Advanced Networking Technologies and Applications 2003

Location Based Services

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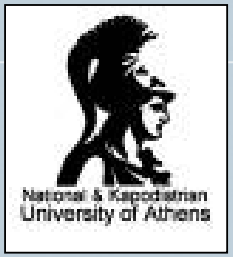
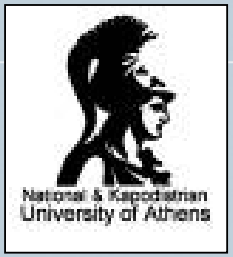
Some facts ...



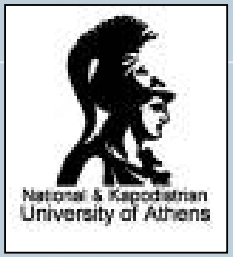
- By 2005 most wireless devices will be location-aware
- Over 500 million people will have access wherever they are, and use location based services
- A very important step in spatial information usage since the invention of the map…

Market Estimates



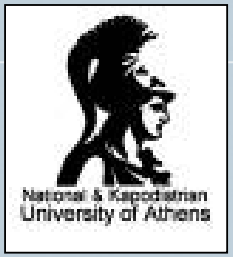
- LBS market will reach $4 - $20 billion/year by 2006
  - *Key idea*: Personalise content by location information
  - No clear dominance of location technology yet
  - Ideal business model not yet identified
  - Location accuracy not so important

LBS Drivers



- *North America*: FCC mandate for E911 (by Dec. 2002, all new handsets should be position enabled)
- *Europe*: Gradually moving to a unified emergency service number 112 (http://www.telematica.de/cgalies/)
- *Asia*: Most countries have no formal approach for LBS regulation
- *Japan* and *Korea* already have advanced mobile network positioning and large numbers of users

LBS Technologies

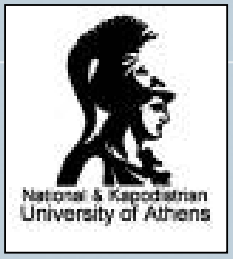


- Network-based position technologies (Cell-ID, Time of Arrival, Angle of Arrival)
- Handset-based positioning technologies (GPS, Glonass, Galileo, Observed time difference of arrival)
- Indoor solutions (WLAN 802.11-based, Active Badges, Infrared-based)
- Handsets

Handsets - Mobile Terminals

- Phones become smarter and resource-richer:
  - advanced display capabilities
  - PDA functionality
  - integrated Bluetooth to give access to other devices (e.g., PDAs)
  - Java support

Location Based Services

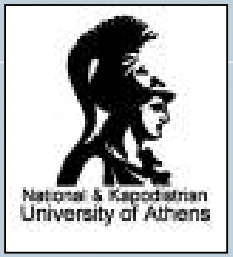


- InfoServices
  - Lifestyle information
  - Business Information
  - Traffic Information
- Tracking Services
  - Vehicle Tracking
  - People Tracking
  - Asset Tracking

(Killer applications ?)

