Convergent Offers and NGN

BAKOM/OFCOM Workshop

5th September 2006

Network convergence and customer expectations

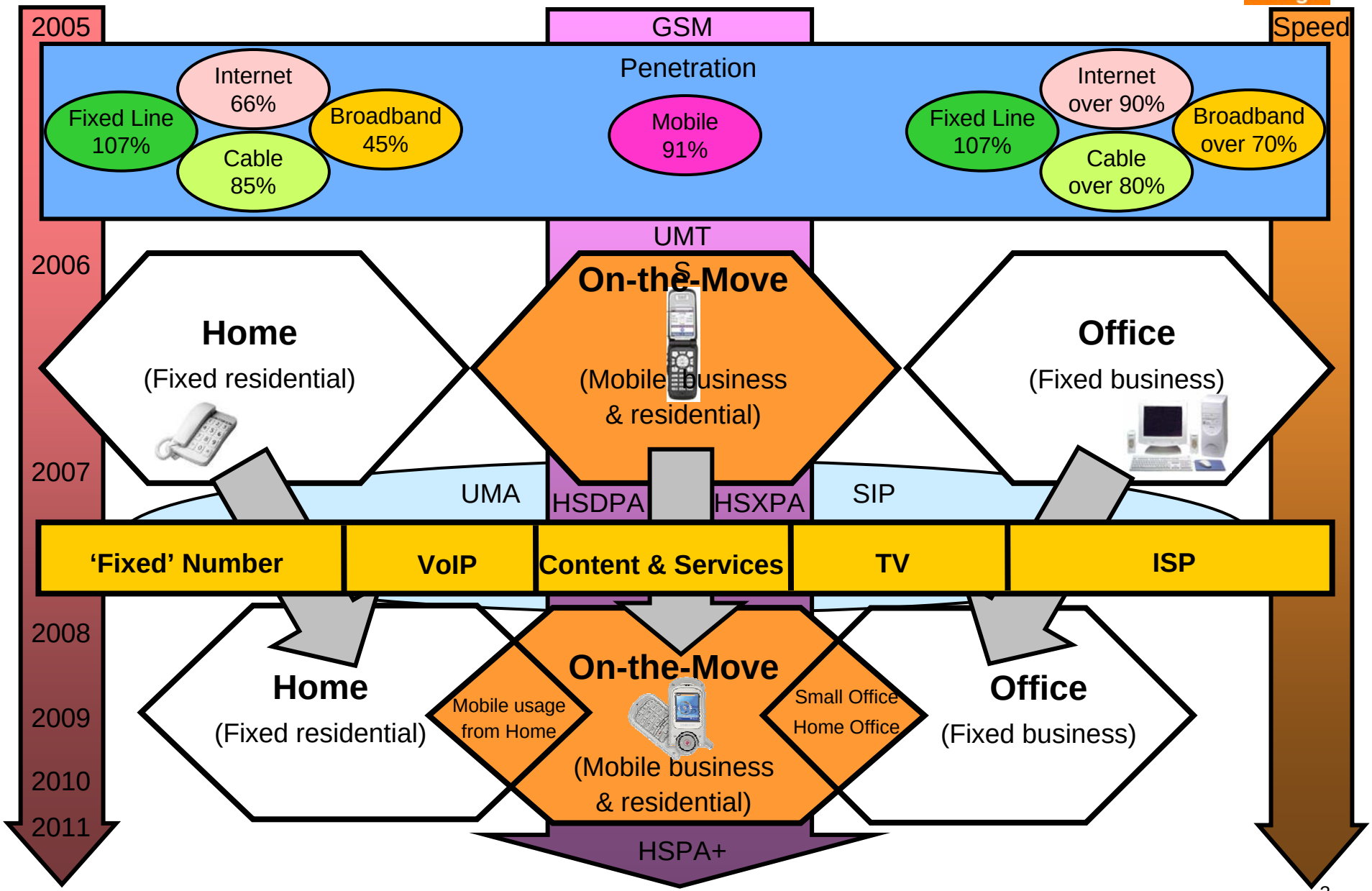
What is convergence?

