Pervasive Multimedia Tomorrow

Amardeo Sarma

NEC Network Laboratories, Heidelberg

sarma@netlab.nec.de

Does the User want Multimedia?

The need is there even today. An Example

| Activity	3G Users	Non-3G Users
Internet Browsing	56%	39%
Video Clip Downloads	35%	11%
Video Messaging	34%	11%
Video Calling	35%	N/A
Game Downloads	34%	21%
Full Track Music Downloads	32%	11%
Streaming TV	10%	1%
Online Game Playing	8%	5%

Source: Telephia U.K. 3G Report, Q3 2005

Multimedia Market Trends

- **Powerful Cellular / VoIP handsets will improve multimedia facilities**
  - Replace older handsets, perhaps even desktop computers (Info Tech)
- **Users in Japan want more TV on phones**
  - Survey of 7,905 NTT DoCoMo i-mode users: When asked about what functions and services they want to have featured in their handsets, their most favorite answer was "TV", followed by "GPS navigation" and "pass/ticket for train and bus". Also, "key", "ID card", and "anti-crime buzzer" were among the best 10 answers.

The question is not whether Multimedia will come, but when, how fast and with what impact
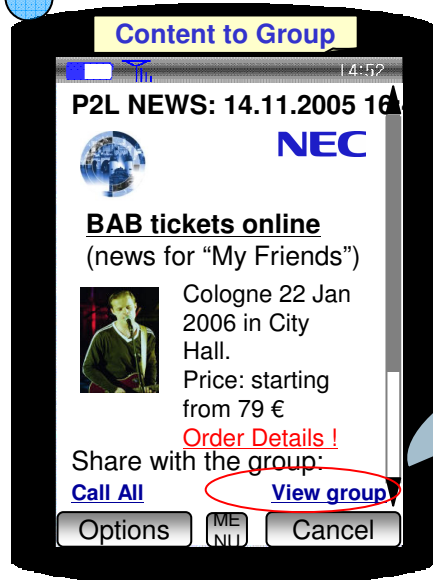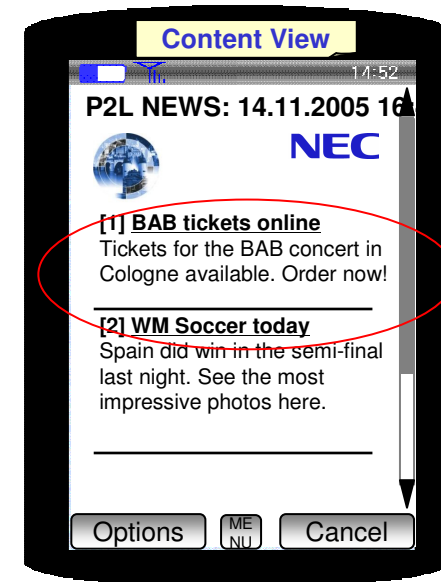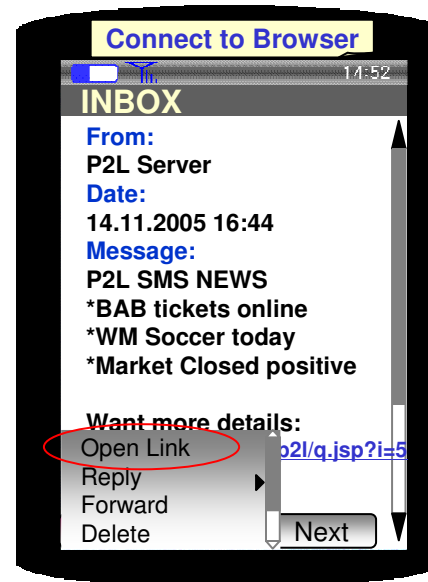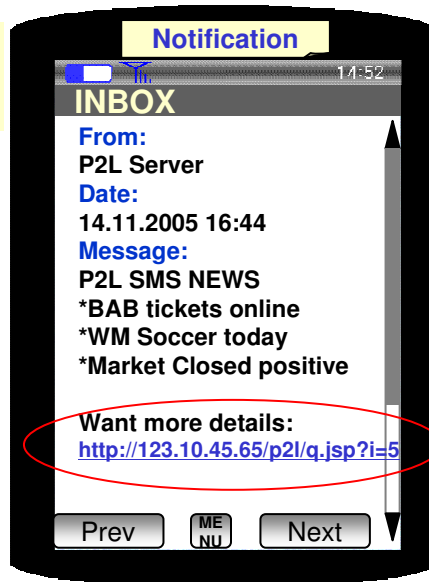
Enablers (1): User Experience
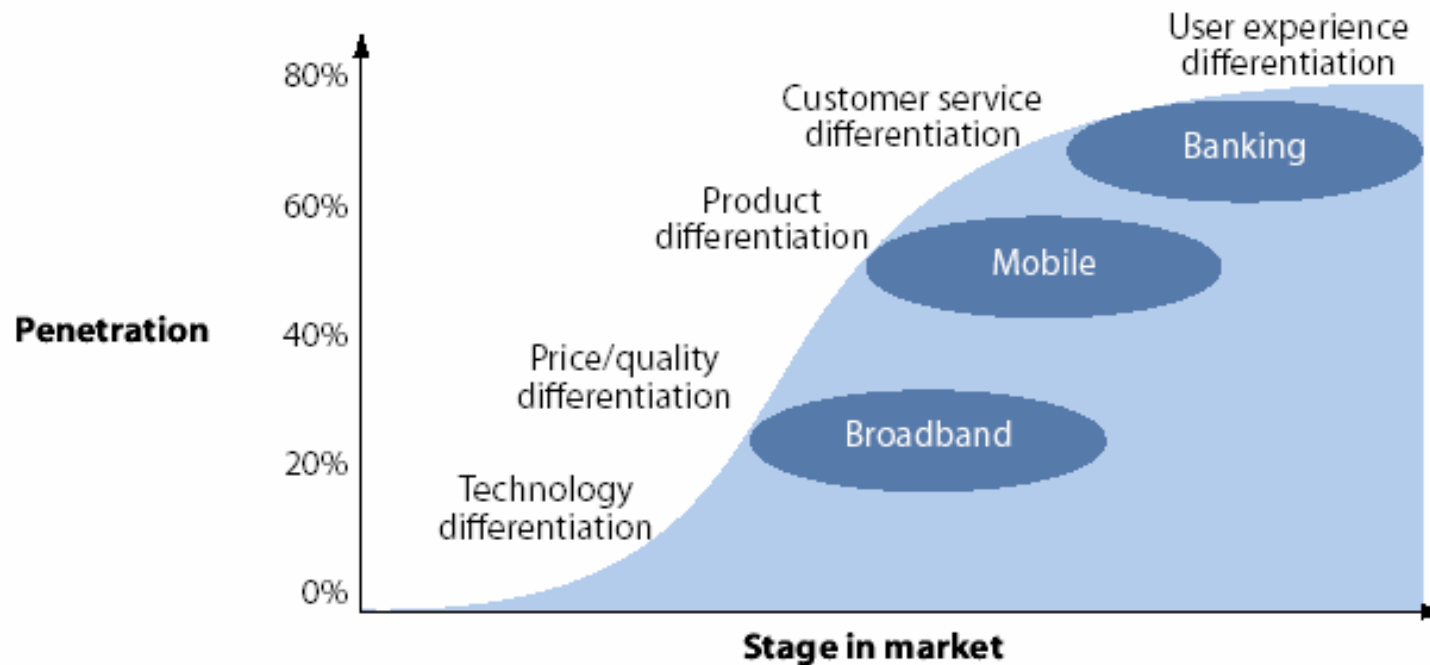
Source: Forrester Research, Inc.
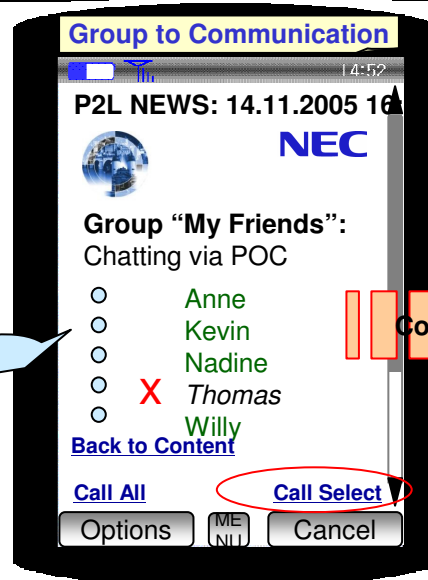
Example: From Content to Communicating

