

Future Broadband: Policy Approach to Next Generation Access

The Welsh Assembly Government is grateful for the opportunity to respond to this consultation. Ofcom's consideration of the complex issues that impact on the debate around next generation access networks (NGAs) is both clearly articulated and thought provoking. We consider it very timely, given the speed with which the convergence of applications and services across delivery platforms is progressing and the levels of uncertainty which exist relating to consumer and business demand for new, high-bandwidth services and the likely extent of commercial NGA deployment across the UK.

At this stage the Welsh Assembly Government is working to better understand these issues and to assess their implications for service delivery in Wales. As a result our policy position with regard to NGAs is still evolving, although we are committed to engaging with and supporting the converged communications industry; to enable robust and timely commercial decisions to be taken about NGA deployment and also to inform our deliberations about any possible requirement for the public-sector to play a part in maximising the availability of affordable, high-bandwidth services. Our comments here are provided:

- to indicate areas where our evolving thinking aligns with or diverges from the current Ofcom position
- to expose important issues where we feel current intelligence is insufficient or incomplete and must be improved urgently
- to highlight additional, important issues which are not discussed in the consultation document but which we believe should be considered as part of this debate
- to suggest a way forward which would ensure that any new regulatory framework is (and remains) informed by the best available evidence

We see this consultation as a key part of the process via which a comprehensive Welsh Assembly Government policy position on NGAs will be developed and agreed in due course; within the context of our ongoing engagement with Ofcom, BERR, the other devolved administrations in Scotland and Northern Ireland, the English regional development agencies, the UK Broadband Stakeholders' Group (BSG), players from across the converged communications industry and others.

We and many others have been working to identify the key issues and to understand their potential impact for some time. However, and especially given the dynamic nature of the converged communications market, it is clear that further, urgent work is required to improve our collective knowledge base and to inform the development of both an effective regulatory framework and an appropriate approach to any requirement for public-sector intervention. Until this work is completed we believe it is impossible to judge with any degree of certainty when or how investment in next generation access networks should take place. The BSG, in its April 2007 report "Pipe Dreams", estimated that we had at that time a two year window to address the key, outstanding issues and make investment decisions, given the speed with which services are evolving and overseas markets are developing. We agree with this assessment and applaud the work that they, Ofcom and others have done so far to move this agenda forward; however, a lot more work is needed.

We understand that Ofcom's primary motivation is to protect consumers by ensuring that the market invests and competes efficiently to deliver services; in this regard we acknowledge the effectiveness of the regulatory principles adopted previously by Ofcom as entry-level, first generation broadband services were deployed. We are, however, concerned that an assumption could have been made that these principles, given their success in the past, will remain fit for purpose, regardless of developments in the market, and thus represent the obvious starting point from which to build a regulatory framework for NGA deployment. Given the many possible permutations which could occur, we believe that such an assumption carries with it a large degree of risk. It also precludes consideration of other regulatory approaches, either entirely new or based upon valuable lessons or emerging thinking from markets outside the UK.

Our approach from this point in the response onwards is to attempt to answer the specific questions asked by Ofcom in the consultation document. Many of the issues that we raise cut across the five questions.

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

The BSG timeframe described above is partially driven by the fact that, even after decisions have been made in principle, the lead-time to secure investment, to plan and then to deploy will likely run to several years. Other countries have a head start on the UK and may be able to consolidate their advantage of early investment in NGAs by the time investment occurs in the UK. To be clear, this advantage may not be limited to the well known players that have already deployed or are beginning to deploy NGAs, such as Japan, South Korea, the US, Holland, France and Germany. The EU Convergence Programme commenced in 2007 and many of the new member states, who are eligible for very significant funding to drive economic development and social inclusion, have announced major programmes to upgrade their communications infrastructure, including telecoms.

The Rt. Hon Stephen Timms MP, UK Minister for Competitiveness, chaired a high-level Broadband Summit on the 26th of November 2007. In his invitation to senior figures across the industry and the public sector he noted that:

“The UK has made good progress in recent years in delivering new telecoms services, most notably broadband, but we face a significant challenge in keeping pace with the European competition. We are witnessing Next Generation Broadband activities in German and French markets, but also in markets such as Bulgaria, Poland and Slovakia.”

Poland, for example, plans to spend over €800m on the development of broadband infrastructure and services between now and 2013, plus another €2,200m on information society development (including training, financial support for citizens excluded from information society, e-business support, delivery platforms for public services and so on). Other new member states have very similar economic and social priorities and could well follow Poland's lead.

