Orange Personal Communications Services Limited

Response to Ofcom's consultation of 23 September 2008:

Delivering super-fast broadband in the UK: setting the right policy framework

Public Version

2 December 2008

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1.   Introduction

1.1.   Orange and the France Telecom group

Orange is a key brand of the France Telecom group, providing mobile, broadband, fixed-line telephony, business communications and entertainment services across Europe and beyond.   It is one of the world's leading telecommunications operators with more than 170 million customers on five continents.

In the UK, Orange provides high quality mobile coverage to 99% of the UK population.   At the end of September 2008, Orange had over 16.84 million customers in the UK – 15.82 million active mobile customers and over one million fixed broadband customers.

1.2.   This consultation

Orange welcomes the opportunity to respond to this consultation.   As a pioneer in local loop unbundling in the UK and with significant international experience of rolling out next generation access networks in Europe, Orange believes its perspectives will add positively to this debate.

2. Executive summary

2.1. Regulatory policy framework

Orange supports the evolution to NGA and considers it inevitable in the medium-to-long term. However, this should not be at the expense of Ofcom's significant regulatory policy achievements in broadband since 2004. Specifically, in its strategic review of telecommunications, Ofcom highlighted the need to promote competition at the deepest level of infrastructure where effective and sustainable. This should be Ofcom's guiding principle in its design of NGA regulation.

2.2. Market definition

Orange is concerned that Ofcom's proposed approach to market definition is excessively restrictive. Orange urges Ofcom to ensure that its approach to market definition allows Orange and other communications providers to replicate the entire BT product set. It is important (and a statutory requirement) that Ofcom approaches future market reviews with an open mind.

2.3. Regulatory issues relating to VDSL

The litmus test for the competitiveness of wholesale local access and wholesale broadband access going forward will be the way in which Ofcom regulates BT's VDSL access and conveyance product sets. Specifically:

- **Relevant markets**: Orange broadly agrees that NGA services would fall into already-defined markets, but it is concerned that the current rules relating to how those markets are regulated may not be effective to deal with the issues that are likely to arise with NGA. New market reviews will be necessary to establish the proper approach.

- **Remedies**: Furthermore, Ofcom should review the remedies within those already-defined markets to ensure that are effective to deal with the issues that are likely to arise with NGA.

- **Price regulation**: Limiting price regulation to "passive" sub loop products will not promote sustainable and effective infrastructure competition at the deepest level. Ofcom should promote the principles enshrined in its strategic review of telecommunications and impose cost-orientated price regulation on wholesale (bitstream) products based on VDSL. The absence of price regulation significantly increases the risk of a margin squeeze.

- **Risk and return**: Ofcom should critically analyse BT's request for increased capital returns on the basis that BT's investment in VDSL does not significantly alter its risk profile.

- **Replicability of entire product set**: In order to promote truly effective competition, Ofcom should impose a nationwide bitstream offering allowing replicability of triple-play offers, meaning that the regulated bitstream offer must support multicast with quality parameters supporting the provision of VoIP and IPTV.

- **Lack of a "naked" VDSL variant**:   BT has publicly stated it will continue to force communications providers to purchase a 'baseband voice' service from the exchange separately to VDSL.   This highly anti-competitive behaviour adversely affects consumers in terms of higher pricing and lack of next-generation converged communications services.

- **Protecting existing, and incentivising future, competitive investment**:   Orange has invested significant amounts in LLU as a result of the clear and unambiguous messages of support received from Ofcom and government since 2004.   The regulatory treatment of NGA should not undermine existing investments in LLU, as the lack of a consistent regulatory policy would seriously damage confidence in the UK regime and the willingness of alternative operators to invest in the future.

- **Backhaul**:   NGA is likely to drive demand for backhaul.   It is therefore essential that cheaper backhaul solutions are available if NGA is to thrive.   BT's behaviour to date in this area gives Orange no confidence that reasonably-priced backhaul to support NGA will develop in the absence of regulatory intervention.

2.4.   Customer experience

It is important that customer experience issues are considered from the start of NGA development. Communications providers are best placed to understand the needs, and protect the end-to-end experience, of their end customers.   Similarly, communications providers are best placed to provide customer premises equipment to end customers.   It is hoped that the approach adopted by BT during its trial is not continued into the next phase of development.