Example: Notification via SMS

User receives Content Notification
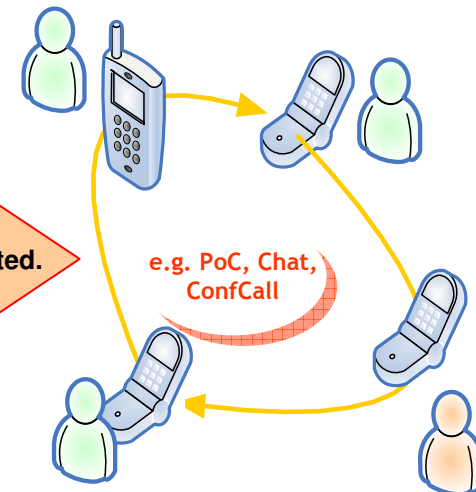
Communication between service and user is based **on terminal's intrinsic SMS and Browser clients**

Notification

14:52

INBOX

From:
P2L Server
Date:
14.11.2005 16:44
Message:
P2L SMS NEWS
*BAB tickets online
*WM Soccer today
*Market Closed positive

Want more details:
http://123.10.45.65/p2l/q.jsp?i=5

Prev   ME NU   Next

Connect to Browser

14:52

INBOX

From:
P2L Server
Date:
14.11.2005 16:44
Message:
P2L SMS NEWS
*BAB tickets online
*WM Soccer today
*Market Closed positive

Want more details:
Open Link   o2l/q.jsp?i=5
Reply
Forward
Delete   Next

Content View

14:52

P2L NEWS: 14.11.2005 16

NEC

[1] BAB tickets online
Tickets for the BAB concert in Cologne available. Order now!

[2] WM Soccer today
Spain did win in the semi-final last night. See the most impressive photos here.

Options   ME NU   Cancel

Content to Group

14:52

P2L NEWS: 14.11.2005 16

NEC

BAB tickets online
(news for "My Friends")

Cologne 22 Jan 2006 in City Hall.
Price: starting from 79 €
Order Details !
Share with the group:

Call All   View group

Options   ME NU   Cancel

Group to Communication

14:52

P2L NEWS: 14.11.2005 16

NEC

Group "My Friends":
Chatting via POC

○   Anne
○   Kevin
○   Nadine
○ X *Thomas*
○   Willy
Back to Content

Call All   Call Select

Options   ME NU   Cancel

Personalized communication

Communication initiated.

