

BBBritain represents an informal group of avid UK Broadband users keen to improve their connectivity and the connectivity of their neighbours. The group includes software engineers, telecommunication executives, and data networking experts.

Introductory Comments.

BBBritain are grateful for the clarity of the consultation document.

There is, however, a distinct dis-joint at the centre of this consultation. Ofcom have played an important role in creating conditions to permit affordable broadband services¹ to emerge. The popularity and utility of this service has caused policy makers to decide that connectivity to the public Internet should be a universal service. The data transport supporting the Universal Service for Broadband will be the same that supports NGN services. It is peculiar then that Ofcom's conclusions point to a 5-10 year transition to NGNs when BT's re-planned investment programme points to a far greater reliance on creating better generic connectivity to the public Internet. BT's re-focus suggest they no longer treat the Internet and the data transport that supports it as an unfinished demonstration, and they no longer treat IP based networking as something unfit for real time communications. Ofcom need to follow BT and not wait another 10 years before it needs to re-focus its regulation and investment. This is essential in delivering the plan for Universal access to a Broadband service capable of supporting key services.

BBBritain are grateful for the honesty of this report, but remain disappointed with the conclusions reached to date. We are grateful to Ofcom for spelling out the implications of BT's change in focus. We believe that Ofcom should understand BT's reason for change and review its own focus from supporting the unproven status of NGNs to allowing users to benefit from improved connectivity.

The change in the BT 21C NGN and NGA plan should be welcomed by customers and Ofcom. The BT centric design of the original 21C plan had at its heart the notion of a BT controlled NGN as a gateway to all services including those on the public Internet. This is not what customers need. Neither would it have been consistent with exploiting the full potential of Internet technologies. In a plan focused on emulating and replicating existing services BT, industry, and Ofcom could be accused, intentionally or unintentionally of creating a framework where the underlying potential of the IP networking was being subverted to preserve legacy services and associated cost recovery mechanisms. BT's re-focus on delivering enhanced connectivity options is welcome and aligns with customer expectations for the creation of a 'bit commons'. This response focuses on the additional steps Ofcom needs to make to reduce complexity further and ensure the emergence of a world class open and transparent data transport layer². For end users this transport would be bundled with access.

Throughout the report Ofcom state that IP networking is not proven as an alternative to support POTS quality voice. This is not the case. The underlying data transport of a IP based network can be configured to achieve specific multiple outcomes on a single infrastructure if is engineered for this purpose. It should be noted that BT residential VOIP

1 Broadband in this context – best effort, best available access to the public internet.

2 Data Transport Layer is used to describe transport data not that described by layer 4 of the OSI reference model. In all cases in this document it includes access to data transport.

runs on top of a best efforts infrastructure and it meets the POTS definitions, even though it is engineered to be a second line service.

The telephone service was and remains a terrific creation. It is so good, telecommunications lawyers are still writing the detailed specifications of service into law even today³. But, this is a mistake. The telecommunication service was a creation of its time. All the equipment created to work with it assumed the very tight specifications associated with its single purpose, the delivery of phone calls which was embedded within the design philosophy of TDM (time division multiplexing). It is wrong of Ofcom to declare IP or packet based networking either unproven or more costly in delivering real time communications. The newer forms of networking has been proven in the last 40 years and have had a profound effect on how we work and communicate.

BT's own refocus on providing better connectivity options using the IP protocols is dramatic proof that this is what customers want and need. We expect our connectivity to be better and we expect to do more with it. This includes using it for real time communications. We expect the underlying data transport to be configured to work and support multiple services. Policy makers worldwide would not be planning to make high speed access to the Internet a universal service unless it is engineered to deliver key services. The notion of a control layer⁴ is controversial and is an attempt by incumbents to control how customers use their connectivity.

Ofcom needs to accept that there is a new lowest common denominator to drive all interconnection. These are bits, not voice and not data just bits. Interconnection and cost recovery mechanisms and market definitions need to be re-written to reflect this new reality.

It is not surprising that the original BT 21C should include a control layer or function, requiring the deployment of an IMS -(IP Multi-media sub system). It would have assisted BT to re-create and protect its legacy services from equivalents on the Internet. A properly engineered data transport layer with transparent emergent properties will permit the full separation of the transport layer from the multiple services which run on top. The decision by BT not to deploy an IMS provides an unique opportunity to push ahead with an open and transparent data transport layer.

BBBritain.co.uk supports any move by Ofcom which reduces the complexity of the past, and support the creation of a far simpler model aligned with the need to deliver Broadband access on a Universal basis. The connectivity which characterises Broadband will provide access to services on many platforms including the public internet. Services will include communication services which will act as replacements for legacy POTS and Mobile services.

