
NAVTEQ Traffic - GPS Probe Strategy: Enabling Traffic Expansion to Arterial Roads

Suny Borges
November 2010
NAVTEQ





- ▶ The world's largest **traffic subscriber** base
- ▶ The world's largest **real-time traffic coverage**
- ▶ The world's largest **private sensor network**
- ▶ The largest **GPS probe data information** among traffic companies

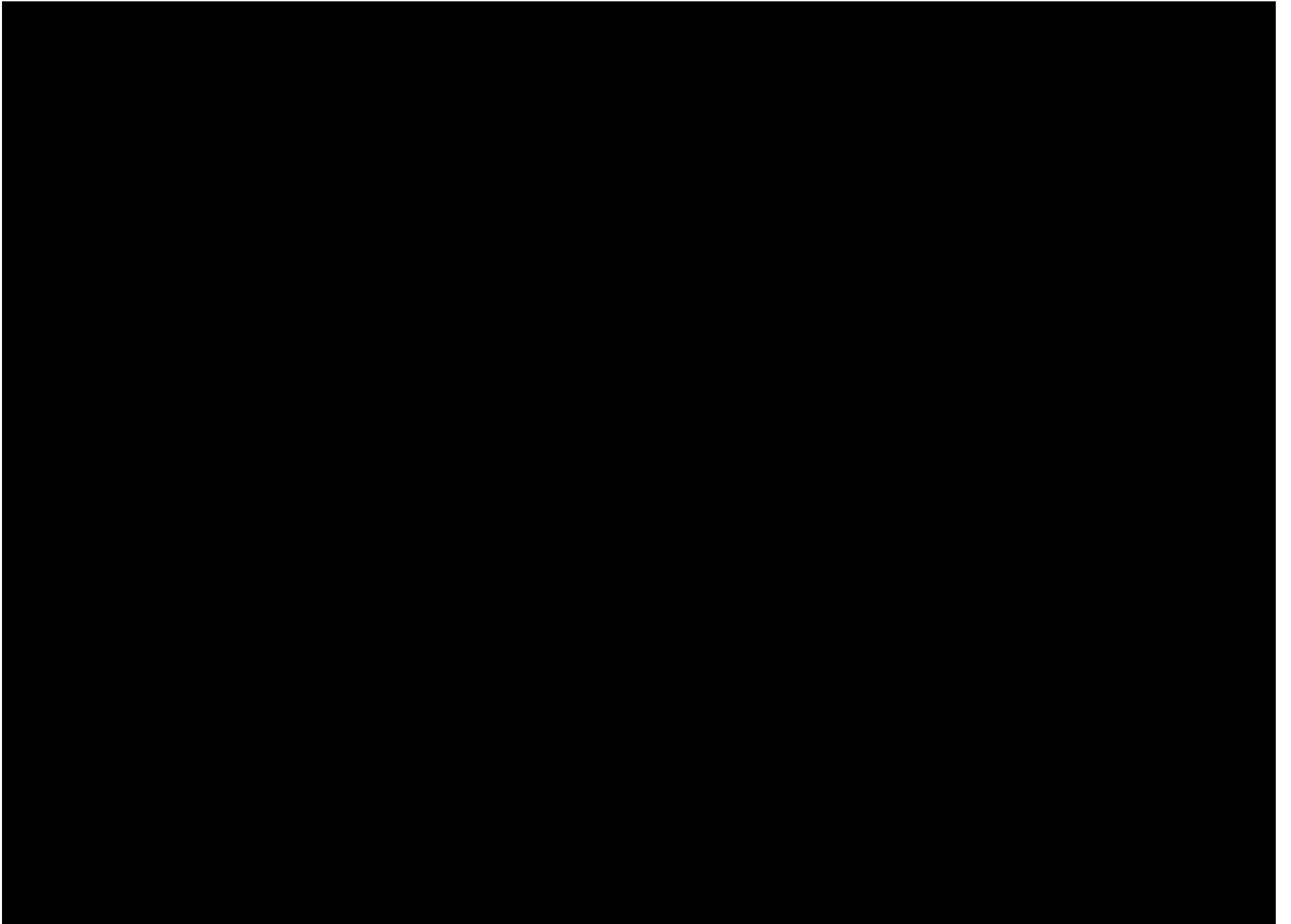


Sensing the World One GPS Point at a Time

Over **six billion** monthly
global probe points

Over **two billion** monthly
probe points in Europe alone





NAVTEQ Traffic™ User Base

Over 15M subscribers worldwide

Europe

- ▶ **5M+ Smartphone installations**
- ▶ **2M+ PND and embedded navigation users**

North America

- ▶ **3M+ Smartphone users**
- ▶ **5M+ PND and embedded navigation users**



NAVTEQ Traffic Customers

PRODUCT	ANNOUNCED PARTNERS
 <p>NAVTEQ TRAFFIC (Satellite)</p>	 <p>SIRIUS SATELLITE RADIO Mercedes-Benz Ford Ferrari Porsche ALPINE Car Audio & Navigation Systems Volkswagen Acura Infiniti Chrysler GM Lexus Panasonic ideas for life Pioneer sound. vision. soul</p>
 <p>NAVTEQ TRAFFIC (RDS/HD)</p>	 <p>Audi GARMIN SANYO LG MAGELLAN SONY ALPINE Car Audio & Navigation Systems RENAULT NISSAN JVC NAVIGON MEDION BMW Falk KENWOOD Listen to the Future mio explore more Clarion T-Mobile</p>
 <p>NAVTEQ TRAFFIC (ML)</p>	 <p>bing OnStar NOKIA Connecting People BEST BUY GARMIN verizon wireless TCS TeleCommunication Systems Enabling Convergent Technologies® INSIGNIA</p>

NAVTEQ Traffic Powers Leading N.A. Traffic-Enabled Navigation

20 out of 20
top-ranked traffic-enabled navigation systems in U.S. are powered by NAVTEQ

18 out of 20
by NAVTEQ Traffic*















Source of rankings: JD Power 2009 Navigation Usage and Satisfaction Study

2009 JD Power Navigation Usage and Satisfaction Study				
Rank	Vehicle	System Vendor	Maps	Traffic
1	Lincoln MKS	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
2	Ford Flex	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
3	Acura TL	Pioneer	NAVTEQ MAPS	NAVTEQ TRAFFIC
4	Ford F-150	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
5	Porsche 911	Harman/Becker	NAVTEQ MAPS	NAVTEQ TRAFFIC
6	Cadillac CTS	Alpine	NAVTEQ MAPS	NAVTEQ TRAFFIC
7	Ford Escape	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
8	Ford Edge	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
9	Hyundai Genesis	Harman/Becker	NAVTEQ MAPS	NAVTEQ TRAFFIC
10	Infiniti FX-Series	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
11	Audi Q5	Harman/Becker	NAVTEQ MAPS	NAVTEQ TRAFFIC
12	Infiniti M-Series	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
13	Dodge Challenger	Harman/Becker	NAVTEQ MAPS	NAVTEQ TRAFFIC
14	Ford Fusion	Pioneer	NAVTEQ MAPS	Not Available in MY09**
15	Infiniti G37 Sedan	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
16	Lincoln MKX	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
17	Volkswagen CC	Continental	NAVTEQ MAPS	NAVTEQ TRAFFIC
18	Mercedes-Benz C-Class	MELCO	NAVTEQ MAPS	Not Available in MY09**
19	Ford Escape Hybrid	Clarion	NAVTEQ MAPS	NAVTEQ TRAFFIC
20	Acura TSX	Alpine	NAVTEQ MAPS	NAVTEQ TRAFFIC