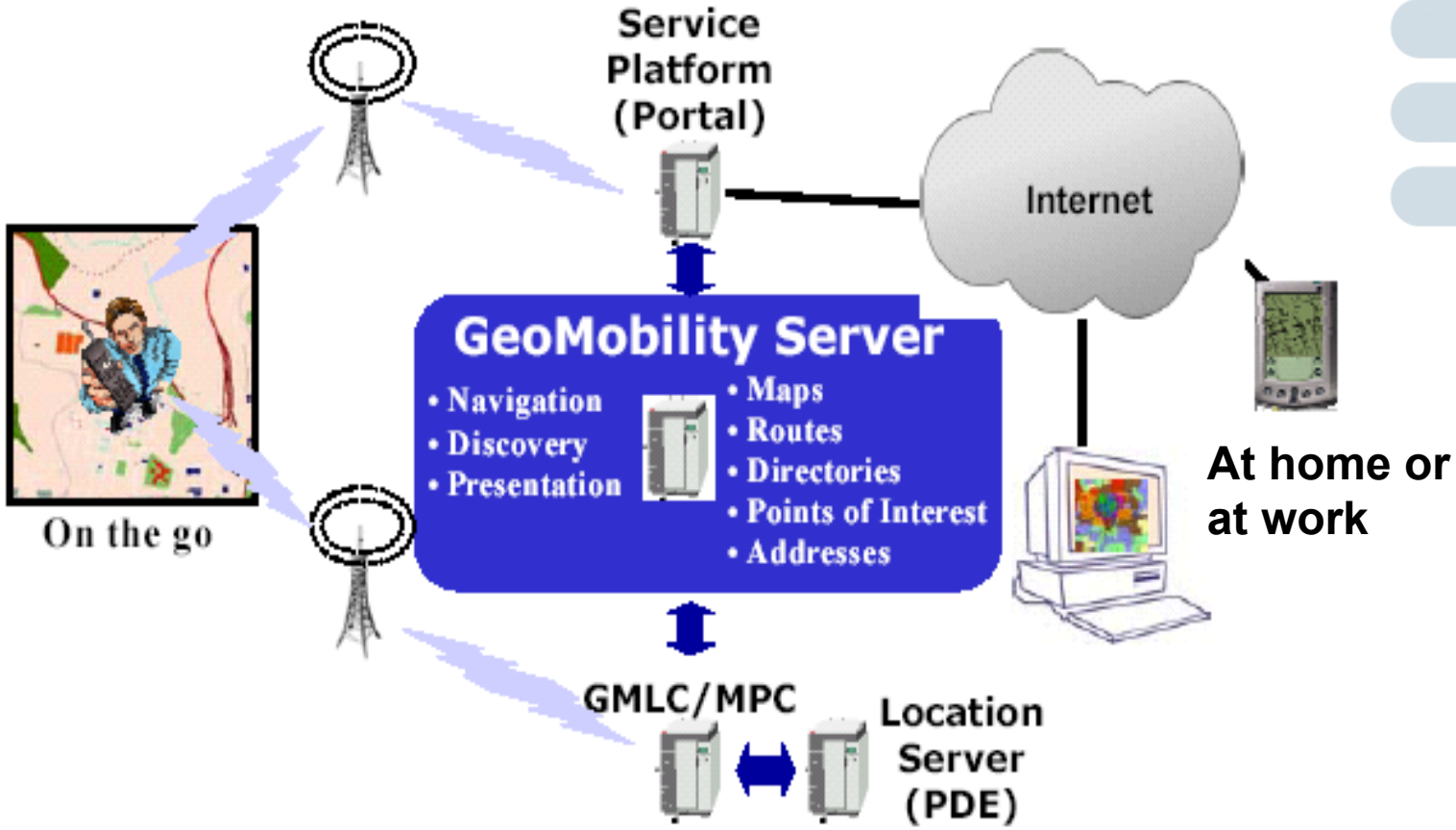
- Emergency Services
  - Medical
  - Crime
  - Distress
- Employee Services
  - Information in the field
  - Entreprise Integration
  - Customer Service

LBS platform components

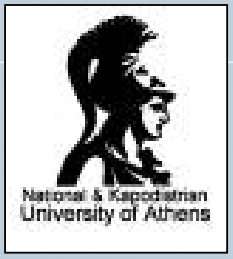


- Positioning platform
- Application middleware
- GIS & mapping (GIS interaction, map generation and direction instructions, "you are here" marks on map, points of interest for different applications, routing)
- Location server (Mapping of logical location to physical and GIS locations, user control over location information, location-related alerts, e.g. proximity, within an area)

