



## BT's response to Ofcom's consultation document

*“Next Generation New Build*

*Promoting higher speed broadband in new build housing developments”*

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BT welcomes comments on the content of this document, which is available electronically at <http://www.btplc.com/responses>

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## 1 Executive summary

- Today's regulation assumes a world where the local access network is based on copper and where there is stable demand for known services. As the network is already in place, Ofcom (and its predecessor Oftel) has been able to focus regulation on competition over the network as opposed to incentivising further network investment. Next Generation Access (NGA) presents a radically different world. NGA networks do not yet exist to a significant extent and the nature of new services to be delivered over NGA networks, and consumers' willingness to pay for them, is highly uncertain. As such, the regulatory priority needs to be incentivising investment in NGA networks.
- Ofcom's proposals do not appear to reflect these important differences between NGA and copper networks. Ofcom envisages a large suite of regulatory obligations on the NGA provider aimed at promoting competition on NGA networks following deployment, and contains little in the way of providing investment incentives in the first instance. In a situation where the commercial case for investment is challenging, this could have adverse repercussions on investment decisions. For NGA networks to be built, Ofcom needs to place much more importance on incentives to invest. The right regulatory environment for investment is critical to deliver NGA deployment and the resulting consumer benefits.
- Key to this is the need to minimise the cost and complexity of regulatory obligations. Investors also need to be confident that they have the opportunity to earn a proper return for the risks they take. Achieving a more favourable deal for would-be access investors needs to be urgently addressed.
- Ofcom should take a flexible approach to the issue of replicating existing SMP remedies. For example, we believe products such as Generic Ethernet Access – an Openreach Active Line Access (ALA) product – will offer more functionality and flexibility to communications providers than the current Carrier Pre-Selection and Indirect Access products and will achieve the same pro-competitive objectives. These existing remedies should therefore not be carried forward into NGA. Providers with SMP in wholesale local access should not be required to install or maintain copper cable in parallel with fibre solely for the purpose of providing LLU.
- BT believes that active remedies are the best way to achieve effective competition. Passive remedies would not encourage NGA as the potential investors would be deterred by the prospect of 'cherry picking' of customers by suppliers unwilling to commit up-front costs. Consequently, we consider that passive remedies are only likely to be appropriate in restricted circumstances. It is especially important that if BT contemplates investing in NGA, it does not have to incur the costs of developing and adopting equivalent products, systems and processes for both passive and active remedies. Unlike many overseas operators, BT is willing to develop with Ofcom an appropriate equivalence regime in respect of suitable active remedies.

- In an environment where a number of providers are likely to be engaged in NGA deployment in different areas, all providers should be mandated to offer wholesale access in order to protect consumers and support competition. To avoid the emergence of ‘islands of technology’, similar standards for wholesale access products should apply to all providers.
- Where there is only a single fibre network, USO should fall on that provider, whether or not this is BT. Legacy USO and General Condition requirements also need to be interpreted and applied pragmatically. In particular, we do not believe it is necessary to mandate battery back-up over NGA as this would significantly increase the cost and complexity of fibre deployment. In addition, there is near universal mobile ownership and widespread use of DECT phones which are themselves battery-powered.
- Any NGA investment is likely to have a long pay-back period. Investors need sufficient confidence that the regulatory framework will not change and undermine the assumptions on which investment cases were built. Ofcom needs to find a way of instilling investor confidence in the stability of regulation over such a period. For example, it should be possible for Ofcom to commit to, say, ten year horizons with periodic review points, with the presumption that the regulatory regime will be stable unless there are specific reasons for change on either the part of the regulator or BT. This approach is common in other regulated industries.

We would welcome the opportunity to discuss our views with Ofcom and other stakeholders.

## 2 Introduction

1. BT has been fully engaged in the wider policy debate concerning the introduction of Next Generation Access (NGA) in the UK and Europe, including responding to Ofcom's two previous consultations on the wider policy issues. As we stated in those consultations and elsewhere, we agree that the central challenge is balancing incentives to invest in NGA with the need to ensure the continuation of a competitive telecommunications market.
2. In this consultation Ofcom focuses on NGA in the context of New Build sites. This builds on the discussions which BT has been having with Ofcom about Ebbsfleet.
3. In BT's view, the critical factor impacting the deployment of NGA infrastructure and services in New Build sites is a regulatory environment conducive to investment. In the absence of this, investment is unlikely to occur to an extensive degree and the consumer benefits flowing from NGA deployment will likely never materialise.
4. There are some fundamental differences between copper and NGA networks which BT believes impact how NGA should be regulated. Copper access networks have existed for many years, with demand largely predictable and relatively stable, and it is in this context that current access regulation has evolved. In sharp contrast, NGA networks have not yet been built and the nature of, and willingness of subscribers to pay for, new NGA services are uncertain and will remain so for some time. As a result, investment in NGA infrastructure and services carries far greater risks and regulation needs to reflect this.
5. There is a further important distinction to mention – that between NGA networks deployed at New Build sites using fibre technology, and NGA overlays where the underlying copper network is retained and runs in parallel with the new fibre network. While the need to protect the consumer exists in both cases, in the latter scenario the copper access network will still be available to provide significant levels of compliance with much current access regulation. In a fibre-only scenario, regulation needs to take an entirely different form and be fit for purpose. Ofcom must be careful to avoid the extension of current copper-based access regulation to NGA in circumstances where it is unnecessary and duplicative. Otherwise, there is a serious risk of disincentivising investment and ultimately denying the benefits of NGA to consumers.
6. BT has identified two underlying assumptions in Ofcom's consultation document which give cause for concern. First, Ofcom appears to assume that the decision to invest in NGA networks, and fibre in particular, has already been taken. Second, Ofcom appears to assume that imposing current regulation, and possibly new regulation, on new infrastructure builders will have no impact on investment decisions.
7. Both assumptions are fundamentally incorrect. BT strongly believes that any decision to invest in NGA cannot be made until after Ofcom defines the regulatory environment in which investment is to take place, and that replication of the current, copper-based regulatory

regime in a fibre-only environment will add costs to NGA which will make the business case more difficult and possibly even non-viable.

8. In BT's view, there should be no automatic assumption that current, copper-based access regulation should be replicated for NGA. It is neither necessary nor desirable. As noted above, current access regulation has been designed to promote and support competition over networks that have largely been fully built out. But NGA networks, by their very nature, involve investment in new infrastructure and capacity, not an upgrade of old legacy systems. The drivers for regulation are therefore more about interoperability and consumer protection than levelling an existing playing field.
9. As such, we believe that the detailed requirements relating to existing access regulation such as CPS<sup>1</sup>, WLR<sup>2</sup>, WBA<sup>3</sup>, IA<sup>4</sup>, FIA<sup>5</sup> etc are not applicable in a NGA environment. These requirements are not "technology neutral" – they were designed for a copper access network. To the extent that access regulation is necessary for NGA, such regulation needs to be appropriate for NGA and not simply a wholesale replication of copper-based access regulation.
10. An additional important consideration is the Equivalence of Input ("EoI") requirements from the Undertakings, which BT has agreed are applicable to NGA networks. Where Openreach is the provider of infrastructure, EoI will ensure open competition at the service level, thus minimising the need for other regulation. Ofcom will need to consider whether and how it can ensure the provision of open competition in the case of alternative infrastructure provision. Where specific end user protections may be needed (for example, USO and General Conditions), it will be necessary to consider the appropriate place for these requirements.
11. BT is concerned that Ofcom has yet to reach conclusions in relation to NGA pricing. BT thinks it is important that Ofcom considers the needs of both network operators and downstream providers, to ensure that the climate is such that both are incentivised to invest and provide new services to end users. Whilst BT is mindful of consumer interests on affordability when they cannot choose the technology used to provide them with service, equally CPs need the right cost model to ensure they can continue to innovate and meet the increasing needs of its customers. In our view, it is vital that operators can expect to have an opportunity to realise an economic return for new products and services. Providing regulatory certainty on this point is critical for network providers to develop their business cases for the investment required.