BT decision not to perform a mass migration of the POTS (plain old telephone service) service in the short term, offers the opportunity to plan for a far richer communications experience using the high bandwidth and low loss⁵ available over a data transport layer

³ EU Telecoms Package – Universal Service Definition

⁴ Control or Intelligence layer can be used, but no definitive definition exists.

⁵ By low loss, we mean the losses are bounded at known load layers. This property can be used to deliver predictable user experiences.

configured with the appropriate properties. It offers the opportunity to realign the status of the phone service and re-write the regulation to support the phone service as one application running on a data transport engineered to support several critical services.

We envisage a world where users would not need the POTS service as the Broadband access + Data Transport would support a femto cell or wifi access with even better quality than POTS. The BT decision makes it much easier to adjust the legal status of the POTS service to become one of several key services.

The reliance on the telephone service to support the emergency service, and alarms is as much to do with the design of the CPE as it is the network. Better connectivity options will need to support preventative care in the home, not just a call for help. The need for a Universal Broadband service demands the underlying data transport is configured to support multiple service in a predictable manner. This is possible but it must be a stated aim in creating a universal broadband service.

The tone and concern of the consultation is one of preserving past functions and features and old business models. Ofcom's response and the principle concern of industry is to retain and sustain the legacy voice services and argue over their cut of that revenue, specifically the origination, conveyance and termination fees, rather than examine how customers are using and wish to use their connectivity and associated computing power.

The BBBritain response to the questions posed shows that far from protecting customers, Ofcom, by enshrining legacy services in regulation is protecting industry from the full effects of the Internet technologies. This needs to be addressed and we outline how this can be done in a non-disruptive but radical manner.

Key to the non-disruptive manner is the notion that customers are not expecting to pay less, but the composition of what they currently pay changes, from a mass of billable micro-events to one focused on a subscription for better connectivity and services on top. The migration to IP networking must also include a migration of services and upgrades in devices to support better service delivery.

The current focus of telecommunication operators and the regulator to emulate legacy services/revenues rather than seeking to release the potency of the underlying data transport goes to the heart of the issue.

It is essential the regulation and legal structures supporting the telecommunications service existence does not become a prison from which better converged options fail to emerge. It is essential Ofcom's own market definitions are not used to sustain services which could be supplanted if not protected by tightly defined legal definitions tied to a particular historic technical framework and cost recovery mechanisms.

BT's re-focus is frankly a relief to customers and its shareholders. Ofcom needs to note the change, note the unproven nature of the NGN control/intelligence layer and use the re-focus to ensure users access to the full potential of the underlying connectivity. BT re-focus is incompatible with the conclusion that it will take 5 to 10 years for industry to implement an NGN strategy which allows them to create differentiated services compared with those services over the Internet. The BT re-focus suggests this differentiation may

not be possible and thus it is odd that Ofcom conclude it may be 10 years before the outcome is known. In the interests of consumers and UK competitiveness Ofcom should embrace this change and use it to drive for the Universal Broadband programme, one not reliant on the deployment of NGNs.

The concerns for LLU as a product is real. There was always a very real risk that specific remedies on specific pinch points could be undermined when the pinch point changed and the basis of the market definition changes through better networking possibilities. There was also a distinct possibility that creation of a market by creating a specific margin on a specific product could be undone if the product definition changed. EU policy making is founded on a LLU based 'infrastructure' competition, yet to get NGA economics to work we need high capacity pipes into rural areas which points to a single supplier. The EU competition dogma was late and some may be applicable in urban and dense business areas but not in rural areas.

BT is having to respond to its customer needs, not re-engineer its past on its own terms. NGNs as defined in the Ofcom appendix are unproven while the demand for the simple and predictable transfer of bits is growing exponentially. While industry may wish to get the most from existing investments, customers are treating their existing connectivity to the Internet as a bit commons and need more and better connectivity to it. If BT have re-focused on this change, then Ofcom is doing customers or industry a dis-service by continuing to promote a regime based on cost recovery on TDM assets at expense of encouraging the transfer of bits.

We hope our answers to the consultation questions will encourage Ofcom to note that the lack of belief (investment) in NGN by industry, combined with the national objective of creating a Universal Broadband service demands they put greater focus on achieving world class access to a simple and open data transport layer using the Internet suite of protocols. This will create the dynamic not for mass migrations of POTS services but the creation of better communication services over IP. If the cost recovery mechanisms for POTS/Broadband are unbalanced, then treat access and transport as one service. Customer bill sizes will not change but the composition of those bills will change over time.

