

# The Future of Broadband Next Generation Access Networks

## General introduction

1. The BBC welcomes Ofcom's consultation on Next Generation Access Networks (NGANs), which raises fundamental and timely questions around the need for regulatory intervention in order to facilitate the development of high speed broadband.
2. The BBC believes NGANs are likely to play an important role in British society. On-demand high-definition TV and telemedicine are only some of the applications they may enable. It agrees with Ofcom and with the Government that in the light of international developments which see 100 Mbps NGAN services being commonplace in South Korea and under trial in France and Germany, it is appropriate to consider whether the UK needs to boost its infrastructure now, and if so, whether this will happen automatically via the usual market mechanisms or whether some form of intervention is necessary.
3. The BBC's interests in the matter are real though specific:
  - As an institution charged by Government with "delivering to the public the benefit of emerging communications technologies and services" (its sixth purpose).
  - As a public service content provider, the BBC is keen to ensure universal access to its services, which include some of the most successful and valued services in the country, in the most convenient way at reasonable cost,
  - As a producer of innovative programmes, it is seeking the opportunity to develop new content formats which might not exist today because of real or perceived technical constraints, and believes that removing the physical limits of the networks will boost creativity
4. The BBC is enthusiastic about the prospects of high speed broadband. It supports Ofcom's approach and analysis, and will argue that NGANs have the potential to deliver high social value. However, to date, it seems unlikely that there is a need for regulatory intervention in order to ensure deployment of NGANs. This is for several reasons:
  - First, at this stage, it appears likely that the BBC will be able to deliver its current and planned services via the existing last-mile infrastructure for the foreseeable future.
  - Second, applications which require very high data speeds (over say 25 Mbps) remain largely speculative, as does their social value.
  - Third, it appears that the market will deliver at least a minimal investment in NGAN rollouts in the near future (e.g. BT's rollouts to new builds, Virgin's

recently-announced decision to upgrade its top broadband product to 50Mbps, and the auction of 2.6 GHz spectrum, which may be used for broadband access). There is a risk that intervention might prevent an investment that the market is already preparing to make. Whilst applications already exist which require NGAN infrastructure - bundled IPTV services such as simultaneous multiscreen HD and VoIP - there are no signs that the market will not deliver the capacity needed to carry them. It is also possible that some of the winners of the 2010-2025 MHz and 2500-2690 MHz auction (the 2.6 GHz auction), currently scheduled for sometime between May and July of next year, will use this spectrum for fixed wireless access.

5. Our reason for believing that current access networks are sufficient for the foreseeable future is that we understand that they can deliver far more than today. Specifically, we understand that the two main concerns in relation to the UK's internet infrastructure are largely unrelated to *access networks*:
  - The main concern is that the UK's current internet infrastructure may fail to cope as **more and more users** turn to bandwidth-intensive applications such as online video. However we understand that this problem, while real, is mainly to do with backhaul and core networks, and would not be addressed by investment in new access networks; conversely, improvements in backhaul and core networks (which are ongoing, but are outside the scope of this consultation) should largely solve this problem for current applications.
  - Another concern often raised is that whilst the current infrastructure is already struggling today, the situation will be even more pronounced as **applications and consumers evolve and come to require more bandwidth**. While we share this concern, again we understand that this largely relates to backhaul and core networks: once these improve, internet access with true speeds in excess of 2 Mbps should be nearly universal, and up to 25 Mbps widely available. A deployment in next-generation access networks would not hasten this development.
6. Therefore, we will argue that the benefits of Next Generation Access Networks should not be assessed by comparison with the status quo, but by comparison with what current-generation access networks can deliver *once expected improvements to core and backhaul networks are in place*.
7. The question then needs to be asked in the following terms: is the difference between the benefits of applications and services that can be delivered with bandwidths between 2 and 25 Mbps on one hand (the current scenario, with improved backhaul and core networks), and over 25 Mbps on the other (the NGAN scenario, with improved backhaul and core networks) such as to justify immediate intervention, particularly given the additional costs involved, which are likely to be passed on to content providers and consumers?
8. So expressed, there does not appear to be a pressing need for intervention *in access networks* at this point. However, we do believe that investment to improve broadband overall is needed, and we welcome Ofcom's inclusion of this in its draft Annual Plan for 2008/09