This may mean that in future it will be important, for both the regulator and for government, to ensure that the impact of such developments are taken into account when attempting to understand the potential benefits of NGAs. In the past much of the effort expended on establishing the benefits of broadband has naturally focused on its direct impact on UK citizens and businesses. This has been, and remains, particularly important in the context of public sector intervention, where expenditure must be justified in economic or social terms. However, we are faced with a possible scenario where several of our near-neighbours, previously well behind the UK in many economic and social measures, may have deployed strategic or even pan-national NGAs by 2013, whilst simultaneously implementing programmes to develop and support e-business and up-skill their workforce. Although outside the remit of this consultation, it is clear that we need an assessment of the potential impact that these events may have on our ability to compete within Europe as a business location. This assessment is needed quickly and may influence Welsh Assembly Government thinking about the necessity for and timing of any public sector intervention.

We need a much better understanding of the benefits to businesses and consumers of high-bandwidth services and applications, and of the likely demand for them. There are also other areas of uncertainty around issues relating to technology standards and about the way in which the market might evolve within the UK and beyond. Addressing these is crucial for the converged communications industry as well as for government, as it will help inform and hopefully expedite commercial decisions about NGA rollout. There are several parallel, investigative strands which we believe should be pursued:

- An in-depth, quantified study of the economic impact of established NGAs in overseas markets
The recent DTI Globalwatch assessment of the South Korean and Japanese markets was a useful pre-cursor to this activity. Identification and quantification of the benefits of NGAs to consumers and businesses in markets where they already exist will help us to better assess the likely economic impact of NGAs when they are deployed here. We accept that such a study may provide an incomplete picture of the total value of existing NGAs, as the benefits of emerging applications and services may not be realised for some time even in leading markets. However, differences in regulatory approach will be largely irrelevant here; how and why the NGAs were deployed does not matter. This is about understanding the end-benefits to users and the demand that exists for high-bandwidth services. Cultural, geographic and demographic differences will need to be acknowledged, to ensure that we can use the results of the study to inform considerations of the UK market.
- Consideration of the full economic and social value of NGAs within the UK.
Actual value will only become apparent over the long term, as benefits to businesses and consumers are fully realised. However, a framework could be put in place now which will allow their value to be assessed progressively as evidence emerges over time. This was one of the BSG's recommendations in its "Pipe Dreams" report; and a collaborative work package is already underway. This framework should, at the earliest opportunity, be informed by

the work described above to quantify the impact of existing NGAs overseas; therefore it is important that piece of work is also taken forward as soon as possible.

- Experimentation in NGA rollout within the UK, to assess costs, pricing models, technical options, real-world performance, interest from 3rd parties in developing and delivering services on these networks and end-user demand

Some commercial experimentation is already taking place or is planned shortly (Virgin in Andover and Dover, BT in Ebbsfleet) but issues vary across the UK so additional trials in other regions would be extremely valuable, especially where they help to identify differences between rural and urban markets. Local market response to these trials could be especially interesting for a number of reasons. Some argue that the launch of a superior NGA product will force others to react to counter it, thereby stimulating NGA competition and faster roll-out. This assumption does not align with early commercial indicators and requires further testing (e.g., the launch of a 20Mbps cable service by Virgin has not led to a very significantly improved market share within its network coverage area nor to any notable, early deployment of ADSL2+ by competitors to mitigate against any resulting customer losses). The trials would also provide opportunities to test community response to increased street furniture. New build trials would allow any difficulties associated with the implementation of recent DCLG guidance on open ducting to be assessed (as an aside, we note the relatively low profile of this guidance since it was issued; greater clarity from central government about its perceived role going forward would be helpful here). For any trial there will be planning and legal issues to be addressed, perhaps unique to the technology being deployed. The trials therefore provide an opportunity to assess the impact of due process on the timeline for deployment of NGAs, as well as allowing bottlenecks in the bureaucratic process to be identified and addressed. The public sector could be actively involved in these trials now, e.g. supporting them by engaging with operators to identify sites or funding options, working through planning and legal issues with them or even acting as end-users of the services and providing feedback. The Welsh Assembly Government is keen to engage with the industry to explore any options for possible NGA experimentation within Wales.

