

# “What Rules for IP-Enabled NGNs?”

ITU NGN Policy and Regulatory Workshop

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## Background

The past decade has witnessed a period of drastic market restructuring in the telecom sector. In 2002, the number of mobile subscribers overtook fixed lines, thereby becoming the preferred method for accessing voice services globally. Simultaneously, the growing popularity of the internet and other IP-based networks continues to drive the creative edge of data and increasingly voice communications and will continue to reshape the business dynamics of the industry.

Although major carriers are globally the primary providers of broadband internet access through copper wire “last-mile” networks using DSL technologies, they are faced with growing pressure from competitors—including wireless carriers and operators of cable television networks now re-architected to support bi-directional IP-based services. As part of their response, traditional carriers are looking to move “up the value chain” into data and audio-visual content at the same time that mega-internet service providers (with strong brands and deep pockets) like Google, MSN, eBay and Yahoo are entering voice markets and making forays into competitive infrastructure provisioning.

Faced with separate infrastructures for voice and data businesses, rapid convergence and growing competition, almost all traditional carriers are fundamentally re-examining their business models and making investments in a move to common IP-based core infrastructures and deploying high-speed access connectivity (e.g., through FTTx or VDSL) for customers. These new core and access network infrastructures will be supplemented with an “intelligent infrastructure” or a “business layer” for IP networks capable of providing QoS, reliability and security assurances for multiple service scenarios across carriers.<sup>1</sup>

In particular, substantial investments are being made by operators and equipment manufacturers in what is referred to as ***IP-Enabled Next Generation Networks (NGNs)***. IP-enabled NGNs can be seen as a logical progression from separate PSTN- and IP-network infrastructures to unified networks for future electronic communications based on IP. The fundamental difference between NGNs and today’s telecom networks is a shift from ‘circuit-switched’ voice-based single service networks to ‘packet-based’ multi-service networks (of which ‘voice’ will be only one of a palette of available services).

In the coming years, IP-enabled NGNs will be deployed by numerous service providers around the globe. Much of the necessary work will focus on creating a cross-provider business architecture that enables authenticated providers to interconnect in a secure, QoS-enabled, multi-service environment using a business-driven inter-provider compensation mechanisms.

## The Shifting Regulatory Landscape

Telecommunication policy-makers and regulators are aware that the days when legislation and regulation could assume distinct services running over distinct networks are disappearing fast. Prior to convergence, separate services depended on separate and dedicated networks. The public switched telephone network was optimized for person-to-person voice communications. Broadcast networks were optimized for one-way delivery of radio or television. The internet was designed for non-real-time transportation of packets, with no consideration for quality of service.

These networks and services are now converging and the digitized bits flowing over the networks are “co-mingling”. Where this is the case and separate or asymmetric national policies and regulations exist, legislative and regulatory frameworks must adapt.

## What Rules for IP-Enabled NGNs?

The ITU Strategy and Policy Unit workshop, *What Rules for IP-enabled NGNs*, to be held at ITU Headquarters on March 23-24 2006 will examine current market developments of IP-enabled NGNs and consider the future implications for policy and regulation.

Background papers on the following topics are being commissioned:

- Ruling the New and Emerging Markets in the Telecommunication Sector
- Interconnection in an IP-enabled NGN Environment
- Universal Service in an IP-enabled NGN environment
- Survey of National IP-Enabled Regulatory Proceedings

The workshop is intended to keep ITU at the strategic forefront of “new wave” policy and regulatory thinking on the convergence in ICTs.

