HAKOM

NEXT GENERATION NETWORK AND REGULATORY CHALLENGES

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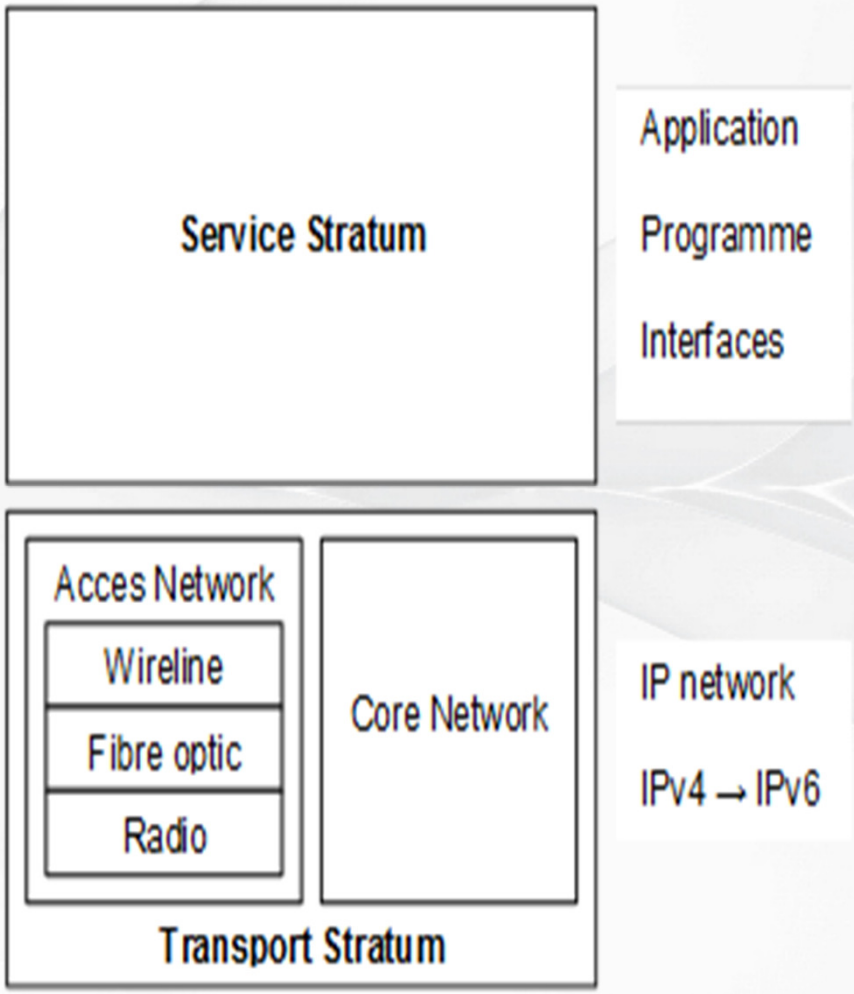
INTRODUCTION

- Regulatory implications, objectives and challenges related to the implementation and development of New Generation Network (NGN)
- Major features of NGN from regulatory point of view
- Different group of market players and roles
- Changed and new created relevant markets due to NGN
- Croatian national regulatory authority within European Union (EU) and Body of European Regulatory for Electronic Communications (BEREC)
- Case study on fibre optic access network in Croatia

NGN ARCHITECTURE



- NGN horizontal organization
- Transport and service stratum
- Services and applications separation
- „Network“ and „service“ part
- New markets
- NGN is fully digital packet switched network based on Internet Protocol (IP)
- Migration from IPv4 to IPv6
- Standardised and open application programme interfaces

REGULATORY IMPLICATIONS

- Three major NGN features:
  - service-transport separation,
  - IP,
  - standardised interfaces.
- List of open issues
- NGN enables more efficient network
- Market differentiation due to risk for investment
- EU NRAs & BEREC review NGN regulatory policy issues:
  - market competition,
  - incentives for investments and efficient use of the network,
  - user interest,
  - technological neutrality.

REGULATORY OBJECTIVES

- Electronic communication market regulation in EU is based on these three assumptions:
  - incentives for protection and non-distortion of competition
  - meeting of social needs and protection of end-user privacy,
  - rational management.

- *„ex ante"* and *„ex post"* regulatory principles

- Assessment of the operators and service providers with significant market power (SMP)

