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RAC Telematics Services Development

Paper 3
RAC TELEMATICS SERVICES DEVELOPMENT
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1. Introduction In the next 12 months, several leading European motor manufacturers are likely to launch fully integrated line fit and aftermarket fit telematics units, allowing location specific telematics services to be delivered to their customers. Trials and demonstrations of telematics services, delivered via a number of ad hoc or proprietary protocols, have been a feature of RAC development projects and pilot customer trials since 1995.

This experience has allowed, not only an opportunity to gather customer feedback from representative services, it has also allowed a sound business understanding to be developed against which service delivery platforms can be scoped to match likely customer services and volumes.

RAC are developing telematics services and systems to be GSM network and service provider independent on the assumption that the growth of the telematics services market will be restricted if it is tied to specific market players and segmentation.

The potential for GSM SIM Application Toolkit to offer customised services whilst retaining the benefits of working within the GSM standards framework is particularly attractive to a telematics service provider such as the RAC. Wireless Application Protocol (WAP), for micro-browser based services and alternative GSM bearers, such as the GPRS are particularly relevant to telematics service delivery and are likely to feature prominently in the next generation of telematics hardware.

2. RAC's systems and technology capability Since 1995 groups of RAC patrol vehicles have been using Automatic Vehicle Location (AVL), based on the differential use of the US Global Satellite Positioning (GPS) system, to enhance the speed and accuracy of a vehicle despatch decision. Vehicle location data, accurate to 10m, are integrated within the command and control system (CARS) and presented as an icon on the dispatcher's screen. These icons are superimposed on the most accurate and detailed road mapping available.
for the United Kingdom: the Ordnance Survey OSCAR mapping. Patrol vehicle positions are either reported in response to a regular polled request or when a status change occurs at the vehicle. Carefully controlled measurements of average journey times for the AVL groups, compared with fully representative control groups, have shown a statistically significant benefit to the AVL groups enabling sound business decision to be made on the future deployment of AVL.

RAC is today able to demonstrate advanced development platforms to support a range of GSM SMS based telematics services. These include emergency and breakdown calls in which the customer location, derived from GPS and delivered via GSM, is superimposed on OSCAR mapping with a simultaneous voice call established with an appropriate call taker. Fully automatic, data responses can also be provided to queries such as location and direction of the nearest Point of Interest.

Throughout 1998 RAC worked with British Telecom on a mobile social alarm. The concept trialled was aimed at personal mobility and initially targeted at groups potentially at risk in the course of their job, lone workers and groups whose mobility is impaired. The prototype hardware is an integrated mobile phone and GPS unit which automatically sends out a location with the voice call to RAC and, if developed, could be invaluable in an emergency. RAC use the over-air data, including caller identity, to superimpose locally held details of the caller on a street level map showing their location.

A 2 year development project addressing 'turn by turn' routing: a capability which uses OSCAR mapping data and Driver Restriction Information (DRI) i.e. information about one-way streets and banned turns has been successfully completed. This capability allows RAC to generate a route over any classification of UK road in less than one second, to formulate driving instructions for that route and to transmit these instructions in a format appropriate to the receiving telematics unit.

The first component of a phased systems implementation into our operations, to support the delivery of telematics services, is CATTIS, Computer Aided Traffic and Travel Information Service, which went live in RAC Travel Services in March 1998.

3. Information and service content The dynamic databases within CATTIS contain information on traffic congestion, roadworks and events and their location; all referenced to
the underlying OSCAR mapping data. As well as collation of traffic information, CATTiS has been designed to disseminate traffic information through a variety of media. These include GSM Short Message Service (SMS), cell broadcast and data bearer services; radio broadcast, both voice and RDS-TMC broadcast, as well as premium rate telephone based enquiry services and the RAC web site. Detailed traffic information for the recently launched RAC Traffic Alert service is derived from CATTiS.

The databases within CATTiS contain Points of Interest data i.e. locations and associated information about facilities eg dealers, petrol stations, hospitals, restaurants, cash machines, car parks, railway stations, local businesses, hotels, tourist attractions, theatres, cinemas, camp sites, sports centres etc: in principle, any 'geographically referenced' information that customers may require.

4. **Existing driver information services offered by RAC** RAC already offers many different motoring services to our corporate and individual customers. Many of these services are based on the same core competencies that will be used in the delivery of telematics services. Those specifically relevant to driver information services include:

- Traffic, travel and route enquiries via a premium rate line
- RAC Traffic Alert 1210
- Customer service calls
- Roadside assistance

Approximately 0.5 million calls per year are taken by RAC Travel Services: the majority from mobile phones. These are requests for traffic information, route advice, advice on events and places of interest.

The RAC Traffic Alert 1210 service, in co-operation with TrafficMaster plc and Cellnet, has 4 tiers of service: the second, third and fourth tiers requiring a Cellnet GSM phone and using the 1210 short code. Following Cellnet voice server responses on traffic conditions at tiers two and three, tier 4 results in contact with an RAC operator. Less than 1% of callers who request automated voice information at tier 3, press "0" to speak with an operator.

RAC Traffic Alert has a key role in the introduction of phased telematics services: the bottom rung of a ladder in which the customer is prepared to pay for a timely, quality
service. The Traffic Alert user base will be ideal candidates for upgrading to wider telematics.

