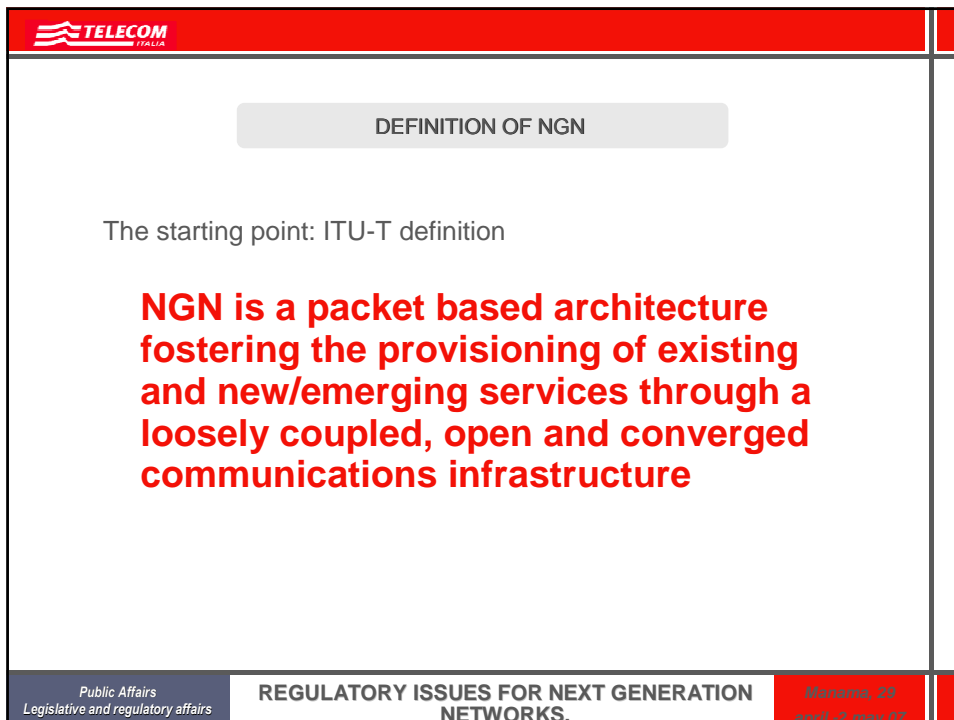




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**DEFINITION OF NGN**

The starting point: ITU-T definition

**NGN is a packet based architecture fostering the provisioning of existing and new/emerging services through a loosely coupled, open and converged communications infrastructure**

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**NGN ARCHITECTURE**

Separation of:  
services and applications  
access and transport

Competition at access  
and transport level  
captures the largest  
part of the economic  
benefits of competition

**CONTENT**

**CONTROL &  
APPLICATIONS  
SERVERS**

**IP TRANSPORT  
NETWORKS**

**FIXED AND MOBILE  
ACCESS NETWORKS**

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**NGN IN ITALY AND EUROPE**

MOST EUROPEAN OPERATORS ARE HEAVILY INVESTING IN THE MODERNIZATION OF THE CORE NETWORK

Timeline of NGN core network modernization:

- 2000: TI begins replacement core network
- 2002: Development of backbones including MNOs
- 2004: Backbone completed in several countries
- 2006: Substantial development in access networks
- 2009: Most EU incumbents will have core network replaced

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### THE ACCESS NETWORK

The diagram illustrates the access network structure. A Local switch is connected to a cabinet via fiber. From the cabinet, the connection can be copper to a distribution frame, or fiber to a distribution frame. From the distribution frame, the connection can be copper to User's premises, or fiber to User's premises. The diagram shows four scenarios:

- from 3 to 5 Km  
ADSL up to 2 Mbit/s
- from 2 to 3 Km  
ADSL2+ up to 12 Mbit/s
- FitC 400 m average  
VDSL up to 50 Mbit/s
- FitB less than 400 m  
VDSL up to 50 Mbit/s
- FitH: > 100 Mbit/s

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### INVESTMENTS IN THE ACCESS NETWORK

- ☐ The installation of new generation access networks requires heavier and less flexible investments than those needed for transport networks.
- ☐ The return on the investment is directly related to the customers response to the introduction of new services as VoD, video calls, gaming on line, etc.
- ☐ The operators have a strong need for a clear and stable regulatory framework for access networks.
- ☐ On the other side the NRAs are focused on limiting the incumbents' advantage which might limit the development of a competitive market.

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### PROPORTIONATE REGULATORY INTERVENTION

Two major factors:

- The installation of fiber on access NGNs is generally made *ex novo* and the incumbents' advantage originated by the legacy copper network ownership is limited;
- For commercial reasons there is a geographic overlapping between the areas currently open to unbundling and the areas chosen for priority development of the access NGNs: so the regulatory intervention can be lighter.

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### A PROPOSAL FOR REGULATING BB ACCESS – FIRST PHASE

FIRST PHASE (2006 – 2012)

```

    graph LR
      LS[LOCAL SWITCH] -- COPPER --> CAB[CABINET]
      CAB -- FIBER --> DF[DISTRIBUTION FRAME]
      DF -- COPPER --> UP[USER PREMISES]
    
```

REGULATORY OBLIGATION	SCOPE OF OBLIGATION
Mandatory offer of some network elements: <ul style="list-style-type: none"> <li>• copper links between the cabinet and the user premises</li> <li>• ducts for the fiber layout</li> <li>• co-location in the cabinets and in the distribution frames</li> </ul>	No advantages for the incumbents in installing NGN  Promotion of infrastructure based competition
NRAs to keep in place current obligations for wholesale BB access when the historical operator has SMP	Transition towards NGN does not lead to sudden unavailability of wholesale BB access

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**A PROPOSAL FOR REGULATING BB ACCESS – SECOND PHASE**

SECOND PHASE (2012 - ....)

REGULATORY OBLIGATION	SCOPE OF OBLIGATION
<p>Mandatory offer of some network elements:</p> <ul style="list-style-type: none"> <li>• ducts for the fiber layout</li> <li>• co-location in the cabinets and in the distribution frames</li> </ul> <p>Only if WiMax, WiBro, etc solutions are not available:</p> <ul style="list-style-type: none"> <li>• copper links between the cabinet and the user premises</li> </ul>	<p>No advantages for the incumbents in installing NGN</p> <p>Promotion of infrastructure based competition</p>
<p>NRAs remove current obligations for wholesale BB access</p>	<p>Increased efficiency due to the reduction of the number of different platforms (VDSL, ADSL, etc)</p> <p>Incentivo to the development of new and competitive access networks</p>

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**OPEN REGULATORY PROBLEMS**

- ❖ How to regulate new actors as *ASP (Application Service Providers)*, Content Providers and Broadcasters?
- ❖ Competitors with “no network”: interconnection, pricing for bandwidth?
- ❖ No regulation for retail converging services and bundled offers by the incumbents?
- ❖ *Best effort quality vs guaranteed quality?*
- ❖ Services interconnection vs networks interconnection?

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