3. Regulatory policy framework

3.1. The significance of NGA to UK competitiveness and consumer welfare

The development of NGA networks will be extremely important for UK consumers and the UK economy, particularly given the importance of international competitiveness in the current economic climate. There is a growing body of opinion in favour of NGA and which supports an interventionist approach by governments and regulators to drive NGA development. Ofcom cites some important areas where NGA will generate real benefits to wider society:

> *"two-way video can improve social inclusion by allowing better ways to communicate for disabled people; other new applications could enhance community support for isolated individuals; greater and more efficient information flows have the potential to improve citizens' democratic participation."*

However, some of these benefits are difficult to assess in quantitative terms. Ofcom also notes that it is hard to predict exactly how NGA will bring benefits to end-customers and the economy generally, noting that:

> *"None of the responses to our previous consultation gave firm evidence of particular products that might drive demand for next generation access."*

3.2. NGA and competition policy

While Orange strongly supports the evolution to NGA in principle and considers it inevitable in the medium-to-long term, its implementation should not be at any price.

It is essential that enthusiasm for NGA does not allow an environment which damages the long-term viability of competition.

In Orange's view, the regulatory framework must remain consistent with the approach set out in Ofcom's strategic review of telecommunications.

In the terms of this consultation, Ofcom sets out some distinct objectives:

- operators investing in next generation access networks as soon as it is economically efficient for them to do so […];

- that these networks are deployed in the most efficient way, using the most appropriate technology;

- that consumers of existing services are not disadvantaged as a result of the deployment; and

- that diverse and innovative competition continues to deliver the consumer benefits we see with current generation access.

Orange broadly agrees with these objectives.   The difficulty comes in balancing the desire to promote NGA take-up while building upon the significant regulatory achievements within Ofcom's strategic review of telecommunications which had as its guiding principle the promotion of:

> *"competition at the deepest level of infrastructure where competition will be effective and sustainable."*

This should remain the guiding principle of Ofcom in its review of NGA regulation.   If the evolution to NGA changes the depth at which infrastructure competition becomes effective and sustainable, this will impact on the competitiveness of downstream markets both in terms of retail pricing and in terms of service differentiation.

Given that previous deregulation of downstream wholesale markets was predicated upon true upstream competition, should that upstream competition disappear, it would be appropriate for Ofcom to consider reimposing regulation in downstream wholesale markets to prevent the same type of regulatory failure that Ofcom inherited from its predecessor.

3.3.   FTTH and VDSL

In this consultation response, Orange focuses on VDSL (also commonly referred to as Fibre to the Curb (FTTC) and Fibre to the Node (FTTN)).   Clearly, issues around Fibre to the Home (FTTH) are also important.   But VDSL is clearly more pressing from an immediate regulatory policy perspective in the light of BT's announcement of 15 July 2008 and its impact on existing competition in the wholesale local access and wholesale broadband access markets.

3.4.   Other means of delivering NGA

Similarly, this consultation rightly focuses on VDSL and other methods of delivering NGA based on today's network topologies.   The consultation also considers alternatives approaches and remedies.   Three in particular are worth further analysis:

- **Sewer access**:   in Orange's view, sewer access is an interesting idea which may bring benefits, but in certain clearly-defined areas.   There is already a considerable amount of telecoms infrastructure in London sewers.   However, Orange questions whether there is much scope for telecoms network in sewers to be extended much further.   Even in France – with rather better-quality and more accessible sewers than in most of the UK, the reach of sewer-based networks is comparatively limited.[1]   In short, Orange considers sewer-based networks to be a good idea with limited application.

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[1] Telecom operators in the City of Paris have a contract with the City concerning access to the sewers and the cost of such access (cost of a meter of fibre posed in the sewers).   In Paris, the quasi-totality of the sewers is usable by the telecom operators and all the galleries are visitable.   As a matter of fact, there are 1600 km of sewers in the City and 100 of the sewer network are visitable; 93,000 habitation buildings in the City have a direct sewer connection.   It should be noted that this is not necessarily the case in other major French cities such as Lyon and Marseille where only a minority of sewers are usable for this purpose.   Free and SFR / Neuf have now deployed a part of their networks in Paris' sewers.   Free has also access to alternative civil work in the city of Montpellier.

- **Duct / dark fibre access**: Orange welcomes Ofcom's ongoing work in investigating the potential for access to BT's ducts. The French situation is instructive here. Requested by ARCEP, France Telecom has authorised an audit of its ducts in ten cities by ARCEP's technical team and this provided positive results: In cases where there is not sufficient space in the existing ducts, there is discussion between FT and ARCEP for the extra civil work to investigate the possible options. Orange would be happy to share more of this approach with Ofcom to assist with its ongoing exercise and look forward to seeing the outcome of this investigation;

- **Open access to cable networks**: Currently, in France, Neuf Telecom / SFR have a passive fibre agreement with the cable TV operator Numericable where Numericable is selling dark fibre. Therefore, Numericable is today selling access to its infrastructure (selling dark fibre, PON). Orange would be interested to discuss with Ofcom how a study might proceed into whether similar arrangements could work in the UK.

