsterdam



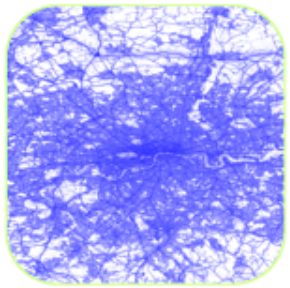
Berlin

Edinburgh



Eindhoven

Leipzig



London

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TomTom' Floating Car Data

Anonymous location and speed information from the TomTom community

- TomTom historical database contains over 5.000 billion observations (currently growing with >4 billion measurements per day)

- On top of that we receive real-time floating car data from a fast growing fleet of connected GPS probes (currently ±5.5M) :
  - Car centric data (mainly cars, also vans and trucks)
  - Anonymised, compliant to privacy regulations
  - High sample frequency (1 position per second)
  - Accurate positioning
  - High synchronisation frequency (once per 1-3 minutes)
  - Increasing user frequence

- And we receive Floating Phone data from 80M subscribers in Europe

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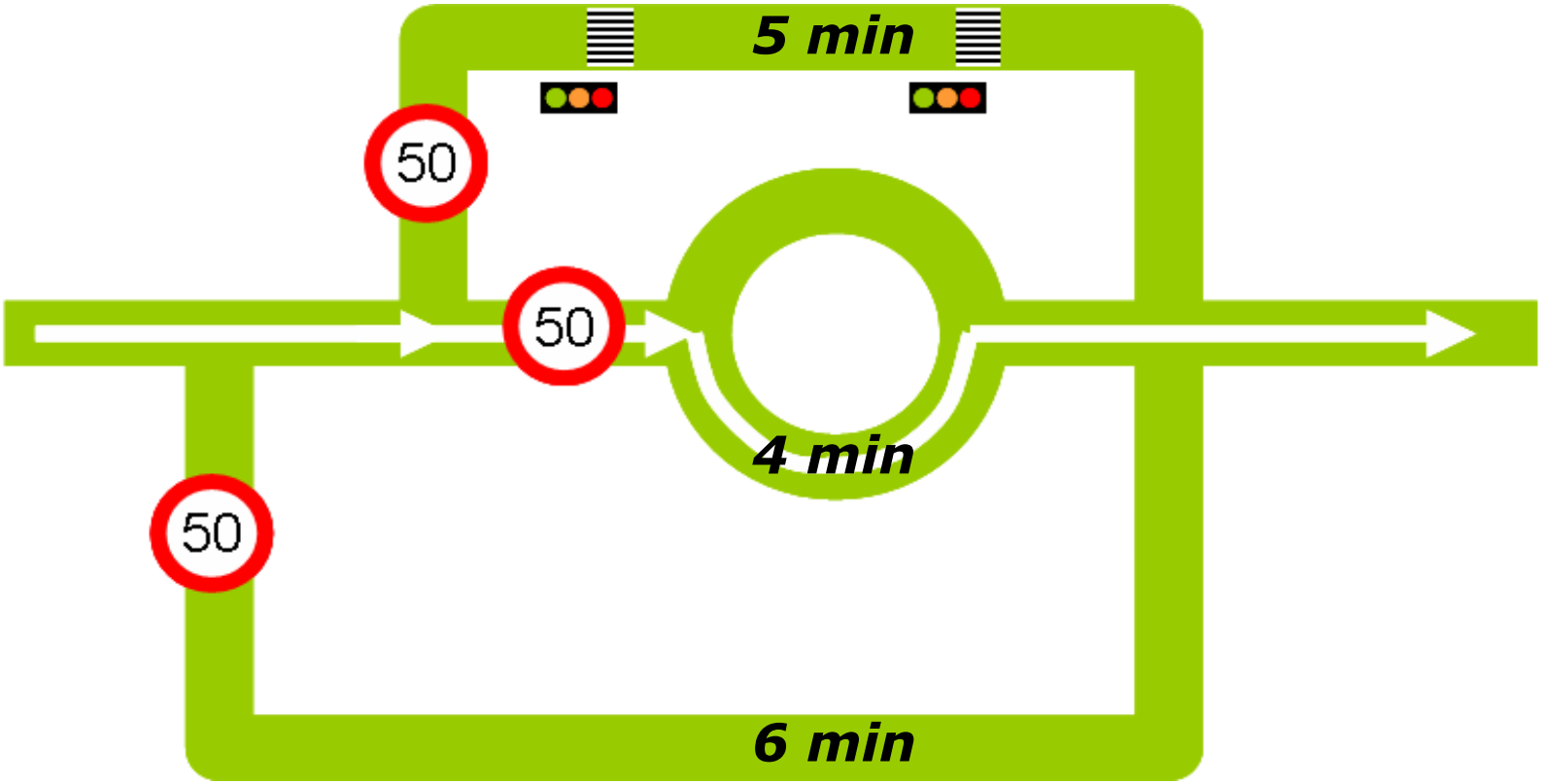
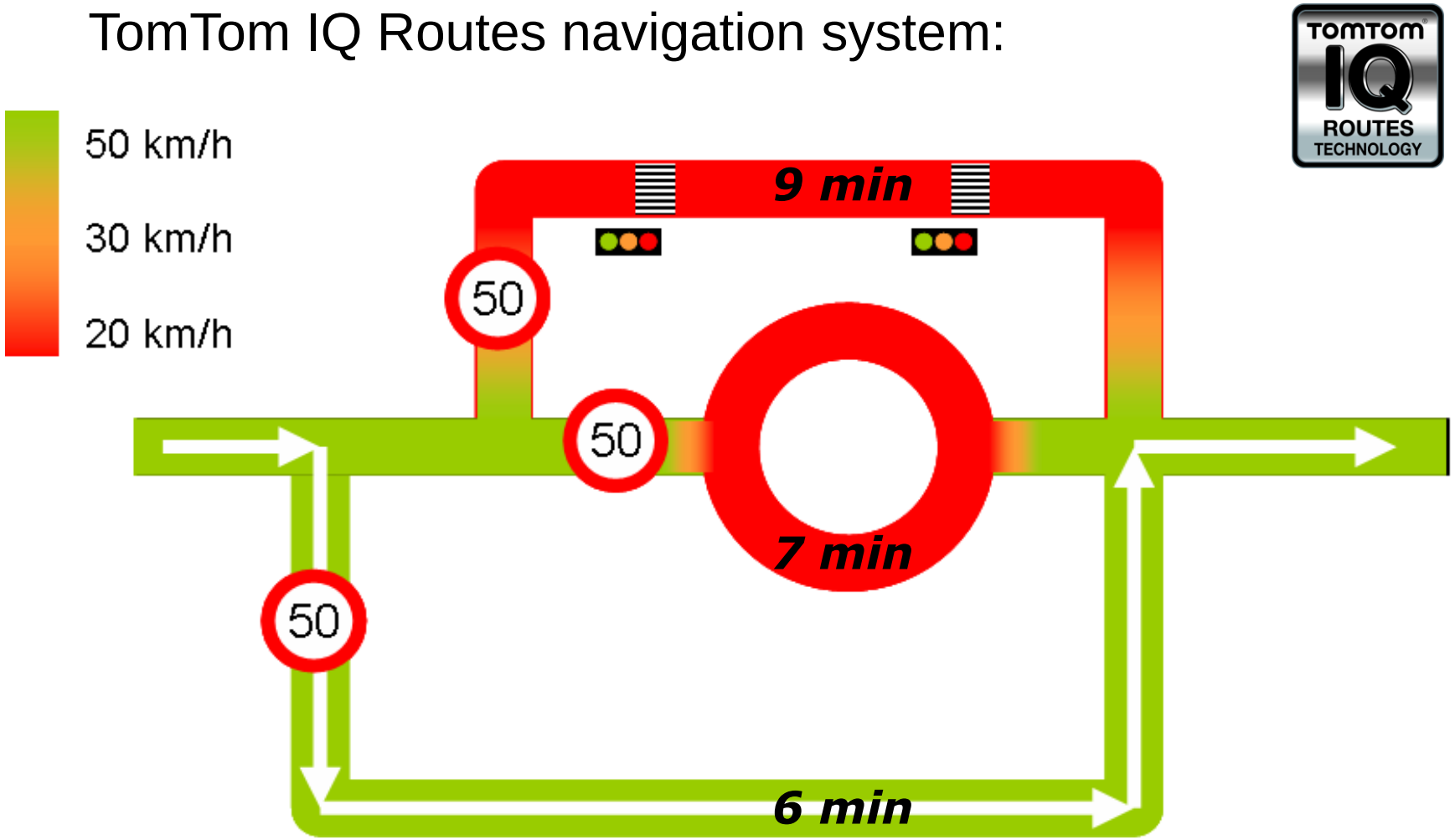
Using Community Feedback for Better Routing