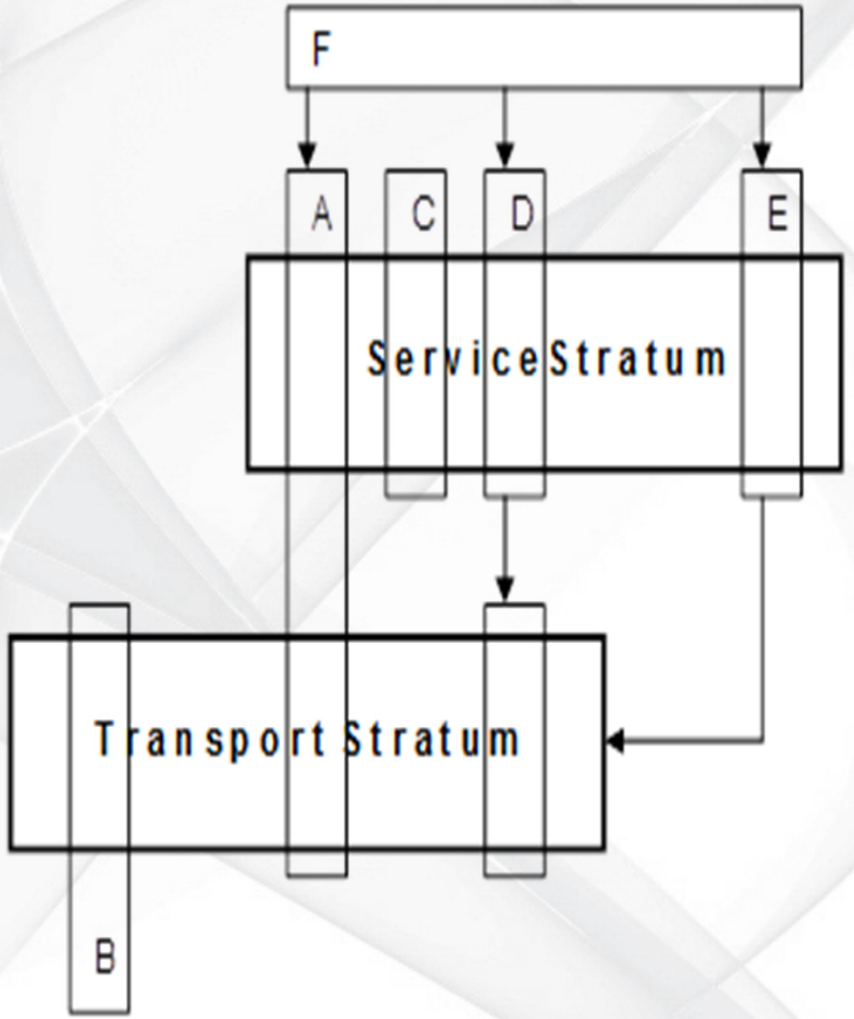
- The regulatory objectives remain unchanged

NGN REGULATORY CHALLENGES

- Prevent market monopoly with market competition
- Existing regulatory tools are primarily focused on circuit switching networks
- Investments are required in the new access infrastructure
- Transfer existing regulatory obligations into NGN
- Regulatory clarity regarding transition to NGN

MARKET POWER

- Competition in NGN
- Regulatory tools
- New value chain
- New business models
- The stratum shift
- Incumbents and SMPs
- Cost reduction
- Relevant markets definition
- Client-server model
- Regulation of wholesale
- New markets
- Specific problems



NETWORK INFRASTRUCTURE

- The new access technologies:
  - optical,
  - hybrid,
  - optical-wire,
  - radio.
- Regulation should be technologically neutral
- Capacity building and investment in new technologies
- Changes in interconnection
- Quality of Service (QoS) and NGN
- Network neutrality

SOCIAL NEEDS

- Social needs of electronic communication are expressed in:
  - universal access,
  - emergency services,
  - implementation of lawful interception.
- Voice over IP (VoIP) and universal service
- „Efficient access to Internet" – 2020 Europe Agenda
- VoIP as „problem" for emergency services
- Lawful interception is more complex in NGN than in existing wireline and wireless networks due to data collection in the packet networks without jeopardizing end-users' privacy

INITIAL PHASE AND TRANSITION PERIOD

- Management of the transition to NGN
- Change of architecture and network organisation
- Cost models for the transition period
- Limited resources:

  - radiofrequency spectrum,
  - numbering,
  - addressing space.
- Auction and spectrum trading for rf-spectrum allocation
- Numbering system as it is for wireline networks
- Addressing system derived from Internet management of the addressing space
- Systemic solution for VoIP and ENUM is required

REGULATORY AUTHORITIES ACTIVITIES

- BEREC's decision are based on the ITU recommendations
- EC recommendation for New Generation Access in 2010
- BEREC's three reports for NGN/NGA regulation:
- "Next Generation Access – Implementation Issues and Wholesale Products ";
- „Next Generation Access – Collection of Factual Information and New Issues of NGA- roll out";
- „Next Generation Access – Collection of Factual Information and New Issues of NGA- roll out – Annex I to the BEREC Report – Country Case Studies".

- HAKOM as Croatian NRA in some cases anticipates BEREC
- Market analysis from 2009:
  - wholesale access to network infrastructure at fixed location, including shared and unbundled access;
  - wholesale broadband access market.
- HAKOM has set regulatory rules for „FttCab" and „FttH"
- „Ordinance of the Manner and Conditions for Fiber Access Networks" from 2010
- NGN market regulation in Croatia
- Telecommunication Regulatory Governance Index (TRGI) is 0.48

CASE STUDY - CROATIA

- FttCab – wholesale services of bitstream access and unbundled access to copper-based local sub-loop are regulated
- FttH - wholesale services of bitstream access and unbundled access to fiber-based local sub-loop are regulated
- Hrvatski Telekom (HT) is SMP operator
- Other regulatory obligations
- Return of investments guarantee
- Regulation is deriving from law and by-laws
- Relevant for all existing and future infrastructure operators

CONCLUSION

- NGN regulatory challenges are related to:
  - service-transport separation,
  - IP,
  - open interfaces.
- The role of NRAs, including BEREC, is the creation of the regulatory framework as a basic condition for market development
- HAKOM, as Croatian NRA, together with the government should encourage the investments in NGN development
- HAKOM should also encourage competition that leads to the sustainable development of the market
- Prevent market monopoly by regulatory obligations clarity
- Development of NGN leads to GDP growth that is in line with interests of citizens, economy and society in general

Thank you

for your attention !

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