

ICT applications and network development

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Content

- I. Drivers for networks and ICT applications development
- II. Why develop networks and applications?
- III. Some recalls
- IV. The way forward

I. Drivers for networks and ICT applications development

The MDGs:

The ITU World Telecommunication Development Conference (WTDC-06) held in Doha (Qatar) in 2006, following the World Summit on the Information Society, adopted the Regional Initiatives (RIs) to contribute to the achievement of the Millennium Development Goals for all the regions of the world covered by the ITU.

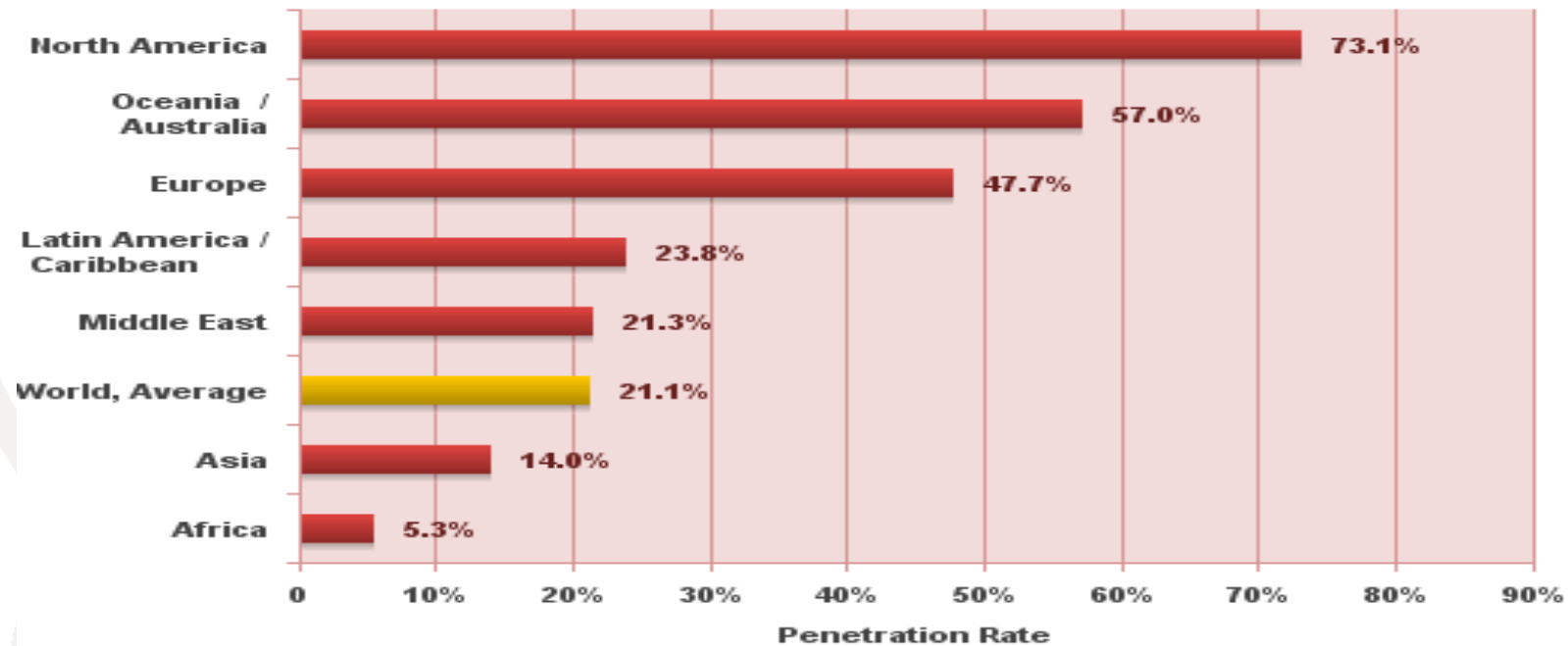
The Connect Africa Summit:

In the same spirit, the participant took commitment to develop networks and services to bridge the digital divide in Africa. The total amount of funding committed was about **\$ 55 billions**



II. Why develop networks and applications? A bitter report!

World Internet Penetration Rates March 2008



Note: Penetration Rates are based on a world population of 6,676,120,288 for mid-year 2008
Copyright © 2008, Miniwatts Marketing Group - www.internetworldstats.com