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<sup>1</sup> Carrier Pre-Selection

<sup>2</sup> Wholesale Line Rental

<sup>3</sup> Wholesale Broadband Access

<sup>4</sup> Indirect Access

<sup>5</sup> Functional Internet Access

12. While BT has made it clear that clarity from Ofcom is necessary to enable further NGA roll-out plans to be developed, it is important to note that such clarity is a necessary but not sufficient condition. The economic case for any build at a New Site (copper or fibre) is very challenging, entailing a long pay-back period. Furthermore, different conditions will prevail and decisions to deploy fibre or copper may need to be taken on a case by case basis. Geography, customer type, demography (e.g. size and density of the new site) and proximity to existing network infrastructure (i.e. whether the new build is infill or not) will all play a part. Decisions made now will impact both investment decisions and market structure, and too much prescriptive regulation around fibre forcing high development costs risks undermining the case for investment entirely.
13. BT believes what is required in terms of regulation is for the rules to be clear at or before the point in time at which the decision to build is made. It is at this stage that the access investments are contestable. Once this contest has been won there may be no further infrastructure competition and it is this, in our view, that drives the need to have equivalent active remedies on all new infrastructure builders to enable downstream competition. Therefore, we would expect that all new infrastructure providers would be subject to equivalent regulation as the same risks are faced by all investors. Indeed, Ofcom has proposed “equitable regulatory treatment of providers” (paragraph 1.3).
14. We note Ofcom’s comments on their intention to use SMP regulatory remedies if acceptable wholesale products are not available i.e. non-Openreach sites where the Generic Ethernet Access (GEA) product will fulfil this requirement (see para 3.15). BT’s concern is that imposing such remedies via the market review process, or USO regulation via designation of universal service providers, will take considerable time to be completed. Nevertheless, providers of infrastructure should assume the primary regulatory responsibility for the provision of access for their sites (be that ALA based, SMP and or USO etc) and we urge Ofcom to ensure this clarity from the outset.
15. The passive/active debate is a key issue for BT and is further developed in response to Question 4. In our view, passive access may play a part in competitive NGA deployments but that part will be modest, and is likely to be confined to selective niche opportunities rather than serving as a platform for wider NGA deployment. Moreover, passive access can create barriers to competition, and produce local monopolies with significant risk of customer “lock in”, and the potential cherry picking that may occur will frustrate the business case for widespread NGA deployment. We urge Ofcom to consider this point in more detail and would be pleased to discuss recent work we have commissioned in this area.
16. Since the benefits of NGA are first and foremost about services, a primary focus of Ofcom’s attention needs to be the consumer experience. Regulation must be mindful of the risk that it can prevent a good user experience, for instance, by mandating specific technical solutions to

challenges where greater flexibility is more likely to lead to an appropriate and optimum response.

17. The home environment is already undergoing a sea change with many convergent technologies and services gathering momentum. Existing and future access capabilities all have a part to play in this evolution and growth, however it is often overlooked how the customer experience will be affected by changes. NGA deployment will accelerate this. BT therefore believes there should be specific focus on the home environment to ensure consumers' and end-users' needs are fully integrated into the design and architecture. The potentially disruptive nature of a new customer interface (whether a fibre ONT or other) should not be overlooked.
18. We do not believe that it is necessary to mandate Battery-Back-Up (BBU) in order to achieve compliance with GC3.1. Our early experiences have shown that providing BBU for consumers in place of the line-powering available over copper, is technically non-trivial and costly both to develop and maintain (including for the end-user) and may offer an unsatisfactory customer experience. We therefore, believe it is unnecessary and undesirable. We explore this further in our general remarks and in the response to Question 3g.
19. In parallel with this consultation, Ofcom have organised a series of ALA workshops. These have been well-received generally by industry we believe. They have served to strengthen our belief that only through appropriate industry discussion are the challenges and possibilities of NGA networks likely to fully materialise. There are already a number of standards bodies engaged in developing the standards necessary to support full interoperability between the Communications Provider (CP) and Customer Premises Equipment (CPE). We explore Ofcom's role further in response to Question 1 and conclude that while open networks are of key importance, and will help to prevent islands of technology in the UK, it is vital to recognise the global market and avoid UK-specific standards as far as possible.



### **3 The regulation of new site services and infrastructure**

#### ***Regulation and its impact on deployment***

Regulation of new access technologies poses some challenging regulatory issues, which need to be considered in the appropriate context. The circumstances in which copper-based access regulation developed from the mid-1980s is very different from the circumstances in which NGA development is being considered today. Current access regulation starts from the position that the copper access network is in place and that the demand for access is largely predictable and relatively stable. The provider of the “local loop” is treated, in effect, as similar to a utility providing a vital service, and is assumed to be facing limited infrastructure competition<sup>6</sup>. As a result, there is little uncertainty about whether customers are willing to pay for the services available in line with the cost of supply.

The circumstances prevailing as the roll-out of NGA networks is being considered are very different. The UK is well-served by a number of different delivery platforms for narrowband broadband and broadcast services. As a result, willingness-to-pay for new platforms delivering new applications and services is still highly uncertain and likely to remain so for some time. At the same time, as Ofcom recognised at the conclusion of the Telecommunications Strategic Review, any large scale access upgrade will involve very large investments with long pay-back periods.

Therefore, much greater attention needs to be placed on how NGA investment expenditure can be incentivised than ever was the case for the existing copper network. This has not, in BT’s view, been given appropriate emphasis by Ofcom in the proposals in the consultation document. For BT, it is very important that the consultation process does not presume that large scale fibre infrastructures are a foregone conclusion in the UK and hence that regulatory policy need only focus on how to maintain the current set of regulatory obligations in such an environment, without paying due regard to issues of investment. We would suggest that Ofcom undertakes its own research into the business case for investing in, and deploying, NGA networks.

Additionally Ofcom’s consideration of further obligations which are aimed at making NGA investments “contestable” adds to the uncertainty for BT, given that they appear to be primarily aimed at BT’s physical infrastructure. Whilst we can see the purpose of considering such open-ended remedies in a pre-investment stage - to allow alternative investors to BT to assess possible business cases - their continued promotion post-investment acts to increase the risk and uncertainty for this kind of large scale and long term infrastructure project. In our view, Ofcom’s emphasis favouring the promotion of competition in fibre deployment above the need to encourage the deployment of fibre places at risk the consumer benefits inherent in NGA: if NGA investment is discouraged, the consumer benefits around which Ofcom wants competition to

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<sup>1</sup> In practice the local loop provider faces an increasing amount of competition, such as from mobile, but that is not the assumption on which Ofcom’s regulation is based.

develop will never materialise in the first place. In a fibre world, BT believes the true benefits of competition and innovation come from the provision of services over the network.

