



NGNs – the issues facing the regulator

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The promise of NGNs

- One network replaces many:
 - *Lower unit costs leading to*
 - *Lower prices for existing services*
- High speed broadband for:
 - *IPTV (and especially HDTV)*
 - *Major increase in upload speeds vs **asymmetric** DSL*
 - *Content rich services*
- Separation of network conveyance from network intelligence:
 - *Much faster and cheaper to develop new services*
 - *Capacity for competitive innovation shifts from network to servers*
 - *Wide range of new services provided on a competitive basis*



NGNs – issues for the regulator

1. What are the key objectives?
2. Where to require competitive access to the incumbent's NGN?
3. How to price next generation access (NGA)?
4. What ex ante regulation of NGN interconnect?
5. How to deal with transitional issues?

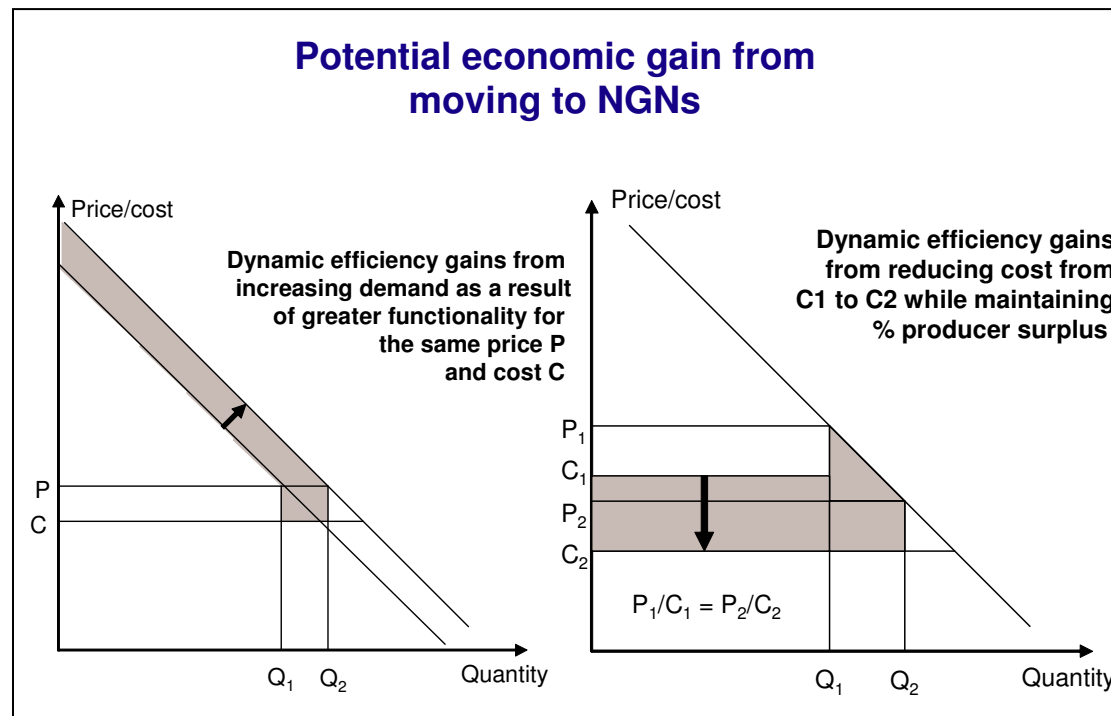
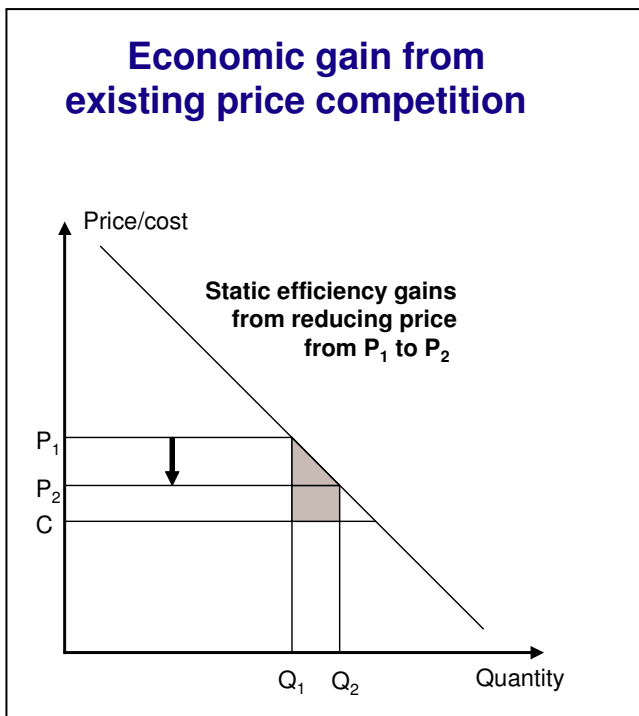