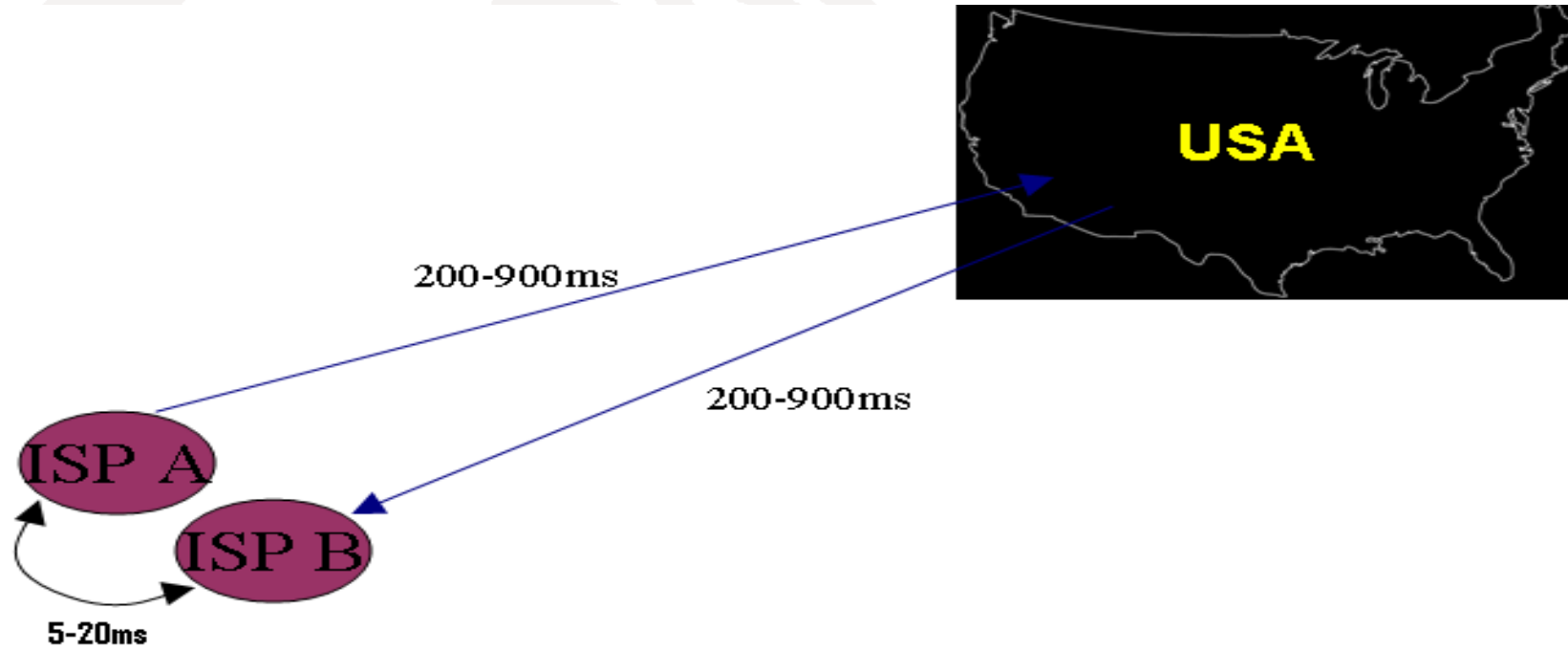
Why develop networks and applications (c'd)?

- Africa has the lowest Internet penetration rate (5.3%)
- The other ICT figures do not differ:
 - Africa is paying more than \$ 400 millions annually for Africa–Africa phone calls transit via other continents (*cf. Via Africa, creating local and regional IXPs to save money and bandwidth . Discussion paper prepared for IDRC and ITU for the 2004 Global Symposium for Regulators*)
 - Africa host NONE of the 13 Internet root servers:
 - Except 3 mirrors hosted by Egypt, Kenya and South Africa
 - Africa doesn't host enough IXPs:
 - Only 17 IXPs for 53 countries
 - No sub regional or regional IXP
- Most of the accessible contents are located outside Africa



Why develop networks and applications(c'd)?

Inter-ISP difficulties in the absence of an IXP



- Latency
- Bandwidth consuming
- Confidentiality
- Etc.

Why develop networks and applications (c'd)?