e.g. PoC, Chat, ConfCall
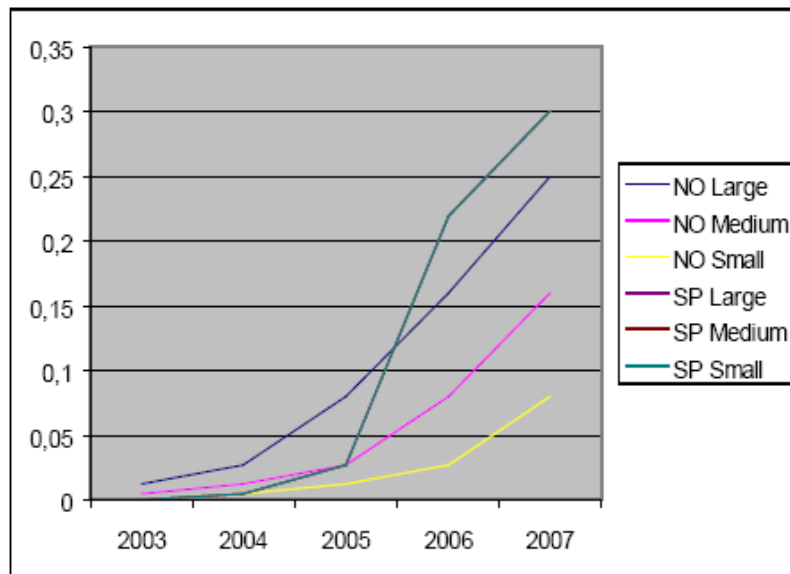
Enablers (2): Service Delivery Platform

Market Analysts estimate that the total market for global investments in Service Delivery Platforms (SDP) is ~20Bil.€ for the period 2003-2007
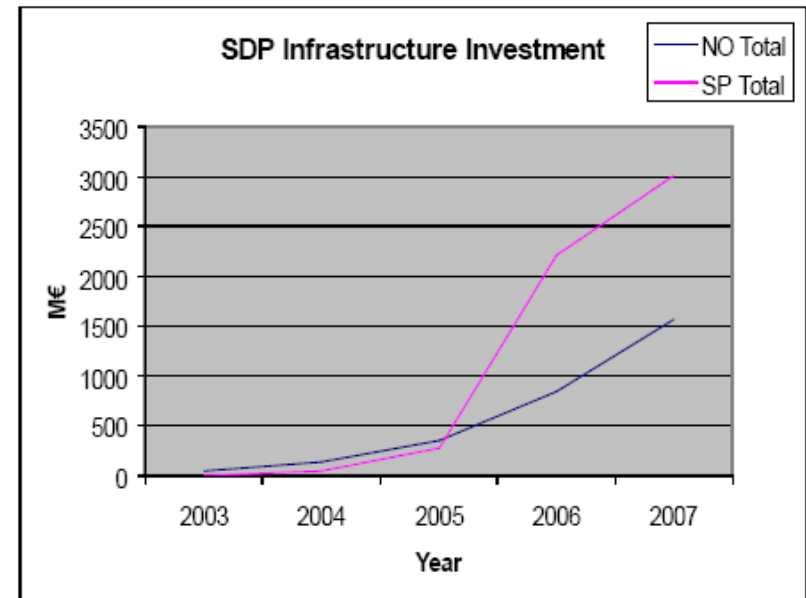
Chart 1: SDP growth curves

The chart shows that an accelerating deployment of SDP platforms will begin during 2005.
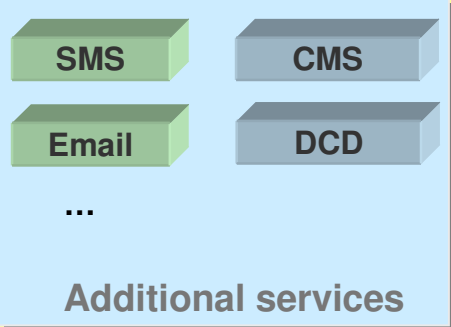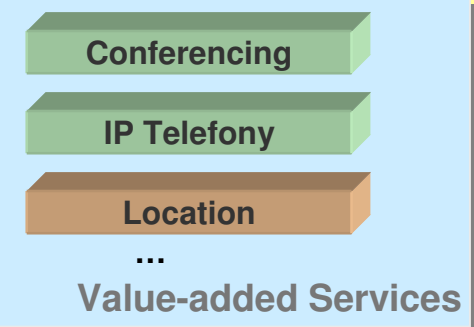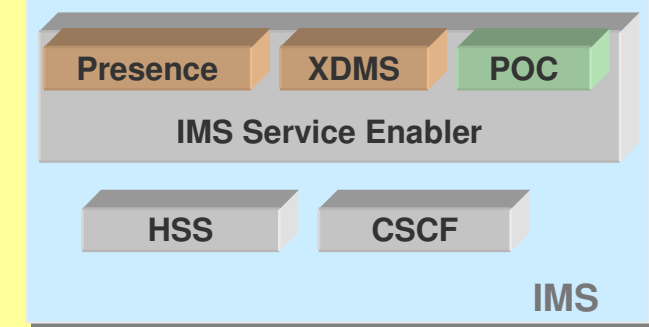
Chart 2: SDP infrastructure investment