Issue 1 – The right objectives for the NRA

- EU regulatory framework offers NRAs three objectives:
 - *Maximise benefits to end users (a true objective)*
 - *Promote competition (a means to an end)*
 - *Complete the single market (a means to an end)*
- Major problems with these objectives
 - *Only one proper objective*
 - *No guidance on trade offs between them*
- Does not look as if recent review has fixed this fundamental problem



Issue 1 – The potential economic gains from NGNs



- Innovation and investment in NGNs is likely to generate much greater economic gains than today's price competition



Issue 1 - Proposed objectives for regulating NGNs

- Regulate so as to maximise economic welfare:
 - *Trade off between investment and competition required*
 - *Provide regulatory certainty to maximise investment*
- Focus on NGA investment.....
 - *Risky given big fixed costs and uncertain demand*
 - *An economic bottleneck*
-rather than core NGN investment:
 - *Justified on cost saving grounds*
 - *Likely to be competitive*
- Keep ex ante regulation to the minimum:
 - *Uncertainty over market developments means big risk of unintended consequences from ex ante regulation of NGNs*
 - *So push problems to operators for negotiated outcomes wherever possible*



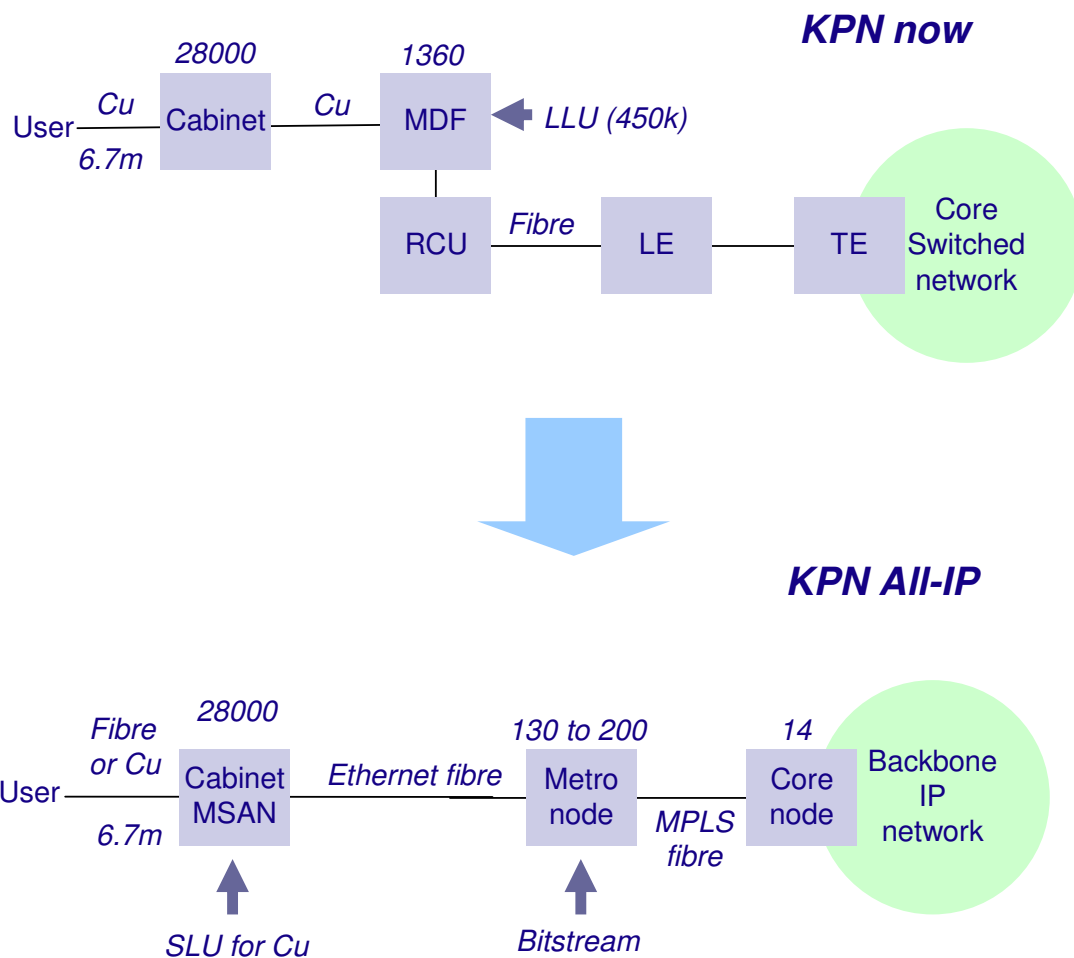
Issue 2 – Where to require access to NGNs

- Incumbent's access network will remain an economic bottleneck in most countries
- Does NGA fundamentally change the “*deepest level of infrastructure*” at which competitive interconnect is possible?
- Ofcom tests for this point – where is interconnect:
 - Technically possible?*
 - Practicable?*
 - Commercially viable?*
 - Leading to competitive innovation?*
- So where is this point in an NGN?