- ❑ Number of surveys have been carried out by private sector and development institutions; it appears that:
 - ❑ Almost all the African countries present gaps in broadband infrastructure
 - ❑ Some other gaps exist at the cross-border, sub regional and regional levels
- ❑ Some of those surveys are:
 - ❑ The NEPAD short term action plan (AfDB, 2002)
 - ❑ ITU continental needs assessment (ITU, 2005)
 - ❑ Backbone infrastructure survey East & Southern Africa (World Bank)
 - ❑ Backbone infrastructure survey Central, West & North Africa (ITU, 2005)
 - ❑ The NEPAD medium to long term strategic framework study on infrastructure gaps in Africa (AfDB)



Why develop networks and applications (end)?

- Taking up all those challenges will mean among others to:
 - Build broadband networks:
 - As nowadays applications are bandwidth consuming
 - Networks tend to converge: with IP as a 'all-in-one' protocol (cf. VoIP, ENUM, IMS, IP/MPLS, IP NGNs)
 - Develop local contents:
 - Save bandwidth
 - Improve networks response time
 - Save money
 - Implement online-services:
 - E-education
 - E-learning
 - E-health
 - E-banking
 - Etc.



III. Some recalls: The ITU Regional Initiatives for Africa

- ❑ Human and institutional capacity building
 - ❑ Strengthening and harmonizing policy and regulatory frameworks for integration of African ICT markets
 - ❑ Development of a broadband infrastructure and achievement of regional interconnectivity
 - ❑ ICT applications
 - ❑ Introduction of new digital broadcasting technologies
- Among those RIs, three out of five (3/5, i.e. 60%) are devoted to ICT applications and networking issues