- Mobile and fixed networks ‘get together’
- This development is coming mainly from the fixed side as those networks get more and more ‘mobile’
- Main challenge is to find a durable way to connect these two different networks while service levels are maintained and transfer the network specific advantages to the other network (e.g. fix numbers on mobile networks, SMS and MMS-services on fixed networks)

What are the customer expectations?

- The customer is expecting one network and being able to use it for voice and data-calls with one device
- He wants to benefit from the advantages offered by the different networks
- He doesn’t care on which technology is used to deliver the service, most important is the functionality and the pricing of the service
  - The price will distinguish the situation of being in a ‘fixed environnement’ (eg at home), or in an office situation with a requirement to be ‘on-the-move’ (price premium)
  - The customer also expects the network speed & quality to be ‘everywhere’ & on the same level;

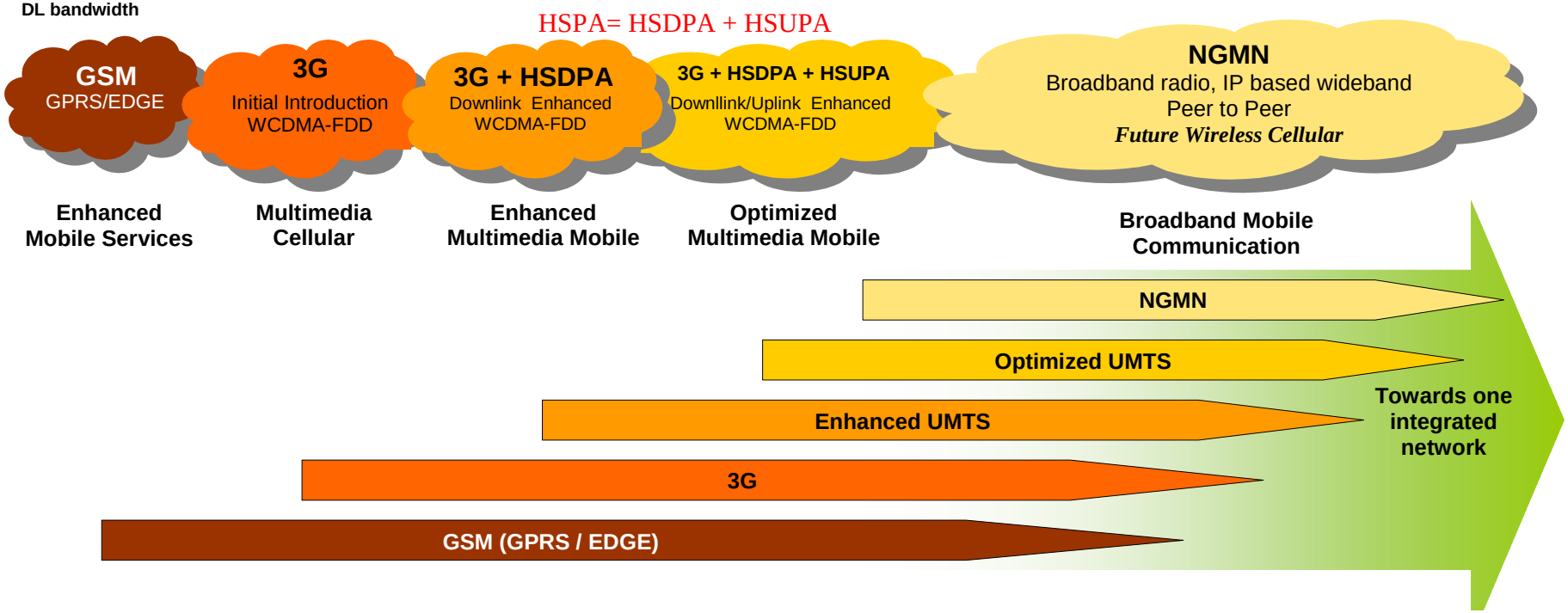
Always connected regardless of the network