This emphasis on “contestability” within the consultation is in stark contrast to the weight of consultation questions around the potential need to replicate the current set of regulatory remedies which apply to copper products. This very wide and multiple set of possible interventions in the fibre value chain sends potentially contradictory messages on the appropriate boundaries for investment in BT infrastructure and alternative investment. Furthermore, it risks adding cost for each boundary introduced, resulting from additional systems and process complexity on top of the costs of the network itself. We consider the implications and detailed effects of this in our response to Question 3.

There is an important set of trade-offs at play here, and Ofcom will have to make choices between different outcomes. For example, embedding legacy voice services into the ALA product would make it a much richer product and hence attractive to legacy communications providers (CPs), but this would do nothing to drive innovation. Such choices would also cost more, which is likely to be unacceptable to both Openreach and CPs who have an expectation of paying no more than they do today for services such as WLR.

Ofcom’s apparent assumption is that such regulatory obligations, either specifically on BT or more widely on new infrastructure providers, will have no impact on the nature or extent of deployment. BT considers that this is incorrect and that, if there is no expectation of change in the general direction of regulation, fibre investments will certainly be delayed or even abandoned due to the unpalatable prospect of excessive regulation. At best, we may see a “cherry picking” of a few lucrative localised markets but this will not help the deployment of widespread NGA.

### ***Assessing regulation and rationale for competition for new build sites***

Any potential NGA regulatory obligations need to be assessed for their likely implementation costs and on the extra risk they involve for the commercial suppliers who are exposed to the up-front investment risks. Regulations which materially add to costs or risks should be subject to detailed scrutiny and a clear need for the obligation demonstrated. In BT’s view, the emphasis should be more clearly on appropriate regulation rather than replication of current regulation, and the default position should be to avoid unnecessary impositions.

It should be emphasised that BT is NOT suggesting there should be no regulation of NGA. We have agreed that new access networks ought to be built with equality of access from the outset, which is itself a powerful regulatory mechanism. For this reason, it is right to compare and contrast the regulatory framework for new sites with that of the position in legacy networks. In our view such an analysis would clearly indicate that unless an appropriate approach to regulation is taken, with a view to applying a light touch where possible, projects may be delayed or deterred altogether. BT also believes that the proposals in the Ofcom document do not give sufficient

credit to the ability of the market to come up with solutions, in particular where technologies are highly disruptive.

BT recognises that new build sites represent a prime opportunity for deployment of NGA networks, potentially using fibre technology. As such we have been working closely with Ofcom, land developers, CPs and other stakeholders in developing proposals which will allow new technologies to be taken to consumers. In particular, BT has been engaging with Ofcom and industry for some considerable time in designing the proposals for a pilot new fibre build at Ebbsfleet in the Thames Gateway area. We have built our proposal from the outset with competition in mind, and the new concept of a GEA (Generic Ethernet Access) port has been specifically conceived to address the difficulties encountered with “unbundling” a GPON network.

Openreach has engaged industry by consulting fully on its proposals for deployment and has been running a series of fora specifically designed to inform industry of progress and encourage open discussion of the developing requirements (including technical interfaces, services, prices etc). We believe this demonstrates our commitment to EoI and to open access for our NGA network. In contrast, we are unaware of any other potential investor and competitor to Openreach operating in a similar open manner in this space.

We have previously noted and accepted that Ofcom’s position in respect of the Ebbsfleet Pilot would not set any precedent or constitute any guarantee that the regulatory framework would be the same in other future developments. However, it is our belief that this pilot and potentially other early deployments could inform the regulatory position going forward. Our expectation was that we should be able to build on the experience gained at Ebbsfleet, and not expect to see the pilot immediately set aside in favour of a much wider set of regulatory interventions. By implication from the consultation, this could include the extension of current copper-based regulation, further regulation around ALA and potentially new passive remedies such as duct sharing. This all now adds to the uncertainty around new build investment. Institutional investors and analysts share this concern and, as reflected in recent comments by telecoms analysts at Nomura: *“The question is will they [BT] have the security of a return, or at least the guarantee that they will not have the rewards undermined by regulators?”*<sup>7</sup>

In summary, we note that in previous discussions Ofcom has recognised that a balance is required in order to ensure the benefits of competition are retained without stifling innovation and the incentive to invest. BT urges Ofcom to address this issue of balance and not to simply fall back on existing copper-based regulations, seeking to transfer them as closely as possible to fibre.

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<sup>7</sup> Quote from Martin Mabbutt, Telecoms Analyst with Nomura in *“Tough Act for BT’s New Boss”*, The Observer, 13 April 2008.

### ***Approach to new and existing regulatory obligations***

We have a number of specific concerns in relation to the continuation of individual regulatory requirements. The detail is covered in our response to Ofcom's questions later in this response, however our major concerns are summarised below.

#### *Legacy copper- based regulatory remedies*

We are concerned by the implication of Ofcom's starting position that the regulation which governs the copper world should be replicated in a fibre world. Regulation of copper-based access networks has generally been driven by the need to recalibrate the system to enable operators to use wholesale products delivered over the BT network. The starting point for NGA is (already) very different: the creation of Openreach, together with the fact that its NGA fibre products are designed from the beginning to be EoI and thus to support downstream competition, has changed the drivers entirely. We believe there is a strong case to argue that the GEA product, BT's version of ALA, *replicates to the extent necessary* the competitive effect of WLR, CPS, WBA and LLU. They may not possess the exact functionality or same interfaces as these legacy systems, but they will fully meet the pro-competitive purposes of legacy copper regulation. Therefore, replication of existing copper-based access regulation for NGA is unnecessary and disproportionate.

It is BT's firm view that the work Ofcom has initiated to look at appropriate harmonisation of the principal requirements of competition through the development of ALA has a far greater chance of achieving a successful balance than has diverting massive effort and resource to develop responses to prescriptive additional regulatory remedies that may turn out to be irreconcilable with future NGA developments. If it becomes clear that there is demand for wholesale products which achieve similar ends to current copper-based wholesale products (e.g. CPS, WLR, LLU, etc), then we believe it is preferable that these wholesale products should develop in a manner which properly reflects the functionality and technology being deployed, and be offered, as a response to market demands and subject to commercial terms as opposed to being mandated by regulation.

#### *Battery back-up (BBU)*

The issue of BBU at premises served by NGA has been the focus of a great deal of attention and discussion. Copper telephone lines conduct electricity and hence can be used to ensure the phone line works when the main power supply is lost. Fibre does not conduct electricity so that the question has been whether BBU in the home should be supplied and if so, how this should be arranged and who would have responsibility.

BT's position is that BBU is not specifically mandated by current regulation and should not be a regulatory obligation moving forward. There is no specific legal requirement for BT to provide BBU. General Condition 3.1, which requires all CPs to provide uninterrupted access to

emergency services, and implements a section of the Universal Service Directive that requires CPs to 'take all reasonably practicable steps to maintain, to the greatest extent possible..' is being cited as a possible source of mandated BBU. However it is notable that we have found virtually no evidence of BBU being mandated in any jurisdiction.

In BT's view it is possible to meet General Condition 3.1 in a number of ways including potentially using BBU. BBU itself may be provided in a variety of ways which may be more or less appropriate depending on circumstances and on particular customer requirements and network deployments. In fact our initial findings are that BBU may offer a less than satisfactory customer experience. Further, we are also of the view that providing BBU for consumers in place of the line-powering which is available over copper is technically non-trivial and costly; both to develop and to maintain, including for the end-user.