In general, Orange believes that ducts suitable for fibre deployment coming from other players such as cable operators, local authorities, electricity providers, sewers should all be included in the analysis. Ofcom should take advantage of the opportunity of this consultation process to include other relevant players within the scope of duct-sharing regulation.

The symmetry in the obligations applying to undertakings (be they SMP or not) appears crucial. Orange suggests that any operator rolling out NGA fibre (regardless of whether it holds SMP or not) should be subject to duct sharing obligations – in the case of non-SMP operators, the appropriate legal basis would be Article 12 of the Framework Directive.

Specifically, with regard to the principle of technological neutrality, cable operators should be viewed as electronic communication network providers. No single player must be favoured in comparison with the others, applying the regulatory concept of technological neutrality.

The regulatory framework should therefore apply to cable where the processes of market analysis and remedies are concerned, notably for dealing with ducts and in-door wiring. Symmetry should also be the rule for this approach. It is also essential that where an entrant has benefited from existing ducts, it must leave enough spare capacity in order for another operator to benefit from the same infrastructure.

3.5. The role of the OTA

The OTA has been instrumental in ensuring that industry works together to produce effective outputs in the world of LLU, WLR and going forward, Ethernet.

Orange believes that the likelihood of NGA being delivered in an effectively competitive environment would increase considerably if the OTA were to continue its important and effective role, particularly in relation to migration, backwards compatibility, backhaul, and Naked VDSL.

Ofcom should also consider whether it is appropriate to create and facilitate an industry-wide forum to discuss NGA issues that are outside the scope of the OTA (such as likely commercial models).

4.   Market definition

Orange is concerned that Ofcom's current approach to market definition is excessively restrictive.

The market definition of "super-fast broadband" should not hamper the ability of competitors such as Orange to replicate the offers of BT.   Replicability of retail services is a determining factor to define the boundaries of the relevant markets.   This cannot be confined to an issue of speed, however.   Many other factors (such as QoS parameters, availability of multicast capability) will be determinative in allowing alternative operators to continue competing with BT.

In the UK, like in many European countries, the market is clearly broader than only internet (or even very high speed internet) products.   Triple-play services are increasingly important and most UK operators propose services including broadband Internet access, digital TV and video.

Beyond the issue of access speed, Orange believes that the UK policy framework has to include the principles of market regulation which broadly has to allow communications providers to replicate the "super-fast broadband" services offered by the incumbent operator, including HD digital TV services from the MDF.

It is important to distinguish here between service features which can be added by communications providers such as Orange and those which are inherent in the network design and are therefore the preserve of BT.   Many of the facilities described here will be under the control of BT.   It is important that these facilities are made available in a manner which allows replicability of downstream services.   Initial signs are that in relation to (for example) multicast, Openreach may seek to charge excessively.

In short, therefore, it is essential that Ofcom's approach to market definition is not unduly restrictive; it must be clear that all necessary facilities will be made available to communications providers on sufficiently fair and reasonable terms to enable them to compete vigorously in retail markets.

It is important (and a statutory requirement) that Ofcom approaches future market reviews with an open mind.

5.   Regulatory issues relating to VDSL

As discussed above, the litmus test for the competitiveness of wholesale local access and wholesale broadband access going forward will be the way in which Ofcom regulates BT's VDSL and related access and conveyance product sets.   There have been significant regulatory achievements since 2004 in this area.   However, those achievements are at risk in the migration to VDSL and will require significant regulatory intervention to ensure effective competition remains.

For the avoidance of doubt, this analysis is essentially concerned with VDSL in the UK.   Although examples from other markets can be instructive, there is often no direct read-across.

5.1.   Relevant markets, geographic considerations and chain of substitution

Orange broadly concurs with Ofcom that the services here would fall to be considered in Markets 4 and 5 and, as such, will be subject to existing SMP designations.   However, Orange is concerned that today's UK regulation may not be effective to deal with NGA products.

Today, Market 5 is regulated on a geographically disaggregated basis according to the level of competition derived from regulation of Market 4 (wholesale local access).   Although this competition is not felt to any material extent directly in Market 5 (wholesale broadband access), a wholesale market, the argument is that increased competition in relevant retail markets generates an indirect constraint on BT's behaviour.

In an NGA world, Ofcom suggests that a matrix of indirect constraints will, similarly, restrict BT's freedom to extract monopoly rents for its NGA services.   This is a questionable assumption for a number of reasons:

- There is no guarantee of competition at the sub-loop level.   In fact, experience from other markets suggests strongly that there is little chance of multiple roll-outs to the sub-loop. This is supported by Orange's own analysis;

- This means that the current indirect constraints enjoyed by BT in Market 5 are unlikely to be duplicated for its NGA services;

- Indirect constraints from existing LLU and other services are largely dependent on the chain of substitution and it is unclear, at best, how such a chain might operate in these markets;

- Although Orange agrees with the principle of the chain, little or no hard data exists today about how it might work in these markets in practice in the UK; and

- Geographically limited roll-out of NGA is highly likely to affect today's geographic market definitions.   It remains too early to know what this would mean in practice.

