eCall implementation in Finland

eCall- a priority action in Finland

- **MoU signed**
- **eCall National eCall pilot programme and deployment plan in June 2004**
  - **aftermarket and car industry OEM devices**
  - **eCall system architecture; technical specifications**
  - **Compatibility with eMerge & eCall DG recs**
  - **user requirements by interwiev**
- **eCall CommsTest bench operational in spring 2005**

eCall implementation in Finland / current challenges:

- **cost-benefit analysis : study on eCall safety impact 2005**
- **awareness rising of public**
- **incentives to private sector**
- **study on business models**

- **nation-wide implementation of the authority eCall infrastructures**

- **partner in a EU wide testbench?**

» **CO-OPERATION IS NEEDED:**
» **- NATIONAL, AMONG THE MS, WITH THE EU**
» **- BETWEEN INDUSTRY AND AUTHORITIES**

...to reach the eCall goal

1. Vehicle to PSAP **communications are implemented using existing communications technologies, networks** and standards
2. Service centre to PSAP messaging are secure and at the same time, enable free EU-wide competition of service centre business
3. **EU-wide interoperability** of terminals is ensured by creating an centralised EU-level terminal **certification procedure**
4. EU member states agree on a rapid EU-wide interoperable implementation of eCall at PSAPs
5. eCall terminal will be made mandatory on all vehicles in a rapid schedule

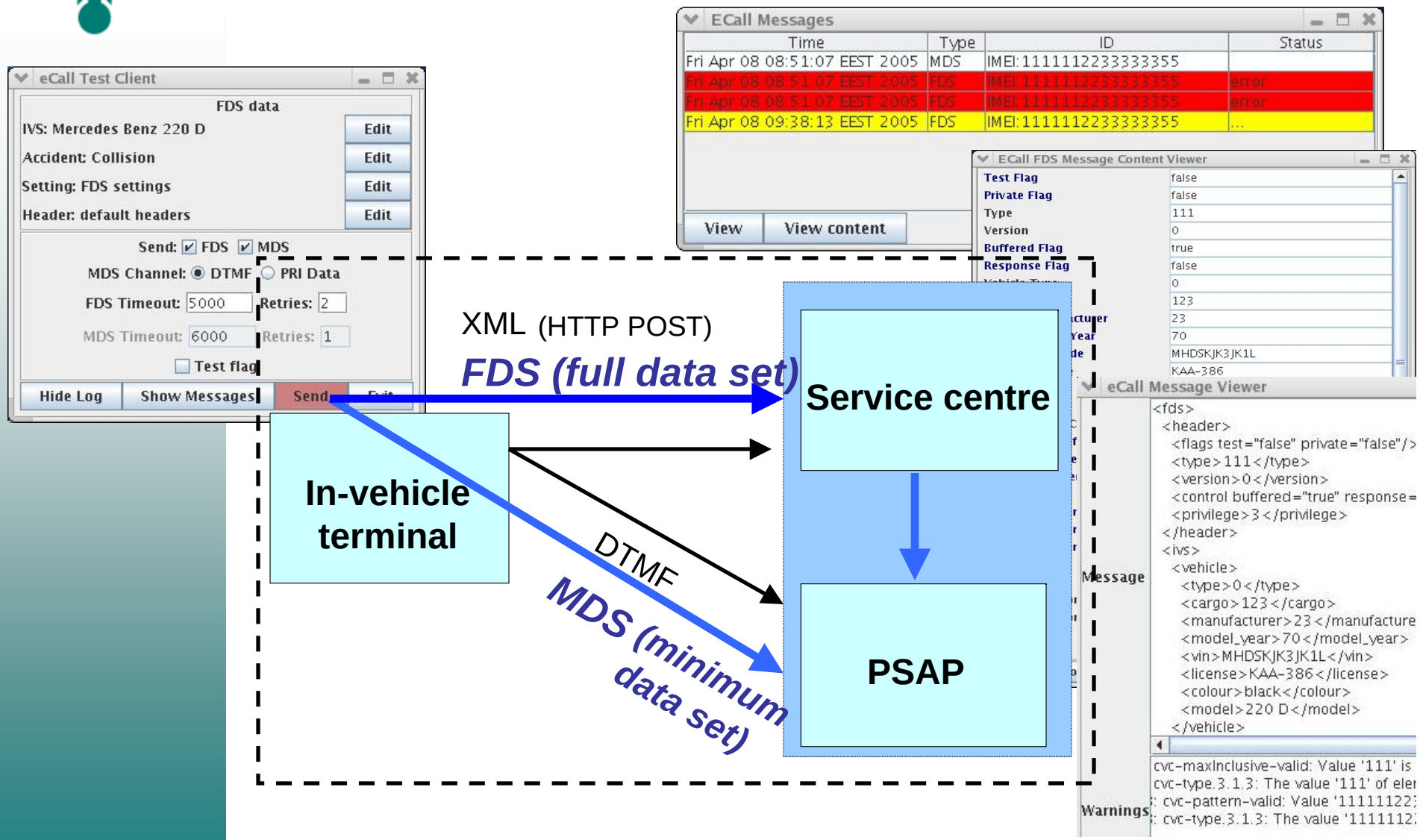
eCall comms test bench

Tuomo Eloranta, Development Manager, Finnish Road Enterprise

Objectives

- **Design and implementation: communications test bench for eCall units**
  - **data connection (XML interface)**
  - **voice connection (DTMF interface)**
- **Launching the test program for eCall unit communications**
- **Validating the functionality of eCall unit communications**