NO...Network Operator
SP....Service Provider

Source: Moriana Group

NEC Labs: Service Integration over SIE

Entertainment

NEC Auction

Enterprise

New Services for Users

Application

Application

Application

Communication services

Content services

Group and Context support

Service Integration Environment

SIE

Presence	XDMS	POC

IMS Service Enabler

HSS	CSCF

IMS

Conferencing

IP Telefony

Location

...

Value-added Services

SMS	CMS
Email	DCD

...

Additional services

Enablers (3): Mobile Pervasiveness

Handheld	WSN	Embedded

Sink

$y=(a+\ldots+d)/n$

Mobile, handheld, wearable. Focus is on mobility, services, Content ….
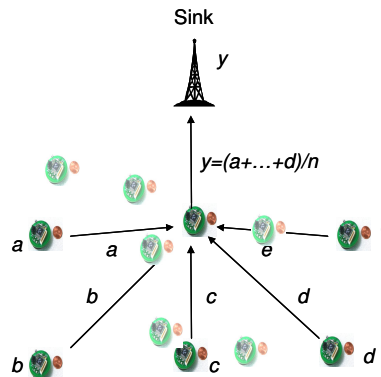
Secure Wireless Sensor networks, Provide environmental information (roads, agriculture, cars ….)
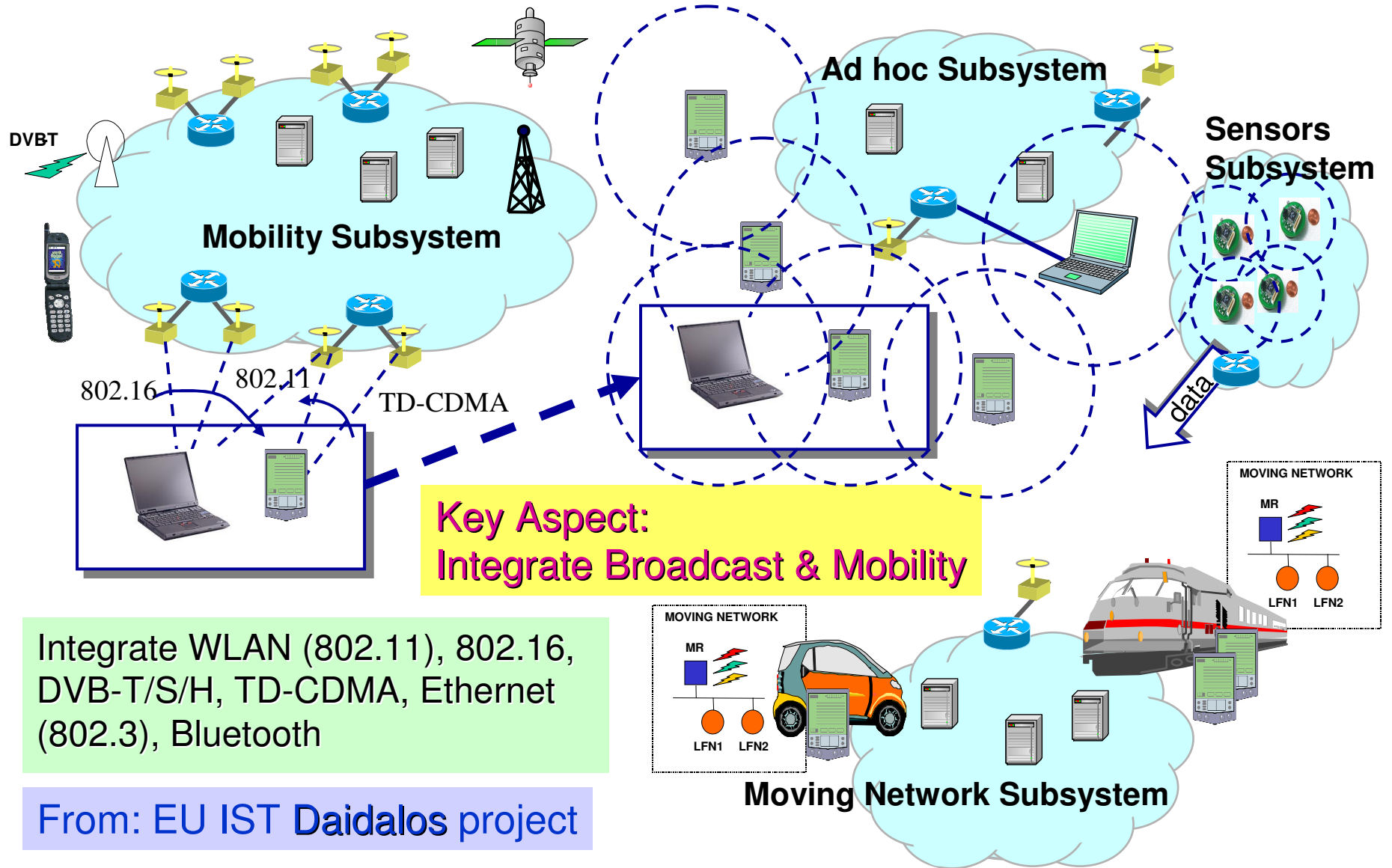
Specialized devices and sensors, public & shared devices, wireless services, PANs, active spaces.