Traditional navigation system:



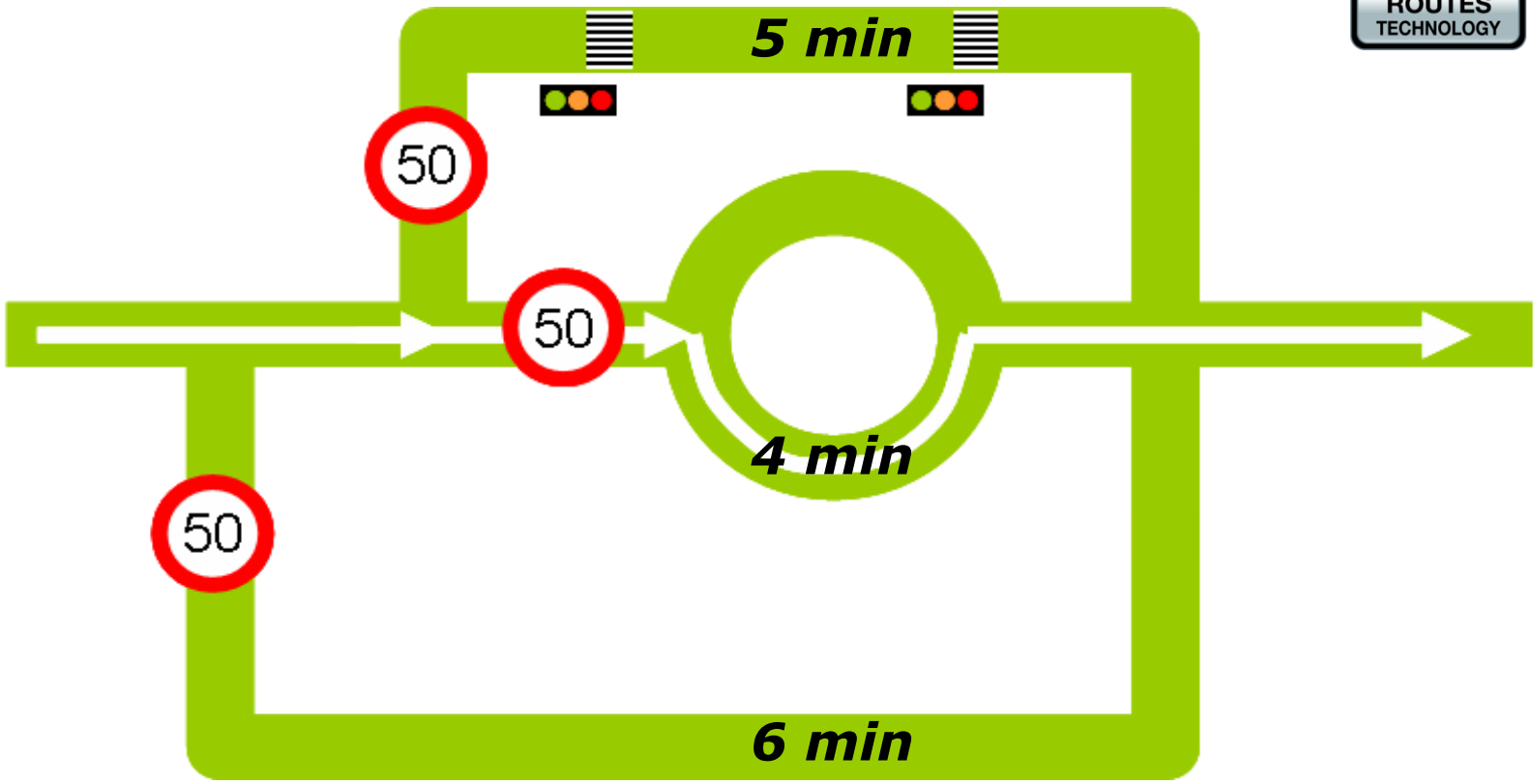
Using Community Feedback for Better Routing

TomTom IQ Routes navigation system:

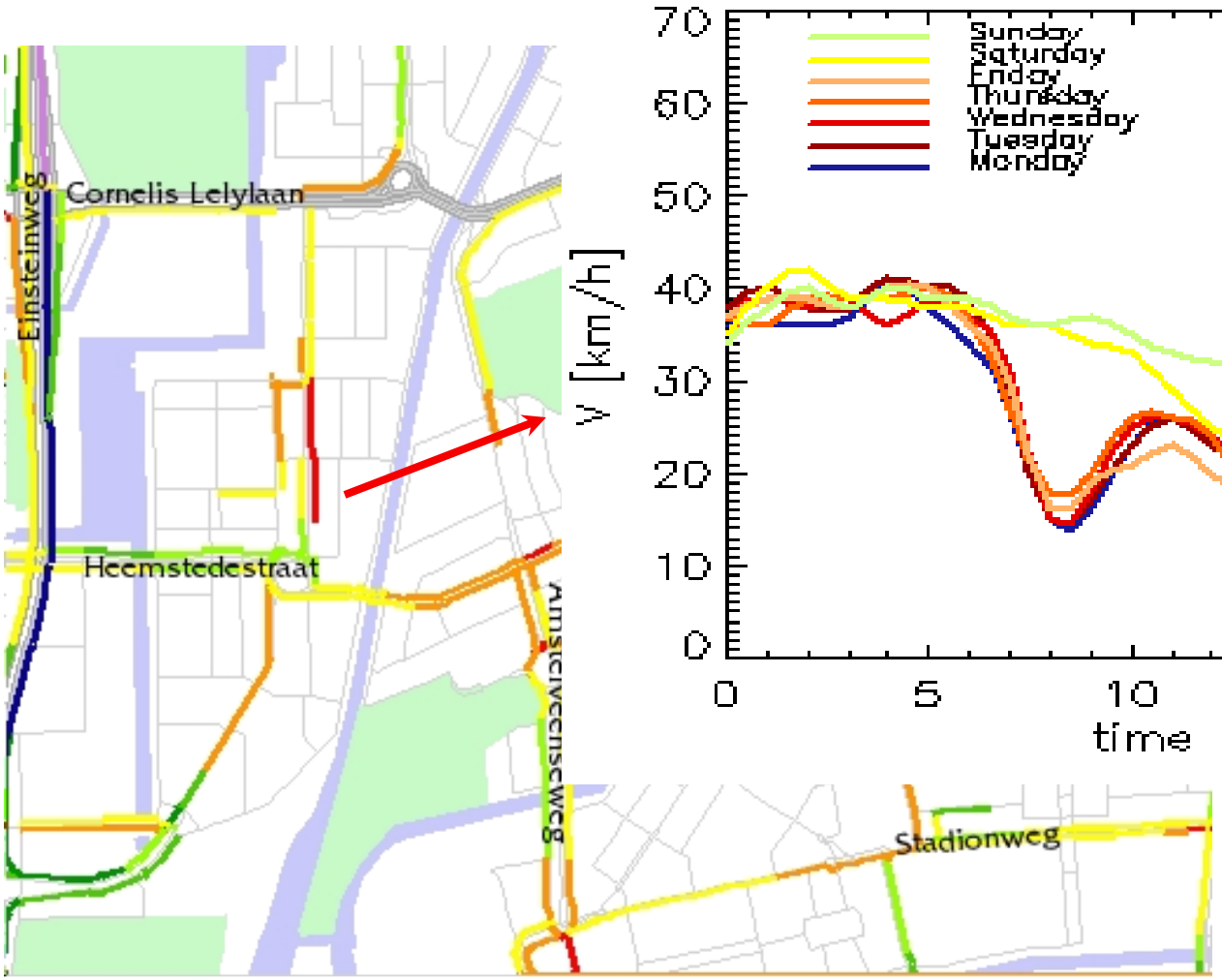


Better Routing, time dependent

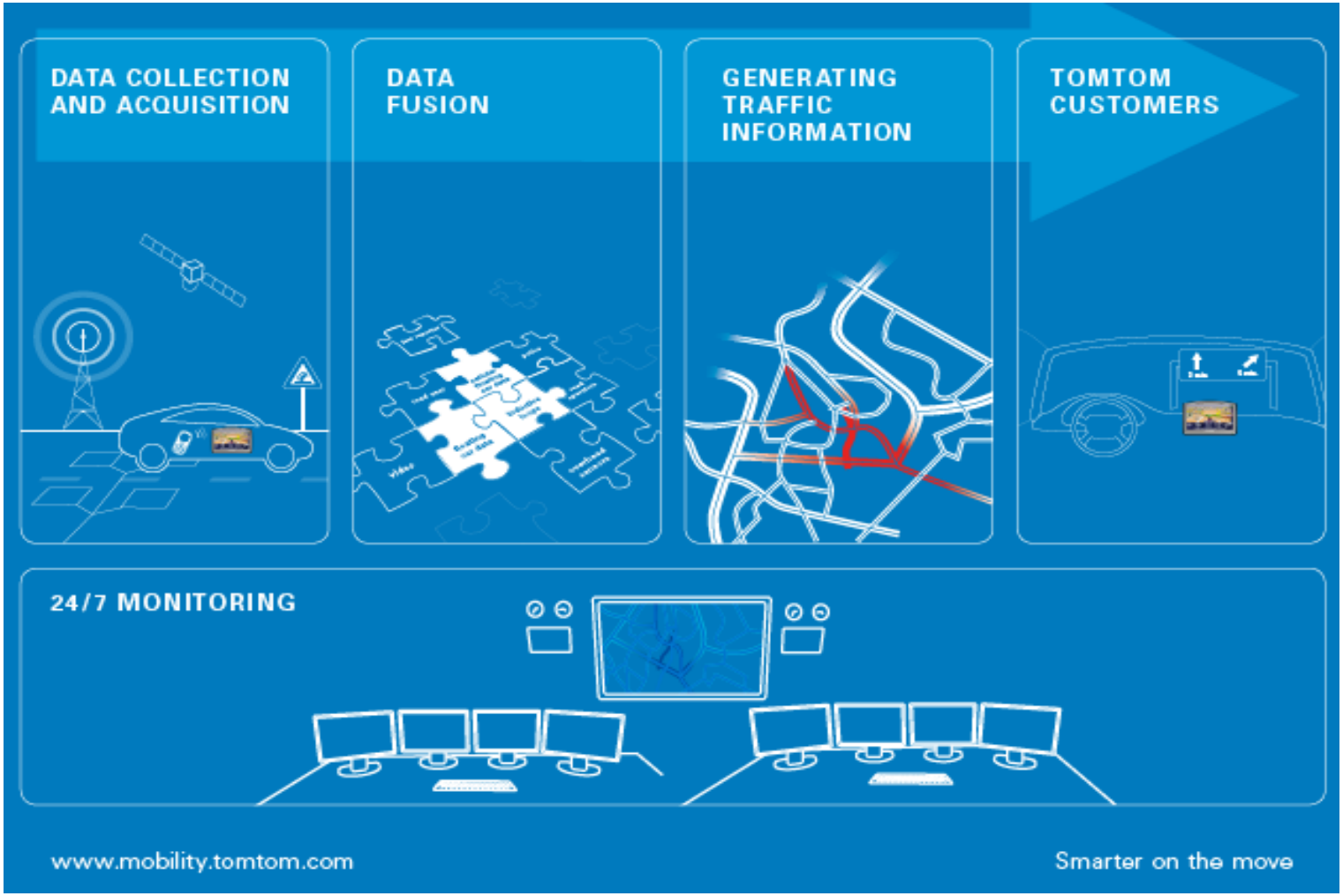
TomTom IQ Routes navigation system during night:



Detailed information on all important roads



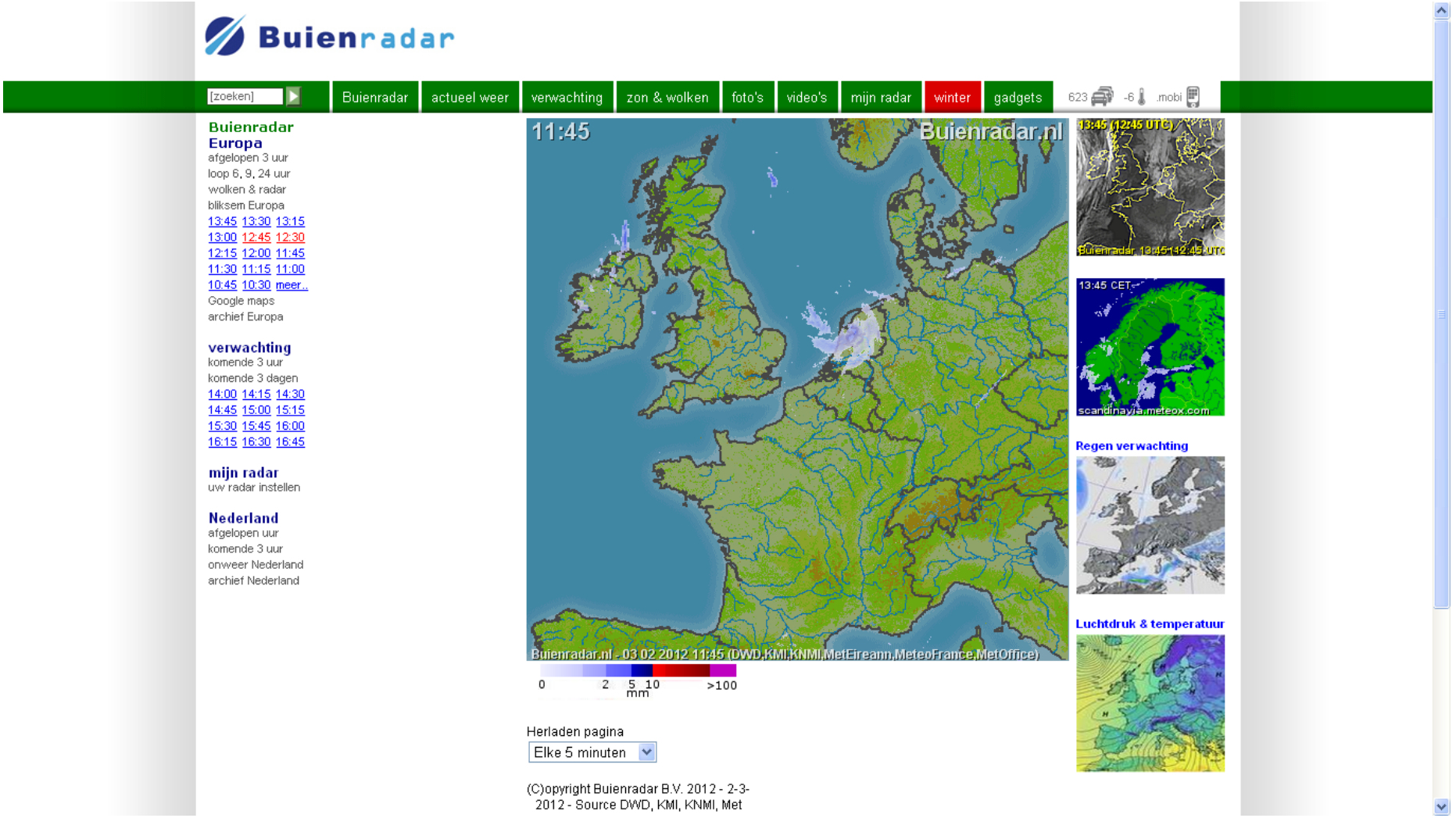
Using real-time community feedback: HD Traffic