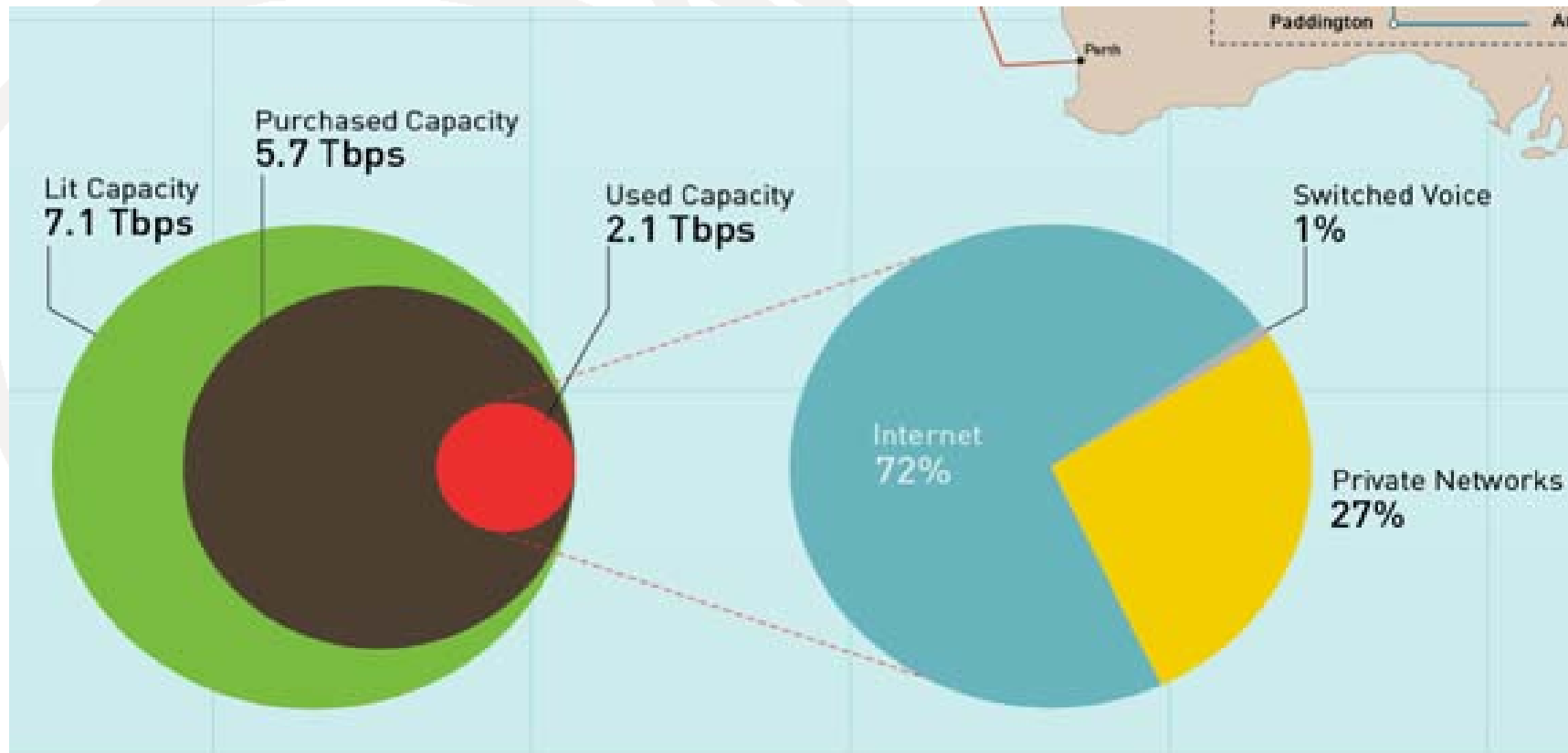


Some recalls (end): The Connect Africa commitments

- ❑ Interconnect the African major cities to broadband ICT networks within 2012
- ❑ Connect African villages to broadband ICT networks and services within 2015
- ❑ Adopt basic regulatory measures to promote affordable broadband networks and services development, fair competition among operators, the creation of IXPs
- ❑ Support capacity building, the creation of centers of excellence, and cooperation between African universities and training centers
- ❑ Adopt a national cyberstrategy, including a cybersecurity framework, to develop and promote e-Services: e-governance, e-health, e-commerce, etc.
- **Global commitments for more than USD 55 billions**



IV. The way forward: Broadband capacity use forecast



Source: telegeography.com

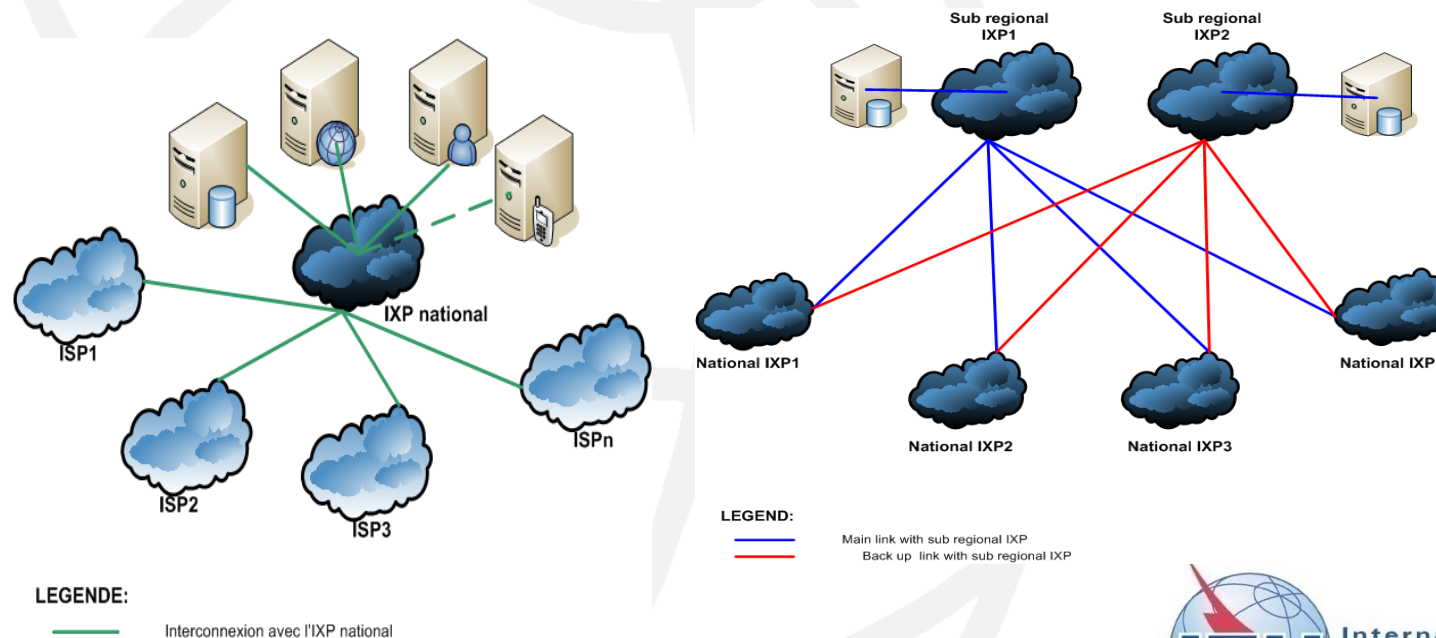
The way forward (c'd): Broadband capacity use forecast (end)