** Available in MY10 and featuring NAVTEQ Traffic

And the Leading European Traffic-Enabled Navigation Systems

7 out of 7
top-ranked traffic-enabled navigation systems in Europe are powered by NAVTEQ Maps and available with NAVTEQ Traffic

Ranking of portable Navigation Systems 2010				
Rank	Brand	Type	Maps	Traffic
1	Falk	F12		
2	Becker	Z205		
3	Navigon	8410		
4	Medion	E4230		 1)
5	Navigon	4350		
6	Garmin	1390Tpro		
7	Garmin	1490 Tpro		

Source: Stiftung Warentest 1/2010

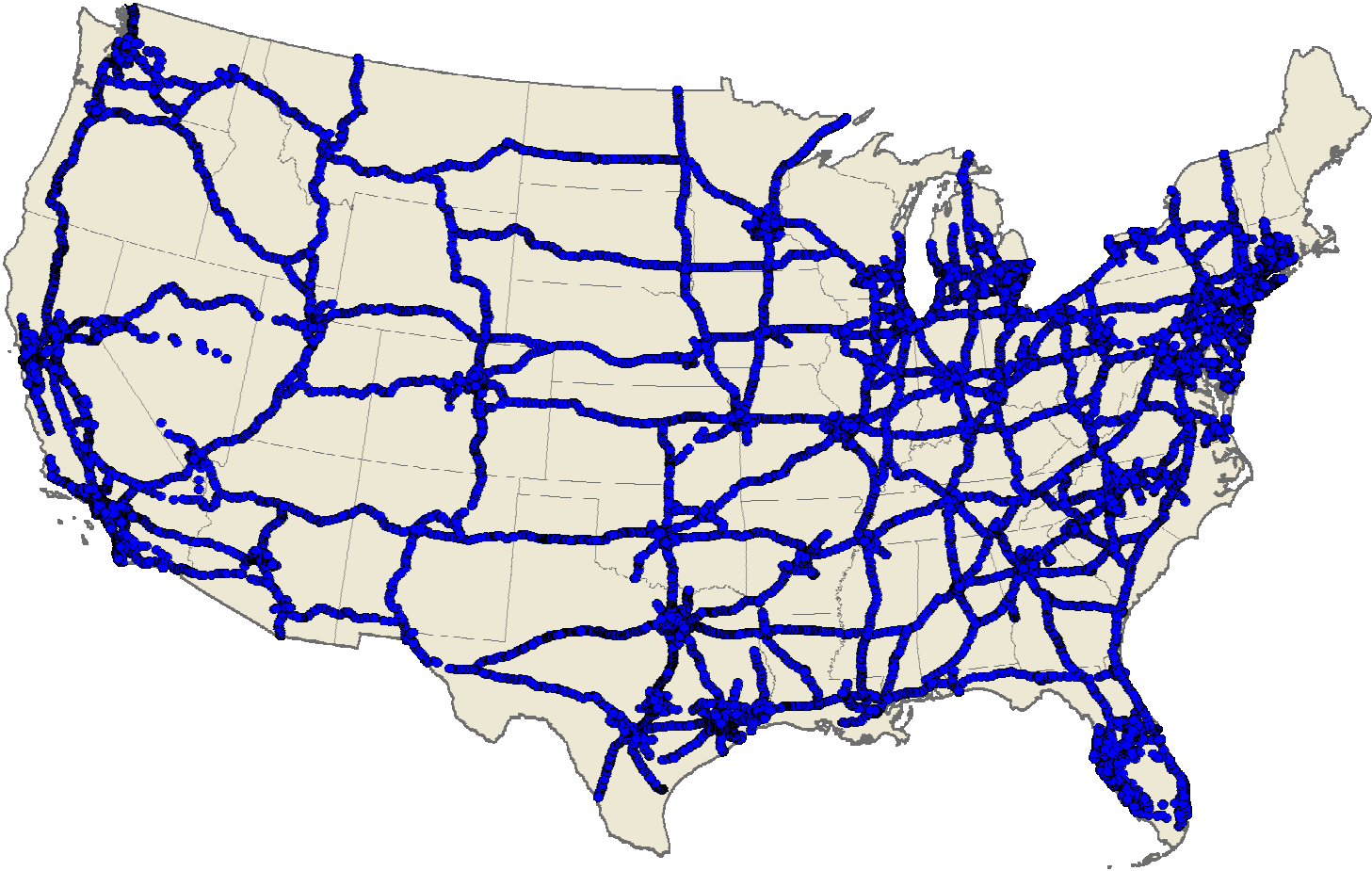
1) NAVTEQTraffic optional available, tested version only TMC enabled