High Level NGMN Introduction Roadmap

Year	2002-2003	2003 - 4	2005 - 6	2006-7	2008	2010	2012 & beyond
DL bandwidth	64 – 144 kbps	64 – 384 kbps	.384 – 5 Mbps	3 – 20 Mbps	10 – 50 Mbps	20 – 100 Mbps	20+ to 100+ Mbps

Composition of Radio Access & Core Network Elements



This figure illustrates the NGMN introduction roadmap overview, where we assume the evolution of UTRAN under the 3GPP will not be interrupted as result of NGMN. This figure clearly shows the coexistence of various technologies and the need for minimization of their diversity. This figure, however, should not be taken as an intent by NGMN participating members to migrate their networks over this time frame as can be used merely as an illustration.

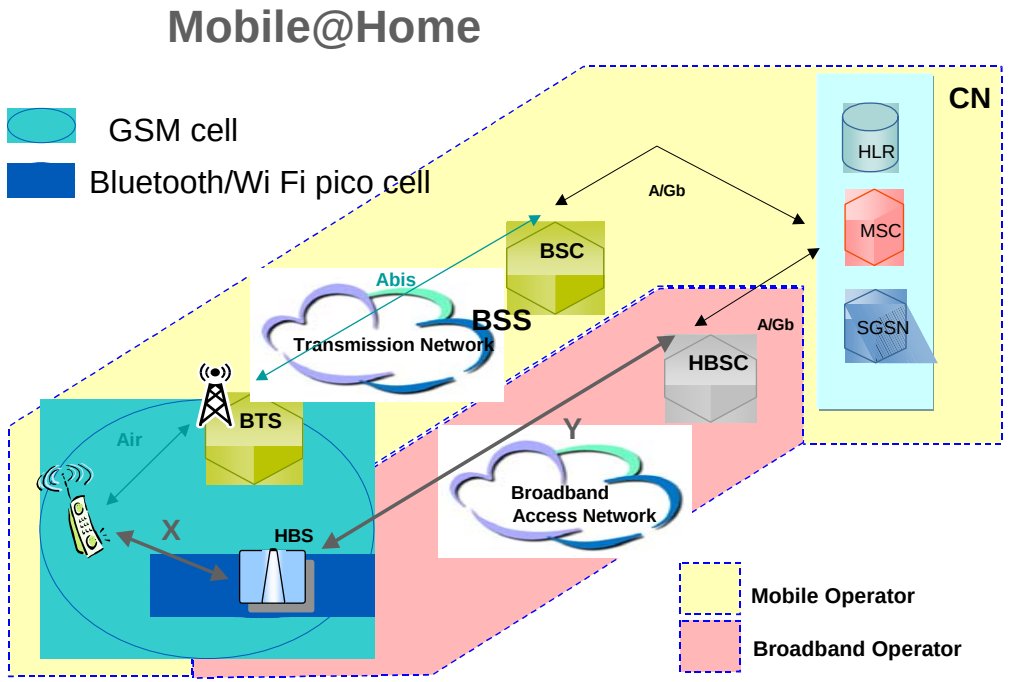
Migration of the GSM to UMTS-Network

- The migration is needed as GSM-technology is reaching its ‘end of life’ and support of by the system provider expires.
- As a result, we will need to migrate the existng GSM customer base - including all products and services - onto the UMTS network.
- As Network Coverage & Quality is now considered a hygienic factor by the customer, all existing services must run as a minimum, the same as on the GSM-network.
- The migration is not expected to commence until 2010 earliest.
- Two requisites for a successful migration:
  - the full technical migration of the network (supporting all services with the same footprint);
  - the full migation of the customer base enabled to use the UMTS-technology.
- Complexity of the migration of the customer base from GSM to UMTS
  - the customer must be convinced to change his GSM-device to a UMTS one (SARC impact ?)
  - there are some segments which will be easier to migrate than others. In such cases we need a more complex strategy to attract them to the advantages of the UMTS-technology, as they mainly use the mobile network for voice or SMS-services
  - the migration will be successful for the operator primarily if the existing customer will change technology & remain with the same operator, and keep usage at the same level as beforehand.