Comms Test bench



Schedule

- **Design and implementation of the test platform 1/2005**
- **Launching the full-scale testing activities 6/2005**
  - **Free on the Internet until end of 2005**
  - **See http://www.ecall.fi/ for further details (from May 2005)**

Co-operation with terminal manufacturers

- We offer the manufacturers
  - Test platform imitating a realistic PSAP
  - Trusted and impartial method
  - Testing report
- We expect from the manufacturers
  - Tests & specifications of the physical requirements
  - One or more eCall units: either OEM or after-market

eCall comms test bench

Tuomo Eloranta, Development Manager, Finnish Road Enterprise

eCall Discussion paper

- **What is it for:**
  - To ensure eCall is rolled out within next couple of years
  - To ensure eCall is cost-efficient
  - To ensurw eCall has large (EU-wide) coverage
- **What does it contain**
  - 5 guidelines / recommendations

Vehicle to PSAP communications are implemented using existing communications technologies, networks and standards

1. Background

- If eCall is to be rolled out in a couple of years, it must be based on existing technology, not “beyond state-of-the art”

2. Finnish Recommendation

- DTMF (Dual Tone Multi Frequency) dialing used to send 20-byte message to PSAP

3. Reasoning

- available, standardised, implemented in GSM networks and terminals
- proven to be working
- guaranteed to reach the same PSAP as voice

Service centre to PSAP messaging are secure and at the same time, enable free EU-wide competition of service centre business

1. Background

- For secure operation of a PSAP it is essential that allowed communications mechanisms (service provider address, login details, encryption protocols et cetera) are strictly pre-determined

2. Finnish recommendation

- One national entity to be a “trusted party” that will handle both transactions to PSAP (push recommended) as well as contracting with service providers

3. Reasoning

- Leaves room for free SP competition, yet keeps the PSAP connections and contracting to the minimum

EU-wide interoperability of terminals is ensured by creating an centralised EU-level terminal certification

1. Background

- e.g. anti-theft devices get (significant) reductions in annual insurance fees and are well-known with consumers

2. Finnish recommendation

- EU level terminal certification procedure with complete terminal functional, physical tests

3. Reasoning

- Adds consumer-awareness
- Lowers barrier for giving financial incentives to consumers for terminal purchase

EU member states agree on a rapid EU-wide interoperable implementation of eCall at PSAPs

1. **Background**
   - The Finnish ministries are almost only public bodies (responsible for 112 operation) to have signed eCall MOU
2. **Finnish recommendation**
   - eCall DG actively pursues to have eCall MOU signed by ministries or other relevant public bodies responsible in all EU member states by 2006
3. **Reasoning**
   - Only an EU-wide market will offer the users affordable mass-market terminals.
   - Finland, or other small EU countries, will not create large enough market potential for true mass-market terminals, and would only result in unaffordable terminal costs for the masses, and danger the benefits of eCall

eCall terminal will be made mandatory on all vehicles in a rapid schedule

1. **Background**
   - If eCall is introduced only to new vehicles, reaching full penetration will take over 10 years (by which, 1st terminals will be technologically outdated)
2. **Finnish recommendation**
   - Vehicle owners should be encouraged to purchase terminals to used vehicles (after-market devices) instantly after eCall roll-out
   - After a (short) transition period, terminals should be mandatory on ALL vehicles
3. **Reasoning**
   - Expected societal benefits only realised at 100% market penetration
   - High eCall penetration opens up market potential for service provision
   - AM devices market also required for terminal upgrades when they become technologically outdated

Thank You!

Further questions?