5.2. Remedies

Even if existing market definitions hold well on NGA roll-out, there is a good chance that remedies may need adjusting.   For example, in Market 5 there is no obvious obligation in relation to BT's pricing despite its SMP.   Given that these Market 5 remedies were conceived some time ago[2] – due to no fault of Ofcom's – it may be necessary for another Market 5 review to address these issues early in the NGA roll-out.

As developed above, incumbent services provided from cabinets (typically using VDSL or ADSL 2+) deeper into the network than the MDF cannot be replicated under normal economic conditions. It is a widely held belief within both the communications and financial sectors that there is no business case for sub-loop unbundling except under very unusual conditions.

FTTx deployment allows the incumbent to fully exploit high speeds used for the provision of IPTV on a monopoly basis in the absence of effective remedies on markets 4 and/or 5. Communications providers should be able to compete with high speed triple-play offers of BT deployed over VDSL or FTTH technology.

The correct way to resolve this competitive issue is to provide a regulated bitstream offer at MDF sites allowing for replicability of retail offers from the communications providers.   Orange therefore requests that a nationwide bitstream offer allowing economic replicability of triple play offers with IPTV is required.   This implies a bitstream offer with multicast capability and with quality parameters supporting the provision of VoIP.

The bitstream offer should be available at the MDF site where unbundlers such as Orange are present and where substantial investments were made in network infrastructure. A bitstream offer available at a limited number of PoPs that are higher in the network and allowing for the replication of only high speed broadband services is clearly inadequate for a competitive outcome.   Orange therefore requests that the Ofcom imposes a "virtual" LLU bitstream offer allowing alternative operators to replicate BT's triple play offers without having to go up the ladder of investment again.

5.3. Price Regulation

Ofcom appears to suggest that only "passive" (unbundled sub-loop) products should benefit from price regulation.   Ofcom appears to believe that such regulation would obviate the need for downstream (bitstream) price regulation and would adequately protect both infrastructure and retail competition.   However, given the widely-held view that the underlying economics of sub-loop unbundling do not make such an investment commercially viable (irrespective of, but exacerbated by, the current economic climate), it appears that bitstream is likely to be the deepest level at which infrastructure competition is likely to be effective and sustainable in the NGA world.

It would therefore be a major strategic error for Ofcom to rely solely on price regulation at the sub-loop level to ensure effective competition downstream.   Wholesale price regulation at the downstream (bitstream / wholesale broadband) layer is required to promote effective competition.

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2 This approach dates from Ofcom's consultation of 21 November 2006

Orange therefore submits that BT should be mandated to provide a price-regulated (based on LRAIC methodology) bitstream offer at MDF sites allowing for replicability of retail offers by other communications providers.   Furthermore, the risk of a margin squeeze increases considerably if Ofcom does not impose any cost-orientated pricing regulation on "active" bitstream products.

5.4.   Risk and return

BT claims that its NGA investment is risky.   As a matter of fact, the extent of risk incurred in FTTH deployment differs from that of VDSL deployment.   Given the price differential between VDSL and today's wholesale broadband charges is relatively small, BT's demand-driven model in VDSL effectively limits the risk of its roll-out to no more than its current risk profile.   It is therefore essential that Ofcom subjects to critical analysis any such requests for increased capital returns. BT has quite properly opted for a VDSL-based approach rather than seeking to deploy GPON. This is a further de-risking factor – GPON is not appreciably faster but is significantly more expensive to deploy.[3]

5.5.   Replicability of entire product set

Orange also requests that a nationwide bitstream offer allowing replicability of triple-play offers with IPTV is required.   This implies a bitstream offer with multicast capability and with quality parameters supporting the provision of VoIP.   The fact that BT believes these VDSL products should be within Openreach makes it clear that BT itself does not believe that competition by multiple players in VDSL is possible – that they are, by definition, irreplicable bottlenecks / natural monopolies.   Regulation should therefore naturally follow.

Furthermore, the success or otherwise of NGA is not just a function of the "raw" product.   Future enhancements such as multicast will be essential and need to be considered up-front.   Multicast is very significant architecturally and it is important to draw a distinction between "service wrap" functionality which can be added by communications providers and areas where we are reliant on Openreach.   Multicast is likely to be in the latter category.