Further supporting this conclusion is the fact that BBU causes technical difficulties and has significant issues for the complexity of the home-wiring environment, coming in addition to the need for Openreach or any other infrastructure provider to power up the fibre line itself. As such, BT believes that requiring BBU to ensure uninterrupted access to emergency services goes beyond what is "reasonably practicable" and that mandating the single approach of battery back-up is not an appropriate regulatory response.

As such, BT believes that BBU should be delivered in response to customer choice and not mandated by regulation. Service providers should have the flexibility to choose whether or not to provide BBU on a commercial basis and to offer alternatives as appropriate. However, if any regulation is deemed necessary in this area, it should apply equally to all service providers.

### USO

BT believes that although Ofcom does not specifically address the matter of the USO in an NGA world, there are good reasons to give some further consideration to this matter. We also note that changes are being proposed at an EU level which may be expected to take effect sometime around 2010. Given the limited roll-out of NGA networks which is likely to have occurred by then, it is vital in our view to avoid costly developments which may not be required and which may not be framed appropriately as things stand. We look forward to discussing this matter separately with Ofcom.

### Standards

Our view, which we believe Ofcom shares, is that it is not Ofcom's purpose to offset technical network standards. However, we fully support Ofcom's activity in stimulating debate around standards for ALA. We have been and will continue to be proactive contributors to Ofcom's ALA workshop programme, where we have contributed speakers, attendees and knowledge that we have gained through the last year, in particular working on the Ebbsfleet process.

For BT, there are two key aims: first, to avoid the worst excesses of fragmentation both geographically and of technology, which could occur under a complete free for all; and second, to ensure that consumers are protected by certain guarantees regarding accessibility, interoperability and quality.

We believe standards need to be discussed at a number of levels, which could include as a minimum:

- i. Standards for an ALA product;
- ii. Standards for CPE with clear demarcation points between NTE and CPE<sup>8</sup>, together with recognition that with multiple CP provision (eg Openreach plus one or more others, the NTE may not be at the same point as the Optical Network Terminal (ONT));
- iii. Standards for the home environment;
- iv. Standards for improved energy efficiency applied to the whole broadband ecosystem (end-to-end approach).

Each of these, together with our view on the engagement of appropriate standards bodies, is considered in more depth in our answer to Question 1.

#### Active versus passive

The active/passive debate is of significant interest to us. In the consultation there is a very strong emphasis on creating competition:

- at the point of deployment by making initial NGA investment contestable; and
- after deployment by the application of regulatory obligations including wholesale access remedies.

For BT, at this stage, the open ended nature of the regulatory regime acts to undermine our case to invest in a large scale, long term business case with a life cycle of large cash outflows in the early years and only uncertain returns in later years.

In our view, this is not typical of how large scale infrastructure is built and financed. Additionally, at such an early stage of technology and market development it is inevitable that the perceived risk is increased - perhaps to a point where no significant roll-out commitment can be made. In effect, it is possible to undermine the objective of “timely” investment by keeping too many regulatory options open, and it is difficult to see how such an uncertain future would look positive for any potential infrastructure provider of any material size – be that Openreach or a significant sized investment by an alternative NGA provider.

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<sup>8</sup> NTE: Network terminating Equipment – owned by the Network provider, and providing a clear point of handover to the Householder. CPE: Customer Premises Equipment – equipment located in the premises and typically owned or rented by the customer.

Some form of regulatory commitment to 'break the circle' in such a situation seems obvious. This is echoed in the views of institutional investors and analysts who are flagging up their concerns, as evidenced by the comment from Nomura cited earlier in this response.

In BT's view, whilst passive remedies may play a part in NGA deployment, this part is likely to be restricted to providing a competitive "base line" that active remedies must measure up against.

The requirement is for the rules to be clear at the point at which the decision to build is made. At this stage the investments are contestable, however, once the decision has been made, the contestability is severely diminished, if not curtailed completely and that in our opinion is what drives the need to have equivalent active remedies on all new infrastructure builders to enable downstream competition.

Passive remedies can create barriers to competition, and they can result in local monopolies with significant potential for customer "lock in" once provided if there is no regulated wholesale access.

BT accepts that functional separation and equivalence should apply to active NGA remedies but if passive remedies were introduced a number of issues arise from considering where the equivalence boundary should lie.

A business case for NGA deployment has yet to be made. For BT such a business case would become an even more remote possibility if regulation placed significant reliance on passive remedies and effectively impossible if passive remedies become the EoI point.

BT believes NGA competition is best supported through active or "lit" remedies, offered on an equivalent basis and supported by functional separation. This is reflected in BT's experience and investment in access networks across the globe as a market entrant, and we believe it is the best way of promoting effective and sustainable competition in NGA in the UK.

Early clarity over the form of NGA wholesale services to be required is essential to BT in developing an informed view of NGA costs and benefits.

*Question 1: What can Ofcom do to encourage timely standards development for new build NGA wholesale access products and interfaces? Which industry body is best placed to undertake the standardisation of these products and interfaces? What action should Ofcom take if these standards fail to materialise?*

The question of standards is critical: there is a whole “value chain” of standards that exist across a number of potential variants. In our view, it is not Ofcom’s purpose to set technical network standards.

In our view there are a number of standards bodies that are, and need to continue to be, involved in developing a complete set of standards to allow full interoperability between CPE and Service Provider across a NGA network; there is no single standards organisation to do this. It is important to deploy international standards wherever possible, keeping UK-specific solutions to an absolute minimum, and hence we need to look to international standards bodies for the majority of the standards development. This will ensure appropriate support including from manufacturers and provide the best available economies of scale. In the UK, NICC may be the standard body best placed to consider profiling international standards to meet any UK- specific requirements.

The need for such requirements typically stems from efforts to maintain backwards compatibility with existing UK services/features and from UK specific requirements. Whilst UK CPs need to determine their commercial requirements for the degree of backwards compatibility, Ofcom can significantly help the standards development work by providing clarity of the regulatory requirements that NGA needs to support. In this context, the issue of service continuity during local mains power failure is a key issue which will impact standards development and may drive ‘UK specials’.

We list below the main standards fora that we believe need to be involved and supported:

- **DSL Forum<sup>9</sup>**: GPON & xDSL technologies, access network architecture, home/residential gateway, remote management (TR-069), energy efficiency.
- **ITU<sup>10</sup>-T SG 15 (networks)**: Q2: GPON physical layer & management (OMCI); Q4: xDSL, home networking technologies
- **FSAN<sup>11</sup>**: (works closely with ITU-T Q2/15) Evolution of PON technologies/architectures (physical layer)
- **NICC<sup>12</sup>**: profiles international standards for UK environment. Has developed NGN Voice Line Control standards which may be very relevant to supporting ATA (Analogue Terminal Adaptor)

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<sup>9</sup> In recognition of the increased scope of activity of the DSL Forum, its name was changed to Broadband Forum on 17 June 08. However, the currently more familiar name of DSL Forum is used throughout this document.

<sup>10</sup> ITU –International Telecommunications Union

<sup>11</sup> FSAN – Full Service Access Network



- **HGI**<sup>13</sup>: produce specifications for multi-play home gateways, including: QoS, remote management, CPE energy efficiency, home networking recommendations, NTE/CPE architectures.