Global, managed (chargeable) pervasiveness needed!

From: EU IST Daidalos project

Seamless Mobility for Heterogeneous Networks

Key Aspect:
Integrate Broadcast & Mobility

Integrate WLAN (802.11), 802.16, DVB-T/S/H, TD-CDMA, Ethernet (802.3), Bluetooth

From: EU IST Daidalos project

Empowered by Innovation NEC

Mobile Pervasiveness of a Different Kind

Pervasiveness in Vehicles

display

2G/3G

routing

computing

wireless

sensors

- **Powerful devices disappear or embedded in vehicles**
- **Ample computing and battery power available in cars**
- **Increased communication capacity to other cars, roadside and environment**

Powerful computing and networking allow new generation of vehicle-based services and applications → Safety and Assistance are key!

Empowered by Innovation **NEC**
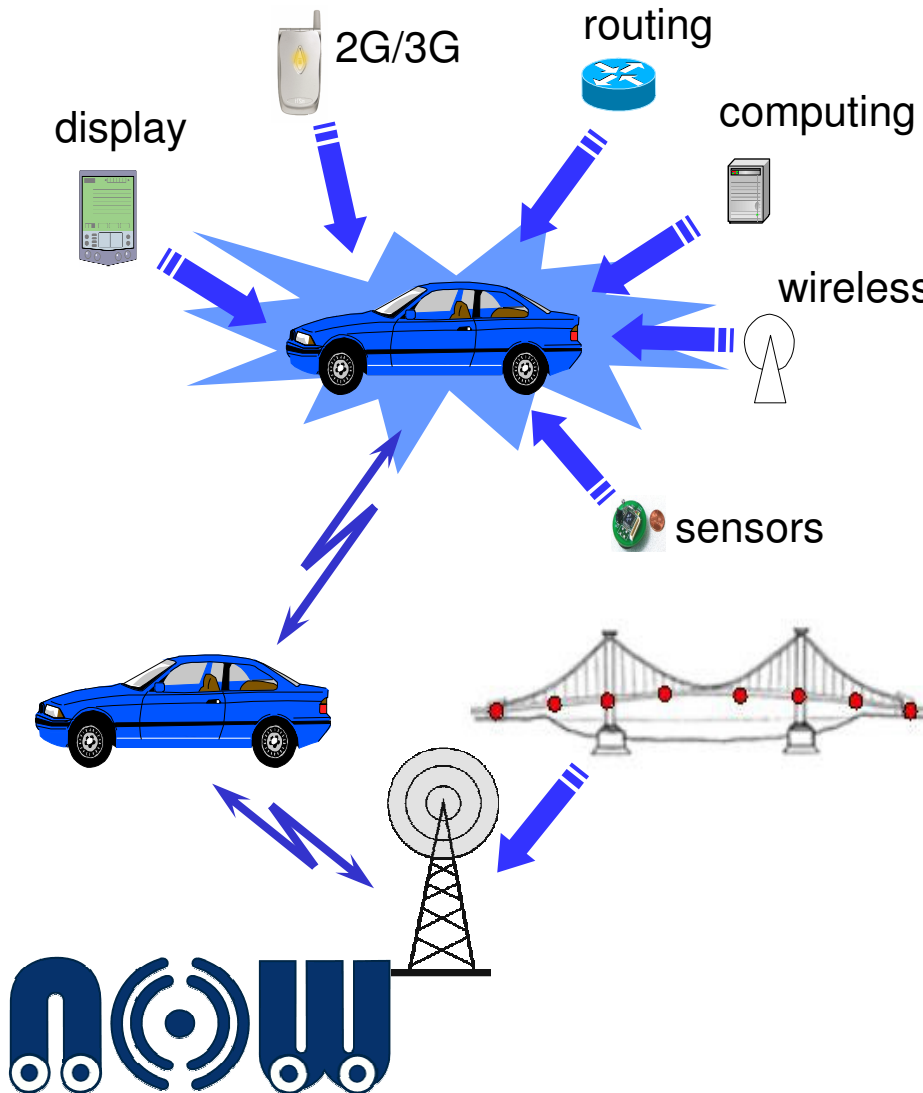
Finally: Wireless Identity?

- **User wants a limited number of operators enabling universal access to everything**