5.6.   Lack of a "naked" VDSL variant

This section addresses the continued lack of naked broadband products in the UK from both competition policy and commercial perspectives.   BT has publicly stated that it will continue its unjustified (and in Orange's view unlawful) policy of tying broadband services (and the underlying network elements) to traditional PSTN voice services when it rolls out its VDSL network.

The fundamental issue here is that it is simply unnecessary for BT to tie broadband access to traditional fixed voice services.   While BT is entitled to recover the cost of copper (currently attributed to the low frequency channel of a cooper loop), its refusal to date to supply a Naked xDSL product at a reasonable price:

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3 In the United States, it has been well-documented that Verizon's FTTH-based approach is significantly more expensive that AT&T's VDSL roll-out

- inhibits the development of both converged services generally and more specifically of a competitive voice market outside of LLU areas; and

- forces customers to pay more for their bundle of communications services than in other European countries where a Naked xDSL product is available.

In the pre-NGA world, this highly anti-competitive behaviour has been justified by BT on the basis that it is impossible to reverse-engineer a network to separate broadband and voice services when that network was designed at a time when broadband had not yet been conceived.

It would therefore have been a reasonable expectation that when designing the new architecture of NGA from green field, BT (which is acutely aware of this issue) would seek to offer a variant that allows the purchase of VDSL without the communications provider being forced to purchase a traditional baseband voice product.

However, In BT's proposed VDSL design, broadband services are delivered using fibre to the cabinet and copper over the sub-loop (D-side) copper. Voice, as part of BT's compulsory bundle, will be delivered over both E-side and D-side copper. In other words, BT is tying the broadband service to a completely unrelated piece of network (the E-side copper). This is obviously inherently inefficient when, for many providers (and their retail consumers), it is unnecessary.

Whatever technical or operational justification that might have existed in the pre-NGA world, it certainly does not exist here and adds significant weight to the need to ensure that its VDSL product range is subject to the appropriate levels of *ex ante* regulation.

It is instructive that the only communications provider not tied to these legacy product arrangements – Virgin Media – has indeed chosen to offer a naked broadband product over its own networks.

The existence of a naked variant of VDSL would not only bring significant efficiencies for communications providers offering converged services, but it would also bring efficiencies to BT in that no re-jumpering activity at the exchange would be required when customers migrate to the naked variant of VDSL. This is because a naked variant could disable the existing voice path in a similar manner to the flexi-cease product being used for exchange-based broadband.

This would reduce the operational complexity of the new products: unnecessary activity would be removed and it would not be necessary to <u>coordinate</u> physical activity at the exchange with remote activities required to enable the new broadband service. Orange would expect this would mean service could be provided more quickly. An obvious implication of this is that it would remove cost: given the costs involved in manual activity at the exchange, this efficiency gain could be genuinely quite significant.

In addition, a naked DSL product would improve provisioning times. Over-the-air provisioning is available in real time on Orange's mobile network – which means customers can purchase Orange products in its retail shows and walk away with a working phone. Orange believes that similar real-time provisioning should be possible on fixed broadband networks. Naked variants could help to achieve this.

In addition to efficiencies of this sort, the availability of a naked variant would also offer much more flexibility to communications providers and end customer, which would be free to choose whether to use a traditional PSTN "POTS" service; or a more modern IP-based voice service provided as an integral part of the service; or, indeed, perhaps no fixed-line voice based service at all (the end cusomer may prefer to rely on web-based or mobile applications).

It is our understanding that even BT Wholesale believes that voice over the broadband channel is the way forward: in a trilateral BT Wholesale / Openreach / Orange meeting on this subject, BT Wholesale included in its presentation an option for voice over broadband either with an Orange call server or integrated with the BT Wholesale WBCC architecture.

In general terms, the evolution to future converged architectures makes more sense if voice is carried over the broadband channel. From a technical perspective, there is absolutely no logic in running a separate legacy network using old-style narrowband voice in the local loop, only for those signals to be converted to IP on the backbone; it is far more sensible to run IP-based voice end-to-end. The only justification for BT's design choices is therefore its own commercial imperatives and protecting its position in the fixed-line voice markets.

For the avoidance of doubt, Orange reserves its position with regard to BT's current behaviour, which Orange believes constitutes a flagrant breach of BT's SMP obligation to provide network access on reasonable terms in addition to being very likely to breach the competition law prohibition on tying (contained within Article 82(d) EC) and being a refusal to supply. Orange is preparing both a formal competition law complaint and a regulatory complaint to be submitted to Ofcom should BT continue to refuse to offer a 'Naked' version of VDSL (or its 20CN / 21CN broadband product range).