- Experimentation with high-speed broadband delivery using fixed wireless and mobile services

The consultation document seems to assume that FTTx solutions will dominate the access market in future, possibly predicated on the assumption that the proliferation of alternative, open-access backhaul infrastructure will be limited. However, IPTV (the main driver for residential NGA take-up in other markets) may well remain less of a driver in the UK because of our existing, mature platforms for delivery of broadcast content and especially in light of Ofcom's announcement this month of a refresh of the DTT multiplexes to allow HDTV over Freeview. Low take-up to date of services such as BT Vision and Tiscali IPTV would seem to support this view. It is very possible that access services delivering current headline speeds, but with a better quality of service, will be sufficient for many consumers for some time. Several fixed wireless and mobile technology standards have the potential to deliver this

now. HSPA is already used to deliver broadband on the Isle of Man, whilst KPN in the Netherlands is currently experimenting with both WiMAX and HSPA to deliver broadband in remote areas. The industry roadmap for wireless and mobile technologies predicts NGA speeds by the end of this decade. It is entirely possible that we will begin to see fixed/mobile substitution in the broadband market very soon, mirroring a growing trend in the voice market. Assessing the potential for these technologies to perform as mainstream broadband enablers and to deliver in remote areas would allow the industry to consider alternatives to fibre where appropriate. It would inform the debate on the extent to which regulation and policy making should reflect the possible deployment of these technologies. The potential for planning and legal issues or community concerns about mast deployment to impact on the acceptability or success of wireless solutions should also be assessed during these trials.

- An assessment of the likely impact of a move from IPv4 to IPv6
Recent predictions indicate that available IPv4 addresses will fully allocated within two years, necessitating a large-scale migration to IPv6 to avoid data networks grinding to a halt. There are many more permutations available in IPv6 as network addresses are much longer, hence many more end-users will be able to reside on the network simultaneously. However, as a header record containing the lengthy IPv6 network address will be transmitted with every data packet, one upshot of this will be that much more data in total will have to be sent in future to deliver the same amount of useable data to an end-user (imagine sending a letter with several pieces of A4 stapled to the outside of the envelope, on which a new, extremely lengthy form of postal address is written; meanwhile, the length of the letter contained in the envelope remains unchanged). Thus existing networks could appear to degrade in performance once IPv6 is adopted, unless this is accompanied by widespread bandwidth increases. Although this issue is recognised, to date there appears to be little quantifiable assessment of the implications. Such an assessment should take place as a matter of urgency and a debate about where the responsibility lies to offset the impact of any migration should begin in earnest. If it is seen to lie entirely with the industry, will this contribute to a tipping point regarding NGA deployment? If so, will the costs be passed on to the end-user and is this acceptable? These are questions which need consideration now.
- An assessment of the long-term potential for market growth
ONS data appears to indicate that broadband growth to date has largely been based on absorbing customers migrating from dial-up. This process is almost complete, so growth, especially in the residential market, may begin to slow soon given apparent consumer apathy over IPTV and the lack of a new “killer app” to draw in additional customers. In contrast, we may see increased pressure for higher, more symmetric, more reliable and more affordable bandwidth from business users, especially SMEs, if awareness of the benefits of secure hosting services continues to grow and is matched by improvements in the availability of these services (businesses need robust, speedy access to their servers; these may soon be hosted in a data-centre some distance away). Other scenarios are equally possible, but the potential for the balance of revenue from residential and business markets to change

significantly is very real, although the likely pace and extent of any change is not well understood. An assessment of this issue would help industry to make better, earlier decisions about investment and would inform regulatory and policy debates within Ofcom and government.

- A wide-ranging debate about a possible Universal Service Obligation (USO) for broadband

This debate will be re-energised across Europe shortly by the publication of an EU green paper, due within the next few months. The EU is obliged to review the scope of the existing telecoms USO defined in the European Union Directive on Universal Services during 2008, therefore this is one issue that Ofcom must take into account. A relatively modest USO may have the potential to force NGA deployment. For example, DSL would not be a viable option for any supplier wanting to deliver a 512kbps service to a remote, rural building many miles from the serving exchange. If a supplier were *legally obliged* to deliver this service, then a significant investment would be needed. Taking fibre closer to the customer might well be a solution, removing the distance related issue whilst enabling delivery of NGA speeds at the same time. In such a scenario, the supplier would be likely to offer these services to as many customers as possible along the route of the new deployment, to offset costs and to maximise potential revenues. In this way, NGA roll-out would be accelerated. In our view, government, the industry, Ofcom and other stakeholders should be looking at this issue now, ahead of the European debate. Questions include:

- Would a broadband USO be beneficial to the UK, economically or socially?