Standardisation: OGC Geomobility Server

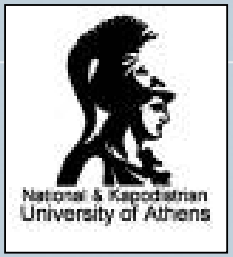


LBS Value Chain



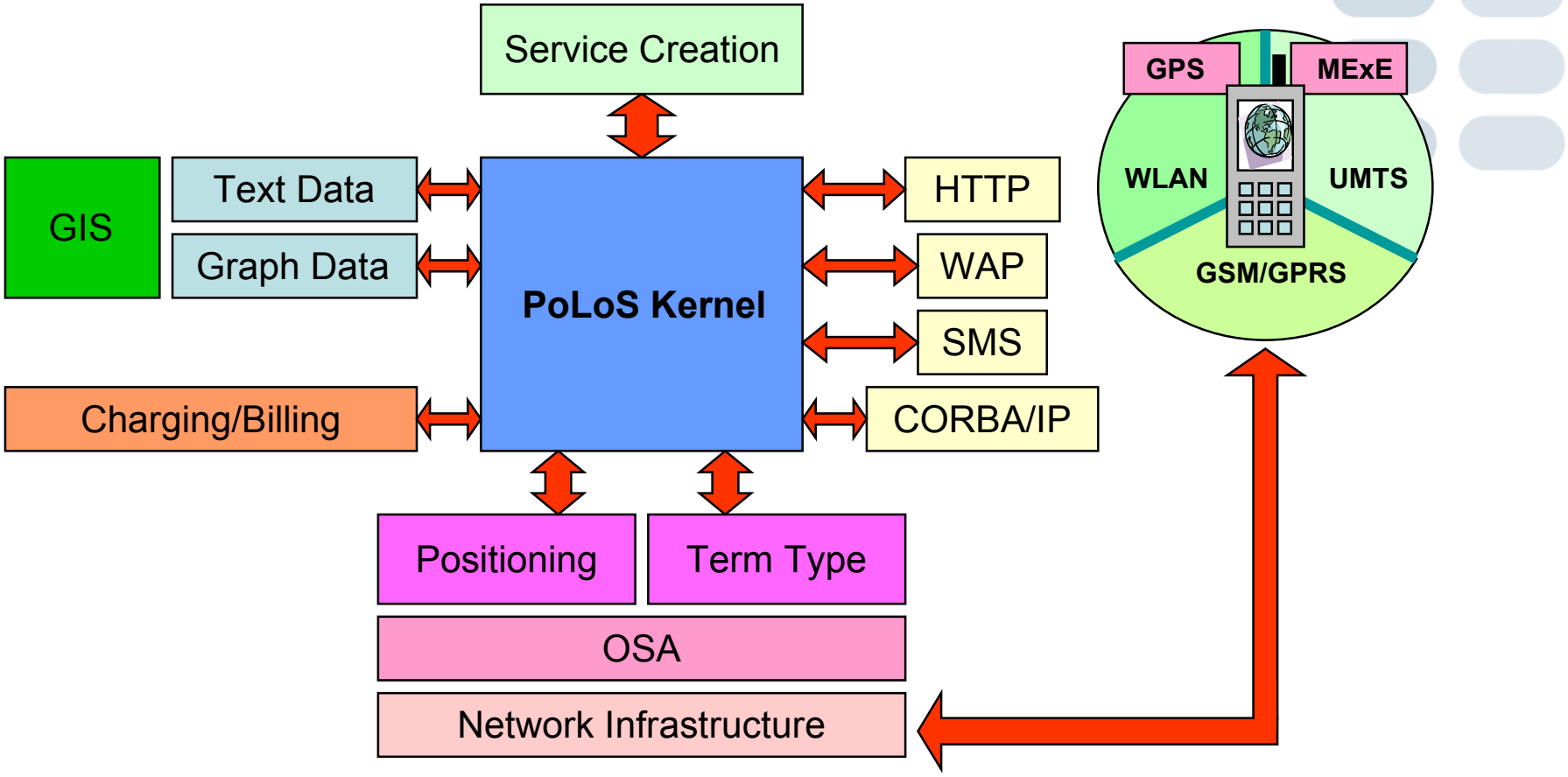
- LBS market chain:
  - MPS vendors, GIS vendors
  - Application and content vendors
  - Network operators
  - Systems integrators and IT vendors
- Lack of integrated LBS platforms
- Lack of integrated application/service providers

EU/IST Research on LBS

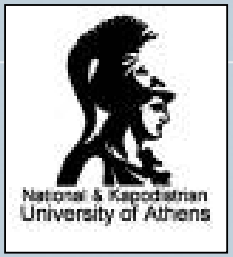


- Co-ordinated efforts towards the resolution of important problems:
  - positioning techniques and satellite navigation.
  - hybrid solutions
  - IP based techniques in UMTS networks
  - privacy
  - open platforms
  - business models
  - roaming
- Projects: CELLO, EMILY, GAUSS, GLORIA, LOCUS, LOCOMOTION, LOVEUS, OPIUM, POLOS, WINE GLASS, WIRELESS INFO, YOUNGSTER, ….