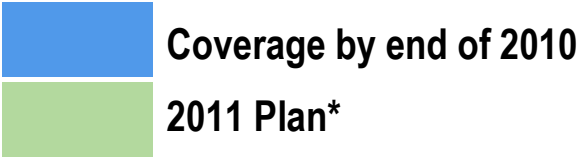
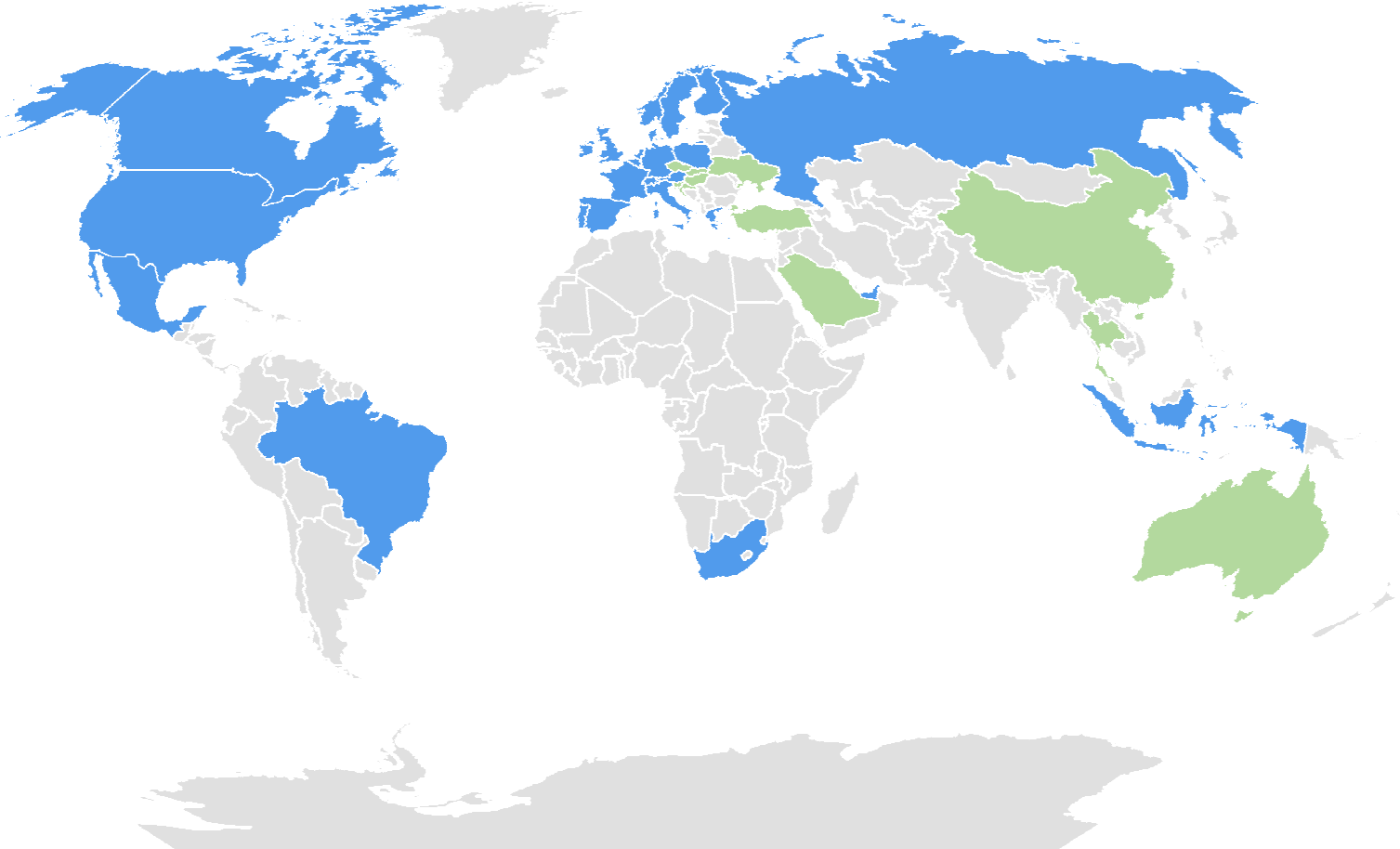
NAVTEQ Real-Time Traffic Coverage

NAVTEQ Traffic™: US Coverage

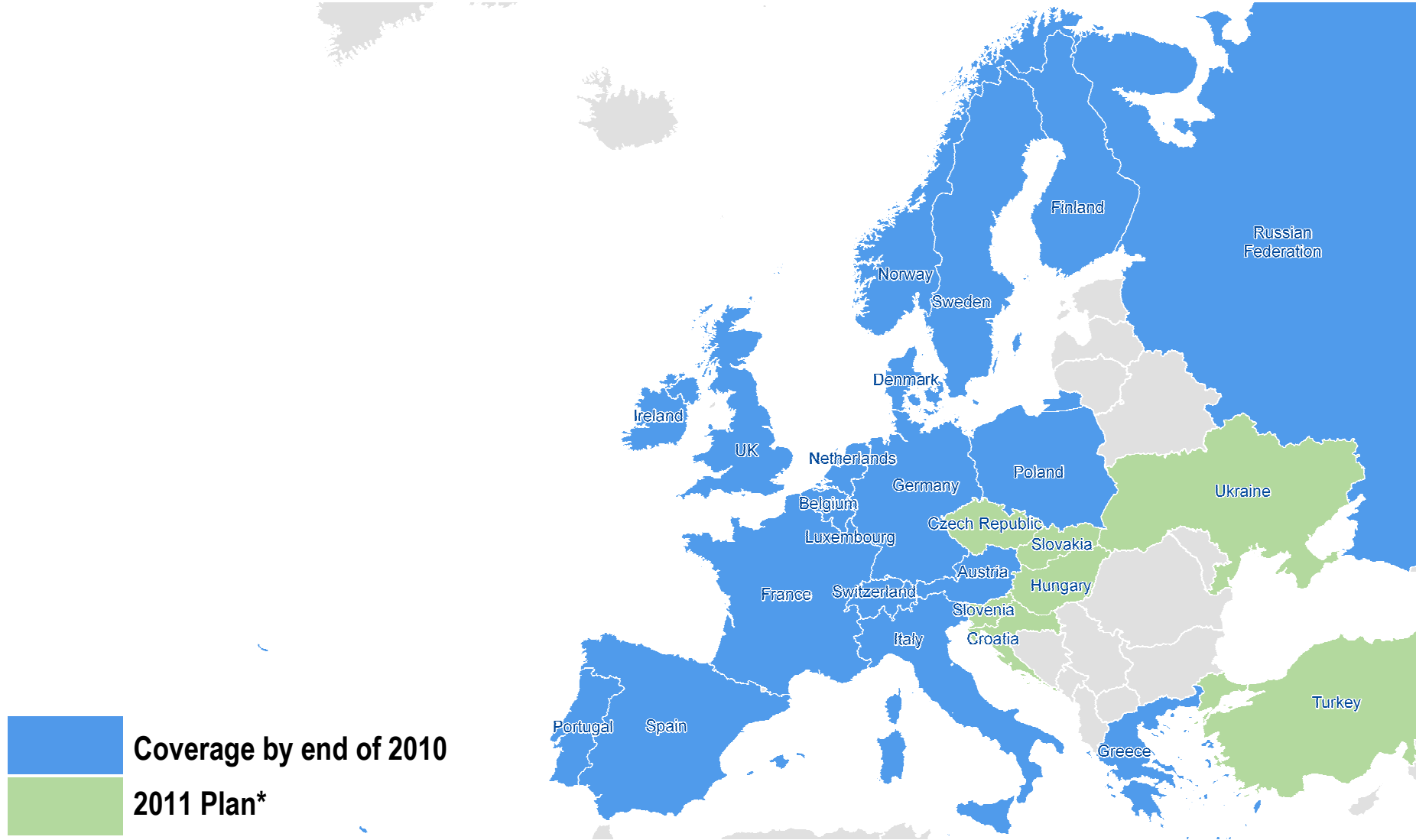
134 Markets (US + Canada); 140,000 Miles