- If so, what is the right level of service that should be guaranteed?
- Should pricing guarantees be considered?
- Should an open access model be stipulated, to stimulate competition in the delivery of access services?

- Should the industry bear the full cost of delivering on a broadband USO?

- If so, should provision be obligatory only where costs are not excessive, or would this simply reinforce a new digital divide?
- If not, how should a USO be funded? Scrutiny of the several, different models which already exist globally would be a good starting point. For example, in the US a proportionate industry levy on telecommunications services is applied, creating a fund to support infrastructure build in economically unviable areas. In Switzerland, where a broadband USO comes into force in 2008, USO licences are publicly tendered to the lowest bidder or to the bidder who requires no support for universal service provision.

- Development of mechanisms for future public-sector intervention

The BSG concluded in “Pipe Dreams” that “it is highly likely that public sector support will be required in areas where persistent market failure is most likely”. We agree that “further work should be undertaken to identify and experiment in the development of efficient and effective models for public

sector interventions in collaboration with commercial stakeholders, government and the regulator". This should not wait until if and when areas of market failure become apparent. By then mechanisms should be in place so that we can act swiftly and appropriately, if and when required. Again, the BSG intend to launch a collaborative work package on this in the near future.

Ofcom's consultation document argues that early public sector investment may simply pre-empt deployment which the market would otherwise have made on its own, at no public cost. This point is well made, however, as government we need to be sure that waiting for the market to invest will not impact unacceptably on economic growth or social inclusion. We do not presently have all the information we need to make potential investment decisions. We also believe that the industry lacks much of the information it needs to make informed judgements about the timing of commercial investment. For these reasons the work described above needs to be undertaken collaboratively, should begin now (where it hasn't already started) and should be progressed quickly, to inform the timely, commercial rollout of NGAs and to facilitate well-prepared, proportionate public-sector intervention, if and where it might be needed. Delay will impair both industry and public sector decision-making, with potentially serious economic consequences.

In the context of this consultation we believe it is vital that Ofcom is able to take into account the results of the work described above. We perceive a high risk of regulatory principles being developed inappropriately and applied ineffectively or even damagingly if this is not done. To that end we believe that the current Spring 2008 target for an announcement of regulatory principles relating to NGAs is unrealistic. We would suggest that Ofcom consult with those involved in this work to establish a timeline for consideration of the expected outputs. If the view prevails that an initial regulatory framework must be in place before this work is concluded then it should be subject to regular reviews, defined at the outset, which will allow findings to be considered as they emerge. Ofcom should ensure that any framework is flexible enough to allow for very significant changes of approach to be made, if new evidence emerges or market conditions change.

Question 2 – Do you agree with the principles outlined for regulating next generation access?

As mentioned earlier, the consultation document seems to assume that FTTx solutions will dominate the access market in future, with fixed wireless or mobile solutions and alternative, open-access backhaul infrastructure all playing very limited roles. In this scenario, where an incumbent operator with SMP remains both the primary provider of core network services and a major retail player, we can understand the attraction of building upon existing, successful regulatory principles which were developed to foster a competitive broadband market in similar circumstances.

However, given the numerous uncertainties described in our response to question 1, we believe that these assumptions carry with them a significant degree of risk. By choosing to ignore lessons from other markets where different regulatory approaches have been successful, and by taking regulatory principles which are

specifically suited to current UK market dynamics as a firm starting point, Ofcom has constrained its ability to design a forward-looking regulatory framework that is flexible enough to adapt to changing circumstances. Moreover, even if it transpires that the assumptions upon which Ofcom has predicated its revised regulatory proposals are correct, it is not clear that they will effectively stimulate NGA competitiveness in the way Ofcom believes.

The new principle of “reflecting risk in returns” is designed to stimulate NGA infrastructure investment by favouring those making it. We note that Ofcom is consulting on a number of approaches, but regardless of the mechanism by which this occurs, or where in the value chain it takes place, in our view it will seem to contradict and fundamentally undermine the principle of “equivalence”, which Ofcom wants to retain to ensure a level retail playing field. Non-investing players may perceive a disadvantage and this could well drive down retail competition. A competition-friendly approach might seek to remove barriers to investment rather than attempting to incentivise only those with deep enough pockets to overcome them; in our view an attempt to find innovative ways of doing this needs to be made.

It also seems appropriate to debate whether the principle of “equivalence” itself will remain fit for purpose going forward.