9. However, it is worth going beyond this first analysis, and considering whether a decision taken not to intervene now could have adverse consequences later.
10. If the success of today's broadband is an indication of the future, a universal high speed internet infrastructure may deliver considerable value to the UK's economy and society as a whole. The BBC is not well placed to determine whether a delay in building it could have a significant macro-economic impact, for example via affecting the competitiveness of UK industries. But such an analysis should indeed be undertaken by Ofcom and government.
11. The BBC's position regarding NGANs is determined by consideration of the answers to a number of questions.

### **Do NGANs help the BBC deliver its purposes?**

12. NGANs, as defined by paragraph 7 above, might help the BBC deliver its purposes if they allow the BBC either to **reach** more of its target audience with its existing services, or to develop **new types of services** that deliver additional public value, which would not be possible otherwise.
13. As stated above, at this stage, current broadband speeds (with expected improvements in backhaul and core networks) are adequate to deliver nearly all existing and planned linear and interactive services, as well as bbc.co.uk. The reach of linear and interactive services is secured by DTT, satellite and cable, and that of bbc.co.uk by current broadband speeds. NGANs are therefore not expected to improve reach of current services.
14. An exception to the above may be the reach of on-demand programmes. The development of NGANs, provided of course they offer access to the relevant BBC services (i.e. the successors to i-player) at reasonable cost, should lead to higher reach for BBC on-demand programmes.
15. Furthermore, NGANs may offer exciting opportunities to create new products relying on high-speed broadband (e.g. on-demand HD; or multiple new linear streams for, e.g., the Olympics; or online communities with video links to multiple participants). The BBC must therefore choose between either:
  - a. attempting to more fully deliver its sixth purpose by developing these products while NGANs are still a niche proposition, in the expectation (which we have) that very high-speed applications will eventually deliver social value – but with a potentially high cost for licence fee payers; or
  - b. taking a more cautious approach (in terms of investment and potential market impact) until NGANs and their social value are well established – at the risk of not fully delivering all the public value that might be possible otherwise.
16. The BBC will embrace NGANs as a key platform for innovation and experimentation, one that may well become a core means of delivering public value. However, while the ways in which this value can be delivered remain speculative,

and while audience and industry trends remain unclear, investment in BBC services relying on NGANs will be limited.

### **Do NGANs have wider social value, and should there be intervention to ensure rollout?**

17. Intervention to support roll-out of NGANs should only happen if they are proven to have considerable social value in addition to their private value.
18. A key benefit of NGAN rollout, which might not be fully captured by private value, could be that NGANs would increase competition in the pay-TV sector, which so far has been limited. There would be no hard limit to the number of channels and services that NGANs could offer, thus increasing plurality and competition among content providers. However, if capacity is a key driver of competition in the pay-TV sector, competition should increase over time if winners of the 2.6 GHz award use this spectrum for fixed wireless access. Capacity constraints are, however, only one of the reasons for the poor competitiveness of the pay TV market: the main limiting factor is the lack of sufficient driver content – premium sports and movies on which it is difficult to see what impact NGANs might have.
19. Other potential benefits could take the form of increased competitiveness for UK industries vis-à-vis their competitors in other countries; innovation in cultural and technological industries; civic value; new forms of communications; less pollution (through less travel); etc.<sup>1</sup> While these are exciting possibilities, it is not clear at this stage that NGANs will be key to this; and, as said earlier, the BBC is not best placed to take a view on these issues.
20. Whilst it is the BBC's view that NGANs are likely to deliver considerable value, in particular through their promotion of the development of new services, it is very difficult to prove that this value will not be delivered by the market at some point in the future, and that a delay in realising these benefits (compared to the situation where there is public intervention) would have a negative impact on consumers or on the economy. While this remains to be proven, the BBC agrees with Ofcom that investment decisions should be left to the market.