NAVTEQ Traffic™ Global Coverage



NAVTEQ Real-Time Traffic Europe Roadmap*

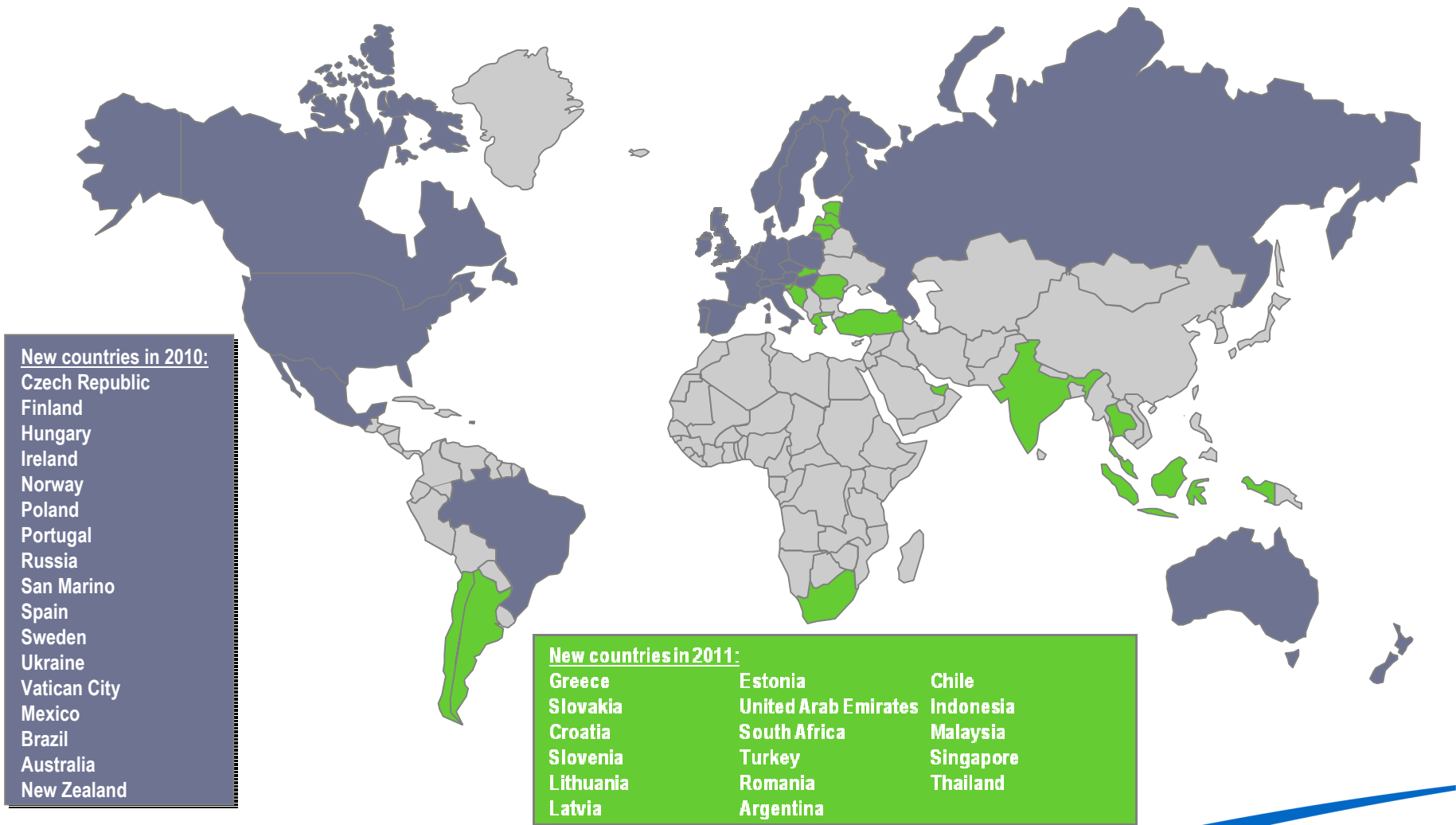


Coverage by end of 2010
2011 Plan*

* Subject to change

Historical Traffic Models: NAVTEQ Traffic Patterns

Coverage will be available in the following regions by the end of 2011*



* Subject to change
13

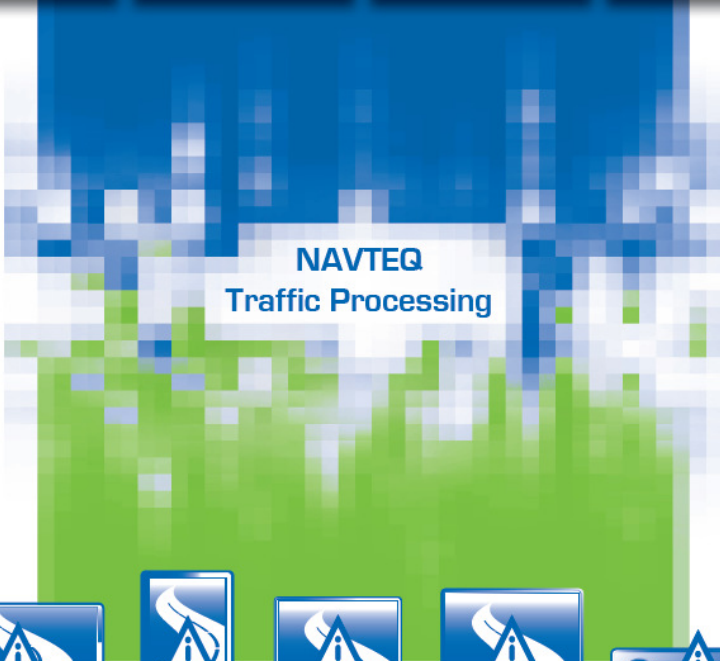
NAVTEQ Traffic Sources, Data Processing, Product Creation

NAVTEQ Traffic Infrastructure and Sources

Most comprehensive data inputs



Best traffic data models and processing technology



Broadest and most flexible distribution channels



NAVTEQ Real-Time Traffic Data Sources

Sensors/Toll Tags



Over **50,000** Total Sensor Miles/ **20,000** Proprietary Miles
40% Competitive Coverage Advantage

Probes



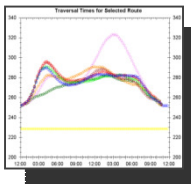
Over **6 Billion** GPS Data Points Per Month
Expect to **Double** Next Year Through Consumer Sources

