Implementation drivers for location based services in Europe

The opinions expressed are those of the author and do not necessarily reflect the views of the European Commission.

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Outline

♦ Market Drivers for LCS VAS
♦ Technological evolution path
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♦ Regulating 112 services
♦ Soft legislation for 112 services
♦ The new Regulatory package in EU
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Market drivers for LCS VAS: Matching the European Demand for LCS VAS

European Wireless Location Services, The Strategis Group, March 2000

80% of mobile subscribers by 2005!
Market drivers for LCS VAS: Matching the European demand - Present time

♦ US Market in 2004: US $ 4 billion
♦ EU market in 2005: US $ 32.9 billion:
  • Location based billing (48%)
  • Location based info services (41%)

Source: LCS in the US, The Strategis Group, September 1999
European wireless Location services, The Strategis Group, March 2000

♦ Cell ID and SMS allow the deployment of most of these ‘basic’ LCS today.
=> LCS already deployed by Sonera, RadioMobil, One2one, Diax, Telia, Mobitel, Partner Orange
♦ Many more to come at very short term….
♦ European wide deployment of ‘basic’ LCS VAS should be well underway by end 2002.
Overview of LCS: Main Positioning techniques

CI + TA + Sector Info

Triangulation
Network based
Handset based
TDOA
EOTD

Assisted GPS

Accuracy: 50m / 5km
Availability of service: very good
low cost, technology available now

Accuracy: 30m -/300 m
Availability of service: good
High costs for the implementation of
Network based solutions
Handset based solutions require
modified handsets
Technology fully available by 2003-2004

Accuracy: -10 m / 30m
Service Availability: poor in-door
Technology fully available by 2003-2004
Evolution of portals towards the additional offering of:

- accurate and reliable tracking and navigation (including friendly tracking of people)
- Location aware games

=> increased performance required in terms of accuracy (better than 50m) with full service availability in all environments (also in-door)

=> Potential of hybridisation of GNSS and network triangulation techniques at MS level (privacy) to deliver required performance

=> Fully proofed technology available by 2005
Tentative technological Evolution Path

- A-GPS
- E-OTD
- CLI + Cell ID
- INS
- Hybrid GNSS+
  - CDMA/OTDOA
  - IP-DL

Emergency services authorities

Accuracy vs. reliability


Market pull

Operators
Available benchmark: Regulation in the US

Rulemaking in 1996:

• Phase I (18 months): carriers shall relay callers’ ANI and location of base station or Cell site receiving a 911 call to the designated PSAP.

• Phase II (October 2001): carriers shall identify the latitude and longitude of a mobile unit making a 911 call within a radius of 125 m in 67% of cases.

2 conditions:

• PSAPs must request the service
• cost recovery mechanisms must be in place.
Available benchmark: Regulation in the US

♦ Only 5% of PSAPs had implemented Phase I as of April 98.

♦ Revised rules for Phase II released in 10-11/99:
  • requirement for network based solutions
  • requirement for hand set based solutions
  • 100% penetration of ALI capable handset by 31 December 2004
  • only PSAPs with capability of receiving and utilising the data may request the service
  • PSAP cost recovery must be in place

♦ Only 11 carriers reported implementation plans by the November 2000 deadline

♦ Waivers........ Location Test......
Objectives for regulating emergency services

♦ To increase the safety of all citizen (people attacked, injured, endangered, on the road, off vehicles, during catastrophes,...)

♦ Huge socio-economic benefits:
  • 45 000 deadly accidents/year in EU
  • On-site intervention during the ‘Golden hour’ halfed to 10 mn with PSAPs equipped with automatic system processing location data of caller!

♦ eEurope initiative: All citizens on the move throughout Europe should have full access everywhere to call localisation, multilingual support and full provision of Emergency services through 112 number

♦ Similar objectives in all developed nations
Proposed provisions for the 112 emergency services
(Source: Proposed directive on universal services)

Strong market driver anticipated for the deployment of VAS

Non availability at the present time of fully proven and standardised techniques/technologies providing high level of accuracy and service availability in all environments

=> proposal for soft legislation:

‘Member States shall ensure that undertakings which operate public telephone networks make caller location information available to authorities handling emergencies, where technically feasible, for all 112 calls’
The regulatory framework
The new package

Framework Directive (Art. 95)
- Authorisation Directive
- Access & Interconnection Directive
- Unbundled local loop Directive
- Universal Service Directive
- Data Protection Directive

Liberalisation Directive (Art. 86)

Spectrum Decision (Art. 95)
What is the current legal situation for location data?

- Location data not explicitly mentioned in Directive 97/66
- Partly covered by the provisions on traffic data and more generally by the EC General Data Protection Directive 95/46.
- General data protection rules allow an override of the consent requirement where this is necessary to protect “the vital interests of the individual” (art.7 d) of 95/46)
PROPOSED CHANGES

♦ Introduction of new article 9

♦ Processing of location data with consent of subscriber only

♦ Enable subscriber to block processing of location data on a temporary basis

♦ Override to be made available for emergency services
[Location data] may only be processed when they are made **anonymous** or with the consent of the users or subscribers to the **extent** and for the **duration** necessary for the provision of a value added service. The service provider must inform the user or subscriber, **prior** to obtaining their consent, of the type of location data which will be processed and of the purposes and duration of the processing and whether the data will be transmitted to a third party for the purpose of providing the VAS. Where consent has been obtained for the processing of location data, the subscriber must continue to have the possibility, via a simple means, to **temporarily deny** the processing of such data for each connection to the network or for each transmission of a communication."
Main issues at stake in the EU

♦ 112 EMERGENCY SERVICES (Medium term):
  • enhancements at PSAPs, data bases, interfaces
  • costs and cost sharing
  • liability
  • multilinguism
  • accuracy and reliability along a transition path from Cell ID

♦ LOCATION BASED SERVICES VAS (short term):
  • practical implementation of privacy provisions
  • ownership of positioning data
  • roaming (location interface, billing principles)
Research initiatives in the area ‘Mobile and Personal Communications and systems’

- **LOCUS:** Location of Cellular Users for emergency services
- **EMILY:** Hybridisation E-OTD/GNSS/INS
- **SATURN:** Smart Antenna (AOA)
- **POS.IT:** Cell ID based services for fast couriers (CLI)
- **WINE GLASS:** Location and QoS aware services
- **MOBIVAS:** Downloadable Mobile VAS
- **CELLO:** Network Optimisation based on location data

Cluster ‘location based services’:
http://www.emilypgm.com/cluster
Research initiatives in the area ‘Transport and Tourism’

♦ HELINET: High Altitude Long Endurance Platforms
♦ GAUSS: Satellite Positioning and S-UMTS
♦ GLORIA: Combined GNSS/LORAN-C receiver
♦ AGORA: Implementation of global location referencing
♦ Eye in the Sky: Fleet management and emergency support using low altitude platforms
♦ Galilean: Galileo Applications Network
♦ ITSWAP
♦ PEPTTRAN: Pedestrian and public transport navigator

http://www.cordis.lu/ist/ka1/trans_tourism/home.html
Conclusions

♦ US Experience is much valuable.

♦ A Coordination Group on Access to Location Information by Emergency services (CGALIES) was initiated in May 2000 to deal with the issues concerning emergency services (112).

♦ CGALIES is essential in bringing consensus along a transition path.


♦ The specific issues for VAS should also be rapidly dealt with by the main stakeholders in the industry (operators, manufacturers and content providers).
For further information

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Thank you