The existing regulatory regime (market definitions/ cost recovery) having served the UK well does not need to be a 10⁶ year sentence from which we then escape. For end users the escape is already taking place, BT in abandoning its original plan is responding to users needs. We hope this contribution will encourage Ofcom to do the same. It is the case that the success of creating a market for high speed access to the Internet will impact on the services it is piggy backing upon. The belief in NGNs suggest that impact of the Internet can be mitigated against. BT's re-focus is making it clear such mitigation measures will not work.

Question 1: How do you envisage the model of competition changing over the next 3-5 years, and what sort of input products will be needed to support this competition?

6 As per the 5-10 year term in the summary at the end of the consultation document.

If Ofcom follows its current conclusions, then little change will occur. Bundling of services will continue. As is occurring now, many more users will pay for legacy connectivity (fixed and mobile) in order to gain access to high speed access to services hosted on the public Internet.

If however, Ofcom follows BT's re-focus and accept the need for the creation of a distinct data transport layer; and treats it as a new critical service to support all services including Mobile, then a radically different but simple model will emerge. That model would demand that those operating Data Transport layers, would do so independently of the services running on the transport.

Service providers could compete to offer services over the available data transport.

The associated interconnect is governed by the simple transport interconnect as described in the NICC documentation. The interconnect is in bits and not calls. It would need to be supplemented with performance for loss and delay characteristics at various load levels.

The decision to permit the recovery of costs based on TDM via call conveyance charges should be adjusted to a new lowest common denominator of 'bits'. Those conducting bit transfers will benefit from efficiency gains and encourage operators to re-invent services to meet current and future needs in a more pro-active manner.

Question 2: Do you agree with our analysis of the requirement for xMPF?

Ofcom are concluding that the creation of xMPF is of limited benefit to the end user. BBBritain concurs. Operators should focus any investment in new services on improving services over IP only, not trying to create added complexity and cost where there is no real gain to the end user.

Just as BT are delaying the notion of emulating the PSTN service on a large scale, operators should focus on getting their VOIP services working and delivering the multi-media communications experience users expect over their Broadband connections.

The conclusions on WVC and now xMPF suggest operators are seeking to exploit a regulated cost allocation opportunity as opposed to meeting a specific customer need. Given future services will be delivered via a data transport layer, Ofcom should ensure pricing and cost allocations are taken with this end goal in mind. Like the LLU policy, the origination and termination margins is very much at the gift of the Regulator and its interpretation of reasonable costs and their allocation. It is regrettable that the move to bulk data transfers as the future interconnect is not being considered adequately.

From a national perspective the more that is done to treat broadband access⁷ as a universal deliverable the better, and thus any step to keep separate these services which users are expecting to converge in some form should be resisted. The economies of scale are already proven, why support and maintain additional complexity for the customer?

⁷ Defined as connectivity with minimum properties for throughput, packet loss and delay.

Question 3: What additional technical standardisation work is required to support NGN deployment?

The NICC green release provide an adequate set of standards from which to begin. The costs of WVC seem to be largely to benefit operators rather than consumers.

An adequate descriptions exists for IP to PSTN and PSTN to IP. BBBritain suggests the focus should be interconnect based on bits and no other.

Work is needed to define the desired properties of the data transport layer, it's throughput, packet loss and delay characteristics. It is possible to engineer to layer to support multiple critical services with predictable outcomes.

Ofcom should be encouraged by the failure of BT's original plan. BT was attempting to preserve its heritage and control all services with the proposal of a control layer. BT's revised plan, dropping the mass migration plan and the implementation of an IMS, while focusing on enhancing connectivity options is an opportunity to remove a great deal of complexity and regulation from industry.

Question 4: What policy positions do you believe Ofcom ought to adopt in relation to interconnection between IP and TDM networks?

The notion that IP cannot support a communication service needs to be challenged. That this is then used as a justification to retain the TDM cost base as the means of determining the actual interconnect is a damaging conclusion. In such circumstances why would BT or any operator be motivated to ever make NGNs work? Reaching such a conclusion will automatically lengthen the life of the existing TDM facilities and reduce the motivation to create a data transport layer capable of supporting multiple services.

It is not just that IP based services are more efficient, they are different and offer a fundamentally different way to create and manage services.

It is likely that an incumbents (all industry members in this instance) needing to protect its legacy revenues, will draw on the legal status and definition of the POTS as a means to justify keeping the TDM facilities in place. This is why it was unwise of Ofcom to attribute VOIP services with the attributes and features of POTS, when a new approach was needed to match the multi-modal communications implicit with the possibilities of a richer communications experience. The latter arises from the throughput (and its quality) available and the computing power of the attached devices.