Incident Reporting



26 Traffic Offices 24x7 Coverage
Unique Incident-Flow **Synergies**

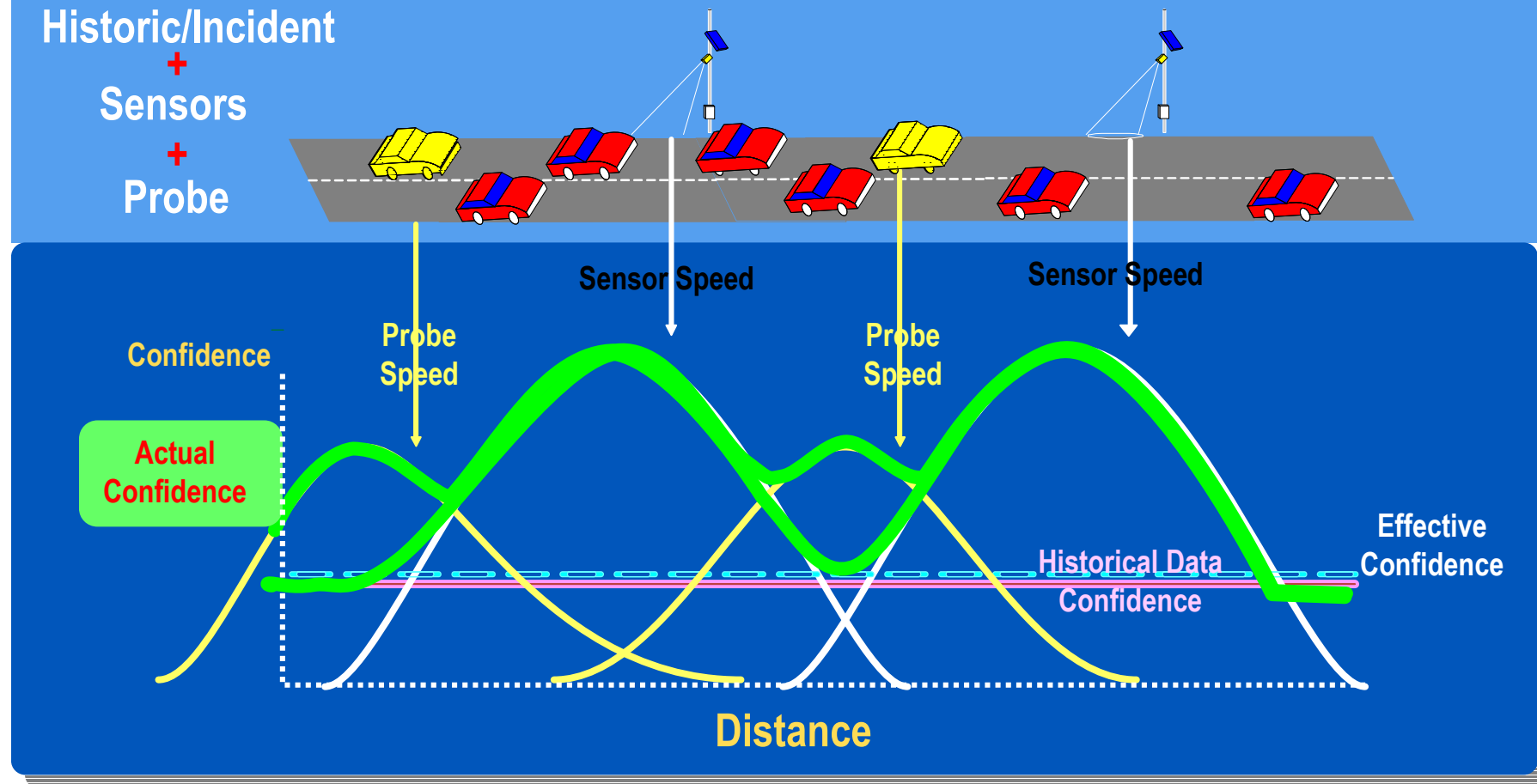
Traffic Patterns



Over **25,000,000** Km / Holiday Appendix
Valuable in Future **Predictive** Feed

NAVTEQ Traffic™ Data Processing

Our processing/fusion model optimizes data from multiple sources to generate the highest quality data



Quality and confidence level increases with number of sources

NAVTEQ Real-Time Traffic The Value of GPS Probe Data



- ⦿ **Commercial and consumer GPS probe data expands traffic coverage and includes secondary roads**
- ⦿ **NAVTEQ sources billions of GPS probe points from around the world each month from global and regional partners**
- ⦿ **Consumer data includes traffic data from mobile phones and PNDs**
- ⦿ **Commercial data supplied by fleet vehicles**



Two Types of GPS Probe Sources

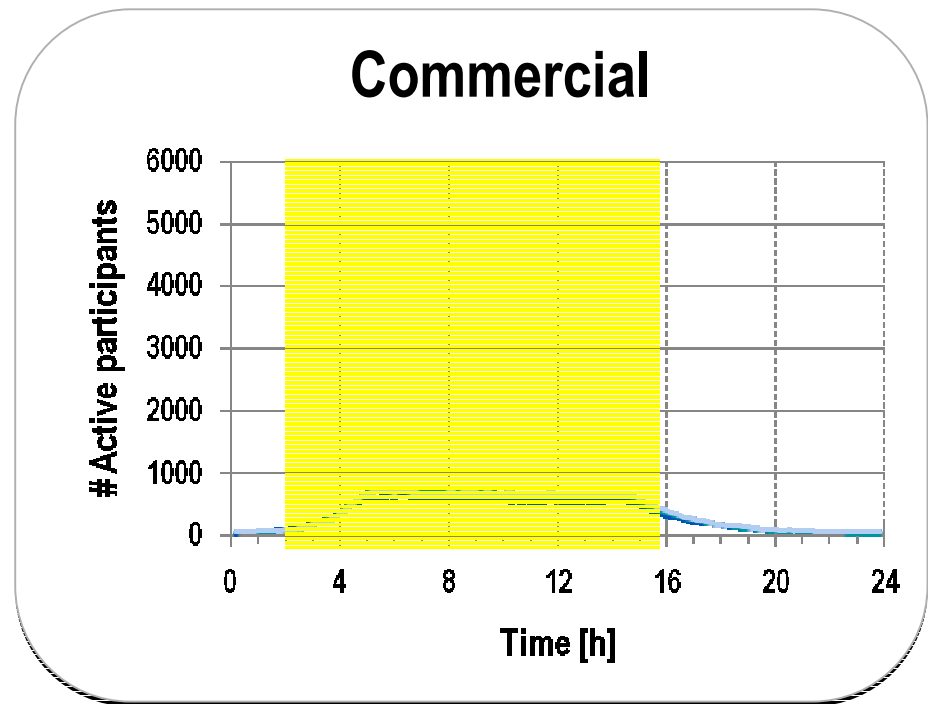
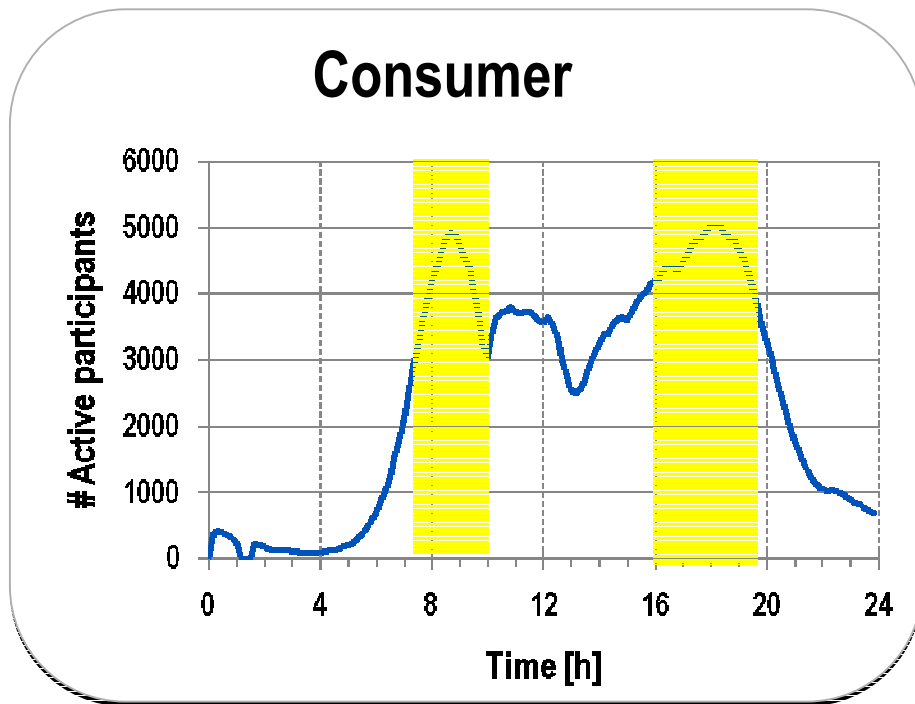
Commercial Probe