- In the first instance, this would assume the status quo in terms of the extent to which the incumbent has market dominance. There may be no guarantee of this in the medium term, especially if alternative, open-access backhaul infrastructures are strategically deployed across the UK. The Welsh Assembly Government’s FibreSpeed¹ project, phase 1 of which will be deployed across North Wales during 2008, will provide an open-access telecommunications infrastructure network offering a range of advanced wholesale products to service providers on an equitable, non-discriminatory and fully transparent basis. The project’s initial focus is on serving key strategic business parks, but it is also expected to have a positive impact on the converged communications market and the economy by making available an alternative infrastructure that could be used by other network operators such as local loop unbundlers (LLU), fixed network operators, system integrators; wireless and mobile network operators. Ofcom makes the point that:

“.. in the UK, there appears to be limited appetite for .. (NGA) investment by third parties”

Whilst this may be true at present, most accept that the main barrier to third party investment is the cost of backhaul. Projects such as FibreSpeed seek to remove this barrier by stimulating competition in the provision of next-generation network (NGN) services. Many are now looking to FibreSpeed for an early proof of concept that shows this model is commercially viable. It will certainly provide a useful case-study for Ofcom and if it is successful it may help to stimulate similar projects elsewhere in the UK.

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<http://new.wales.gov.uk/topics/businessandconomy/broadbandandict/bbw/ewalesinitiatives/Fibresped/?lang=en>

- Secondly, there is an issue of incentive to consider here. Ofcom clearly takes the view that undertakings agreed with BT which enshrine its functional separation and the principle of equivalence of access have not disincentivised possible NGA investment by BT; rather they have reduced the potential for inefficient investment. However, some industry experts are now beginning to publicly question these assumptions (e.g. Analysys in a presentation to the BSG and in its website article “Structural separation discourages investment in NGA”², Idate in its report “Telecoms in Europe 2015” for the Brussels Round Table³). The logic of their argument is that where a retail business owned by an incumbent operator is able to access the operator’s own network at a preferential rate it will be far easier for it to dominate the access market, generating higher profits for its parent group whilst removing competition. In this scenario it is postulated that an incumbent would be far more likely to invest sooner in NGA than in a scenario where regulatory agreements remove this advantage (as has happened in the UK), thereby guaranteeing the incumbent’s competitors equal access to any new network it might invest in. The Ofcom view is that the benefits that the BT undertakings bring in terms of increased competition more than justify this approach. Others disagree; the last paragraph of the Idate report states:

“There is a trade-off between low access prices and infrastructure competition. Our paper highlights that the positive effect on investment derived from preventing cost based access for upgraded infrastructure can outweigh negative effects on competition in the retail market”.

It seems clear that this issue is by no means clear-cut. These principles may well remain appropriate if one incumbent operator continues to dominate at a wholesale level, but they are not flexible enough to cope with the kind of market changes which we have described, changes which may well start to occur fairly soon.

Markets overseas are also evolving. The approach of the government, the regulator or industry is often different in these markets than it might be in the UK and in our view there are valuable lessons to be learned from the experiences of other nations and regions. For example:

- France Telecom, after discussions with the French regulator ARCEP about the need to stimulate competition, has now agreed to open up its ducts to competitors, allowing them to deploy new fibre without the expense and inconvenience of new dig. It is clear that they have done so voluntarily to avoid the requirement being imposed by ARCEP. Ofcom should consider whether a similar position is achievable in the UK. We note Ofcom’s concern that there are:

“practical problems with duct access”.

² The article “Structural separation discourages investment in NGA” can be found at <http://www.analysys.com>

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<http://www.idate.org/pages/index.php?title=White%20Paper%20to%20downloadandidrbis=28andrubr=stdandnummenu=43andidl=7andidr=43>

There is much received wisdom around this issue; for example it has been stated that ducts routinely deployed in France have a much greater diameter than ducts used in the UK, hence they have more space available within them to run new fibre. It is also suggested that our narrow ducts are full of copper, which could in theory be removed if DSL was replaced by a FTTx service, but not without significant downtime as local networks are upgraded which would breach existing, legal requirements for universal provision of access to telephony services, emergency phone numbers and so on. These would be very real challenges, but we are unaware of any attempt to independently verify whether the actual situation across the UK is as bad as these claims suggest. In our view this assessment is needed urgently, to allow Ofcom and the industry to work together to promote duct sharing wherever possible.