PoLoS: Integrated Platform for Location-Based Services

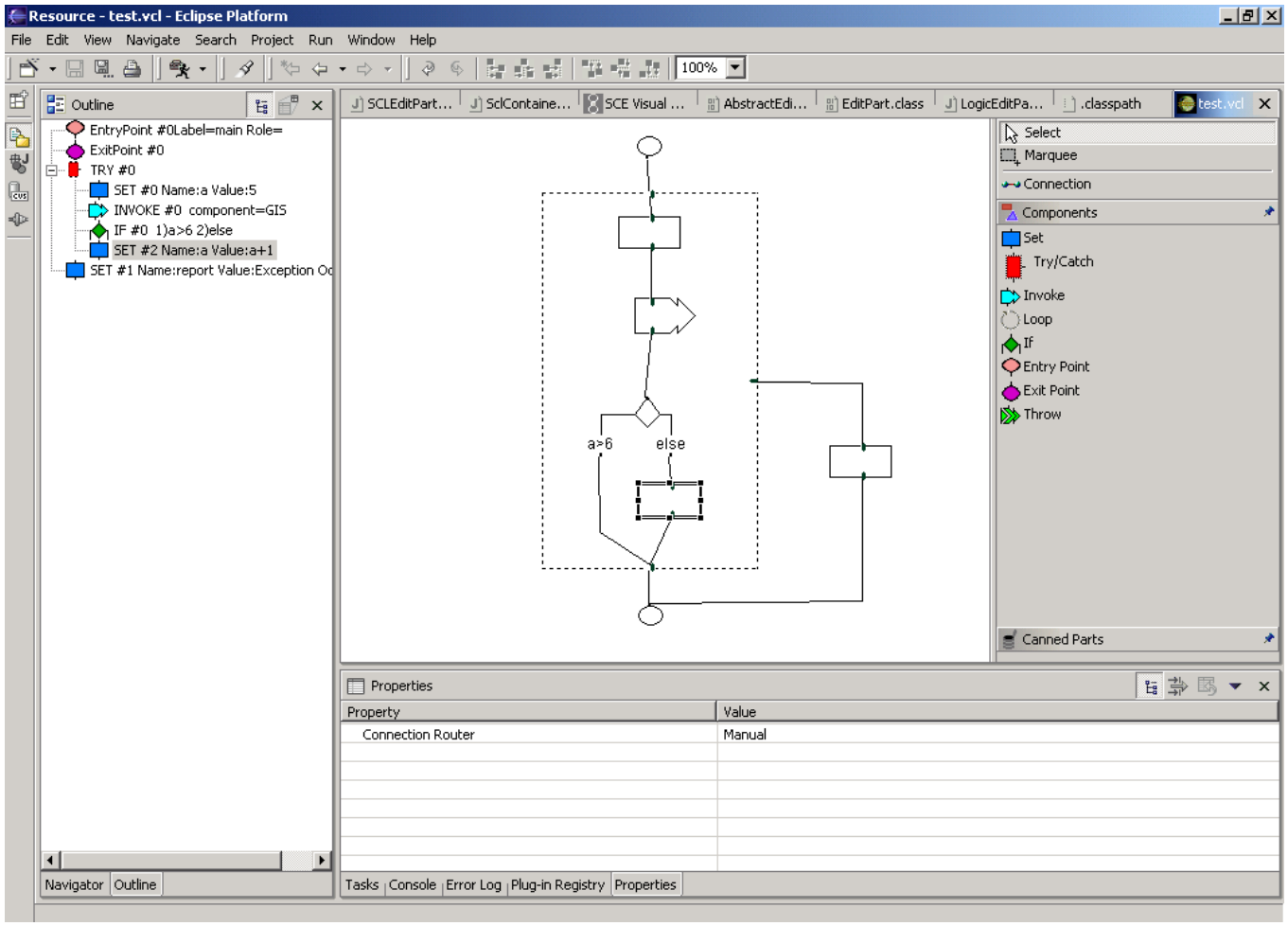


PoLoS profile



- *Objective*: To design and implement an Integrated Platform for Location Based Services covering: **Service Creation, Deployment & Service Provision**
- Advantages: Portability, Re-usability, Independence from underlying technologies, many operation paradigms (push, pull), Flexible Service Handling, Roaming across different infrastructures, Business Models
- Partners: University of Athens, ALCATEL, CSEM, Intracom, EPSILON, EPSILON Cyprus, Telefonica I+D

PoLoS Service Creation Environment



Thank you for your attention