- **Collected via multiple fleet vehicle sources**
- **Devices are already 2-way**
- **Drive patterns are consistent with high frequency on motorways**
- **High number of kilometers traveled per day**
- **GPS reports optimized for Fleet Management**

Consumer Probe

- **Collected via GPS-enabled phones and connected devices**
- **Growing availability of GPS-enabled and connected devices**
- **Drive patterns more diverse and include arterial roads (metro areas)**
- **High volume of GPS points**
- **GPS reports optimized for LBS and Traffic**

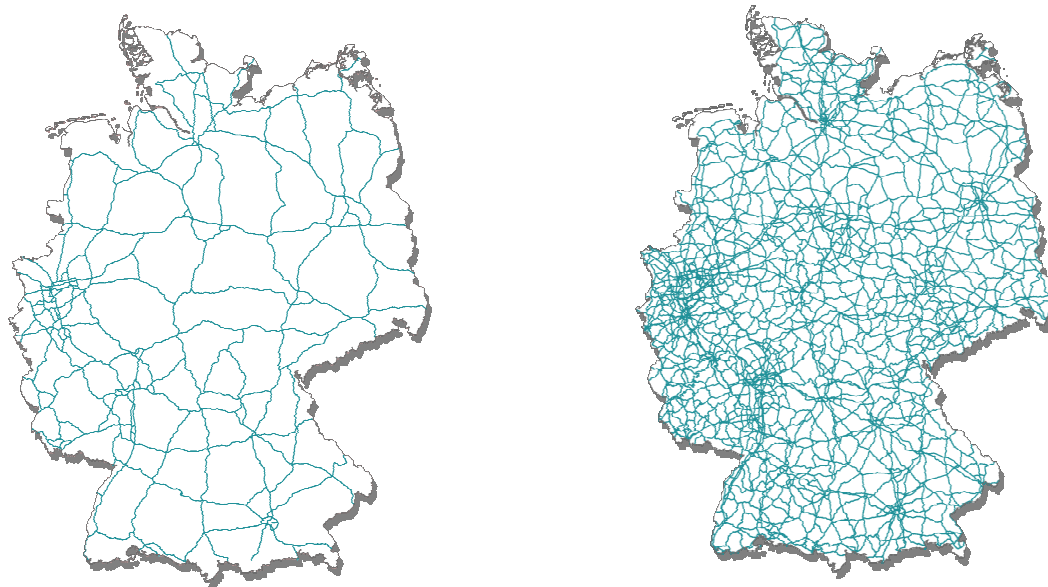
Differences in Use Cases



The Impact of GPS Probe Data on NAVTEQ Traffic Coverage

GPS data enabled rapid expansion to arterial streets at global scale

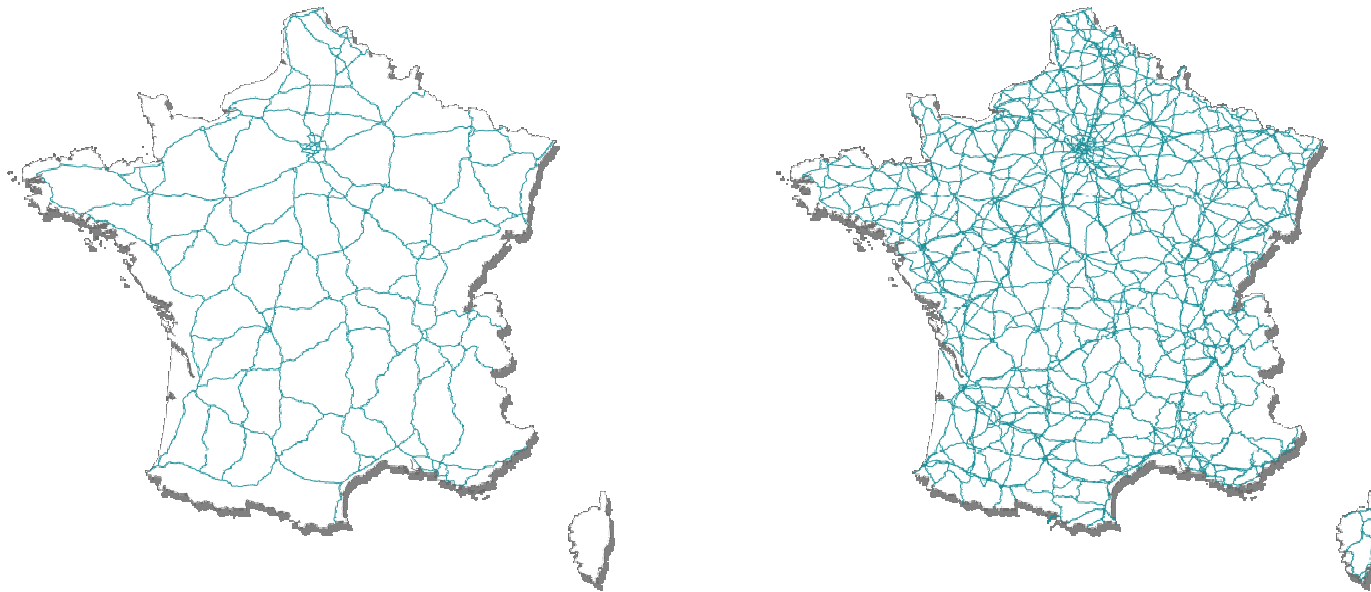
- ▶ With GPS data, NAVTEQ Traffic already expanded its coverage to include more traffic data collection on main arteries, where traffic data is mainly captured today, as well as broadened coverage of primary and secondary roads
- ▶ For example, GPS probe data enabled rapid expansion that quadruples coverage in Germany