- **Such an identity becomes so powerful that very strong security, reliability and privacy concepts are needed**
- **Several profiles, roles and contexts must be supported**
- **Knowledge of available services, networks, content, .. wherever the user may be**
- **User must remain in control!**
- **A secured wireless identity → RFID+++ or identity PDA?**
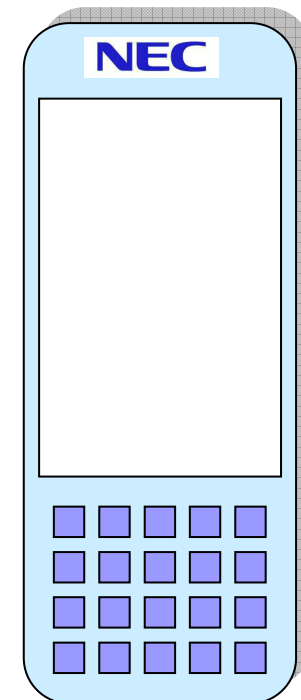
Tomorrow's Multimedia Vanity Device may become user's identification and permit access to everything

Wireless Identity will affect Business

- "**Big players**" have the **trust** of their customers and their complete **understanding** of the open infrastructure and the rules of the game
    → They may become future Identity Providers

- **Specialized providers** can set up and sell **customized** solutions (e.g. vehicular networks, hot spots, community networks) via big players

- New competition? Providers may compete with credit card companies
    → Both compete for and have customer trust
    → Providers lead in understanding services
        … so far …