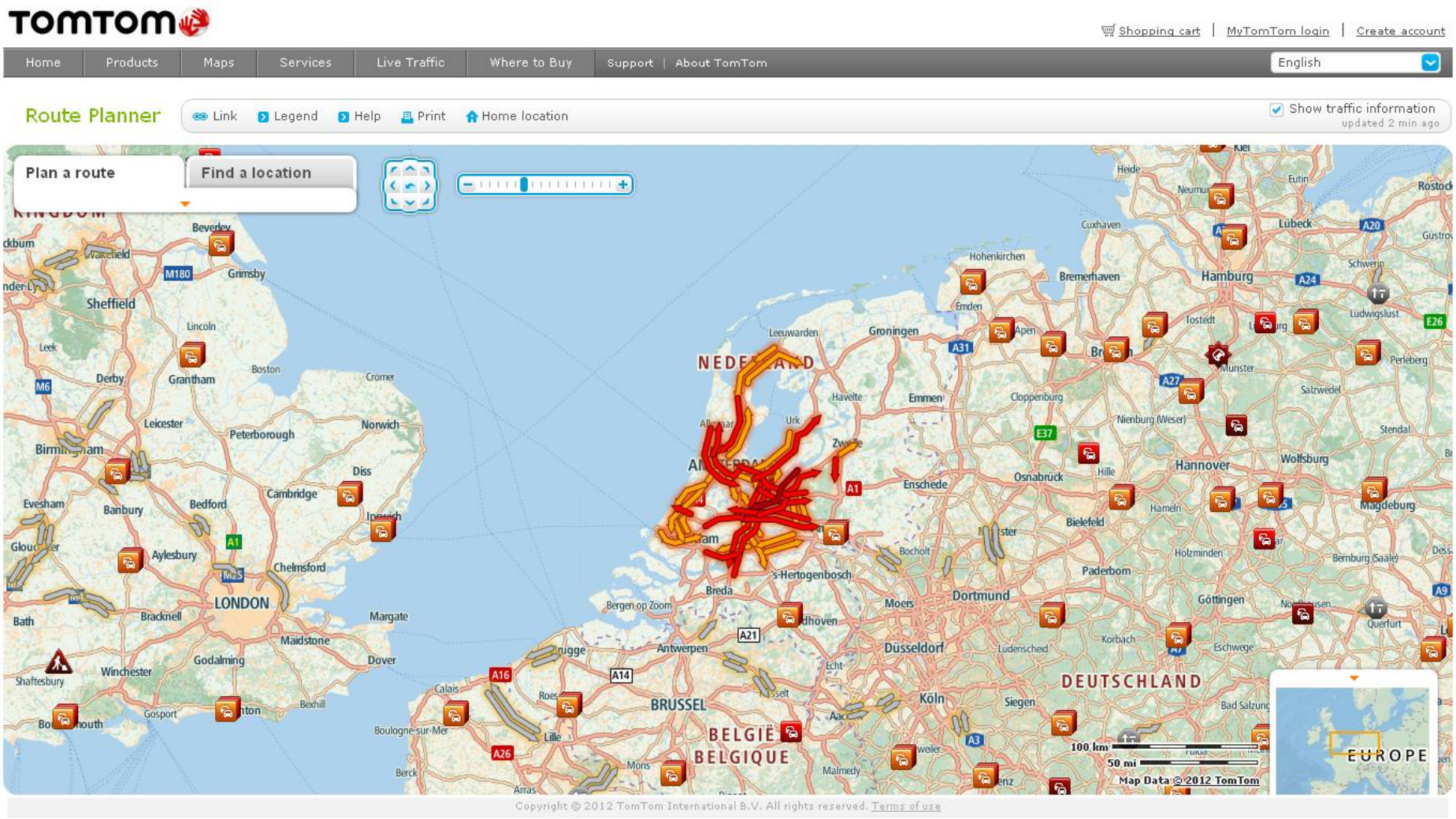
TOMTOM HD TRAFFIC

TOMTOM

February 3rd, 2012. 11.45; Snow in the Netherlands



www.tomtom.com/livetraffic