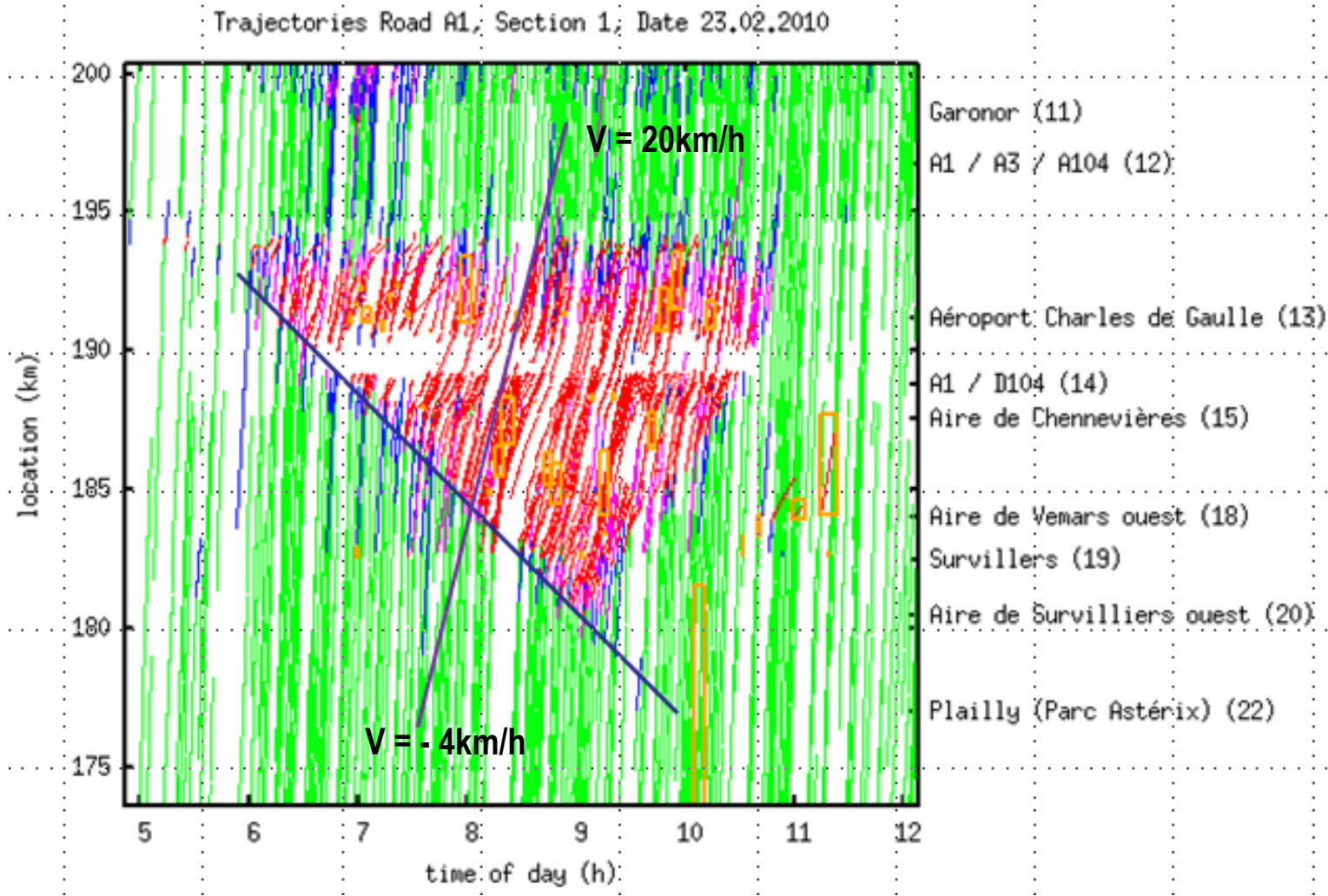
The Impact of GPS Probe Data on NAVTEQ Traffic Coverage

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Probe Data Effectiveness in Detection of Traffic Disturbances



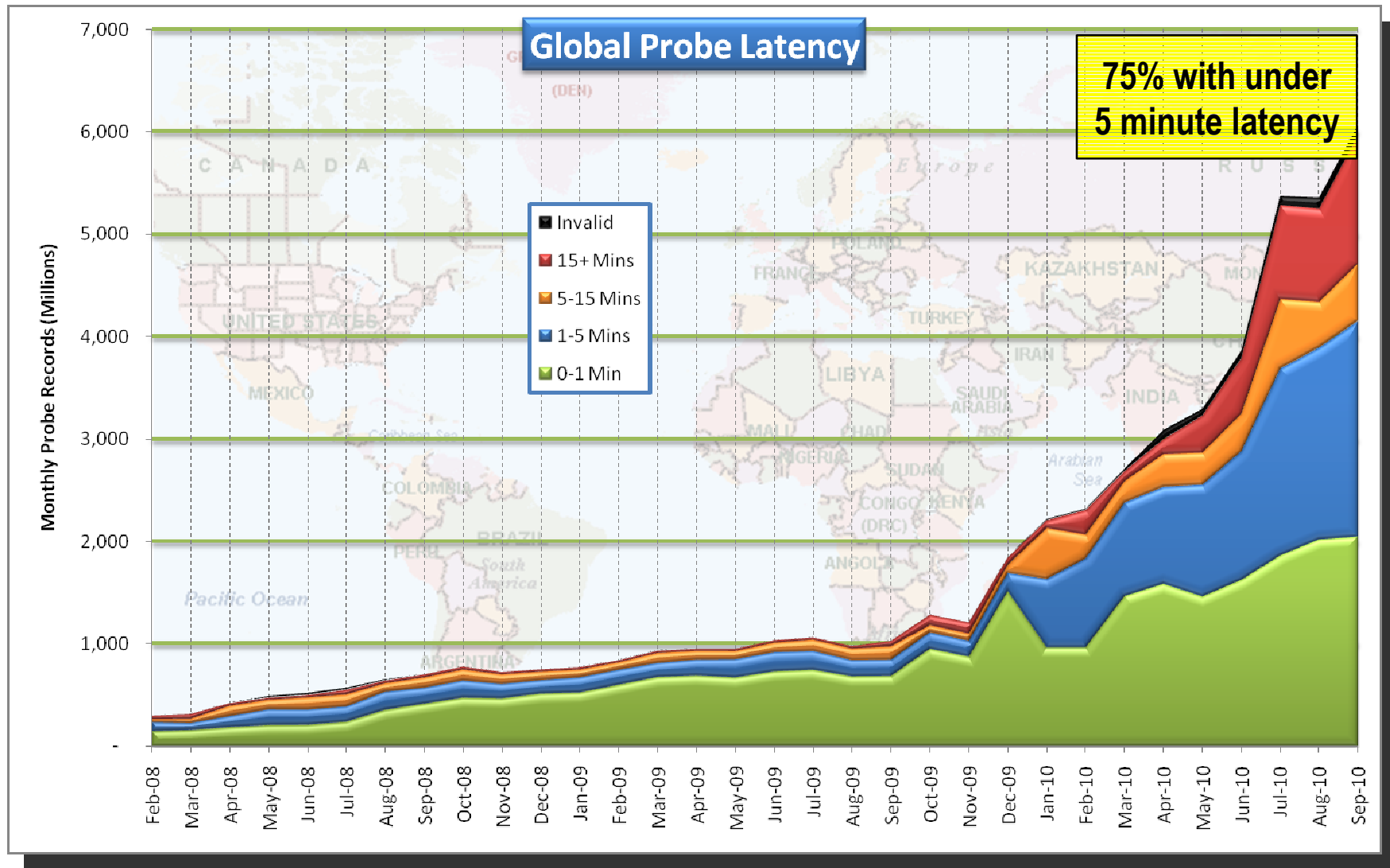
NAVTEQ Traffic – Leveraging Nokia Probe Data