Example of a convergent service: any regulatory issues?

Product Main Features

- The customer has only one device for fix and mobile calls. The phone always behaves like a mobile except when the customer is at home (Bluetooth pico-cell). In this case, the phone is connected to a broadband fixed network. SMS, MMS, GPRS, voice mail, etc. are also available.
- When receiving calls at home those are conveyed to the Bluetooth pico-cell.



Regulatory questions

- What numbering has to be used ? Mobile or geographical numbering ? What tariffs ?

NGN and Orange Switzerland

NGN will come through NGMN of the group

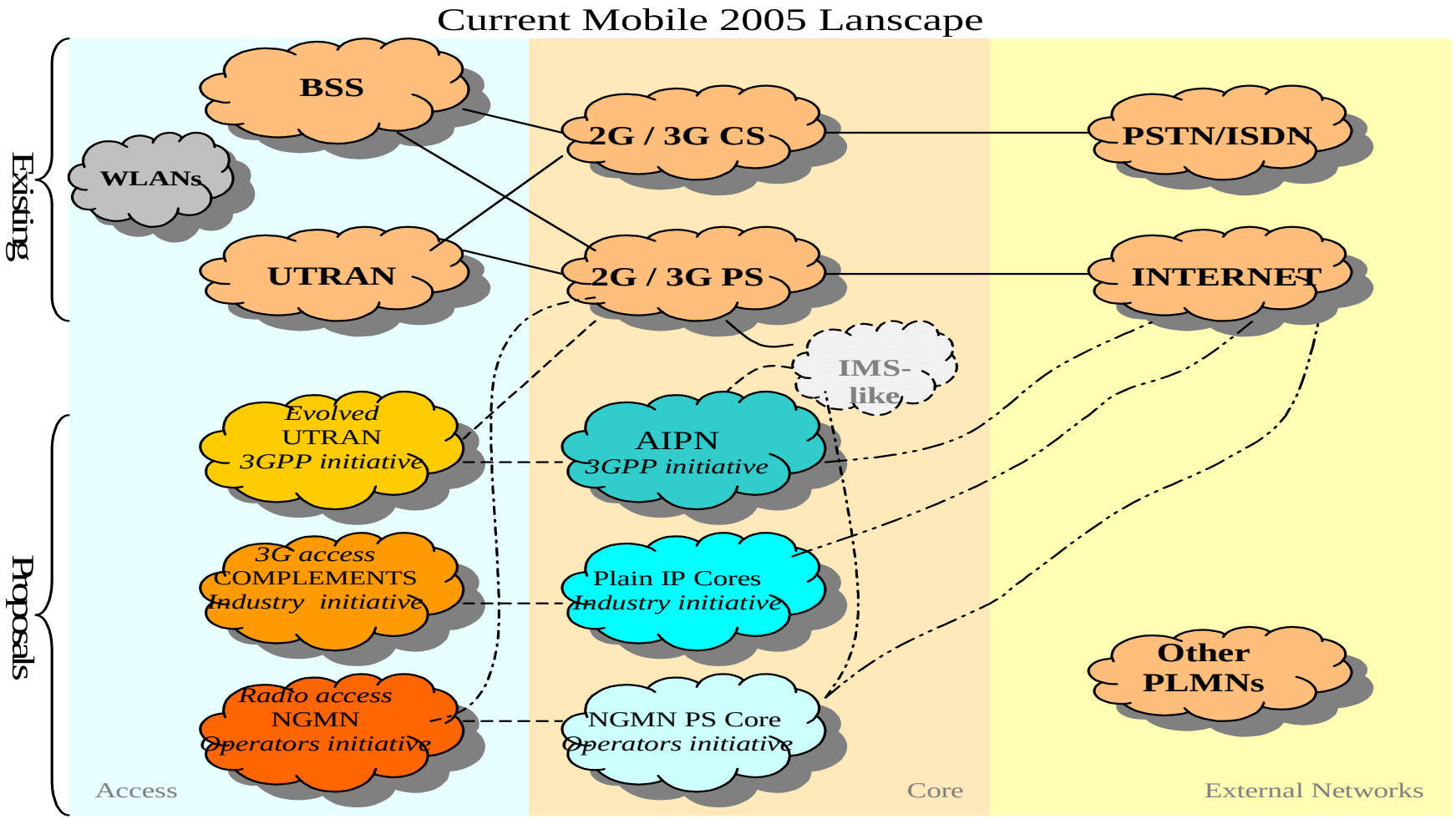
- T-Mobile, Orange, KPN Mobile, Sprint and Vodafone launched the Next Generation Mobile Network (NGMN) initiative, recently joined by NTTDoCoMo and China Mobile. They presented a White Paper at an industry conference in early June 2006.
- This initiative opens a debate over the follwing two points:
  - the standardization process is not enough to optimise the change to NGMN, so this initiative complements and supports it,
  - it presents the requirements of mobile operators, as buyers of mobile infrastructures, for the Next Generation Mobile Networks and articulates their common vision to nurture the future of the mobile ecosystem.
- the vision of NGMN
  - move towards one integrated network for the seamless introduction of Personal Mobile Broadband services;
  - design a network that will coexist with other networks while it facilitates smooth migration from and eventually replaces existing networks;
  - guide the industry by specifying the needs of operators and users;
  - create a virtuous circle of investment and innovation;
  - migrate smoothly from existing 3G networks towards an all-IP-network.