### **Will there however be a point when Ofcom might need to intervene?**

21. The BBC considers it important that Ofcom keeps the question of intervention under review, particularly as any decision to intervene will take several years to produce the desired effects.

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<sup>1</sup> The Broadband Stakeholders Group has announced that it will commission a study into the possible social value of NGANs

22. Ofcom should not only maintain this control but also explicitly reserve the right to intervene in some circumstances:
- a. A first trigger for intervention could be where the extent of vertical integration is such that it puts at risk competition in downstream markets
  - b. A second could be where NGANs have proved to deliver high social value but take up has been relatively low (for example, because of the difficulty of making the business case for such services stack-up in less densely-populated areas without charging a relatively high price per customer)
  - c. A third could be the loss of the positive externalities that are obtained today through the fact that retail broadband products are open and “content-blind”(see our answer to Question 3).
23. The first scenario may require a market review, and potentially some remedies; the second may require the imposition of price controls; and the third may require regulation of “net neutrality”.
24. While we acknowledge that this possibility of future regulation may have some impact on industry willingness to invest, we believe that the potential value of NGANs is such that the social cost of indefinite regulatory forbearance may be too high. Industry willingness to invest will increase as Ofcom provides clear guidance on the specific circumstances in which it would intervene. Consequently, we believe that Ofcom should explicitly warn investors of the possibility of future price controls or other regulatory measures.

### **Will the roll-out of NGAs increase the costs to licence fee payers?**

25. The BBC’s public services are paid for by the licence fee. Whilst the licence fee does not cover associated costs such as the receiving equipment itself, or the electricity to power the television set, it provides free access to the BBC’s content. Following the same principles, it is acceptable that licence fee payers are charged for the costs of their broadband connection, as for their electricity.
26. We share Ofcom’s view that an investment in NGANs should not leave consumers any worse off than they are now. Consumers should pay no more than they do today: that is, nothing in addition to a flat utility fee, plus possibly a usage-based charge that is independent of content source. The level of the flat fee should only increase if there are clear benefits to consumers associated with an increase in data speeds above 25 Mbps. This is in order to ensure that BBC services, including [bbc.co.uk](http://bbc.co.uk), are essentially free at the point of use.
27. We would also argue that this objective should be interpreted not only in financial terms, but also in terms of access to content and quality of service. Specifically, we are keen to ensure that:
- Public-service content that is available today on linear-TV platforms should continue to be carried on pay-TV platforms based on NGANs;

- Internet access should continue to be content-blind, in terms of what content is available at what cost. As business models change as a result of NGANs, this may not be an automatic result;
  - A minimal quality of service should be guaranteed.
28. Consumer choice should go a long way towards ensuring these outcomes are realised. Ofcom's role could then simply consist, as indeed it proposes, in maximising competition by allowing a wide range of players to offer services at reasonable cost. As Ofcom suggests, this means that entry should not be limited to those who can afford the upfront investment needed for full sub-loop unbundling: "active" wholesale products should also be explored.

## **Responses to Ofcom's specific questions**

### **Question 1: When do you consider it would be timely and efficient for next generation access investment to take place in the UK?**

As stated above, the BBC is not convinced that there is clear and significant additional value associated with investment in NGANs at present. We also note that the market is already intending to invest in such networks at least marginally – which should help clarify their value. We therefore believe that regulatory intervention to encourage early investment in NGANs is unnecessary. However, we do believe that investment to improve broadband overall is needed, and we welcome Ofcom's inclusion of this in its draft Annual Plan for 2008/09.

### **Question 2: Do you agree with the principles outlined for regulating next generation access?**

The BBC agrees with Ofcom's aims – particularly the need for competition between service providers, and the need for investment to proceed as soon as is commercially sensible. However, we believe that consumers having a number of service providers to choose from, who offer services at reasonable cost – i.e. effective competition at the retail level – should also be considered an explicit goal: this is key to ensuring a vibrant downstream market (see answer to question 3), which is not necessarily guaranteed by competition at the wholesale level (see answer to question 4).