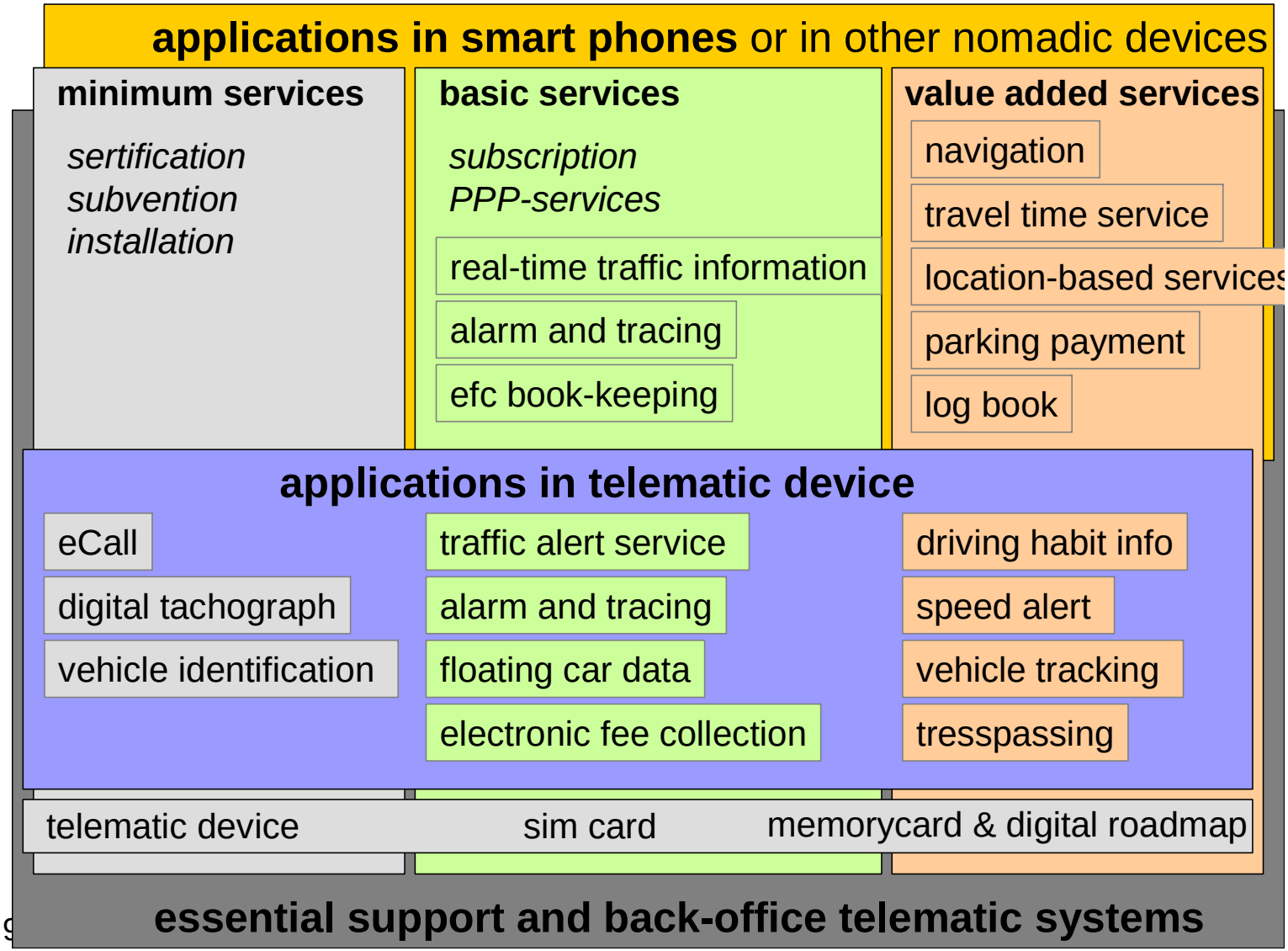
DTMF short overview

- **DTMF = Dual tone multi-frequency**
  - 16 different signals (0,9, *, #, a-d) made by summing two wave frequencies
  - Implemented in GSM and fixed networks
  - Slow transmission (less than 10 DTMF tones per second)
  - Sent in signaling channel from GSM terminal to MSC (ie. reliable within GSM)
- **Trialed in Finland**
  - 38 tone / 19-byte signal transmission from a vehicle terminal to application connected at a fixed line

Trialled content

Bytes	DTMF Signals	Content	Description
1	1-2	Header	Message Type (5 bits) + version (3 bits)
2	3-4	Situation	Status
3	5-6	Cargo	Cargo Code
4-10	7-20	ID	MSID (IMEI, IMSI, MSISDN)
11-13	21-26	Latitude	WGS Latitude in degrees (decimals) * 2^16 (Signed –90 90)
14-16	27-32	Longitude	WGS Longitude in degrees (decimals) * 2^15 (Signed –180 180)
17	33-34	Speed	km/h (0-254 and 255 when v => 255)
18	35-36	Heading	In degrees * 255/360
19	37-38	Checksum	CRC-8

..and then?


applications in smart phones or in other nomadic devices
minimum services
sertification
subvention
installation
basic services
subscription
PPP-services
real-time traffic information
alarm and tracing
efc book-keeping
value added services
navigation
travel time service
location-based services
parking payment
log book
applications in telematic device
eCall
digital tachograph
vehicle identification
traffic alert service
alarm and tracing
floating car data
electronic fee collection
driving habit info
speed alert
vehicle tracking
tresspassing
telematic device
sim card
memorycard & digital roadmap
essential support and back-office telematic systems