5.7. Protecting existing, and incentivising future, competitive investment

While the evolution to NGA might be inevitable in the medium-to-long term, it is important for Ofcom to appreciate that Orange and other communications providers have invested significant amounts in LLU as a result of the clear and unambiguous messages of support received from both Ofcom and government since 2004. It is essential that the regulatory treatment of NGA should not undermine existing investments in LLU, as the lack of a consistent regulatory policy would seriously damage confidence in the UK regulatory regime and the willingness of alternative operators (and their ability to persuade the financial markets) to invest in future infrastructure.

A migration which takes place too early or in the wrong conditions could have a devastating effect on competition and be highly detrimental to consumers. The outline model proposed in Figure 5 of the Ofcom consultation is acceptable in structural terms. However, the consultation does not deal with substantive questions about the triggers for migrations. In order for migration away from copper networks and LLU to take place, at least the following must be in place:

- No stranded assets: an appropriate compensation scheme must be in place;

- Replicability and cost effectiveness of the NGA product set must be proven to Orange's satisfaction;

- There must be a clear, practical path to migration to NGA products involving minimum consumer disruption;

- Naked VDSL should be in place and operating effectively before BT's retail launch; and

- Sufficient time: in other jurisdictions a period at least five years has been allowed (e.g. BIPT in Belgium and OPTA in the Netherlands).

Orange welcomes the suggestion of further consultation on this matter and agrees that further work is needed on the substantive triggers.   However, it is important that this consultation is a matter for Ofcom.   It will not be sufficient that BT agrees to consult its customers, particularly given that previous such BT-led consultations have not been managed in an acceptable way.

Furthermore, Orange expects that Openreach's new NGA products will be compatible with today's broadband and voice products.   So, for example, Orange assumes that NGA-based broadband is completely compatible with today's ethernet backhaul.   This applies both to Openreach and BT Wholesale products.

5.8.   Backhaul

Currently, the cost of backhaul accounts for a very significant proportion of the total cost of serving end-customers.   It is widely-believed that the average bandwidth (uploaded and downloaded) per customer will increase exponentially as higher-definition services are developed to take advantage of higher access speeds.   This will create significant demand for last-mile backhaul services and will also drive significant additional demand for middle-mile backhaul services.

The current pricing structure for backhaul can only be described as excessive, with no significant regulatory intervention by Ofcom within the last five years.   In the absence of regulatory intervention, the costs of backhaul for NGA will be prohibitive and puts at risk the potential of NGA highlighted above.   This was highlighted in the Caio report as a significant concern.

It is therefore essential that cheaper backhaul solutions are available in the future if NGA is to thrive.   BT's behaviour to date in this area gives Orange no confidence that this will be the case in the absence of regulatory intervention.

BT has recently increased the bandwidth pricing for its bitstream product range and general discussions lead Orange to believe that BT will further increase backhaul and transmission prices going forward.   This, of course, is contrary to the underlying cost profile which will decrease as volumes grow and technology develops.

Dark fibre could be an important part of backhaul solutions going forward and Orange will certainly consider pushing for such an approach if other backhaul solutions do not look viable on their own.

Orange therefore strongly expects Ofcom, working with Openreach and industry to take proactive steps to encourage a cost-effective next-generation backhaul solution as part of the current exercise so that it can form a consistent part of NGA proposals.

5.9. Conclusions

Orange welcomes Ofcom's thinking in the area and there is much common ground. The crucial point is that at the moment, much of the argument about regulation of BT's NGA products is speculative. In fact, it will note be possible for Ofcom to be definitive on these areas until the formal analysis is undertaken. Orange recommends that this be done as early as possible in the NGA lifecycle.

6.   Customer experience

This section deals with the regulatory and practical issues from a consumer perspective.

It is popular to class NGA products as either "active" or "passive".   Ideally Orange would like to move away from this polarising language to an acceptance that communications providers will want as much control over the service as possible insofar as is consistent with economically efficient investment; and that the underlying classification of products is not likely to be of interest to consumers.   In general, Orange believes there is benefit from analysing these issues from a consumer perspective.

Among other issues, communications providers will wish to have as much control over the customer experience as possible.   This means:

- There should be an option for the communications provider to provide its own modem as soon as possible.   If this cannot be done as part of the trial it should be done as soon as possible after; and

- Orange would like to investigate the possibility of having a degree of control over the DSLAM / MSAN card.

Migrations are of course a key part of the customer experience.   They have also become increasingly complex; the addition of NGA migration options will complicate the picture still farther. Orange believes that the availability of a naked broadband variant of VDSL-based NGA will generate a simpler migration because physical intervention will not be necessary.

However, Orange also believes that industry will have to pay significant attention to migrations generally: there is ample opportunity, unfortunately, for generating a poor customer experience. Orange is extremely keen to avoid this.