Country	% broadband access network non incumbent
France	6%
Germany	2%
Italy	9%
Netherlands	36%
Spain	22%
Sweden	33%
UK	23%



Issue 2 – NGA shifts the economic bottleneck



- SLU is technically possible and practicable but...
- ...it is not commercially viable:
 - MDF offers access to 5000 lines
 - Cabinet offers access to 300 lines
 - Big fixed cost of interconnecting in both cases
- **Deepest viable POI moves from MDF to core network node**
- Regulate on this basis



Issue 3 – How to regulate the incumbent's NGA

<i>Country</i>	<i>Regulation of NGA</i>
US and HK	None – pure infrastructure base competition Restricted access raises problems of net neutrality
Australia	No agreement reached with NRA and investment abandoned
Germany	Regulatory holiday on NGA but European Commission taking German Government to court
Rest of EU	Regulatory framework does not offer clear guidance. Does NGA support: <ul style="list-style-type: none">■ emerging market services? (No ex ante regulation) or■ established services? (Price regulation where SMP found)

- The main issue – how to regulate to preserve incentives for timely investment without destroying competition



Issue 3 – Options for regulating NGA

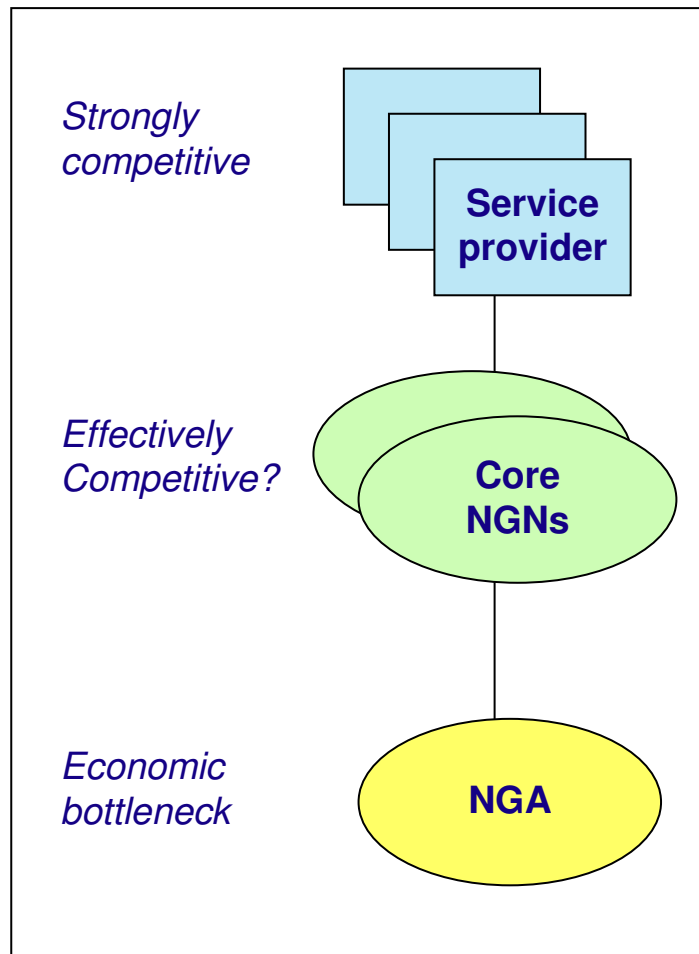
<i>Option</i>	<i>Characteristics</i>	<i>Investment risk</i>
LRIC plus price for NGA	Regulated price for NGA with ROCE premium for: <ul style="list-style-type: none">■ Option value to access seeker■ Asymmetry in regulatory error	NGA operator
Utility model	Price set to guarantee a utility level ROCE to the NGA operator	End users and service providers
Ex ante contracts	Service providers contract in advance for NGA: <ul style="list-style-type: none">■ Price set by negotiation■ No deal, no investment	Service providers and NGA operator
Regulate anchor product only	Price regulate basic broadband Leave NGA operator to set its own price for high speed broadband	NGA operator

- A significant number of radically different options
- Which one best ensures timely investment and effective competition?