NGN and Regulation

- Optimization of operations and outputs
  - A single ‘global’ system for the evolution of current 3G services;
  - Focussed on interoperability and standardization;
- Re-use of existing resources
  - especially mast sites and other macro infrastructure
  - spectrum: refarming of the spectrum is key
- Commercial Flexibility
  - NGMN will flexibly support a range of commercial models – including continuance of existing ones and not preclude any.

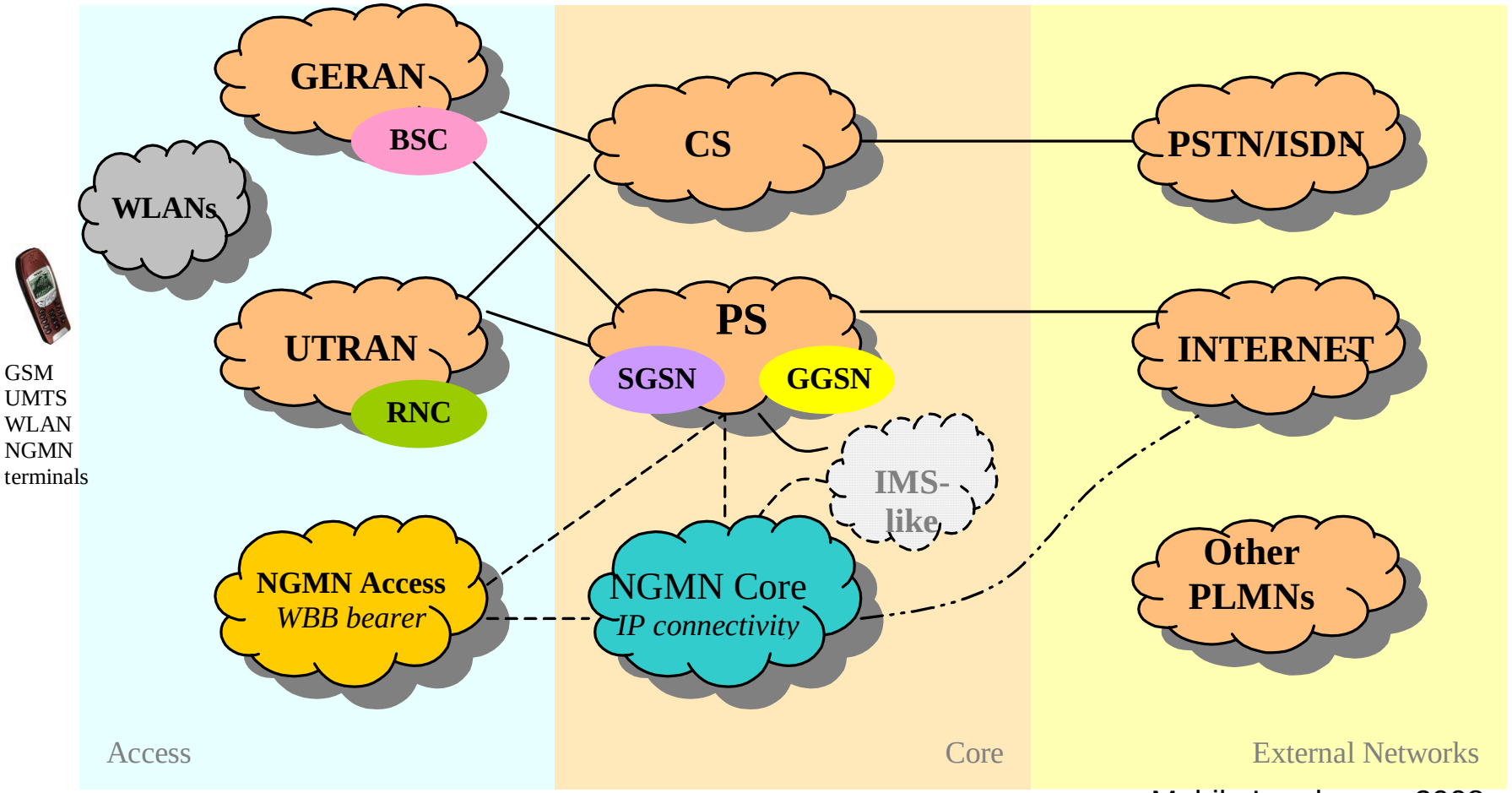
backup..

Evolution of Networks – The NGMN proposal



To define the evolution expected, the figure illustrates today's landscape in terms of main mobile building blocks and highlights the functional links as well as proposals from various industry forums. For example, evolved UTRAN today represented by the LTE (Long Term Evolution) and AIPN (All IP Network) are part of the 3GPP initiatives whereas the 3G access complements come from other forums. Finally, we also include NGMN as part of the proposal so that we can demonstrate its evolution in the following sections.