In addition to the above bodies, account will need to be taken of the work in **ATIS OAN**<sup>14</sup> which is developing optical access network standards for North America and which has input its requirements into the ITU-T.

We believe there are two aspects relating to issues of ensuring interoperability. Firstly, at the operator level; standards can help both to support competition and to protect the consumer, and secondly at the consumer interface; they will both help to maintain some consistency of the user experience and to prevent too much stranding of technology assets. In our opinion, to date the latter has yet to receive the attention it deserves.

As with so many other issues relating to NGA deployment there is a balance which needs to be considered. Current technology benefits from a stability which has grown over some decades of use, trial and error, and alighting on “best of breed.” Such stability cannot be expected to exist from day one with the new technologies on offer. The balance to be struck therefore is between allowing freedom to those considering deployment of infrastructure at New Build sites; yet locking down standards sufficiently to ensure that activities like migrations, switching, or even simply moving house can continue to be supported in much the same manner as with legacy networks. There is obviously a degree of conflict here between the benefit of a standard and the consequential reduction in the freedom to innovate which may prevent all but the slimmest margin of differentiation in the network layer

It seems to BT then that Ofcom’s role in this area is predominantly to ensure that appropriate levels of discussion take place in open global fora on a reasonably equal basis thus encouraging decisions to be made on the best available information at the time. Two things are important: firstly, to avoid the worst excesses of fragmentation both geographically and of technology, which could occur under a complete free for all; secondly, to protect the end-user to the extent that a high level of good quality information is made available by CPs and others. This should enable appropriate individual choices to be made, so that end-users have certain guarantees as to accessibility and quality. As a secondary benefit, such action will also help to enable potential providers to determine their own level of acceptable risk by reference to the extent they choose to innovate and differentiate by varying from the generally agreed deployment standards.

In BT’s view, standards need to be discussed at a number of levels which could include as a minimum:

- i. Standards for an ALA product;

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<sup>12</sup> NICC – Network Interoperability Consultative Committee

<sup>13</sup> HGI – Home Gateway Initiative

<sup>14</sup> ATIS OAN - Optical Access Network working group of the Alliance for Telecommunications Industry Association

- ii. Standards for CPE with clear demarcation points between NTE and CPE<sup>15</sup>, together with recognition that with multiple CP provision (eg Openreach plus one or more others, the NTE may not be at the same point as the Optical Network Terminal (ONT));
- iii. Standards for the home environment;
- iv. Standards for improved energy efficiency applied to the whole broadband ecosystem (end-to-end approach).

Each of these is considered in more depth below.

#### i) Standards for an ALA product

Ofcom has identified the possibility of defining a concept which they call Active Line Access (ALA). In our view the product closest to meeting the requirements of ALA for use on a GPON currently available is Openreach's GEA product.

In order for EOI to work effectively in a GPON or other fibre environment, such that any Service Provider can use access infrastructure from any access provider, the ALA product MUST be consistent in a number of areas.

Openreach has actively invited feedback from industry through consultations and working groups which has helped shape the GEA product. The expectation is that our experience leads us to believe that the product definition is a good starting point for other providers to deliver similar products.

It is worth noting that if Ofcom requires (as is currently understood) legacy service support as part of the ALA product, then this will place further demands on the network provider. It is not expected that this will be a generally recognised requirement and would therefore have to be addressed in UK-specific standards developed by NICC or others. We discuss elsewhere why we think that would be a step in the wrong direction. Complexity would be an additional reason to avoid this as it would entail a need to define the voice service available and the interfaces to the service provider. These will need to include at least the following aspects:

- Where the ONT also includes an ATA, the interface to the CP must be defined according to relevant NICC standards (which would be UK specific profiles of international standards).
- If the service delivered is to provide direct control of the ATA, in an analogous manner to the NICC Voice Line Control Access specification, the product spec will need to include these aspects.
- If the service delivered is similar (or identical) to WLR then delivery will be based around the current EOI product, WLR3.

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<sup>15</sup> NTE: Network terminating Equipment – owned by the Network provider, and providing a clear point of handover to the Householder. CPE: Customer Premises Equipment – equipment located in the premises and typically owned or rented by the customer.

- The specification must include the remote management of the ATA – stating what data needs to be configured etc to enable a service to be delivered (via EOI systems).

All of this could require significant additional development work and may delay new build fibre deployments.

#### ii) Standards for CPE

ADSL CPE has taken a number of years to mature to a model where CPE is widely available not just from ISPs but also from high-street stores as aftermarket/specialist products. NGA CPE will take a time to mature to this point, and will not occur without significant standardisation effort. This will need to be recognised by the industry as effort will be required at all levels. While Ofcom may have no role in setting standards it will have a role both to facilitate discussion and to stay abreast of developments so that the impact of regulation is neither a barrier to appropriate development nor maintained beyond its usefulness.

Ethernet presentation, while a well defined standard, will need to be profiled to ensure that when used as the interface to the NTE, it provides an acceptable service for the specific application. This requires definition of how frame tagging is used, how QoS is handled, as well as the line rate definition. While services can be offered over Ethernet without such profiling, standardisation of these aspects between different products / providers will ultimately benefit consumers.

#### iii) Standards for home environment – including NTE handoffs

It is vital to remember that the customer experience is critical to success. The CP must be able to deliver and support their products and services over NGA, providing the same or better customer experience, cost effectively and with better energy efficiency

To minimise complexity for both the customer and the CP, there needs to be a common, industry agreed, home installation design (NTE termination) irrespective and independent of any customer owned home networking solution. This could be predicated on the provision of 'Master Voice & Data Ports' which would provide the point of demarcation for service delivery and fault diagnosis. The customer's internal home network wiring must be able to be isolated at this point.

This minimum installation must allow a CP to provide voice and broadband data services without the need for an engineer home visit to install or configure CPE/NTE equipment.

The NTE equipment must enable remote diagnostic capabilities (eg line tests) enabling the same level of CP manageability as today. The NTE should present visual indication of connectivity and power, this should be standardised across the industry. This will enable a CP helpdesk to manage services seamlessly across any access network provider.

Specific home network solutions, such as full structured wiring, are not a prerequisite for next generation access networks. The customer's internal home networking may then take several forms, according to personal requirements, such as:

- Customer installable home networking technologies, retro-fitted, such as WiFi, powerline, DECT and new wires, as appropriate;
- Some basic Cat5/6 wires between key rooms to provide flexibility of Broadband Gateway / Router location;
- Full structured wiring as bespoke solutions.

This approach will need broad industry agreement; with the basic installation termination design (analogous to the existing NTE5) adopted through relevant industry recommendations for best practice by developers as part of new build construction. This approach will also facilitate easier movement of customers between service providers. The appropriate industry body (possibly the Telecommunications Industry Association) and mechanism for achieving this must be identified, agreed and driven forward.

The termination point should present clearly identifiable master socket connections to enable the customer and CP to distinguish service demarcation and ownership points. This should consist of, at a minimum, 'Broadband' data connection(s) and if an ATA is incorporated into the NTE, master analogue telephony connection(s). It should be possible for the customer to install DIY home networking wiring from this termination point.