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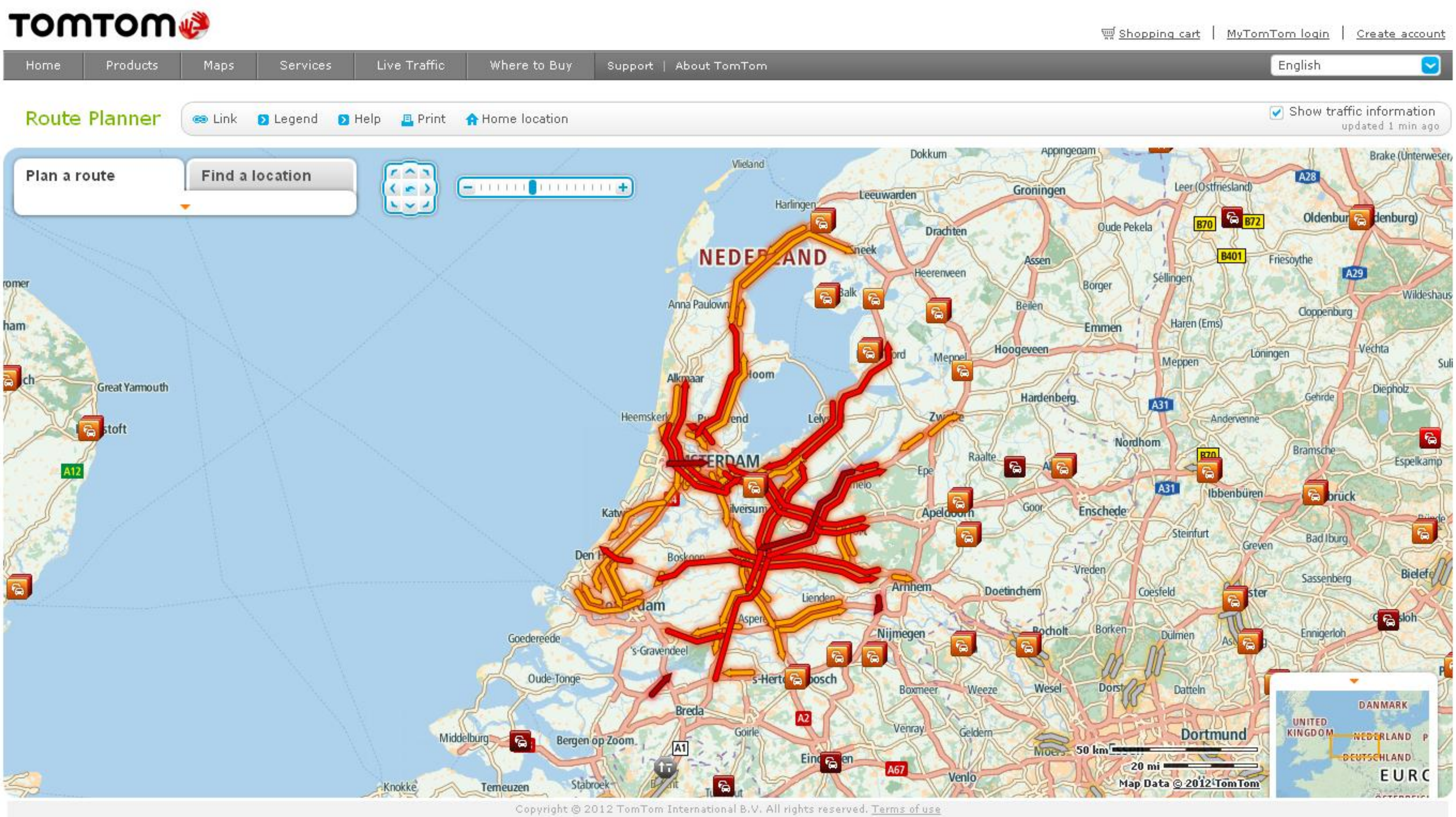
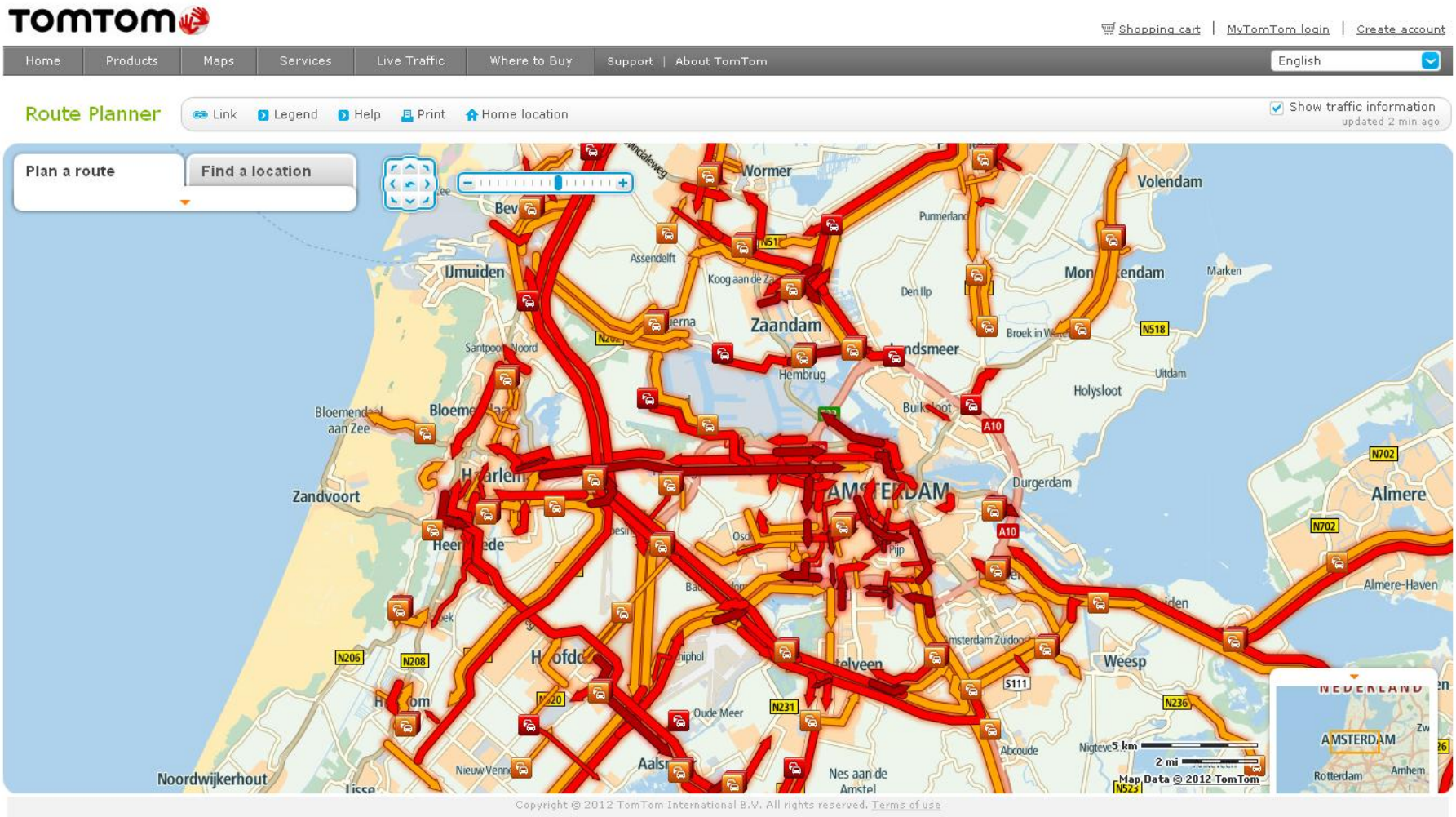
www.tomtom.com/livetraffic