The decision by BT to abandon the mass migration process and focus on delivering better broadband options makes it clear where the customer priority now lies. This provides Ofcom the perfect opportunity to adjust the status of the POTS service as a critical service and declare that the establishment of the Data Transport layer is a new critical national asset.

Some direction setting is needed to secure the best deal for the customer. A declaration that 'bits' is the new form of interconnect currency ought to be made, and interconnect

agreements based on bits transferred ought to be announced, even if they need to be run in parallel for the next 4 years.

The benefits of the new ways of networking should be exposed fully, this should lead to further migrations and substitution away from legacy voice, as customers fulfill more of their communications and transactions through their high speed connectivity. It should also trigger a great deal of service innovation, so the problems of care, traffic congestion and inclusion can be tackled.

Setting prices based on BT recovering costs on their TDM facilities needs to be portrayed as a hangover from the past and used as an incentive to get operators to trade in bits transferred as opposed to call conveyance. For the four years suggested perhaps TDM costs could be recovered but on the basis of bits transferred and received. At the very minimum this should be run in parallel, to aid collective understanding for future business models. It would also allow those investing in IP to retain any efficiency gains and motivate them to seek those savings. The assumption that legacy TDM costs represents what is best for the next four years removes any motivation to do anything other than recover costs off existing assets. This cannot be good for developing a strategy for delivering key services over IP based connectivity options.

Perhaps the agreement to a TDM based cost recovery should be on the basis that efficiency gains by people investing early could be retained by operators, and the TDM costs ought to be managed out of the sector by the end of the four year period with a view to matching the world's best practice for the transfer of bits.

Question 5: Do you have any comments on our analysis of investment uncertainty in relation to BT's 21CN plan?

We are grateful to Ofcom for its blunt assessment. Given BT no longer have a substantive plan for NGN, we suggest Ofcom take the opportunity to review the status of the POTS service as a critical piece of UK infrastructure with a view to at least sharing that status with a data transport layer.

Given it is intended to deliver high speed connectivity access to the Internet on a Universal basis, then it is appropriate that the underlying design will support multiple services in a consistent predictable manner. This includes VOIP, Video communications and the use of Broadband to act as mobile access points. This will reduce the need for mass migration and create an environment to exploit the Internet technologies more fully.

Question 6: How do you think Ofcom should take forward considerations relating to switching involving next generation access and core networks, and which areas should we focus on?

Given it is accepted that Broadband (connectivity to the Internet) is to be a Universal service, then the notion of mass migration of existing services should be reconsidered. Ofcom and indeed industry should instead look to replace or re-invent those services by offering newer and better options using the better throughput and available quality.

BT's plans for mass migrations were made before the notion that Broadband would be a

Universal service. Broadband as a Universal service has not been referenced in this consultation and it needs serious consideration.

BBBritain.co.uk are recommending the separation of data transport from services. Transport services fixed and mobile could be supported using the mac code process. For services, we believe an industry run E-NUM database storing all communications credentials, from phone numbers to email addresses to form the basis of a process to allow customers control over their service credentials and permit these credentials to be ported between servers.

Question 7: Do you agree that the consumer protection principles and our approach to addressing consumer protection issues are still valid?

The dynamic being created by BTs' decision is now quite different and thus the protections measures envisaged need to be reviewed.

The principles were fine if indeed a mass migration was right or ever possible. As it is proving not possible, apparent to many since 2005 then a full review of options including replacement of services is needed.

The policy implications of a Universal Broadband service have not been considered and this is a shortcoming of this consultation. Thus coupled with a demand and strategy for inclusion should lead Ofcom to have a very different perspective.

Ofcom have also continued to ignore the substitution effects of new communication services and the need to support and encourage the convergence of these services, by loosening rather than maintaining outdated regulatory market definitions.

Question 8: Do you agree with our assessment of how the alarm equipment incompatibility problem should be addressed?

BBBritain support the notion that CPs should be proactive and take responsibility in ensuring their CPE is upgraded to support the variation in delay (not delay of itself) introduced by the adoption of IP based NGNs.

We would suggest that a more active campaign is implemented to ensure the CPE business becomes aware of the future data transport layer by ensuring this layer is transparent and open, with the emergent properties published and engineered to meet the needs of industry, including running security and national care services.

Ofcom need to be clear its position on a Universal Broadband service. The 2Mbps mentioned in the Digital Britain report means very little in this context. True measures for throughput loss and delay need to be published for this service alongside a list of applications which need to be supported.