It seems almost inconceivable that such standards will "fail to materialise." The question is more around timescales and the potential safety nets which could perhaps be designed to mitigate against major negative end-user outcomes and to ensure that surviving industry players are not used as suppliers of last resort to bail out failed market entrants. This would be an appropriate area for Ofcom consideration. In BT's view Ofcom should seek to impose the minimum regulation necessary to achieve this outcome.

#### iv) Standards for improved energy efficiency

The need to improve the energy efficiency of telecommunications equipment, applied to the whole system is now generally recognised and is starting to be addressed. The DSL Forum and ITU-T in particular have specific programmes to deal with this subject but it does need to be addressed by all relevant standards bodies. However the issue is not just about the technical performance and characteristics of telecoms equipment, The functionality of the products themselves and regulations surrounding them also need to be taken into account when considering the balance of the benefits of the requirements and their impact on energy consumption.

*Question 2: Do you agree with Ofcom's approach to promoting competition and consumer choice in new build fibre access deployments?*

As indicated above, BT considers that many proposals in the consultation document will not promote NGA investment or support innovation over such platforms. Ofcom have already identified that the challenge is to find the balance which is required in order to promote competition without stifling either innovation or diluting incentives to invest. If insufficient account is taken of the incentives to invest then there is a risk that the UK will fall behind its competitors abroad in the development of a healthy and innovative NGA infrastructure.

We would press Ofcom to undertake their own analysis of the business case for NGA. We believe this would underline that the case remains marginal and that the key focus for regulators should be to provide investors with some confidence that they have the opportunity to earn an appropriate return on the investment made. BT has begun to look seriously at its choices, and to consider a changed policy of moving away from copper for New Build Sites. Crucial to this decision is the difference in the cost of provision between these two types of access networks, copper and fibre. In this respect, BT is concerned that Ofcom has not fully considered the cost implications of its continued consideration of multiple interventions in the value chain and full replication of existing legacy regulation. We would be pleased to discuss our work in this area more fully with Ofcom in due course.

Additionally, it is appropriate for Ofcom to recognise the roles and interests of the access provider, as well as the interests of the consumer and those of possible wholesale providers: Unless potential access providers have incentives which justify a commercial case, they will not embrace new technologies. Excessive and inappropriate regulation in this area will therefore not promote competition and consumer choice.

Ofcom's Executive Summary says its proposals are designed to ensure equitable regulatory treatment of providers (paragraph 1.3). Ofcom also made the point at an industry meeting that the provider of NGA could be required to enable BT Retail to discharge its USO and SMP obligations through open access and open standards (e.g. POTS voice service). Although as we have indicated elsewhere in this response our preference would be that the local infrastructure provider should in fact undertake those obligations itself. Similarly, the infrastructure provider may need to offer an ALA service that BT Wholesale may wish to consume in a geography where BT is not the NGA infrastructure provider, as Ofcom hint in paragraph 3.15. Imposition of regulatory obligations on all providers underlines the need to take great care in considering what regulatory requirements might be appropriate in new build.

It is therefore critical that Ofcom does not allow itself to fall back solely on the remedies and arguments that have been demonstrated to be appropriate in the current regime.

Instead, it must look hard to see where it can minimise the risks that originate from regulatory obligations on all players and in particular to concentrate on the removal or limitation of those that are likely to directly impact on the returns on investment.

BT therefore urges Ofcom to recognise that the way to encourage fibre investments is to keep uppermost in mind the incentive effects of obligations on infrastructure providers. The way to increase incentives and hence encourage next generation access services is to lower costs of deployments and to increase likely returns.

BT would therefore like to see all obligations assessed for their likely implementation cost and on the extra risk they involve for the commercial suppliers who are considering the up-front investment. Regulations which add to cost or risk in a material way ought to be subject to very detailed scrutiny and in particular against the test of proportionality, unless there is clear consumer benefit from a proposed intervention, then it should not be made.

We note that Ofcom in due course intends to consider pricing, further in the future. As mentioned earlier, we would like to re-iterate our view that it is vital that operators can expect to retain the opportunity to realise an economic return for new products and services.

*Question 3: Do you (a) believe that the existing obligations must be met by replicating the existing copper products, or that an alternative approach could be satisfactory? What are the implications of replicating existing products on fibre?*

As indicated earlier, we are concerned by the implication of Ofcom's starting position that the regulation which governs the copper world should continue in a fibre world. Regulation in a copper world has more often been driven by the need to recalibrate the system to encourage the development of competition. This was inevitable since stability of the technology was achieved largely around a single provider with a set of intricately interleaved platforms. The starting point for NGA is (already) very different: Certainly in BT's case, our NGA fibre products have been designed from the outset to provide EoI through Openreach. BT believes that whoever deploys NGA should make it available through appropriately priced and equivalent wholesale services based on industry standards.

BT has undertaken a large consultation exercise with industry and has been in detailed discussions with Ofcom in relation to developments for Ebbsfleet and NGA. Our discussions have started from the premise that it is the intent or effect that should be considered rather than the precise functionality. We believe there is a strong case to argue that GEA or other CPs ALA products replicate the competitive effect of WLR, WBA, CPS and LLU to the extent necessary. Indeed it was designed with that in mind. There is a separate question about whether all of the current functionalities are supported by ALA products, but this is more a question of whether the transition to fibre requires every aspect of legacy regulation to be emulated.

BT is strongly of the view that the many aspects of the transition to NGA technologies will be better managed through commercial discussion than by regulatory mandate. We recognise that there may be a transitional market that does demand some of the current forms of competition to be supported. In our view, outside of ALA, wholesale providers should be free as free as possible to develop responses to demand in the manner best suited to the prevailing circumstances and technology deployment.

A further concern is that the current regulation is developed around BT's legacy network (as the incumbent). If Ofcom's aspiration is to be able to roll back regulation as a result of contestability, then the prospect of prescriptive current regulation being applied across all new build providers "in the absence of competition" [para 5.3] may well be sufficient to deter potential alternative infrastructure investment. Instead equitable and proportionate regulation needs to be applied so that on the one hand alternative investment is not discouraged by the prospect of high levels of (regulatory) risk, while BT itself does not face the possibility of being unable to compete because alternative providers face relatively low levels of risk through regulation.

In conclusion, it is BT's firm view that the work Ofcom has initiated to look at appropriate harmonisation of the principal requirements of competition through the development of ALA should be the way forward. If it becomes clear that there is demand for wholesale products which

achieve similar ends to current copper-based wholesale products (e.g. CPS, WLR, LLU, etc), then we believe it is preferable that these wholesale products should develop in a manner which properly reflects the functionality and technology being deployed, and be offered, as a response to market demands and subject to commercial terms as opposed to being mandated by regulation.

*Question 3(b): Do you agree that SMP holders rolling out fibre do not need to roll out a copper network in parallel solely to meet their LLU obligation?*

Following on from the previous section, the provision of LLU (which would amount to a copper overlay) might be expected in almost all cases to eradicate the viability of a fibre network. Ofcom clearly recognise the dangers of this position in terms of cost, especially of supporting two parallel networks and refer also to the EU position which has moved to accommodate the concept of technology neutrality. We therefore agree with the Ofcom proposal not to “require the SMP holder to provide a twisted metallic path (‘copper’) solely for the purpose of meeting the LLU obligation, where it provides a fibre access connection in its place” (para 5.18).

Furthermore, as stated above the GEA product has been specifically designed to provide comparable access while recognising that access in a GPON fibre world simply cannot be unbundled in the same manner as copper.

