

# **Next Generation Networks (NGN) and Next Generation Internet (NGI) and corresponding regulatory issues**

## **Abstract**

by

K.-D. Hackbarth, University of Cantabria, Santander, Spain,  
J. . Portilla, University of Alcala, Madrid, Spain

[klaus.hackbarth@unican.es](mailto:klaus.hackbarth@unican.es),  
[antonio.portilla@uah.es](mailto:antonio.portilla@uah.es)

Traffic from electronic communications services continually increases since decades. Currently, the corresponding networks undergo a deep-rooted restructuring. This is caused by several factors like e.g. technical progress, competition, and changes on the demand side. All of these factors imply a paradigm shift from Service Integrated Networks towards Network Integrated Services. The different market players, depending on their current business model and market position, pursue different strategies to meet the new requirements.

Former incumbent operators and new operators with significant market power are migrating their legacy networks and the corresponding service portfolio towards a Next Generation Network with the expectation to keep their client base, reduce their OPEX and increase benefit for the consumers due to new services. Internet Service and Internet Transport providers, which generally are not burdened with the challenge to migrate legacy PSTN/ISDN networks and services, improve their communications network infrastructure in direction to the so called Next Generation Internet.

The main difference between NGN and NGI results from the centralized control functions in NGN (Softswitch or CSCF in IMS) against a distributed control plane over hosts, proxies etc. in NGI. Roughly speaking, in NGN the operator maintains the control over the service and application offer while NGI maintains the open character of the current Internet.

The paper aims at addressing the following issues: (1) Highlighting the motivation for the migration to NGN and NGI, respectively; (2) analyzing the main architectural characteristics of NGN and NGI and providing a comparison of both concepts; (3) identifying and discussing competition policy and regulatory problems caused by the migration process like e.g. interconnection, call termination pricing etc.; (4) indicating the necessity to adapt current cost models regarding QoS differentiation in NGN and NGI, respectively, and analyzing approaches to handle these issues.