- Where duct sharing isn't possible or where the cost of new dig is prohibitive, operators overseas (notably in Japan and France) have deployed overhead fibre in their access networks; they have also collaborated with municipal authorities or utility operators to run fibre in existing sewer networks. In our view Ofcom should be looking at ways to support such initiatives here, citing a successful BT trial of overhead, blown fibre droptube technology in Wales and acknowledging the small number of sewer deployments that have already occurred.
- The Dutch regulator OPTA has recently approved plans by the incumbent KPN to deploy fibre to street cabinets as it upgrades to an IP network and to use this as a basis to roll-out very high-speed VDSL services to customers. This will allow KPN to sell off its portfolio of newly redundant exchange buildings. It will also force many local loop unbundlers out of business, as the access networks they currently use (local copper loops from the exchanges) will no longer exist. Some sub-loop unbundling may continue, via street cabinets in densely populated areas, but this will be economically unviable in many locations. We understand that KPN has now agreed to compensate unbundlers who are affected by this move. The Dutch example seems to support the view expressed earlier that incumbents would be willing to invest in NGA where it allows them a real opportunity to increase revenues and dominate the market. What is less clear is OPTA's rationale for agreeing that this is the best way forward in the Netherlands, although clearly their view about the importance of competition is radically different to OFCOM's. BT sold off its exchange buildings some time ago and currently leases them back, so one of drivers for KPN is not relevant here. It would be useful to understand how significant a factor this was for KPN when developing their strategy. Is Ofcom already in dialogue with OPTA and KPN, to gain a better understanding of the Dutch position? Will (and how will) Ofcom be factoring this intelligence into its considerations about NGA in the UK? Some clarity on this is needed as a matter of urgency. It is worth noting here the contrast between the potential impact on NGA availability of the KPN strategy and that of BT's 21CN programme, via which BT will deploy an IP network in the UK by 2010. Although BT is now very engaged in the FTTx debate, unlike KPN it has announced no plans to push fibre closer to the end-user as part of its network upgrade, so local loop lengths may remain largely unchanged. BT does plan

to upgrade from ADSL to ADSL2+; research conducted for the Welsh Assembly Government suggests that this may allow customers very near the exchange to benefit from real-world speeds of up to 18mbps, although this drops to speeds comparable with ADSL once you move only a few kilometres out. Hence, for large portions of the population, the arrival of 21CN will not, in and of itself, deliver a next generation access experience.

- Countries such as South Korea and Japan have taken political decisions to adopt very forward-looking IT strategies designed to deliver a “ubiquitous networked society”. These strategies involve a vertically aligned, holistic regulatory approach which governs the entire value-chain from initial research and development through to delivery of content to end-users. Consideration of the benefits of such a political rationale for this is a matter for government and outside the scope of this consultation. Nevertheless, we do believe that there are lessons to be learned from aspects of this approach, which should be considered by Ofcom. For example:
 - Ofcom currently takes a horizontal approach to regulating the delivery of communications services, although this is not mandated politically in the same way that a vertical approach is mandated in South Korea and Japan. The limited scope of this NGA consultation has, in our view, prevented Ofcom from properly considering the potential for changes in the market for core network services (notably the possible deployment of alternative, open-access NGNs which we discussed earlier) to impact on both the economics of NGA deployment and the viability of alternative access technologies. This very real possibility has the potential to reduce the impact of both Ofcom’s existing regulatory principles and the enhancements to them which are proposed in the consultation document.
 - We note Ofcom’s intention to consult on new build proposals shortly, with a view to developing an approach to this issue. We agree that this is needed, but what is the rationale for taking this forward outside of the consultation on NGA? BT has already stated a desire to move towards delivering a generic Ethernet product (supporting FTTx broadband services) at all new build sites within a few years (this is being trialled, along with the IRS service to deliver third-party multi-media content, at Ebbsfleet). Given the priority attached to new housing by both the UK and the Welsh Assembly Governments (in Wales a commitment has been made to build 6,500 new affordable homes in four years as a minimum) this could very well impact on likely rollout of NGA, which might become focused on new estates and their surrounding areas. It is our view that Ofcom should be considering the potential impact of this within the current regulatory debate, not as a separate issue.

We therefore consider that it is important a more holistic approach be taken; moreover we believe it is vital, in order to ensure that appropriate, flexible regulatory principles are developed - especially as the USO debate has the potential to impact on delivery of services prior to the access network and well as those delivered upon it. As stated earlier, if Ofcom does take this suggested approach on board then a

reassessment of the timeline for announcement of regulatory principles relating to NGAs would need to be made.

Question 3 – How should Ofcom reflect risk in regulated access terms?