It is worth noting the close parallels between this question (which clearly recognises LLU as being something of a throwback to copper) with other specific detailed regulatory requirements such as WLR, WBA, CPS and IA, which while less obviously specific to a copper world are equally designed around the legacy network. It is also worth noting that there may be circumstances where a niche requirement for copper may arise (or remain) and CPs would expect to remain free to deploy copper in response to such demand. This is not untypical of competitive markets where a technology change has taken place, though inevitably as economies of scale diminish prices may be likely to need to increase.

*Question 3(c): Do you agree with Ofcom’s approach in relation to WBA and new build areas?*

To extent that Ofcom agrees that BT’s GEA product discharges BT’s SMP obligations to provide a Wholesale Broadband Access solution in Markets 1 and 2, BT agrees with Ofcom’s approach. BT is providing Wholesale Broadband Connect (WBC) in Ebbsfleet commercially; it should not be additionally obliged to do so, on an SMP basis. In our view, since BT is already providing GEA plus backhaul, this would be a disproportionate regulatory requirement. In line with views previously expressed, to ensure equitable regulatory treatment of providers, we believe other infrastructure providers should also have to offer an ALA (GEA equivalent) service in a geography where BT is not the NGA infrastructure provider.



Ofcom's proposed approach is as follows *"If there is competitive access to the upstream inputs and these are providing a real constraint then it is unlikely that ex-ante regulation would be required. However, absent such competitive access we would want to ensure that a suitable WBA service is made available on fair and reasonable terms"* (paragraph 5.22 of the consultation document).

BT agrees that where upstream access is competitive, no regulatory remedies are required. In Ofcom's Statement of 21 May on the Wholesale Broadband Access Market Review, Ofcom delineated a number of geographic markets dependent on the level of competition it sees as existing in those markets. These are:

- Market 3, covering 1197 exchange areas and 69.2% of UK premises, where BT and at least three other network operators (i.e. LLU operators or cable) are present; BT no longer has SMP.
- Market 2, covering 670 exchange areas and 13.7% UK premises, where BT and one or two other operators have a presence; BT continues to have SMP.
- Market 1, covering 3720 exchange areas and 16.4% premises, where BT is the only operator; BT continues to have SMP.

In some cases, new build sites may fall into Markets 1 or 2, where BT's SMP obligations would apply, and where other providers might also face obligations based on Ofcom's proposals. Where other providers have built NGA, this would allow wholesalers to offer WBC-type products, hence providing an additional option for end-users (where the alternative might be that a land developer has negotiated a deal with a CP which precludes other CPs from offering service over the local access network in that area).

In its response to Ofcom's 'Future Broadband' consultation<sup>16</sup>, BT argued that Openreach's provision of GEA plus backhaul discharges BT's SMP obligations to provide Network Access on reasonable request for wholesale broadband, (obligations which are now limited to Markets 1 and 2.) The GEA product set is provided on an EoI basis, which ensures the pro-competitive objectives of regulation. It therefore meets the underlying regulatory objective and gives CPs the underlying broadband functionality they require.

BT should not, therefore, additionally be obliged to offer a WBC-type product to discharge its wholesale broadband SMP obligations in Markets 1 and 2 in new build areas. That is, BT should be free to offer WBC in new build areas on a commercial basis, as in Ebbsfleet, Making it a regulatory requirement would also run directly counter to Ofcom's principles to act with a bias against intervention and of seeking the least intrusive methods of meeting policy objectives. Furthermore, mandating such provision may in itself deter alternative new build provision were it unclear whether the specifics of WBA requirements might be applied to them in the event they were determined as having SMP at some future point.

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<sup>16</sup> 'BT's response to Ofcom's Consultation document: Future Broadband: Policy approach to next generation access', 5<sup>th</sup> December 2007

Again it is BT's view that pursuing the concept of ALA is likely to be more fruitful than applying legacy regulation in a new build world which may not take account of the different circumstances.

*Question 3(d) Do you believe that the WLR obligation must be met by replicating the existing copper product, or that an alternative approach based on an ALA-type product would be satisfactory?*

As previously stated, our view is that mandating any product which is specifically predicated on a copper delivery is likely to be inappropriate and unnecessary. We also believe that since it is an SMP-based remedy, Ofcom has the discretion not to mandate WLR if it is not appropriate.

We do not believe that it would be appropriate for BT only to have a requirement to provide WLR. As we have indicated above, Ofcom should not underestimate the costs of product development (for BT and other operators) and should start from a presumption of minimum regulation rather than prescriptive detailed regulation. Furthermore, the demand for WLR in NGA networks is in our view likely to be very low, thus making it much more difficult to recoup development costs. The provision of an ALA product for example GEA from Openreach does in our view accomplish the underlying objectives of WLR in any event so that adding WLR is unnecessary. In addition, there are linkages between the provision of WLR and Carrier Pre-selection (CPS). In our response to question 3(e), BT does not agree that the CPS obligation should apply in a new build world. By extension, if CPS were to be overtaken by other market developments, we believe it would be disproportionate for Ofcom to continue to mandate the provision on WLR.

As indicated above, whilst transitional products may be requirement in the early stages of NGA, Ofcom should recognise that as an access provider, Openreach will already be highly incentivised to respond to market demand. Indeed, the lack of apparent wholesale demand for such products so far has already formed part of the thinking behind the GEA product. However, this does not preclude future development of other services in response to market demand. In our view, to mandate WLR over NGA prior to establishing reasonable demand would be disproportionate.

*Question 3 (e): Do you believe that the CPS obligation must be met by replicating the existing copper product or that an alternative approach based on an ALA type product would be satisfactory?*

BT does not believe that the Carrier Pre-Selection (CPS) obligation, as mandated by the Universal Service Directive, should be met by replicating the existing CPS functional specification in a new build world. Rather, for BT, the Voice Enabled Port on the GEA product - a type of ALA product - that Openreach is already starting to deploy meets the underlying objectives of carrier

pre-selection as has been discussed with Ofcom to date,<sup>17</sup> and offers significant additional advantages. In addition, it is proposed that the CPS and Indirect Access (IA) obligations in the current Universal Service Directive are removed in their current form as part of the EU Framework Review, changes which are due to come into effect in the next few years.

Demand for a separate wholesale product equivalent to the present CPS functional specification in new build areas is highly unlikely to be sufficient to make development viable, and doing so would have a significant price tag in terms of diverting resources away from developing new and innovative products which have scope to deliver substantial consumer and business benefits. If a commercial opportunity to support switchless resellers in new build areas arose, then clearly BT would want to look at it. But this should be on a commercial basis, not via a regulatory obligation. Ofcom is also proposing equitable regulatory treatment of all infrastructure providers (paragraph 1.3); a requirement for CPS may adversely affect other operators' NGA business cases.

Additionally, market drivers indicate that CPS may be overtaken by other developments. The development of new services, such as the Voice Enabled Port on GEA, enables selection of a carrier (meeting the underlying objectives of CPS), but offers other advantages such as:

- for the CP, control of the line, the feature set, plus the CP would receive the call termination revenue;
- new services for the end-customer, e.g. by giving the CP *control* of both ends of the call provides scope to flip a voice call into a video call, if the end-customer so desires. Hence there will be far more efficient ways of controlling the calls compared with CPS.