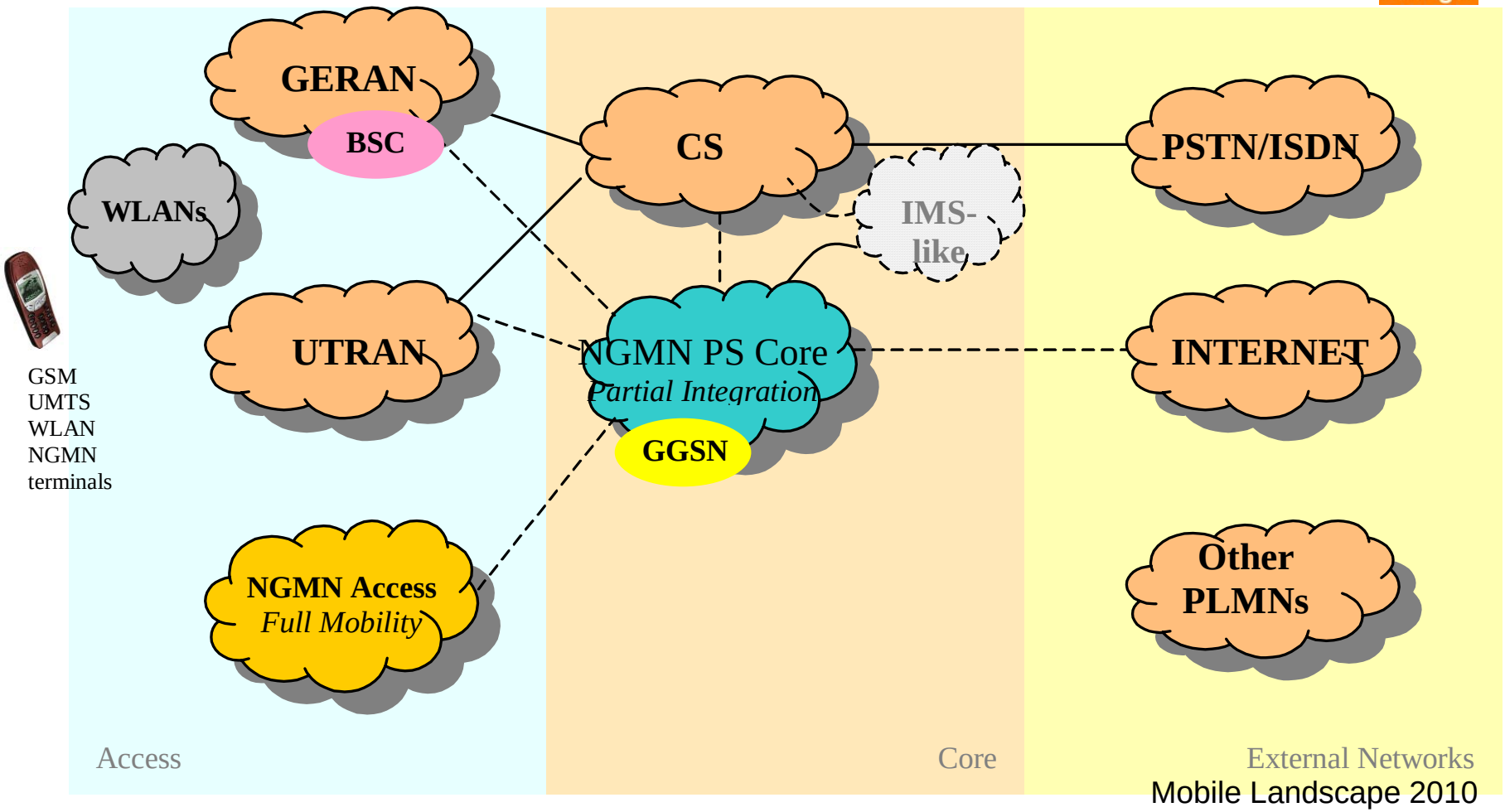
NGMN in the near term



Mobile Landscape 2008

This figure illustrates the possible landscape at the time of initial commercial deployment of NGMN. In this time-frame the main evolutionary step occurs in the access network where a WBB (Wireless Broadband) bearer is introduced. IP connectivity for NGMN must re-use existing interfaces with partial integration to an IP core.