Issue 3 – Price regulation of NGA

Likely industry structure in an NGN world

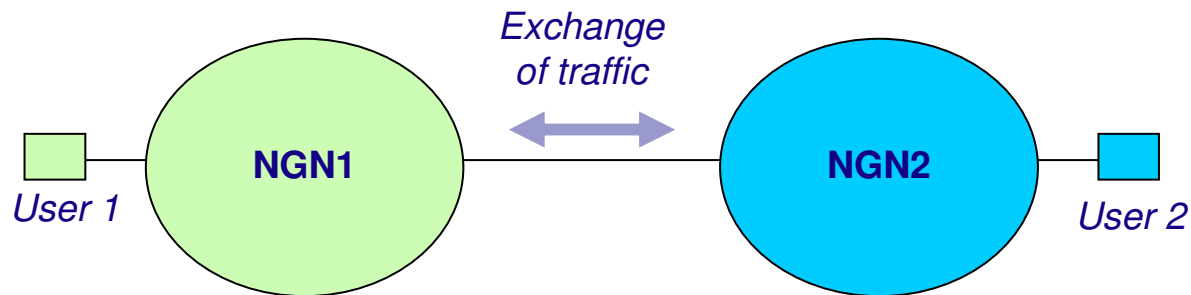


- Service provision level:
 - Major innovation and economic benefits through strong service based competition
 - Service providers focussed on service differentiation and resells NGA products
- NGA level:
 - Economic bottleneck – so regulation required but...
 - ...need to give NGA operator freedom to meet end user needs:
 - Range of products
 - Below cost pricing initially
 - Judge returns on (say) 10 year basis
 - Price discrimination to maximise take-up eg Ramsey pricing



Issue 4 – Ex ante regulation of interconnect between NGNs - 1

What ex ante regulation should govern the exchange of traffic between NGNs?



- Current regulation of interconnect based around two principles:
 - *Any-to-any interconnect for established end- to-end services like voice telephony*
 - *Calling party pays for bulk of end to end calls*
- Together these principles lead to terminating monopoly problem:
 - *Originating network must deliver*
 - *Terminating network is the only route to the called party*
 - *So terminating operator has monopoly power*
- Should these principles apply in an NGN world?



Issue 4 – Ex ante regulation of interconnect between NGNs - 2

- Keep any-to any principle for established end-to-end services:
 - *Maximises economic welfare*
 - *Prevents large operators from leveraging market power by refusing interconnect to small rivals*
- Abandon calling party pays principle. No economic substance:
 - *Based on the premise that calling party causes cost of and enjoys all the benefits from the call*
 - *This is clearly not the case*
- Proposals for NGN interconnect:
 - *Keep ex ante requirement for any-to-any interconnect for **established** services*
 - *Let operators negotiate interconnect*
 - *Monitor **new** end-to end services for market failure*
 - *If necessary implement any-to-any requirement ex post*
- Likely consequences:
 - *NGN interconnect moves to bill and keep*
 - *No terminating monopoly*

Who causes the costs of a voice call?

A sets up call to B	A generates costs
B refuses call: <ul style="list-style-type: none">■ after looking at CLI■ displaces more important activity	B controls costs
B takes call but quickly terminates it	B controls call costs
A finds B is wrong person and terminates call	A controls call costs



Issue 5 - Dealing with transitional problems

- Move from circuit switched networks to NGNs means lots of wholesale products will need to be discontinued
- AltNet customers will ask for long notice periods
- But incumbent running circuit switched networks **and** NGNs means
 - *higher costs for industry and*
 - *higher prices for consumers*
- Need for clear set of public interest based conditions for discontinuation of legacy wholesale products
- Important to promote:
 - *Effective competition and not*
 - *Existing competitors*
- Are existing AltNets the main competitors in an NGN world?

- NGA means DSLAMs and backhaul of LLUers are no longer usable
- What notice period to required before Incumbent withdraws LLU?
 - *OPTA (Netherlands) proposes 5 years*
 - *OFTA (HK) has given 4 years*
 - *FCC (US) gave 9 months*



Conclusions on NGN regulation

1. Regulate NGNs so as to maximise economic welfare
2. Focus on regulation of NGA investment
3. Recognise that NGA enlarges the economic bottleneck
4. Choose from an range of options for regulating NGA that which best ensures timely investment and effective competition
5. Give NGA operators regulatory freedom to meet end user needs
6. Keep any-to-any interconnect requirements but abandon calling party pays principle for NGN interconnect
7. Establish clear public interest based conditions for discontinuation of legacy wholesale products
8. Promote effective competition ***and not*** existing competitors