## Key Points for Consideration

- In a multi-service communications environment, does it make sense to distinguish voice (including VoIP) as a service needing to be treated with a distinct set of policy, legislative and regulatory provisions?
- Government and user expectations are changing as to what constitutes basic and universal service to ICTs. What does universal service imply in a broadband-based IP-enabled NGN environment? How does one define universal service? Possible commissioned background paper is needed.
- The technologies and architecture of IP-enabled NGNs are fundamentally different from the PSTN and will result in new network topologies, associated costs and commercial models. It is also likely to lead to the development of new IP-based interconnection arrangements that are service-based, rather than capacity-based, particularly for latency-sensitive (isochronous) traffic. What will be the impact on current interconnection arrangements? What does interconnection mean in a multi-service NGN environment? Is there a need for mandated wholesale interconnection regimes? Possible commissioned background paper is needed.
- The evolution of the public internet and IP-enabled NGNs is under debate and could result in either co-existence or convergence. However, in either scenario, as a transition is made from a PSTN infrastructure to an IP-enabled platform on which critical public services are increasingly dependent, a number of countries are already making the transition to policy or regulatory requirements that may be similar, or identical, to existing rules applied to services offered over public circuit switched networks of today<sup>2</sup>. A case study could be commissioned to survey ongoing national proceedings and emerging policy principles and regulatory norms for IP-enabled and NGN services. This could serve as a comparative analysis for national policy-makers and regulators of common approaches.
- Who will be the primary next generation service providers? The coming decade will witness continued innovation in the ICT sector and growing convergence between the largely unregulated computing and consumer electronics industries and the more heavily regulated communications and media industries. What impact will this have on current regulatory regimes?

- In the communications and media industries, convergence is setting two very different regulatory cultures on a rapid collision course: the highly-interventionist regulatory culture of broadcasting and less interventionist (at least with regard to content) culture of telecommunications. This is a particularly sensitive topic as the regulation of audiovisual content industries is culturally embedded and tied to national regulatory regimes consistent with cultural and religious values<sup>3</sup>. Is it possible to regulate content in a converged always-on on-demand broadband world? Are platform independent approaches possible? Will voluntary codes of conduct be sufficient?
- Given the growing importance of signalling and authentication in IP-enabled NGNs through an intelligent infrastructure control/service plane, what kinds of national policy and regulatory stances are necessary to promote both competition and critical information infrastructure protection in this domain? What forms of international cooperation are needed to make this work in a cross-border inter-carrier context?
- The growth of globally interconnected IP-enabled NGNs can boost trade in cross-border delivery of audiovisual content. However, this means supporting media industry requirements for intellectual property protection through DRM schemes across IP-enabled NGNs. Is this capability need being adequately addressed in NGN intelligent infrastructure plane architectures? How will this impact current audiovisual content licensing regimes?
- Incumbent carriers state that commercial models for IP-enabled NGNs are at an early and evolutionary phase and that it is too early to discuss open access or wholesale mandated interconnection regimes. It is also argued that IP-enabled NGNs, particularly the deployment of high-speed access networks (e.g. VTTx, VDSL), require massive investments and that “national regulatory moratoria” for incumbents are appropriate. Competitive providers argue the opposite, saying that regulators need to ask whether, in the absence of wholesale economic regulation, will market dynamics be sufficient to ensure a competitive environment? They are worried that without immediate attention by regulators to NGNs, carriers will rapidly vertically integrate services and that bottlenecks will emerge for delivery of audiovisual content.
- A general trend is emerging of closer relationships between carriers’ wireline and wireline units. Will IP-enabled NGNs facilitate fixed-mobile bundled offerings by incumbents that competitive providers will not be able to duplicate?

## Overall Themes

- What are the issues that market forces may not fully address?
- What are the issues that need to be addressed at a national level?
- What are the issues that need to be addressed at the international level?
- How does this interrelate to ITU’s Next Generation Network Global Standards Initiative (NGN-GSI)?

<sup>1</sup> As one example of an industry initiative, see the IPSphere Forum at [www.ipsphere.org](http://www.ipsphere.org).

<sup>2</sup> Examples of such rules include provisions for public safety needs, disability assistance, law enforcement support, competition considerations, fraud prevention, prioritization during emergencies, privacy and data protection, and consumer protection against unwanted intrusions.

<sup>3</sup> Issues likely needed to be addressed include, *inter alia*, advertising, public broadcasting, content diversity (e.g., support for national content production), licensing, quality, decency and protection from abusive uses and community standards? What are the implications for trade in cross-border audio-visual services?