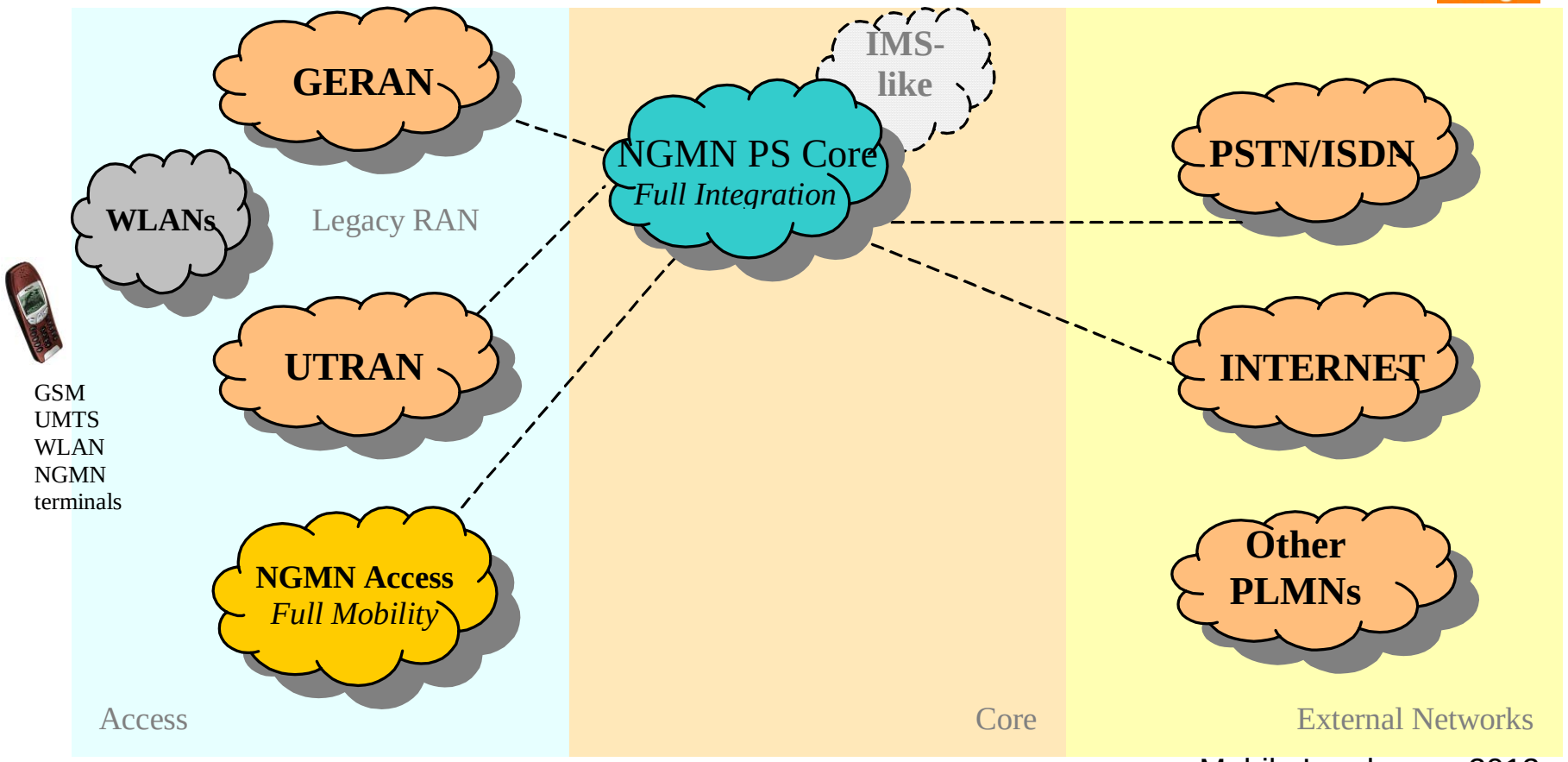
NGMN in the mid-term



Mobile Landscape 2010

This figure illustrates the possible landscape in the mid-term. In this time-frame the key evolutionary steps are a partial integration of the NGMN-Core with full mobility functions of the NGMN-Access and the movement of additional intelligence towards the edges of the network.

NGMN in the long-term



Mobile Landscape 2012

This figure illustrates the possible landscape in the long-term. In this time-frame the key evolutionary steps include a fully integrated core capable of replacing and emulating the CS services, a core fully unified with legacy PS, and a SIP-based control sub-system for access, service and network functions.