NAVTEQ Traffic is the only provider who is integrating the GPS data from millions of Nokia devices running Ovi Maps

Nokia sells over 400 Million Devices Annually (Worldwide)



Global Probe Summary: 6B points/month



Majority of global probe records are under 5 minutes old

NAVTEQ Real-Time Traffic Spain Product Launch

Spain Real-Time Traffic Services

Availability

- Commercial Launch: November 2010

Sources

- Commercial Probe
- Consumer Probe
- Historical Traffic Models - Traffic Patterns

Content

- Flow *

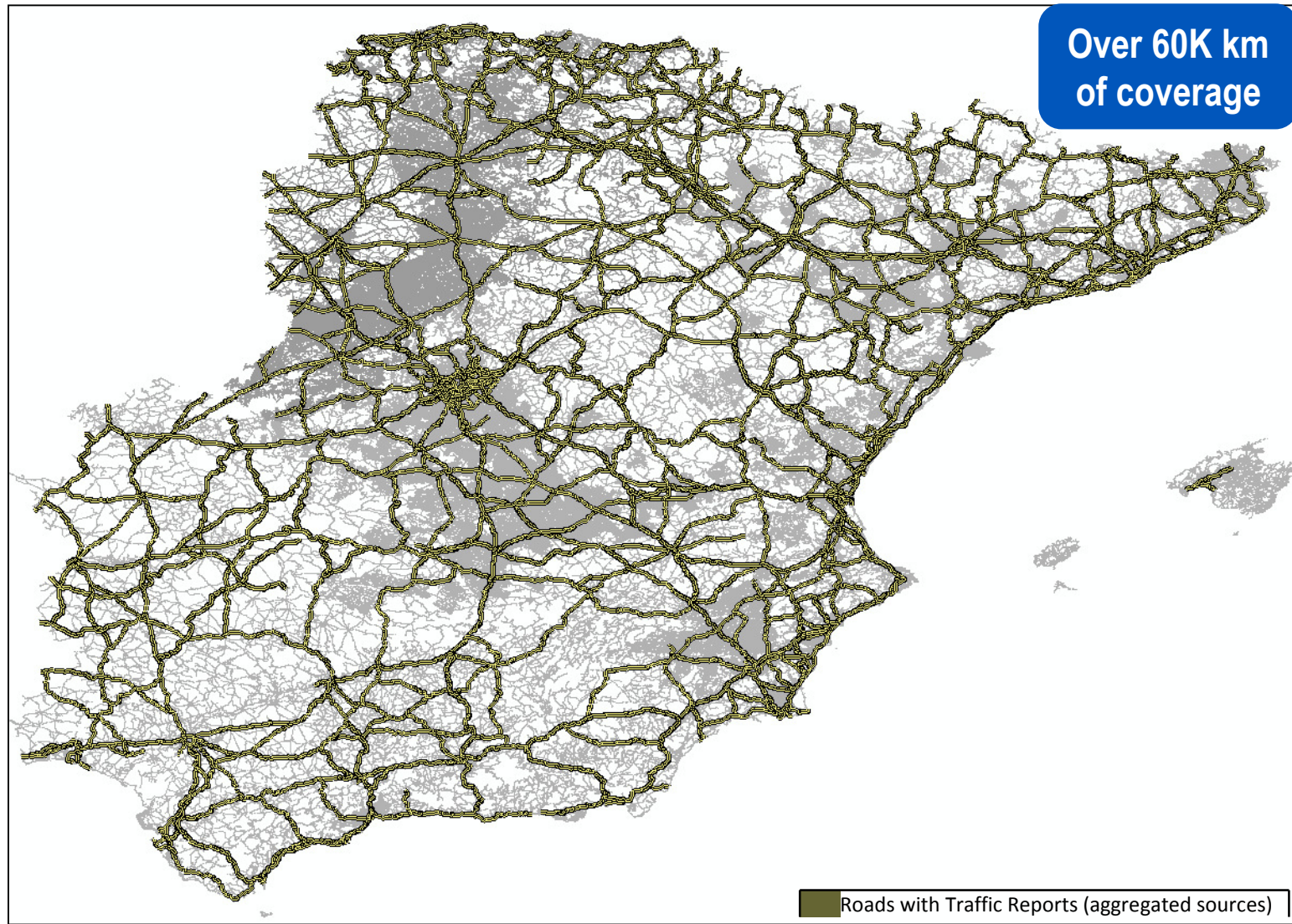
Coverage

- Motorways and major roads
- Major metro areas



*Plans to add Incident data in future product release

NAVTEQ Traffic Spain Coverage



Why NAVTEQ Traffic?

- ➔ **The world's most accurate, comprehensive and reliable traffic information**
- ➔ **Powered by the largest collection of commercial and consumer probe data**
- ➔ **Extensive European and global coverage**
- ➔ **Flexible business models**
- ➔ **Powers leading traffic-enabled navigation systems**