

1 Introduction

Cameroon welcomes the consultation that ITU has organized at Dubai on the regulatory frameworks to speed up the transition to next-generation networks (NGNs). This is an opportunity for the participants to give their point of view on a subject that is of particularly great importance given that the transition to NGNs will structurally affect the sector.

The subject of NGNs occupies administrations, regulators and other players in the telecommunications/ICT sector around the world. In the 10 to 20 years to come, NGNs will progressively replace the networks currently in use (STN, PLMN, broadcasting and cable networks, etc.). While there is no universally accepted definition of an NGN, in general it is understood to mean a single network used to provide a variety of services, including voice, data and image, that can be received on fixed or mobile units of various types. Until now, communication technologies have been separate, with each type of communication service, for example television, fixed telephony or cellular telephony, having its own carrier infrastructure. In an NGN environment, all of those services are carried on a common IP network organized on three separate network layers: the application layer, which consists of all the application servers providing services, the control layer, consisting of softswitches that set up, maintain and terminate calls or sessions, and the transport/access layer, which includes the entire packet-switching infrastructure that handles the data flow throughout the network with all of the various access technologies: STN, GSM-3G, xDSL and WiMAX.

The migration of telecommunications towards NGNs is rife with technical, economic and regulatory implications.

- **Technical implications**

Network architecture will go from a centralized, controlled and closed mode to a distributed and open mode, and circuit technology (TDM) will be replaced by packet mode (IP). *This transition will require major investment, particularly onerous for operators in African countries who have recently invested heavily in modernization of their traditional switching voice infrastructures.*

- **Economic implications**

The advent of NGNs will make it possible to open the networks and develop a *market for services and content, which is a market segment which is still largely undeveloped in Africa*. In the new environment, service providers based anywhere in the world can offer their services to users in any country in the world. *This new market situation is creating concern among the African countries, as the more established Western and Asian service providers threaten to conquer the dominant market share, leaving little for the relatively inexperienced African providers.*

- **Regulatory implications**

Current sector regulation was designed for the telecommunication services of the 1980s and 1990s. It is based on a segmented market approach that does not take into account convergent offers. The basis of this regulation is being made obsolete by the technological changes and the integration of services that can be carried by NGNs.

Accordingly, regulatory innovations are required in a number of areas, including:

- adaptation to new technical solutions and economic conditions;
- definition of the status of the different players (service providers, central network operator, access network operator), their rights and obligations;
- a new, more "horizontal" licensing policy reflecting the integrative nature of NGNs, etc.

2 Regulatory challenges from the advent of NGNs

New regulatory practices will be required in the following areas.

Access

A favourable environment for the deployment of broadband access is important for the development of NGNs. The new regulatory framework should therefore encourage:

- unbundling or opening of the "last mile" to allow other operators to use the incumbent operator's fixed access network, which is ideal for high-speed service;
- the introduction of high-speed wireless access technologies, WiMAX;
- sharing of passive network resources and infrastructures by all players.

Regulators must take care to ensure that the obligation to open new infrastructure to the competitors does not discourage investment in those infrastructures.

Competition

The new regulatory framework must end the monopoly arrangements that still dominate in some market segments and encourage competition. However, to ensure healthy competition, the framework should define the elements that make up the relevance of markets and define criteria for market dominance. On the basis of those criteria, the regulator must ensure that an operator considered to be dominant in the market does not act as though it were independent of the other market players.

Consumer awareness/protection

Security issues are paramount where NGNs are concerned, given the great vulnerability of IP architecture to attacks from the outside: cybercrime, fraud, terrorism. Countries must upgrade their legislation on network security, legal interception of communications, protection of consumers' confidentiality, and the legitimate interests of corporations.

The new regulatory framework must guarantee access to emergency services using IP-based communication. Service provider contracts should indicate clearly whether access to emergency services is guaranteed.

Finally, network availability and continuity of service must be ensured during and after the transition to NGNs.

Interconnection

Regulation currently defines interconnection as a reciprocal service between operators using public networks of the same type. Interconnection as it currently exists is based on traditional circuit-switched telephone networks and services. Since NGNs by their nature are data networks, problems could arise with standardization, interfaces and interoperability of the networks during the transition phase. The new regulatory framework must address these issues.

Investment

NGN deployment requires major capital investment. For this reason, those African countries whose economies are in crisis must turn to foreign investors for the deployment of the networks in their countries. A regulatory framework that encourages and protects investments can provide a guarantee for those investors.

Licensing

Licensing by service, which is favoured in the current system of regulation, must be replaced with a more horizontal licensing policy that reflects the integrative nature of NGNs.

Pricing

The traditional distance and duration-based method of pricing services has been overtaken by the IP environment. The new regulatory framework must promote new principles that are based on access mode (ADSL, WiMAX, FTTB/FTTH) and service packages, such as triple-play and others.

Quality of service

Quality of service requires special attention, as NGNs are still emerging and have not yet reached full maturity. New regulations must ensure that the quality of service provided by NGNs is at least equivalent to that of traditional networks.

Universal access/service

The universal service obligations under the current regulatory framework must be carried over into the new framework and applied to all of the players in the NGN environment, so as to ensure that the decline in revenues from traditional telecommunications, connected with the arrival on the market of new and attractive services, does not result in a shortfall in universal service funding.

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