The BBC agrees with the five principles underlying Ofcom's proposed approach:

- contestability
- maximising potential for innovation and differentiation
- equivalence
- reflecting risk in returns, and
- regulatory certainty.

On this last point, we do agree that it is important that both the structure of existing regulation and the prospects of future regulation do not reduce significantly an operator's incentives to invest in NGAs. However, at this stage it would be impossible and premature for the regulator to commit not to intervene in the future, or be too specific as to potential future regulation. The BBC fully understands that Ofcom needs to retain sufficient flexibility in their approach to address currently unforeseen market situations as they occur, and supports its views in this matter. Ofcom must be allowed to adopt a "carrot and stick" approach to regulation.

### **Question 3: How should Ofcom reflect risk in regulated access terms?**

The BBC strongly agrees with the aim of “anchor product regulation” – that is, ensuring that consumers are no worse off as a result of investment. This aim should apply broadly, and not only to retail prices. In particular, today’s retail products offer a certain level of explicit and implicit quality of service; they allow access to any internet service; and are charged on a combination of flat fees plus (in some cases) a variable fee based on the amount of data used, and not on the source of the content that is consumed (i.e. they are “content-blind”). This has been crucial to the social value that the internet has delivered until now.

If these characteristics cease to apply to retail broadband products in the future, consumers will be worse off; in that case, Ofcom should assess whether this is a failure of the “anchor product” approach. Ensuring that there is competition at the retail level should go a long way towards preventing this.

The BBC believes that, if and when NGAs prove their social value, price regulation may become appropriate. Ofcom should leave this option open, even if doing so means a somewhat weaker case for investment in the short term. See our answer to Question 5.

### **Question 4: Do you agree with the need for both passive and active access remedies to promote competition?**

Maintaining a vibrant, competitive ISP industry can only bring benefits to consumers and the UK economy. The BBC fully shares Ofcom’s desire to ensure that effective competition, which has been essential to the success of current generation broadband services, continues when next generation networks are rolled out.

The BBC welcomes Ofcom’s very thorough analysis of the best means to promote competition in NGAs (as set out in section 6 of their consultation document) and shares the position that both passive and active access remedies might be necessary. The availability of active access, inasmuch as it allows more players to operate, is clearly desirable. We agree that whilst the type of remedies might differ depending on the technology used to build the network, sub-loop unbundling and active line access are likely to be relevant. We also support Ofcom’s view that, in order for these remedies to be effective, it is imperative that they are supported by:

- a. appropriate backhaul products to transit traffic from the access network to ISP’s own core networks, and
- b. appropriate and robust processes, for example in provisioning, fault management, maintenance and product enhancement. This last point will be essential for both content providers and consumers.



**Question 5: Do you consider there to be a role of direct regulatory or public policy intervention to create artificial incentives for earlier investment in next generation access?**

The BBC believes Next Generation Access Networks are likely to play an important role in British society. However, this is not yet certain, nor is it clear that the market will be unable to deliver this social value. The BBC therefore agrees that, at this stage, the need for direct regulatory or public policy intervention to create artificial incentives for earlier investment in next generation access is not proven.

However, the BBC believes that Ofcom should keep the situation under review and reassess periodically the role for intervention, in view of early UK rollouts as well as the experience of other countries. The review of this need for intervention could be triggered either:

- On grounds of social desirability, should the assertion that NGANs deliver significant social value be proven *and* the risk of a digital divide occur. As discussed above, we believe this might very well be the case in some time, but it is still uncertain when this will happen
- On grounds of maximising economic benefits, due to the observation (or a strong likelihood) that, due to insufficient investments in NGANs, the UK economy is missing benefits and consumers are foregoing opportunities.

The BBC notes that this approach may increase somewhat the uncertainty surrounding investment in NGANs, but believes that the potential social value of universal access to high speed broadband in the future outweighs this risk.

Where social value is significant, intervention may be appropriate to ensure not only investment but also take-up by all categories of the population which might benefit.