- ❑ Broadband networks capacities will mainly be dedicated to Internet and ICT applications as follows:
 - ❑ 72% Internet
 - ❑ 27% Private networks (Leased Lines, VPNs, ...)
 - ❑ 1% (only) for voice

- ❑ Emphasis should be put on IP backbones and ICT applications

The way forward (c'd): Implementation of IXPs and mirror root servers

- ❑ Implementation of national, sub regional and regional IXPs
- ❑ Implementation of mirror root servers at those IXPs
- ❑ Implementation of local contents



The way forward (c'd): Implementation of ICT applications

- E-governance:
 - Use of Internet/IP-based networks to interconnect governmental services
 - To encourage online services and procedures
 - To promote a better effectiveness in African administrations

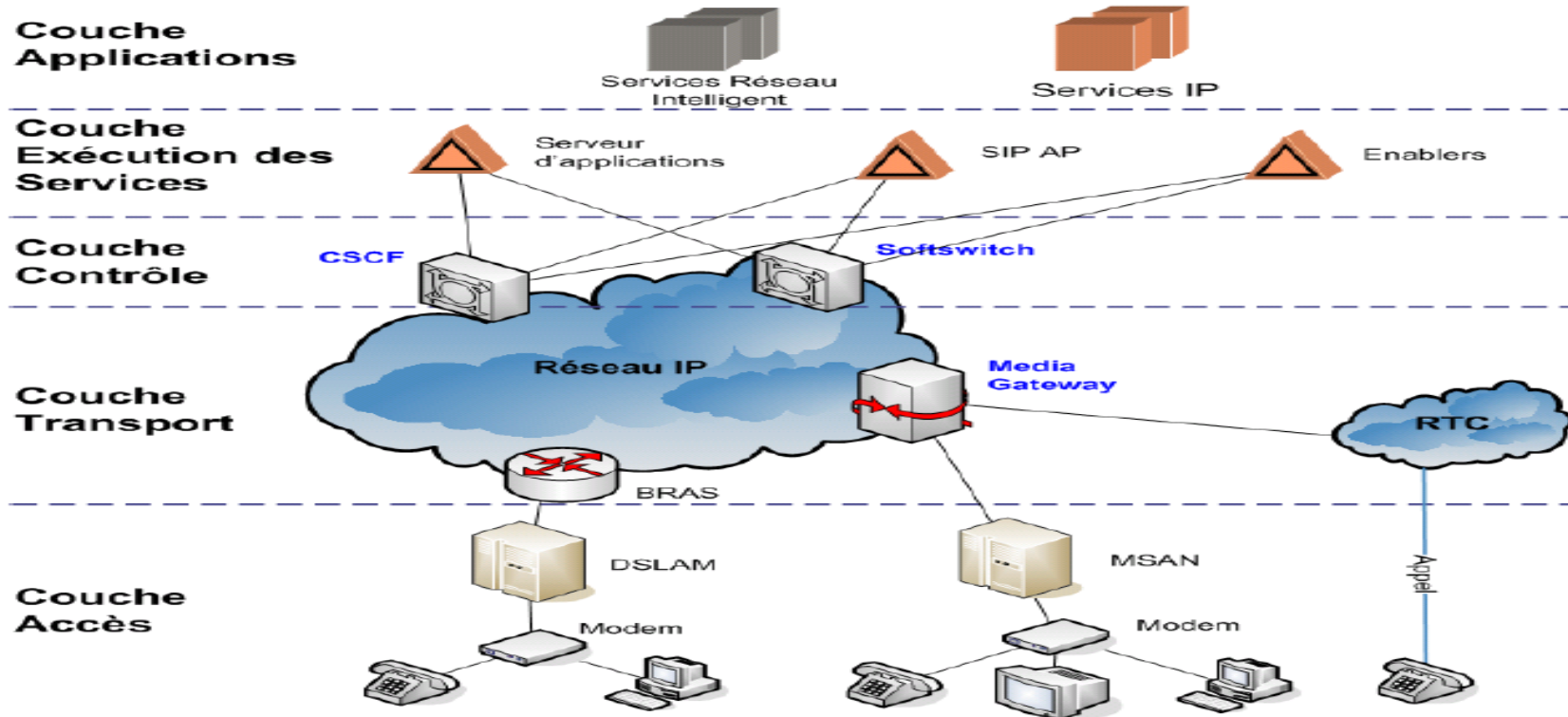
- E-health:
 - Use of Internet/IP-based networks to improve health services
 - To compensate the lack of physicians

- E-education:
 - Use of Internet/IP –based networks to promote education for all
 - To compensate the lack of specialized schools

- Etc.