Orange also currently believes that migrations back to LLU-based service will be important. Certainly some customers may find NGA-based broadband so attractive that they will never migrate back.   However, this will not be true for all customers.   For example, a customer subscribing to HDTV over VDSL who decides instead to take a satellite or cable-based service may then find that traditional DSL is more than enough for their broadband needs.   It is important that all use cases are covered.   That said, Orange is concerned that the EMP experience should not be duplicated in relation to NGA migrations.   It is essential that all stakeholders work together to identify the best, most efficient way of enabling cross-product migrations without the need for constant, and expensive systems development. Orange would welcome an opportunity to discuss this at greater length.

7.   Response to consultation questions

What will super-fast broadband mean for consumers and businesses?

Question 1 - Is there further evidence available on the applications and services or consumer benefits that may be supported by next generation access?

> *This remains something of an open question.   Inevitably, such applications and services will quickly develop once the infrastructure is established.   However, the mere fact of faster access to existing services is in itself a significant benefit that should not be underestimated.*

> *Furthermore, faster speeds will enable more devices to be connected to the internet, which could provide a range of services to customers ranging from home security to stock control of fast-moving consumer goods.   See section 3.1 for a more detailed response to this question.*

Question 2 - Who should lead on defining and implementing a process for migrations to and from next generation access networks? What roles should industry, Ofcom and other bodies play?

> *The central guiding role must be Ofcom's, which should lead on setting the overall policy and regulatory framework.   In parallel, multilateral meetings should be implemented in order to fine-tune the implementation of regulation.*

> *In addition, Orange would strongly support the OTA having a significant role in issues affecting both industry and customer experience.   See section 3.5 above for a more detailed response to this question.*

Ofcom's vision for the future and the role regulation should play

Question 3 - What role is there for Ofcom in the ongoing debate on next generation access versus industry's role in progressing this debate through multi-lateral and bi-lateral discussion?

> *As mentioned above, the OTA should be heavily involved in the process, dealing with both industry and customer experience issues – particularly the migration to NGA.*

> *Furthermore, the idea of an Ofcom-facilitated / mediated industry forum to discuss NGA issues should be considered.   See section 3.5 above for a more detailed response to this question.*

Question 4 - How far does current regulation, including market definitions, equivalence and the BT's Undertakings, need to evolve as result of next generation access deployment?

> *It is likely that significant evolution will be needed.   Market reviews are likely to be necessary.   See sections 4, 5.1 and 5.2 above for a more detailed response to this question.*

Competition remains key to delivering the benefits of next generation access

Question 5 - How important are passive products such as forms of sub-loop unbundling and duct access? Can the economics of these products support the promotion of effective and sustainable competition at this level? Which passive products should Ofcom pursue?

Passive products are important in principle but Orange is deeply sceptical about the viability of sub-loop as an engine of competition. Orange would like to see more attention focussed on a variant of ALA / GEA which gives communications providers a high degree of direct control over the service and the customer experience including speed, multicast functionality etc. One option here is for Orange to be given direct access to line cards. See sections 5 and 6 above for a more detailed response to this question.

Question 6 - What are the characteristics of high quality, fit for purpose active wholesale products? How far can active products with these characteristics support effective and sustainable competition?

See sections 5.2 (remedies), 5.3 (rate of return), 5.4 (cost-orientated pricing), 5.5 (replicability of entire product set), 5.6 (naked VDSL variant), 5.7 (compatibility with exchange-based LLU) and 5.8 (reasonably-priced last-mile and middle-mile backhaul product portfolio) for a more detailed response to this question.

Question 7 - Are there other options for promoting competition through regulated access that have not been considered here?

See the answer to question 6 above and the sections to this response mentioned therein.

Question 8 - How far may options for joint investment provide greater opportunities for competition based on passive inputs? Are there lessons that can be learned from similar ventures in other industries? What are the risks and advantages of such approaches?

In principle, Orange is open to the idea of risk sharing, particularly given the fact that investment by individual communications providers at the sub-loop layer are not currently commercially viable (see section 5.4 above). Naturally, such an approach would need to ensure no distortions of competition and would need to comply with competition law obligations.

However, in bilateral meetings, Openreach's senior managed has informed Orange that BT's investment in VDSL is dependent upon capturing the entire wholesale market and that the existence of sub-loop unbundling would put at risk BT's own investment in VDSL.

It is statements like this which make it imperative that Ofcom treats with great scepticism the claims from BT that its investment in VDSL is risky and should attract higher regulated returns (see section 5.3 above).

It is also important that Ofcom takes statements like this into account when deciding whether to focus price regulation on "passive" products rather than "active" products.