As explained earlier, we are concerned that any attempt in practice to reflect risk in regulated access terms will undermine the principle of equivalence, potentially driving down the extent of retail competition. In our view, Ofcom should seek innovative ways of removing barriers to investment rather than pursuing this approach, which runs a high-risk of being perceived as rewarding those with deep enough pockets to overcome existing barriers.

However, if this approach is taken forward by Ofcom then the mechanisms for implementing it must be transparent. Regulatory certainty will not be achieved if very arcane strategies such as anchor product regulation are adopted as described and their very complexity will increase the risk of them being perceived as mechanisms for giving competitive advantage to NGA investors.

Again, we are concerned that this approach was developed within the framework of existing regulatory principles, on an assumption by Ofcom that incumbent operators alone will invest in NGA. As explained earlier, the likely deployment of alternative, open access backhaul networks may allow others to invest. An approach not predicated on existing principles might allow for more creative solutions to be developed which are flexible enough to cope with the possibility of rapidly changing market dynamics. Options to be considered might include:

- Regulation designed to encourage the deployment of alternative, open-access NGN and NGA infrastructure, thereby stimulating competition in the core and access markets, might be a more constructive approach.
- Where a new player doesn't adopt this strategy, it might still be willing to commit to equivalence on its network, once Ofcom and the operator are both satisfied of its ability to withstand the effects of this competition on its core business. Mechanisms would have to be found to agree when this point has been reached (possibly based on a predictive algorithm which estimates market share, similar to that used in the US to calculate the cost to operators of USO provision).
- Consideration could be given to a regionalised approach to regulation, especially in areas of persistent market failure. Options such as geographically targeted, time-limited forbearance may encourage investment in these areas, although it is likely that economic and social inclusion in these local markets would be achieved at the expense of competition, and that pricing would reflect lower population density and above average deployment costs. This approach would, of course, require a mandate from government.

The examples above are merely illustrative of the debate that might be fostered by taking a broader view. It should be noted that the debate about a broadband USO is absolutely fundamental here. An appropriately funded USO, perhaps specifying an

open-access infrastructure requirement, would mandate investment whilst at the same time removing the barriers that prevent it and enabling service competition. In such a scenario, regulatory principles such as reflecting risk in returns would no longer be relevant.

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

It should be noted that these solutions, as described in Ofcom's consultation paper, are only applicable to wireline access networks. As already stated, we believe it is very possible that fixed wireless and mobile technologies might eventually play a significant role in NGA provision, although this scenario is not addressed by Ofcom's regulatory proposals. That said, we do agree that both remedies are required to maximise access competition over wireline networks, although they must be fit for purpose and regulated to allow interoperability of equipment. This will lower the equipment and operating costs of service providers and should help to support innovation.

It is possible that the proportion of passive and active products in use may change substantially, although it is difficult to predict exactly what might happen. Our understanding is that passive remedies currently account for 78% of the access market, primarily used by local loop unbundlers, whilst other service providers using an active solution account for 22%. If fibre is taken closer to the customer and local loops reduce in length, this may drive a move towards more active products, as local loop unbundlers lose business or switch to buying an active solution from the network operator (this is what will inevitably happen in the Netherlands as the KPN strategy described earlier is deployed). However, it is equally possible that there will be a swing towards greater uptake of passive or mixed passive and active solutions in areas where local market economics are changed by the deployment of alternative, open access, backhaul networks such as FibreSpeed. These possibilities are not discussed in the consultation.

The availability of passive access solutions has been fundamental to the eventual success of local loop unbundling in the UK. However, the benefits of that success (faster speeds from ADSL2+, competitive pricing) are confined to the largely urban areas where LLU is economically viable at present. Backhaul costs remain the major constraint that prevents the expansion of LLU beyond urban centres. So, whilst the principle of ensuring passive and active remedies may be effective in helping to ensure competition in delivery of wireline services in towns and cities, the stimulation of alternative backhaul solutions is far more important as a mechanism to make less densely populated areas more commercially attractive to investors.

Once again, and for the reasons already outlined in our response to question 3, an appropriately structured and funded USO model, specifying an open-access infrastructure requirement, would mandate investment in these areas whilst at the same time removing the barriers that prevent it and enabling service competition. It is therefore vital that Ofcom stimulate the debate on this issue at the earliest opportunity.

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?