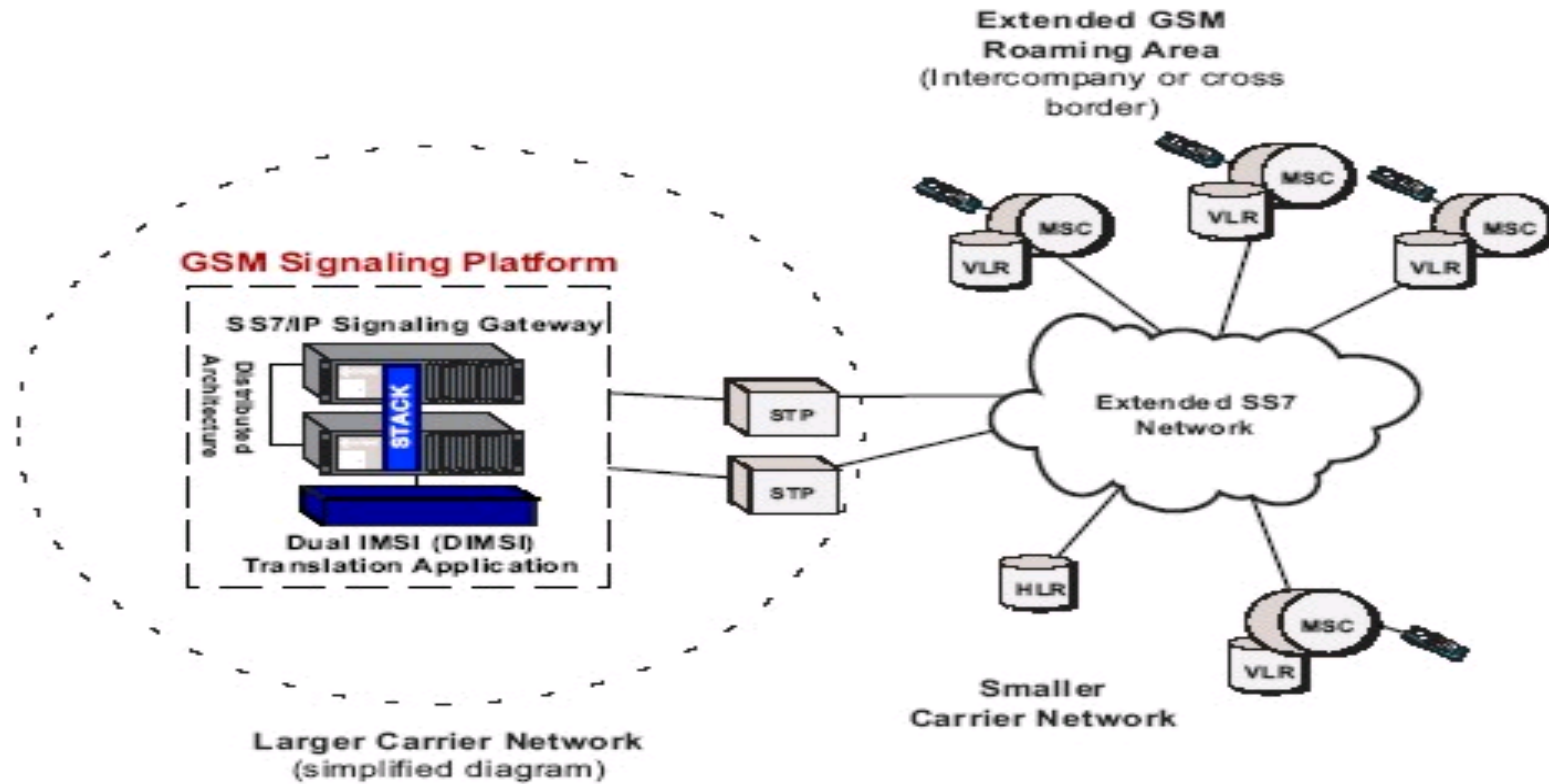
The way forward (c'd): Migration towards IP NGNs