www.tomtom.com/livetraffic



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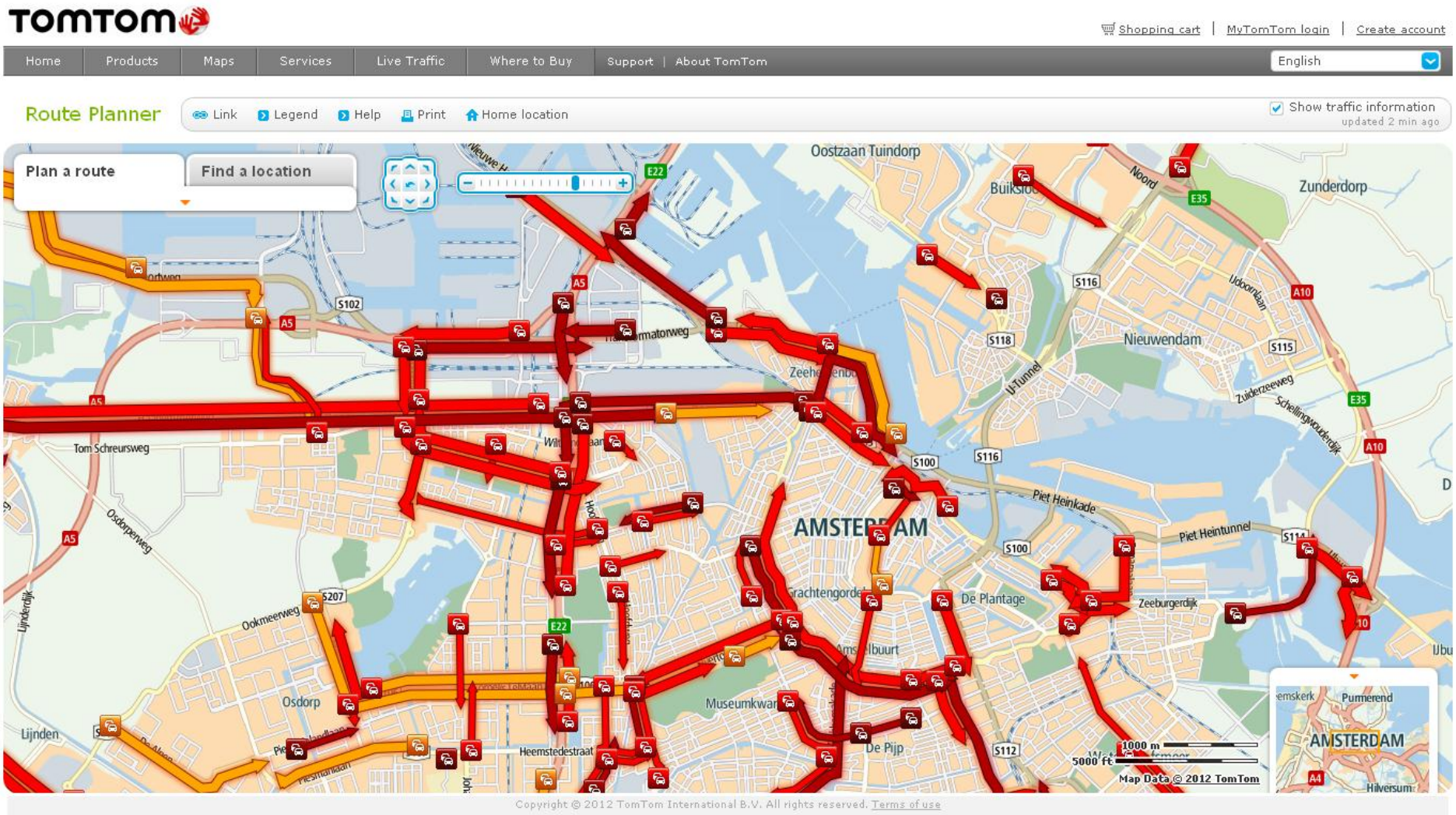

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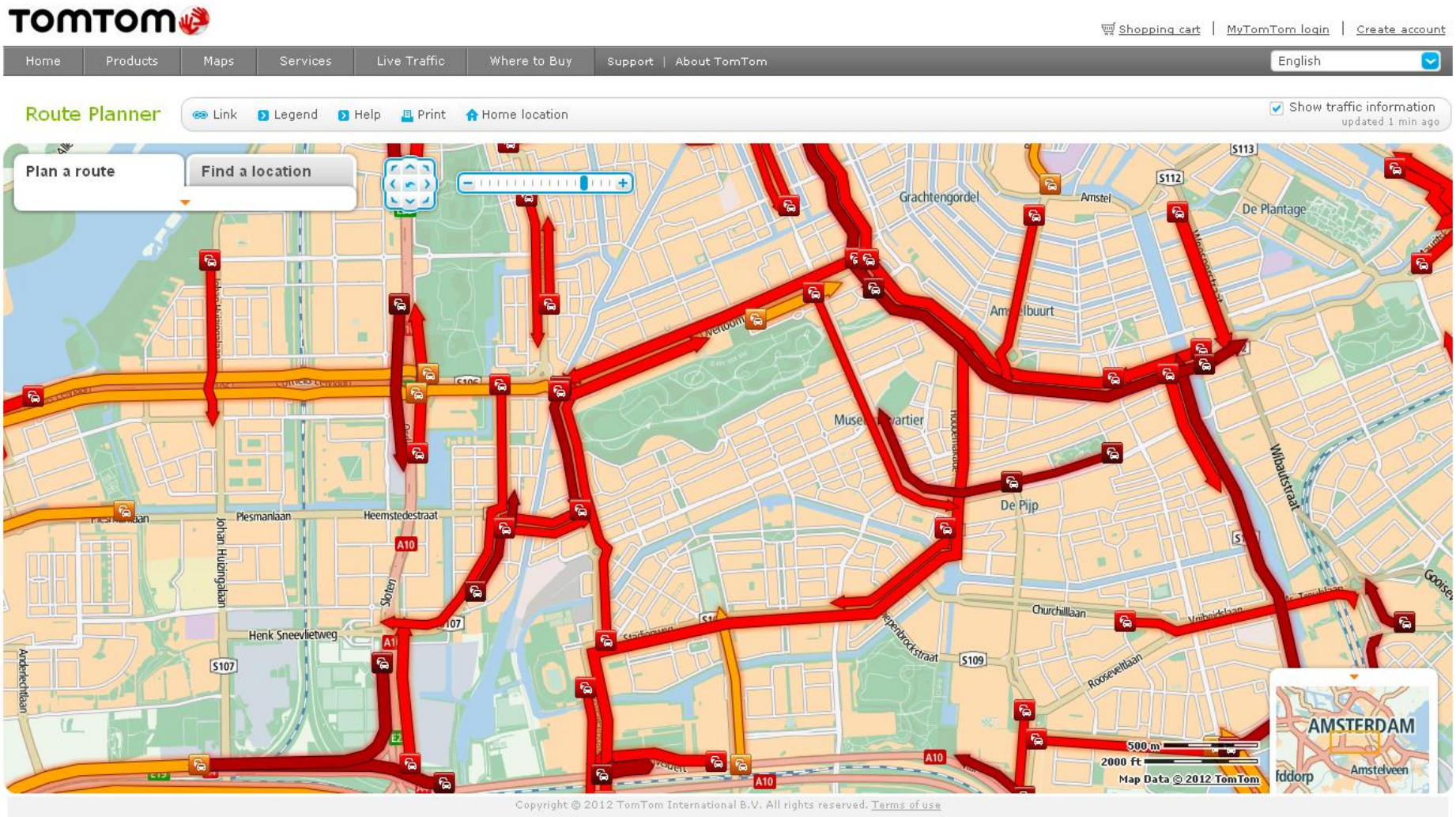
www.tomtom.com/livetraffic



