What we do

GFVD (GPS Floating Vehicle Data)
CFVD (Cellular FVD)
Fixed sensors and camera images
National and regional incident sources

Traffic fusion and storage

Real Time
RDS-TMC
GPRS
IVR
Auto OEM's
PND
Mobile

Audio and TV
Media

Historical
Government
Devices
ITIS customers

Original Equipment Manufacturers

- BMW
- Audi
- Nissan
- Land Rover
- Mercedes Benz
- Ferrari
- Porsche
- Renault
- Lexus
- Subaru
- Toyota
- Volvo
- Ford Motor Company
- Kenwood
- Pioneer
- Panasonic
- Alpine
- Harman/Becker
- Siemens VDO Automotive

Government

- Highways Agency
- Transport for London
- Scottish Executive
- Hampshire County Council
- Essex County Council
- MoDOT
- Maryland
- Federal Highway Administration

Wireless Devices

- Vodafone
- Orange
- O2
- T-Mobile
- 3
- Virgin Mobile
- Naviflash
- Tele Atlas
- AA Navigator
- C-MAP
- NAVTEQ
- NAVMAN
- ViaMichelin
- Wayfinder
- Navicore
- TomTom
- Route 66
What is probe data?

Flow data

Fixed infrastructure
“Agent at the roadside”
- Loops
- ANPR
- Acoustic sensors
- CCTV
- Infra Red
- Microwave etc

Probe data
“Agent in the vehicle”

Floating Vehicle Data (“FVD®”)
e.g GPS black box

Cellular FVD (“CFVD”)
e.g. mobile phone

Minimal cost to install and maintain
No impact on highway operations
Privately financed

GPS data is sourced from fleet management companies.
Normally multiple suppliers are needed.

Data is sourced from a mobile operator.
Single network relationship can generally provide enough data for an entire country.
High quality flow data is essential to dynamic navigation
Managing real time traffic information

Establish ground truth and manage content from incident and flow data sources

Accident between junctions 5 and 6
Accident and slow traffic between junctions 5 and 6
Road closed due to accident between 5 and 6 and stationary between 4 and 5
Slow traffic between 4 and 6 due to earlier accident
Freeflow

Generate, update and cancel messages

Geoscope and prioritise
Congestion imposes direct and indirect costs on distribution

Time constraint getting tighter

Leeway – when not needed – costs money

Existing scheduling systems mileage based
  • Fixed journey times with leeway
  • Most popular have had until now limited room to manipulate travel times on specific sections (unless linked to a telematics system)
Measures of congestion

- Average speed or journey time
- Time lost/vehicle kilometre
- Average speed per vehicle kilometre
- Time lost/person kilometre
- % time below x kph
- % of extra time needed to be 95% sure of arriving on time
- Journey times for worst trips as compared to a baseline
- Road lane occupancy / queue length
Logistical consequences of a Congestion-Related delay

CONGESTION DELAY on inbound movement

REGULAR CONGESTION
- Absorbed within normal operation
- Minor operational adjustment required

MAJOR CONGESTION INCIDENT
- Products for STORAGE
- Products for CROSS-DOCKING

Product despatched for scheduled delivery
- Outbound delivery on time
  - No disruption at lower levels in supply chain
- Outbound delivery delayed
  - Disruption at next level in the supply chain
  - Possible consequences:
    • Missed booking-in time
    • Wait until next slot
    • Rejected delivery
    • Higher goods reception costs
    • Loss of customer loyalty

Product misses scheduled delivery
- Possible consequences:
  • Reduced vehicle loading
  • Increase in vehicle trips
  • Increased stock-out risk
  • Lost sales
  • Loss of customer loyalty

From “Effect of Traffic Congestion on the Efficiency of Logistical Operations
Alan McKinnon
International Journal of Logistics
Vol2 No. 2 1999
# Traffic information and the planning cycle

<table>
<thead>
<tr>
<th>Question</th>
<th>Frequency</th>
<th>Relevance of traffic information</th>
<th>Maturity of traffic information solutions</th>
<th>Adoption by logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where do I put my depot?</td>
<td>10 years</td>
<td>Nil</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>What type of vehicle do I buy? How much do I bid for this contract?</td>
<td>1-3 years</td>
<td>Medium</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>What trips do I plan? Which drivers? Which trucks?</td>
<td>Daily</td>
<td>High</td>
<td>Low-Medium</td>
<td>Low-Medium</td>
</tr>
<tr>
<td>How do I get from A-&gt;B</td>
<td>Hourly</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>How did I do?</td>
<td>Hourly</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
Prediction is complex

**Motorway (&) Trunk:**
- Seasonality
- Weather
- Road Capacity
- Day
- Time
- Incidents

**As motorway +**
- Local factors e.g. Schools
- Signalling
- New developments
- Network changes
The Congestion Landscape

Day / Time
Altrincham to Oxford (152 miles)

37 mins (21%)
Altrincham to Lowestoft (249 miles)

38mins (13.5%)
Issues with existing scheduling systems

UK Survey of 50 users of vehicle routing and scheduling systems

One of top 5 issues is predicted travel time accuracy

85% said traffic congestion was cause of inaccuracy

Only 56% manually reviewed and adjusted routes before issuing them to drivers

Quoted in
A Road Timetable™ to aid vehicle routing and scheduling
Richard Eglese, Will Maden, Alan Slater
Journey Time Isochrones

Time Area Chart For
Starting Point

Step 5: Calculation results

Starting point - user picked location
Vehicle type - Car/LDV
Journey date - Mon 07 Apr 2008
Starting time - 10:00
Journey time - 01:45

00:26:15 00:52:30 01:18:45 01:42:00

Choose image magnification and click on the icon

View this chart as an animation

Email

Time interval size [hours]

Previous  Try Again
Real time information

How big is the delay?

Who is informed?
- Driver
- Dispatcher
- Current drop
- Next drop

What is the user interface?

Who decides?

How much integration is needed?
Currently displaying Luton Distribution Centre

To create a new vehicle position:

- dial 0161 807 3600 from a Vodafone handset
- select 'Luton' from the possible destinations
- then refresh your browser.

Vehicle Contact No. | Location                     | Time of call | Arrival time |
---------------------|------------------------------|--------------|--------------|
+447768005740       | A538 : Broomfield Lane, Altrincham | 09:21        | 12:21        |
Thank You

Jonathan Burr
Chief Operating Officer
ITIS Holdings plc