Source : Ovum

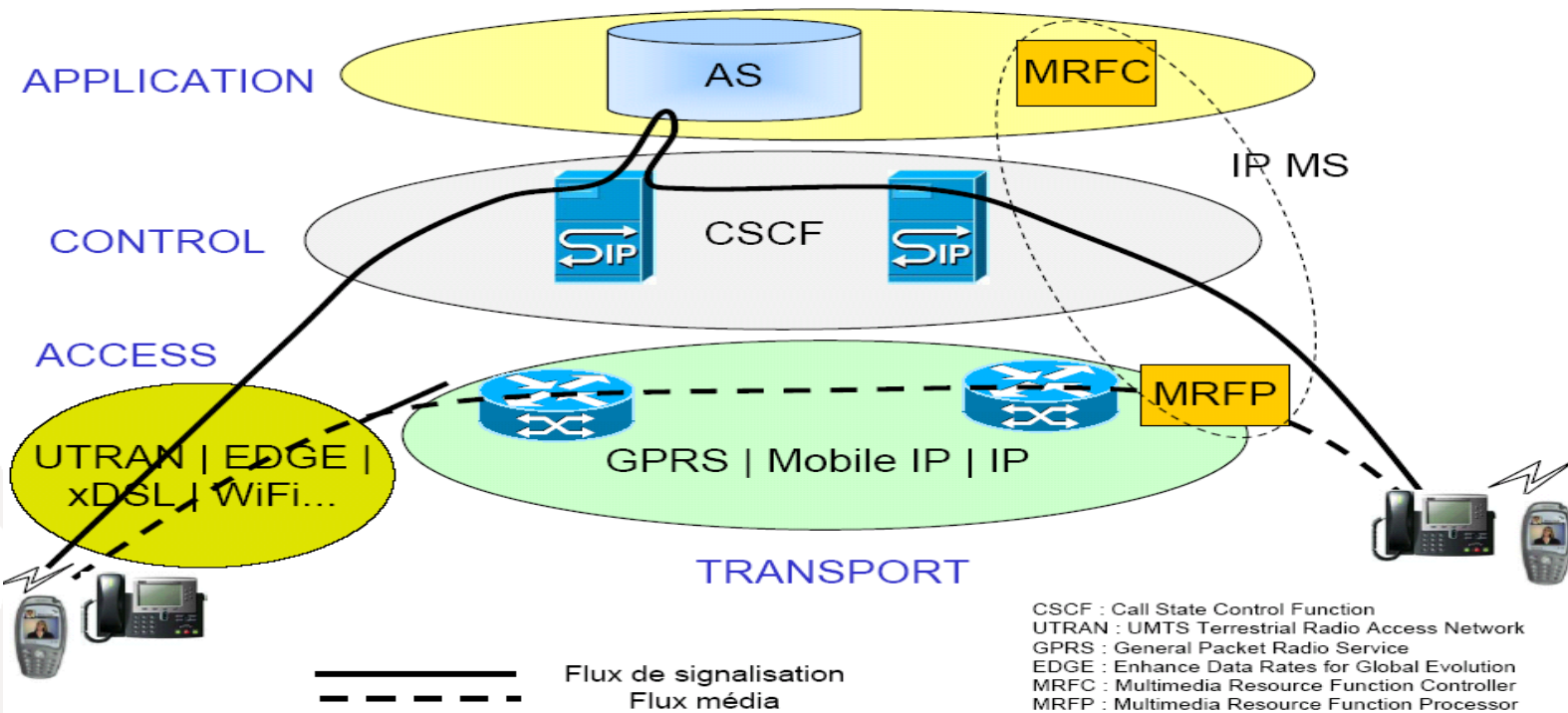
Source: OVUM

The way forward (c'd): Implementation of GSM roaming platforms in Africa



Source: pt.com

The way forward (c'd): Convergence Fix/Mobile networks: the IMS



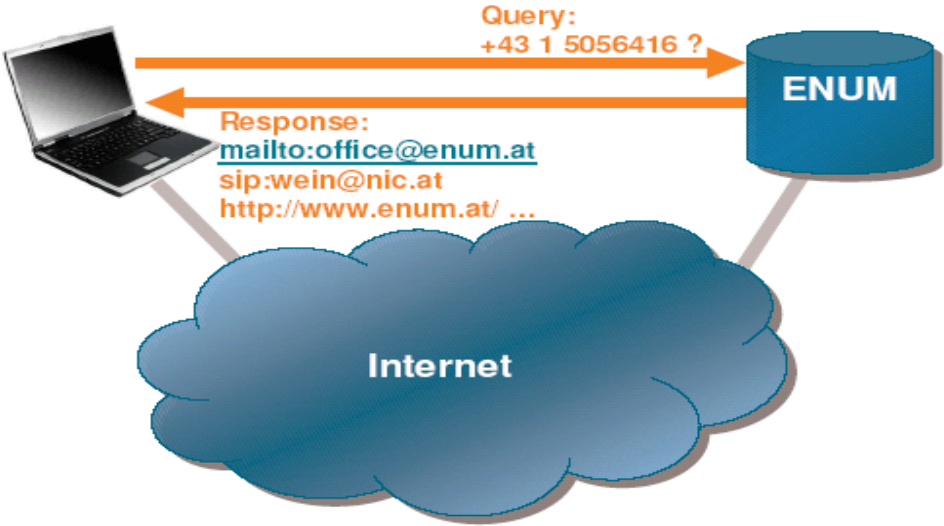
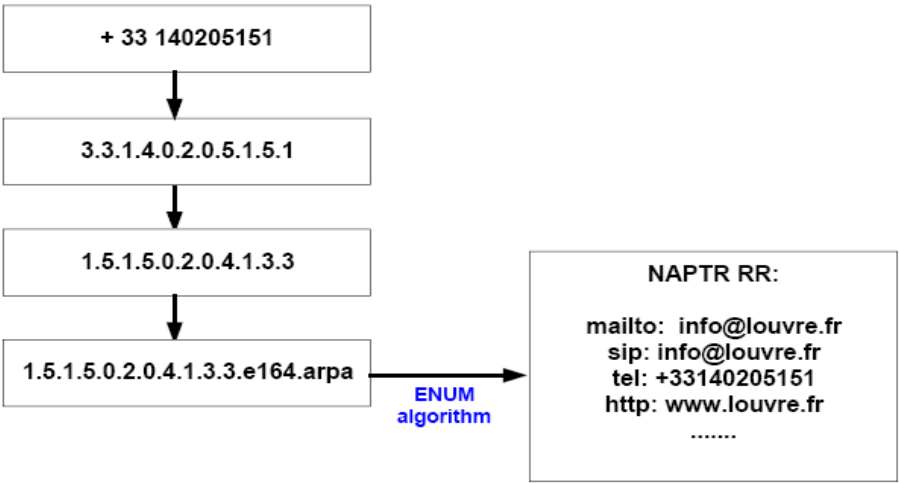
Source: EFORT, 2005

The way forward (c'd): Convergence telephone/Internet numbering system

- ❑ The ENUM Protocol (tElephone NUmber Mapping):
 - ❑ Analogy telephone numbering and ccTLDs; for instance Ghana:
 - ❑ ccTLD=.gh
 - ❑ telephone country code= +233
 - ❑ IETF RFC 2916, ITU-T Study Group 2
 - ❑ Use of Internet resources (IP, DNS) and E.164 (telephone numbering) to form a **unique** identifier for users communication needs (URI: Uniform Resource Identifier)



The way forward (c'd): Convergence telephone/Internet numbering system (end)



The way forward (end): Perspectives

- ❑ A concrete beginning of implementation of all those projects:
 - ❑ Project documents elaborated and their ongoing follow-up actions
 - ❑ The broadband wireless connectivity project (ITU/Mc Caw foundation) for 13 African countries:
 - ❑ Senegal, Mali, Burkina Faso, Niger, Swaziland, Rwanda, Burundi, Uganda, Malawi, Djibouti, Chad, Cameroon, Tanzania
 - ❑ The African Health Infoway (AHI) project for all the 53 African Countries (WHO/ITU/AU)
 - ❑ The e-Post project for African countries (ITU/ATU/PAPU)
 - ❑ The e-Portuguese Telemedecine network project (WHO/ITU)

- ❑ ITU is willing to work in partnership with all organizations aiming at ICT developement in Africa:
 - ❑ A partnership program is already going on with ECA
 - ❑ Some projects are being run in partnership with other organizations (ATU, PAPU, WHO,...)
 - ❑ ITU invites all the potential partners in the field of ICTs to work in synergy to avoid efforts duplication on the ground



Any Questions?



THANKS!

