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Current status of next generation networks (NGN) in Switzerland and Europe

In terms of planning and implementing next generation networks (NGN), the same problems and uncertainties are being faced in Switzerland as in Europe. This finding is the result of two surveys conducted by OFCOM with Swiss operators and European regulators. Migration to these networks, which is necessary to overcome the technological limitations of current networks and to meet the growing demand for bandwidth as well as new services, is coming up against financial and technological difficulties and will require a transitional period of 5 years or more.

Various Swiss and European operators have taken the initiative to develop core next-generation networks (NGN). To update information on the status of projects and the deployment strategy, the Federal Office of Communications (OFCOM) has conducted a study based on data collected from two specific questionnaires (Switzerland and the EU) which addressed:

- the general strategy relating to NGN and migration to these networks;
- the introduction of IP Multimedia Subsystem (IMS) in networks;
- future voice, data and multimedia services;
- future interconnection models, particularly IP (Internet Protocol);
- fixed-mobile convergence and its consequences.

Current situation of the Swiss operators

Several operators likely to commission an NGN by the end of 2009 and representatives of the telecommunications market in various capacities participated in the survey. The responses provided allow the following conclusions to be drawn:

- Some Swiss operators have an NGN/IMS network (in the implementation phase or already active).
- Other operators are planning to implement an NGN/IMS network in the future.
- The introduction of an NGN/IMS network is justified by
    - the ageing nature and limitations of traditional PSTNs (Public Switched Telephone Networks), the maintenance of which is becoming difficult;
    - the growing demand for bandwidth on fixed and mobile networks;
    - the demand for new services.

    The timing of the replacement of the current network by an NGN network remains an open question.
- The implementation of NGN networks is encountering a number of obstacles:

- IMS, already in place for 3GPP, is the standard for the new networks, but it has emerged only belatedly for NGN;
- implementation costs are high and operating costs are unclear;
- some European operators have had bad experiences with initial implementation (operators acting as guinea pigs for equipment).

- Few public services will be available for several years.

- The Swiss situation is not unlike the European situation.

An overview of the European regulators

Thirty-three European telecoms regulators, representing all the members of the IRG (Independent Regulators' Group), were contacted and asked to answer a questionnaire on the current and future NGN projects of the telecom operators active in their respective countries. Even though not all the regulators contacted responded, the results of this survey do allow a global projection to be made and yielded the following findings:

- The majority of the European operators are having to launch NGN/IMS projects (in the planning stage or already under test) because they have no real alternatives.

- IMS technology is gaining acceptance; it allows synergy with the 3GPP networks (fixed-mobile convergence).

- The interconnection of the future will be of the IP-IP type; it is already in place in 50% of the countries consulted. The transition to "all-IP" is already under way.

- The most likely scenario for the migration of the so-called plain old telephone service (POTS) to NGN involves the superposition of NGN networks and PSTN/ISDN networks.

- Access to NGN will be of the xDSL and/or FTTH, type; UMTS/HSPA/EDGE or LTE mobile access types are not really under consideration.

- The services offered as a result of the emergence of NGN/IMS are not particularly innovative and are expected to be primarily VoIP and IPTV, and perhaps SMS/MMS and IM.

- Future interconnection agreements are expected to be of the Calling Party Pays and Bill & Keep type.

- Fixed-mobile convergence is not really being envisaged but it is necessary because:

  - the core networks (backhaul) must provide large capacities;
  - the new VoIP, IPTV, VoD, etc. services are capacity-hungry;
  - grid computing and 4G networks, which offer a lot of capacity, are being developed;
  - internet connections from mobile phones or laptops are beginning to saturate mobile networks.

Similar situation in Switzerland and Europe

The two surveys on the implementation of next generation networks being undertaken in Switzerland and Europe allow the following conclusions to be drawn:

- In relation to NGN/IMS projects and implementation, the same problems exist at the Swiss and European levels.

- Many uncertainties remain. They are associated with very significant financial repercussions.

- IMS seems to be gaining acceptance but there are difficult strategic choices regarding interfaces between networks, cost structures and future interconnection agreements.

- The causes for migration to NGN are:

    – the technological limits for replacing current networks;

    – the increasing demand for bandwidth and new services;

    – the enormous importance of the IP world.

- The historic operators have set up NGN networks and are expected to replace their PSTN networks in the near future. However, the migration appears to be delicate and the interim situation may be difficult to manage.

- The timing will be complicated for small operators (few financial and technological resources) and might lead to a profound change in the telecommunications market.

- The applications and services of the future are still limited to VoIP, IPTV and internet access. The very principle of an NGN, i.e. separation between network and services, is being given little consideration.

- The process of migration to NGN is still in its infancy; few operators have the necessary financial and technological resources.

- A transitional period of 3 to 5 years, or even longer, is probable before we see a majority of next generation networks.