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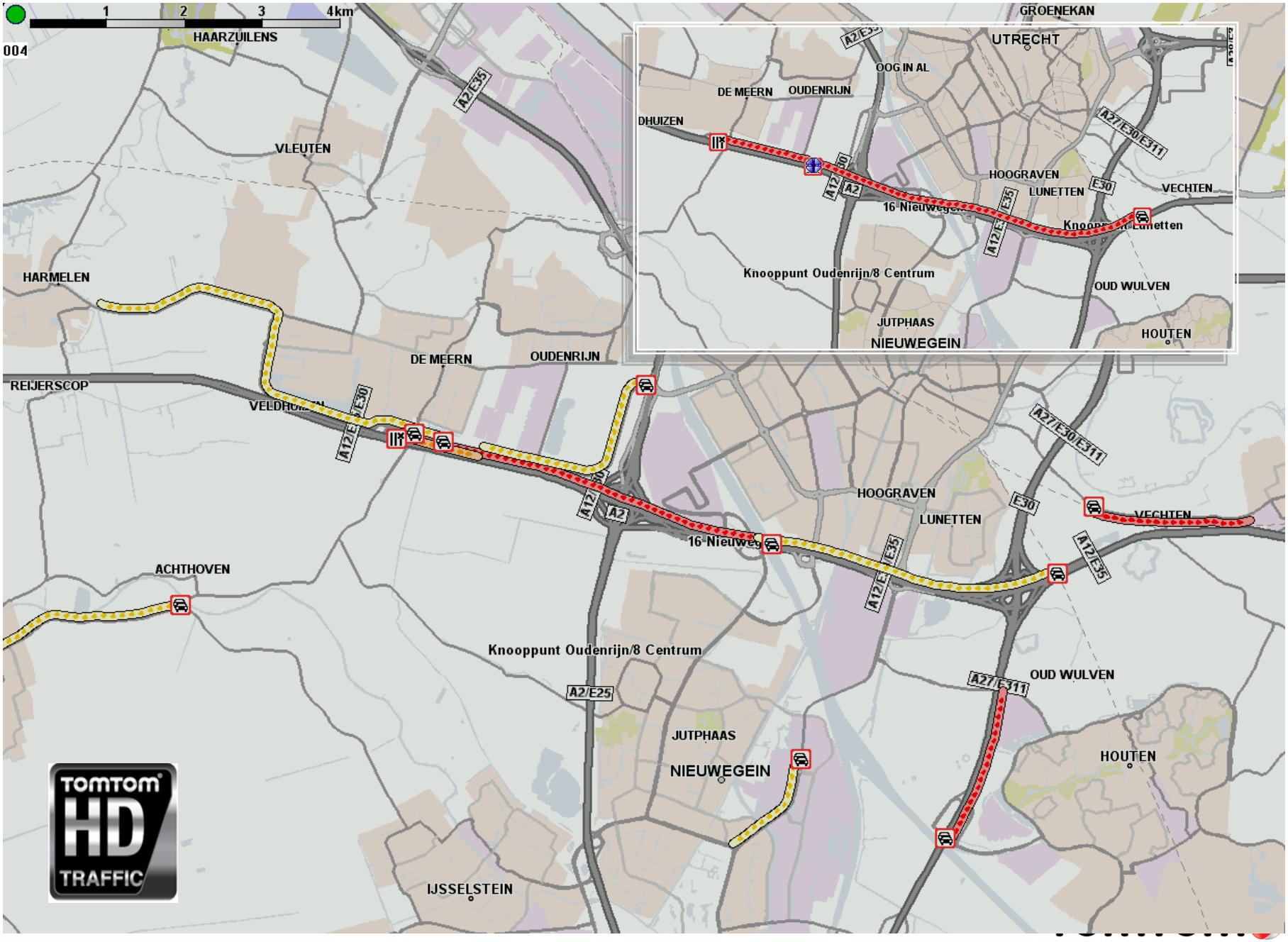
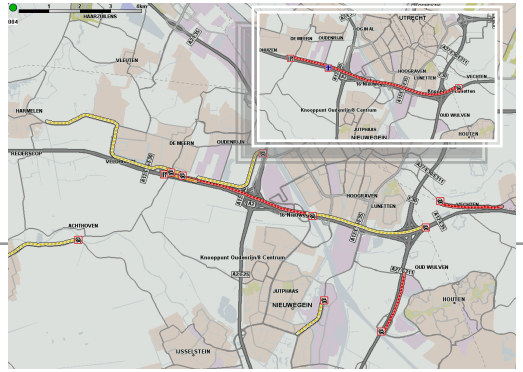

1
2
3
4km
004
HAARZUILENS
VLEUTEN
HARMELEN
REIJERSCOP
DE MEERN
OUDENRIJN
ACHTHOVEN
Knooppunt Oudenrijn/8 Centrum
JUTPHAAS
NIEUWEGEIN
IJSSELSTEIN
HOOGRAVEN
LUNETTEN
VECHTEN
OUD WULVEN
HOUTEN
GROENEKAN
UTRECHT
OOG IN AL
DHUIZEN
A2/E35
A12/E30
A2
A12
A27/E30/E311
A12/E35
A2/E25
TOMTOM HD TRAFFIC

Thesis



- Traffic management is moving towards a self-regulating system of well-informed individuals, within legal and societal desired limits
- Proper traffic management needs information coverage beyond High-Level Network, eventually even full coverage
- Full coverage needs Floating Car Data
- Floating Car Data will in practice a market driven technology (it needs in-car devices, has to prevent privacy problems and more)
- But: Road Authority will always remain responsible for what's happening on their roads

→ Ergo: proper traffic management needs public private partnerships

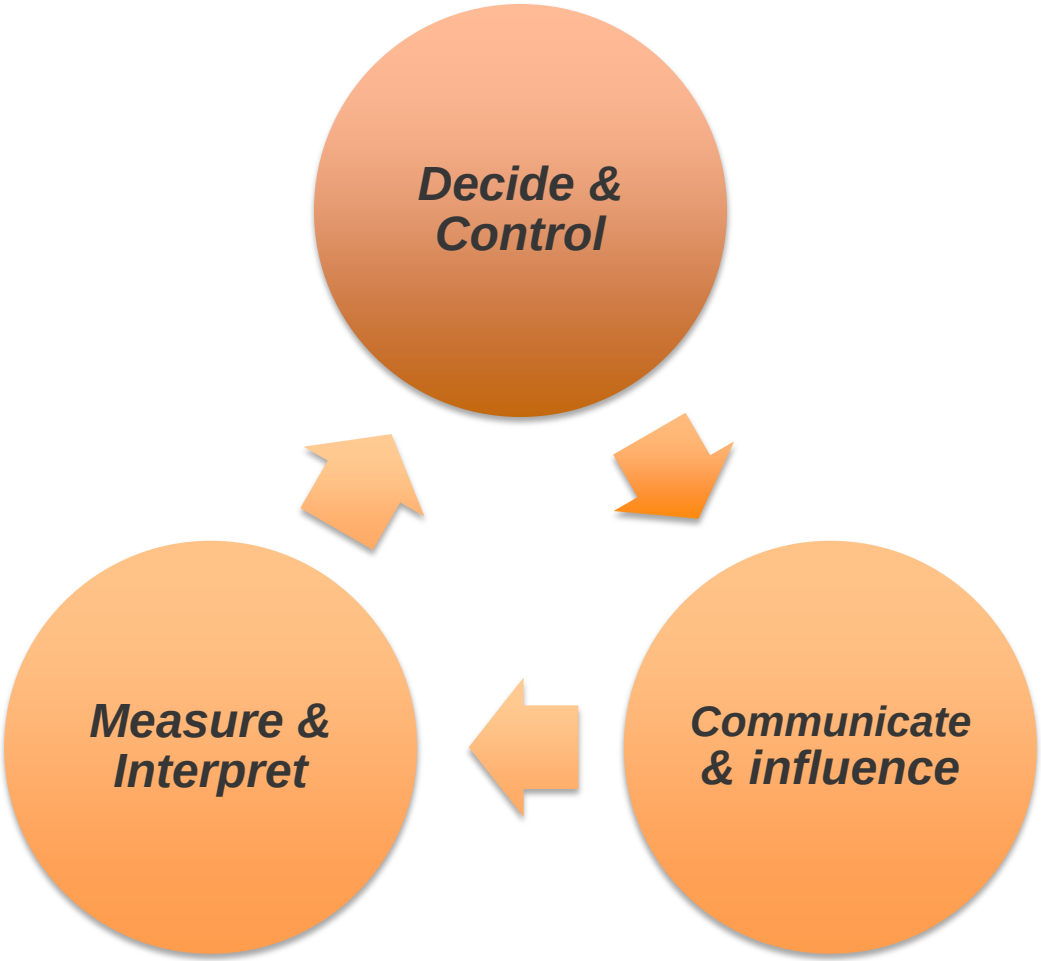
Value proposition for B2B & B2G

TomTom extends the value of its:

1. Dynamic Traffic feed
2. Historical Database

...to business and governments and jointly make traffic management drastically more efficient as well as effective…

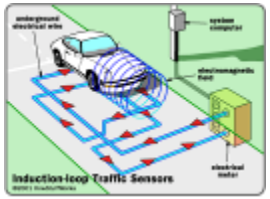
Traffic Management



Traffic Management
The traditional way

Traffic Management Centers
Low degree of automation, high human capital cost, inflexible, only feasible for big cities or regions

Data-acquisition
Infrastructure based, high cost, high maintenance, non-scalable equipment

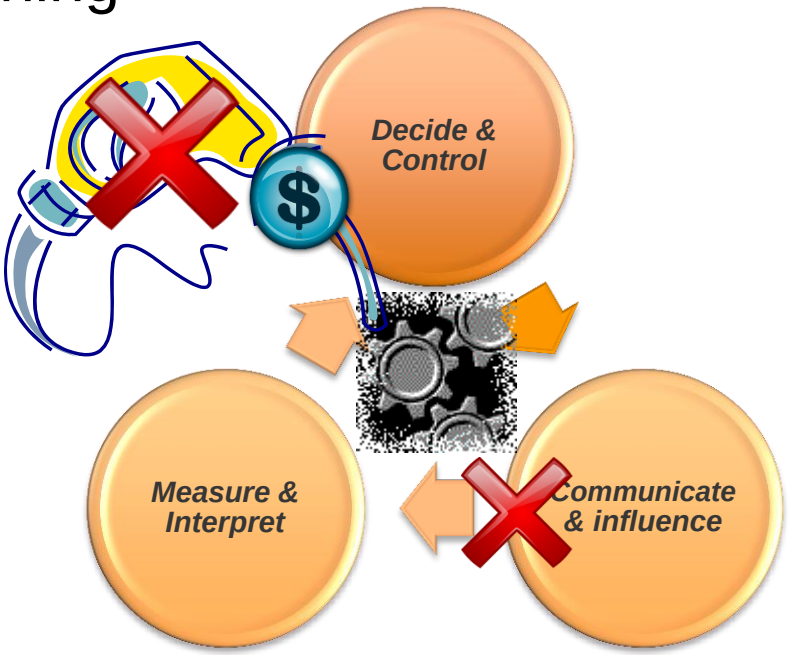


Top-down traffic control
Influence drivers behavior via top-down traffic management using public signing

Main Traffic Management problems for Road Authorities

1. Efficiency: Traffic Management is getting too expensive for road authorities to fuel the cycle

2. Effectiveness: People follow in-car devices instead of public signing



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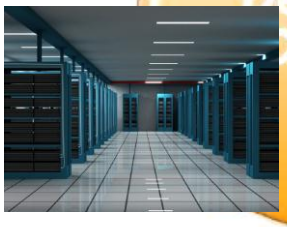
Traffic Management

The new way: In-car Centric Traffic Management

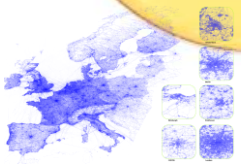
Traffic Management Centers

More data leads to increased automation



Buy data iso measuring

Data offered by market, mainly FCD based



Steer via in-car information

In Public Private Partnerships

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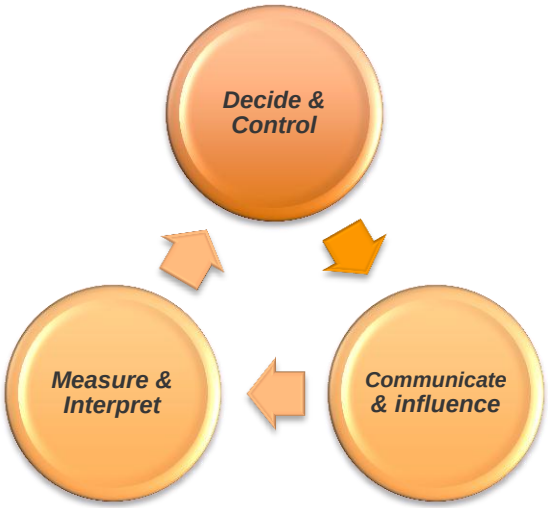
In-car Centric Traffic Management's win-win-winners:

1. Government: Save money, receive more and better data, better traffic management
2. Consumer: Better routing experience, better information, cleaner, safer and more efficient driving
3. Industry: Revenue from road authorities (data) and consumer market (new in-car solutions)



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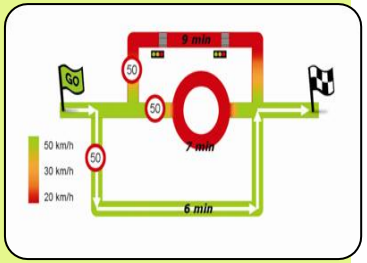
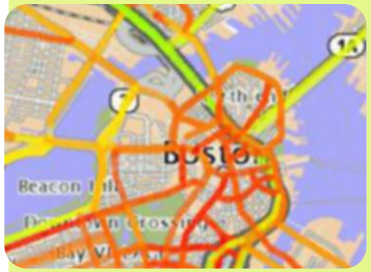
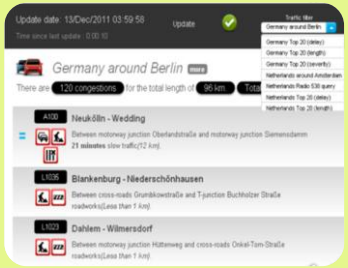
Product Portfolio

Historical Traffic

	Speed Profiles	Custom Travel Times	Custom Area Analysis	Custom Probe Counts
				
Description	Compact file of expected travel time on each road every 5 minutes	Route based custom analysis of travel time reliability and bottlenecks	Travel times and speeds for custom dates & times for regional analysis	Proxy estimation for relative traffic volume on primary and secondary roads
Typical use cases	Dynamic Nav. best fastest route Logistics Planning efficient routing	Traffic Planning travel time reliability & bottleneck analysis	Traffic Planning travel time reliability & bottleneck analysis	Site Selection adverts / new build Insurance risk assesment
Linked to MultiNet	Yes	No	No	Yes
Web Portal access	No	Yes	Yes	No
API access	No	No	Yes	Yes

Product Portfolio

Real-Time Traffic

	HD Traffic Enterprise Traffic	HD Flow	HD Route Times	DJ Portal
				
Description	Compact feed only detailing roads affected by delays and incidents	Complete feed detailing flow conditions on all significant selected roads in the region	Travel time & delay times on customer-defined routes. Complete turnkey solution	Customized local information showing key regional incidents and delays
Typical use cases	Dynamic Nav. Internet Display	Traffic Management Dynamic Nav. Internet Display	Traffic Management Event Management Kiosk/Office Screen	Radio drive time
Update frequency	1 minute (server) / 2 minutes (device)	1 minute to server	1 minute to server	1 minute
Location Referencing	TMC & OpenLR	TMC & OpenLR	Customer reference	Text reference
Delivery to servers	XML Datex2	XML Datex2	XML	Web portal
Delivery to devices	TomTom (proprietary) (+ soon TPEG-TEC)	N/A (soon TPEG-TFP)	N/A	N/A