This is coupled with a declining market for CPS, driven by a number of factors including:

- reduced long term viability. CPS requires the use of a BT switch and the CP also has to switch the call when it's handed over. We question why, in new build, a CP would want to incur the cost of going through two call servers;
- the move to Next Generation Networks (NGNs). The available margins from CPS will be naturally squeezed as we move from a legacy world with around 600 points of connection to an NGN world with 27+2 Points of Service Interconnect (PoSIs);
- CPS Operators' (CPSOs') demand for the product will only last as long as they remain on legacy switches. CPSOs are themselves reluctant to invest in further product or systems development.

In conclusion, mandating provision of the CPS functional specification in new build areas would be a disproportionate and backward-looking regulatory response. We start from a very different point to when CPS was first mandated: calls and access competition is rife, coming from a range

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<sup>17</sup> BT had understood from discussions with Ofcom last summer in the context of Ebbsfleet that it was minded to agree that GEA met the EU requirements.

of sources including mobile and Voice over IP. The underpinning European regulation for CPS and IA is due to change in the next few years and this is exacerbated by a series of market developments, many of which will themselves throw up new opportunities to the benefit the end-customer, all of which indicate that developing current CPS in new build would be a poor use of resources, and one for which end-customers would ultimately bear some cost.

*Question 3(f): Do you believe that the IA obligation must be met by replicating the existing copper product or that an alternative approach based on an ALA type product would be satisfactory?*

As indicated above it is important to keep in mind that there is a cost to product development, there is declining demand for IA and there are other products which are likely to develop in a fibre or NGA world which will better meet end-customer needs. While it may be possible to simulate IA, it should not be assumed that all functionalities would be exactly replicated in all cases; in particular where a voice service is provided over IP. Over time it is likely that voice services will increasingly be provided as derived voice (VoIP) and competition will thus come from many additional directions.

Furthermore, the European Commission is already planning to drop the requirements for CPS and IA from the new Universal Service Directive, expected to come into effect in 2010. IA would no longer be mandated. It is BT's view therefore that a tactical solution is probably more appropriate than seeking to develop a product which might only be required for 1 to 2 years and would be in a form which had only limited scope in the small number of pockets where NGA Networks might be deployed during that period. Again to require any other approach might have the counter-productive effect of slowing down the roll-out of NGAs in the UK.

*Question 3(g): Do you agree with our proposal to interpret GC 3.1 (c) as being met through the provision and use of a battery backup facility to maintain uninterrupted access to emergency services in new build developments?*

In our view, the solution to meet the conditions within GC3.1 does not need to be predicated on the fact that legacy networks can be used to provide line-powering. Providing battery back up over NGA is complex and onerous and it is important to look at the root requirement which is to provide uninterrupted access rather than to provide an uninterrupted power supply. At this time, we are concerned that mandated BBU could impact badly on customer experience, be costly in financial terms, and would result in diversion of resources as well as potentially distorting future developments. This needs to be considered more carefully as other means of achieving customer protection may be possible.

Mandating BBU may not in any case achieve the desired effect. Some implementations of BBU could be invasive and would require active customer involvement in the provision of lifeline services, thereby moving complexity to the customer. Therefore in our view what is required is a

customer centric approach giving the customer the choice to opt in or out of such a service. Without the customer taking an active decision they are unlikely to be aware of the on-going maintenance responsibilities which will be necessary to keep the service available.

A non-mandated approach will lead to further Service Provider differentiation and innovation as there are a number of possible implementations: on an initial analysis it seems likely that the more closely an implementation emulates current practice the less possible it is for it to be fully integrated into an NGA solution which itself has an impact on long term development. If on the other hand the solution chosen is *not* predicated on the legacy position (ie if the voice service is NOT built into the ONT through an ATA) it seems more likely to be a less attractive user experience and potentially more complex to implement (to build in flexibility). Furthermore the customer may inadvertently take action which breaks the protection which they thought was there.

As indicated above this is an area where we believe Ofcom has considerably more room for flexibility than is being acknowledged. The requirement is really around consumer protection and Ofcom has the latitude to allow CPs to determine the best way to achieve that. What is more important is to ensure that end-users are provided clear and complete information about their services. This will allow conscious and considered decisions to be made about the level of security needed (some users may require an uninterrupted power supply for all their telecommunications needs, while others may choose to rely on, for instance, mobile phones).

Ofcom has indicated, initially through its consultation on the regulation of VoIP and access to the emergency services and more recently in discussions relating to New Build that PATS voice services will need to have BBU in order to be compliant with GC3.1. In our view, this statement does not fully address the complexity behind the implementation. As stated above in section 3 of this response, we believe there are alternative ways of complying with GC3.1 and a number of possible options for BBU (some more resilient than others). Without appropriate discussion around points of detail that fully reflects the realities of an NGA environment, there is a significant danger that the customer experience will not only be very poor but the solution would in any event fail to provide the desired level of security.

Our initial research indicates that the requirement for BBU is not universal across Europe or indeed globally. We believe there is merit in industry discussion to identify the key requirements and possible implementation options, possibly leading to self or co-regulation, the focal point of which should be clear consumer information.

In our view, Ofcom's position adopted in the statement relating to Access to the Emergency Services over VoIP ignores the fact that much of the position was inherently formulated on the presumption of the existence of an underlying resilience in the copper network. Such a starting point is inappropriate in the case of a fibre NGA.

*Question 4: Do you think access to the duct network, including non telecoms duct, is a potentially feasible means of promoting competition in new build? If so what types of commercial and operational models could successfully support such access arrangements in the UK?*

As indicated above the Passive v Active debate is an interesting development. Ofcom has always had the ability to mandate duct-sharing. However, past investigations have revealed that the demand is not high and the difficulties not trivial.

The analysis of duct-sharing in the consultation is somewhat theoretical and descriptive and in our view fails to fully provide an analysis of its feasibility in the context of New Sites or to consider the potential downsides in existing network areas (such as the potential for customer lock-in through first (or only) mover advantage). There is also no detailed analysis of demand.

BT fully appreciates the fact that considerable costs are entailed in the provision of the civil infrastructure at the outset of provision of a New Site. There are nevertheless significant up front costs entailed with the provision of services and particularly where the market is limited, the division and sharing of this market may provide insufficient ability to recover costs. We would be pleased to discuss our analysis of this point with Ofcom in due course.

In our view the ease of sharing at a New Site is significantly over-emphasised: while it may be easier to reach agreement at the point of deployment, once the deployment has been made there is little difference with the situation in the existing network since it would no longer be a “New Site” and the difficulties would be similar to the current situation. There would also be further costs involved in the commercial arrangements to manage the sharing which should not be overlooked.

In the context of New Sites in particular Ofcom will be aware that the developers will have business models of their own, which may be significantly impacted by how duct sharing is regulated. There may be implications which should be considered by Ofcom. On the one hand it would seem potentially counter-productive for Ofcom to inadvertently curb the freedom of the property development industry in negotiating the most appropriate way to provide infrastructure for communications services but this needs to be balanced with the risk of control of an “essential facility” by an entity which is not intrinsically part of the communications industry; e.g land developers.

Whilst BT recognises that duct-sharing may develop under certain market conditions or circumstances, we do not believe that Ofcom should mandate such a remedy. This would offer a far healthier signal to the market for investment and allow operating models and specific sites to be considered under appropriate commercial arrangements, on an individual basis as appropriate.