5. **RAC telematics services proposed** The following summarises the telematics services which RAC proposes to deliver. It is recognised that a progressive introduction is likely to be in the best interest of both customer and service provider. In all cases RAC will decode the incoming SMS message to:

- Identify the customer
- Identify their location from GPS data
- Gather other relevant data both from the SMS and locally held data

Thereafter the sequence of events will depend upon the service requested.

For an SOS Call, RAC has reached agreement with British Telecom (BT), the Home Office and relevant ACPO committees on the most appropriate way to handle the voice call and associated location data from an SOS Call. It has been agreed that voice calls will go directly to BT followed by the customer and location information from the RAC response centre.

RAC will package customer and location data in the agreed data message format, send the data to BT for use in their Emergency Call process and provide an audit process to enable validation that data has been sent to BT.

Roadside Assistance requests will follow a similar pattern except that both voice and SMS will terminate at an RAC operator.

Other services are likely to include:

Traffic Information, based on the vehicles’ location and direction of travel. It will be delivered as an automated service, via text or speech, to the customer's telematics terminal

Route Assistance either as a 'through route' (delivered via SMS) or as a 'turn by turn' routing service, using GSM data bearer services or GPRS when available. The later will allow a telematics unit equipped with a gyroscope or differential GPS (DGPS) to
navigate through a route file with 'turn by turn' instructions being given at the appropriate time. Such a service could become competitive with autonomous, on-board navigation systems. It is potentially lower cost, in the vehicle, more up-to-date in the road network data employed and capable of reflecting real-time traffic conditions. It is however dependent on good GSM data communications and maybe less flexible if the customer seriously departs from a downloaded route.

'Where is my nearest?' This will allow the customer to be advised of the nearest Point of Interest e.g. vehicle dealer, petrol station, hospital, etc and may be delivered as an operator based or automated service, via text or speech to the customer in their vehicle.

In addition, RAC is currently prototyping and assessing the feasibility of other services including:

- Remote vehicle diagnostics - allowing the vehicle to transmit diagnostic data, along with a roadside assistance request, to allow RAC and/or a dealer to respond pro-actively to a vehicle fault

- Stolen vehicle tracking and location - allowing a vehicle be tracked and located in the event of it being stolen

- Fleet information and management services
RAC Telematics Services Development

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RAC overview

- Founded in 1897
- A non-profit distributing company
- Likely to float in 1999
- 5.8M members
  - 40% individual membership
  - 60% commercial - motor manufacturer & fleet
- 5 Major UK Centres
  - 12 million calls per year
  - 2.9 million breakdowns
- 1400 service patrol vehicles

RAC

Presentation Content

- Overview of RAC Motoring Services
- Existing Services
- Relevant background technology
- Appeal of telematics services
- Schedule of services

RAC

Customers' concerns are changing in 1897 .....

- High probability of breakdown
- Need for maps & routes - few signposts and poor quality maps
- Roadside hotels few and of variable quality
- Sparsely populated roads
- Parking freely available

RAC
Customers' concerns are changing in 1998:

- Reduced probability of breakdown (though still traumatic)
- High probability of delays due to congestion

Leading to a need for:
- Information to help avoid congestion
- Help to locate parking, banks, public transport, hotels
- Help on multi-modal travel

Existing services therefore include:

- Roadside assistance
  - Computer Aided Rescue Service (CARS)
    - UK National call centre capability
    - Regional despatch of patrols
    - PMR
    - Extensive gazetteer
    - UK digital mapping
    - Automatic Vehicle Location
    - Navigation

Roadside assistance services:

- Must locate the customer 'right first time' - location
- Increasing difficulty reaching customers on congested roads - navigation
- Vehicle design trends - increasing complexity from electronic systems for safety, emissions, comfort & driver information - remote diagnostics (OBD)
- Customised telematics service - “where is my nearest .....?” and “how do I get there?”

Differential GPS for RAC own fleet:

- Integration with C&C is essential
- Perceived by majority of patrols as an asset
- Average travel time benefit is 10.2%
Existing services therefore include ....

- Traffic and Travel Information Services
  - 500,000 enquiries (1997) from members p.a.
    - Traffic Information
    - Routes
    - Insurance
    - Hotels & Restaurants
    - Event details, etc
  - RAC Travel News
    - A joint activity servicing commercial FM radio
  - RAC Traffic Alert 1210
  - Historically, serviced by stand-alone systems

CATTiS - augmented with telematics

CATTiS - travel & traffic role

(Computer Aided Traffic and Travel Information Service)
Other capabilities to support telematics service delivery

- Automated servicing of telematics service requests - proprietary protocols
- Routing 'engine' development
- Voice based services - in-vehicle safety
- Personal mobility services - third party pilots
- Information sourcing - timely & accurate
Summary of RAC telematics services

- SOS call
- Roadside assistance
- Traffic Information
- Route Assistance
- Where is my nearest?

- Other services
  - Remote diagnostics
  - Stolen vehicle re-location
  - Fleet services

So, what is the 'killer' telematics application?

- Maybe there isn't a single 'killer' application

- The most likely route to widespread acceptance may be the 'killer' bundle?