Question 9 - What should be the respective roles of Ofcom and industry in defining and implementing product standards?

Orange is keen to see a consistent approach to standards questions. It is up to the industry to define the standards.

Key to delivering effective competition and investment is pricing

Question 10 - How far do stakeholders consider the pricing approach outlined here of pricing flexibility for active products and cost orientation plus considerations for risk is appropriate at this stage of market development?

Orange is very concerned by this approach. Orange believes that multiple entry at the sub-loop level is unlikely (a view shared by BT's senior management in bilateral discussions with Orange). As a result, imposing price regulation only on passive products that will not be widely (if at all) used would be a major strategic error on the part of Ofcom.

The other indirect constraints highlighted by Ofcom are by definition weaker than direct competitive pressure; unlike other indirect constraints analysed to date by Ofcom (e.g. in wholesale broadband markets), the putative constraints considered here are not generated by a directly comparable product set but by competitive pressures generated through the chain of substitution.

In short, in UK markets, competitive pressure on BT's GEA products is likely to be low. This in turn is likely to mean that BT, comparatively free from competition, will tend to price at monopoly levels (i.e. the point in the demand curve at which elasticities are greatest). This will be inefficient in itself and will undermine the benefits to be derived from NGA. It will also damage the very competition which Ofcom and players like Orange have worked so hard to foster since the strategic review of telecommunications.

See section 5.4 above for a more detailed response to this question.

Question 11 - Will indirect constraints allow for an approach based on more price flexibility for active products? How will such an approach affect the incentives of different operators to invest and deliver super-fast broadband services to end customers?

See the answer to question 10 above and the section to this response mentioned therein. In addition, see section 5.1 above for a discussion of indirect constraints.

Question 12 - What period of time would be appropriate for such an approach to ensure a balance between the need for longer term regulatory certainty with the inherent demand and supply side uncertainty in super-fast broadband and next generation access?

Orange does not support this approach and therefore cannot comment on the appropriate duration for such an approach.

Question 13 - What are the key factors that could make a review of any pricing approach necessary?

Key factors include the transition from copper to fibre (i.e. the withdrawal of current products), evidence of lack of take-up of passive products, complaints of margin squeeze, and significant changes is shares in markets 4 and 5.

Eventually there will be a transition from copper to fibre

Question 14 - How far can the generic model for transition outlined here deliver both incentives to invest in next generation access while ensuring existing competition is not undermined?

The generic model needs to take into account the need to protect the existing investments by LLU operators and also safeguard a high quality customer experience during the migration. Such protection should be both in terms of compensation for stranded assets and also ensure sufficient notification is given to prepare for the migration (both in terms of technical engineering work and software / OSS development work).

Question 15 - What triggers would be appropriate for the commencement of any transition process?

See the answer to question 14 above.

Question 16 - Once triggers or circumstances for transition are achieved, what would be an appropriate period for the various phases of transition (consultation, notice period, transition)?

See the answer to question 14 above.

Question 17 - Over what geographic area should any process of transition be managed, for example region by region or nationally?

See the answer to question 14 above.

Regulation can play a smaller role in increasing revenues

Question 18 - What actions, if any, should, Ofcom undertake to support new revenue models from next generation access?

In the first instance, such commercial matters should be resolved by standard commercial negotiations. This would include the exploration of new commercial models in which revenue is generated from those applications and services that are consuming the bandwidth. It is possible that, if all parties agree, Ofcom could develop a facilitation role similar to its current role in the anti-piracy discussions.

In the longer-term, it is quite possible that the content industry might seek to persuade Ofcom to impose some form of network neutrality obligation on communications providers. While Orange reserves its position on this issue, it is worth noting that regulation might only entitle communications providers to recover reasonably incurred costs. This is potentially better than the current position of not receiving any revenue whatsoever.

What role can the public sector play in next generation access deployment?

Question 19 - What role should public sector intervention have in delivering next generation access?

> *Public sector investment should be strictly focussed on areas where the market will not deliver.   Orange submits that it would be appropriate to wait until natural market boundaries have been established before any public sector investment is made.   Such an assessment should be made by the BERR Digital Britain initiative.   Should such an investment be considered appropriate, Orange expects that access to the public sector infrastructure will be on terms which promote the take-up of retail services (which would be offered by communications providers and not by the public sector directly) without favouring any one communications provider (irrespective of whether any communications provider had been involved in the implementation of the public ally-funded development project).*

A proposed framework for action

Question 20 - Are these the right actions for Ofcom and other stakeholders to be undertaking at this time? What other actions need to be taken or co-ordinated by Ofcom?

> *Ofcom needs to ensure that its competition policy is aligned to the work it undertook as part of the strategic review of telecommunications in 2004 and 2005.*