It is extremely important that the use of direct regulatory or public policy intervention is accepted as an appropriate mechanism to incentivise NGA investment where and when it is needed. Earlier we acknowledged the BSG's conclusion in "Pipe Dreams" that *"it is highly likely that public sector support will be required in areas where persistent market failure is most likely"*. This recognises that a pure, market-led approach is very likely to leave a next generation digital divide, with many rural areas unserved, or, at best, underserved.

The role of the public sector should now be to pro-actively engage in the efforts needed to improve our understanding of the benefits of NGAs and of the issues which will impact upon the way in which they are deployed (as described in question 1). From a Welsh Assembly Government perspective it will be important to assess the likelihood of, and the reasons for, any market failure that may occur and to understand whether the balance of costs and benefits associated with NGAs would lead us to conclude that intervention to remedy this situation is justifiable in economic and social terms. We, and the industry, currently lack the information needed to be able to say to what extent incentives may be needed, this must be addressed as a priority.

We have already made the case for an early debate on a possible broadband USO. The Welsh Assembly Government is keen to play a full part in this debate. Equally we have already noted that work to develop appropriate mechanisms for public sector intervention should begin in earnest, so that solutions can be deployed as quickly and strategically as possible wherever they might be required in future.

One possible future for broadband, which we have not discussed so far, is a utility model. This would require government and regulatory intervention to achieve, so it seems appropriate to address it here. Arguments have been made that regulating broadband as a utility and creating an independent infrastructure company to manage the network, coupled with a USO, would allow operators to attract capital from the financial markets to fund NGA investment. Whilst this may sound attractive - and we certainly believe that a broadband USO must be debated urgently outside of this utility context - we do not believe that the market for converged communications services is ready to be regulated in this way. Broadband has not yet reached the point where it can be treated as a genuine utility. Products like water, gas and electricity have a certain level of demand certainty and price inelasticity. Put simply, if the price goes up we will still need to buy them; we might not be happy about it, but demand will not collapse as a result. We do not foresee broadband achieving this status in the near future. This makes a utility approach to regulation untenable; it also means that the financial markets may continue to see converged communications infrastructure investments as high risk for some time to come.

Throughout our response to this consultation we have made the point that consideration should be given to regulatory approaches which do not assume Ofcom's existing principles as a starting point. Hopefully we have demonstrated that many, differing regulatory approaches are available to us; it is true that most will

contain some element of market incentivisation. Ofcom's proposed approach of "recognising risk of return" is an artificial incentive, as is the existing principle of "equivalence". Neither would have happened without regulatory intervention and their purpose is to incentivise the market. Given this fact, it seems apparent that Ofcom should have no objection, in principle, to considering other regulatory approaches. The constraints that we have identified in our response to this consultation relate to its horizontally restrictive focus on next generation access in isolation, and to the assumption that existing regulatory principles should form the basis of any revised approach. A more holistic view would aid recognition of where (or whether) incentives are really needed and would lead to more effective incentives being developed when appropriate.

Conclusion

The detailed response we have provided reflects the complexity of the issues surrounding Next Generation Access networks. Our critique of the proposals contained in Ofcom's consultation document is designed to be entirely constructive and we hope it will prove useful as Ofcom moves forward. Although we have expressed clear concerns about the scope of the consultation and some of the assumptions which underpin the regulatory principles Ofcom has proposed, we firmly believe that it is possible to address these issues and design a regulatory framework which is appropriate, effective and adaptable.

In summary, to achieve this goal Ofcom should:

- lead and /or actively support the collaborative work needed to improve government, regulator and industry understanding of the issues which impact on this debate;
- pro-actively stimulate an open debate about a broadband USO in the UK, in advance of Europe;
- take a more holistic approach to regulating the converged communications market, recognising (for example) that interdependencies between the NGN and NGA markets may impact on regulatory decisions;
- make no assumptions about the starting point for future regulation; existing principles cannot be assumed to be appropriate simply because they worked in the past, especially in such a dynamic market;
- ensure that any new regulatory framework is subject to regular reviews, is constructed to allow new intelligence to be considered as it emerges and is flexible enough to allow significant changes of approach to be implemented quickly if they are supported by new intelligence or warranted by changing market conditions;
- review the proposed timeline for publication of regulatory principles in Spring 2008 (this assumes that the suggestions made above are accepted).

This process must of course begin urgently, given the dynamic nature of the converged communications market. The Welsh Assembly Government is committed to working with and supporting Ofcom and other stakeholders in order to achieve the right regulatory framework for Wales and for the UK as a whole. We would be

pleased to discuss further with Ofcom any of the issues we have raised in this consultation response.