Transition from PSTN to NGN: Possible Scenarios

Abstract

Enabling enhanced telecommunication services in emerging countries is essential, in particular because their inhabitants have strong education and health needs. For addressing them, this presentation focuses on the **context inherent in emerging countries**. In particular, the potential clients can be divided into different segments, as identified in the Orange **emerging market segmentation**. This presentation focuses on the "Low Entrant" and the "Premium" population issued from this segmentation, and highlights two architecture scenarios to meet their specific needs.

The "**Low Entrant**" is synonym of "**cash challenged** community", whose clients may either live in rural or in urban areas, earn very low incomes and typically avoid subscriptions. Such clients only held **basic mobile phones** and are not familiar with the use of credit cards. **Prepayment** is thus their privileged payment mechanism. In the presentation, a low-cost technical solution to deliver content over mobile phones is depicted, fulfilling the previous requirements. It allows delivering on-demand content to the largest audience, thanks to a network of retailers who advertize the service and help end-users. The scenario has the ability to **start from a very light infrastructure**, thereby enabling to confirm the balance between supply and demand at a minimal cost. Then, using an **incremental approach from legacy PLMN** (Public Land Mobile Network) **to NGN** (Next Generation Network), it allows both a **quick deployment** of new services as well as **low investments** at the beginning**.**

Contrasting with the "Low Entrant" segment, the "**Premium**" segment corresponds to wealthy urban end-users that can own a smartphone, a TV and a STB (Set Top Box), a satellite receptor device and a PC (Personal Computer). Such end-users are technically aware, and eager to have access to new services, including **on-demand, live and Internet content** even if they cannot benefit from a DSL (Digital Subscriber Line) access line. An architecture scenario specifically designed for this segment is presented. It relies on satellite links to deliver not only live, but also on-demand content, thanks to a "push VoD" (Video on Demand) method.

Currently, a prototype of the architecture is ready for the "Low Entrant" segment, while a field trial is planned in France and in Egypt for the "Premium" Segment.

Biography

Nathalie Omnès worked at first sight in traffic engineering and performance evaluation. She received in 2001 a PhD degree in applied mathematics from the University of Rennes (France), after three years of research in the ex-CNET, now renamed Orange Labs. She then joined Mitsubishi Electric Telecommunication Laboratory, ITE TCL, located in France, as a research engineer. She focused on wireless LANs, traffic handling mechanisms and their mathematical modeling. She left this position in 2006 to start working in the field of network architecture. She was awarded the Louis Leprince-Ringuet 1st price in 2008 for her work in hybrid CDN (Content Delivery Network) and P2P (Peer-to-Peer) architectures, and joined Orange Labs in 2010. She is now working on end-to-end architectures for delivering audiovisual content services. She thus focuses on content delivery models, their functional and organic architectures as well as their integration within the Orange ecosystem. She also focuses on fixed and mobile architectures convergence.

Publications and patents:

Journal:
Performance Evaluation 58 (2004) 15-23 *« Trafic conditioner: upper bound for the spacer overflow probability »* Nathalie Omnès, Annie Gravey, Raymond Marie.

Conferences:
ICIN'2008, *«Peer-AHNA: An Adaptive Network Architecture for IPTV Services »*, Frédéric Fieau, Mohamed Fouz Menaï, Nathalie Omnès, p.123-128.
HPC'2001 *«Modelling a Virtual Source to Virtual Destination Dynamic Bandwidth Reallocation Scheme With DSPN».*
ISCIS'98 *«Mathematical Modeling of QoS for ATM CBR services».*

Patents:
2003 *«Method for controlling access to shared wireless medium for several connections».*
2007 **«***Device and method for supervising source equipment***»**.