Question 9: What will be the impact on vulnerable consumers of replacing telecare and other alarm equipment?

Given there is no mass migration planned, then the level of mitigation required will be customer limited. The demand for to implement a Universal Broadband will ease the replacement of equipment and provide customers with better choices.

Question 10: Would it be appropriate to agree a common set of terminal equipment compatibility tests? What would be the most appropriate forum to develop these tests?

Terminal equipment attaches to a network, so it is perhaps more important to agree the parameters of the underlying data transport layers. It is also important to agree what a UK national data transport layer should be and its emergent properties. The openness, transparency and neutrality all become immediately apparent when considering the need to run multiple services with no central control layer.

The throughput, loss and delay characteristics need to be exposed with CPE equipment to ensure that data transport is never overloaded.

It is within this context that equipment can be tested. The emergent properties, which measure the variation in throughput, loss and delay at various load levels, can be used to test and calibrate equipment.

NGN-UK and possibly NICC should change its focus from replicating historical interconnect to securing and implement a UK data transport layer.

Question 11: What other steps could be taken to help manufacturers ensure terminal equipment is compatible with the QoS parameters of NGNs?

BT original plans for introducing QOS, we assume will be reviewed. The notion of best efforts, premium best efforts, the existing and planned 21C assured service for IPTV and the BT 21C plans for a CAC (admission control) based premium bandwidth service are built upon the notion of generous dimensioning. The indicative pricing for these options appeared to be related to peak hour capacity cost allocations for carrying voice calls.

The creation and delivery of these QOS options is also tied with its views for an IMS based control layer.

This whole approach introduces layers of complexity which protects the incumbents existing legacy services, while creating barriers for operators and costs for customers.

The re-focus by BT demonstrates that this level of engineered complexity is difficult to make work. It is particularly difficult if strategic suppliers are expected to shoulder the operational risk for end to end performance. It becomes even more apparent when users are happily using best effort Internet access to perform more and more applications.

The re-focus provides a very good opportunity to push for a simplified and separate data transport layer, run independently from those wishing to provide services on the data transport.

Question 12: Do you have any other comments about compatibility of terminal equipment with NGNs and how they should be addressed?

No additional comments.

Question 13: Do you think there is risk of terminal equipment incompatibility that warrants further SIP UNI standardisation? How should this be progressed?

More standardisation is welcome, but it needs to respect the trend towards intelligence residing at the edge of the network. From a customer perspective it is more important that establishing the basic principles of owning and controlling our service credentials. Phone numbers, passwords, email, im identities could be stored E-num configured databases. Such a drive will further standardisation and demand better user interfaces to the user settings on CPE.

While some central control is necessary for establishing conference calls and video conferences, clear demarcation is needed between standards demanding use of additional servers in the network and those that improve the connection between CPE without adding additional complexity.

Question 14: Do you have any other comments about compatibility of terminal equipment with NGNs and how they should be addressed?

The growth and popularity of open source Asterix demonstrates both the power of open source and the challenges in creating stable platforms that scale. Encouraging and developing open source solutions in an important feature of innovation in IP networking.

Question 15: Will a slower transition from TDM to NGN networks pose a risk to voice quality of service? How should such risks be addressed?

Building and operating an IP based data transport layer supporting multiple services is different from operating a service specific network such as POTS. But this should not pose a risk to the quality of voice, video or messaging.

The risk arises, not from the physics of engineering our data transport to support real time communications, but from a desire to sustain multiple revenue streams for services which can converge. The risks arise from an economic desire to protect the legacy revenues streams as opposed to engineering a capability which puts those revenue streams at risk.

Incentives in the form of interconnect regimes which reward an early transfer to IP should be brought forward and included in forthcoming determination on interconnect.

The incorporation of the goal for a Universal Broadband service, which assumes the delivery of key services, points to the need for a properly defined and separate data

transport layer.

The Universal Broadband service will require the delivery of CPE which could incorporate the software and controls to support SIP based communication services and controls for alarms.

Question 16: Do you have any comments on the long-term trends in the evolution of networks to next-generation architectures?

Ofcom and industry appear to have gained BT agreement to retain sufficient legacy network until the engineers have worked out how to either replicate or improve upon services currently reliant on specific characteristics and interfaces.

The need for retained legacy networks was apparent from the initial inception of the 21C consult process.

While we agree with Ofcom that NGN can exist separately to internet access, we believe any such services should use the same data transport layer, or a layer configured with the same emergent properties. We would request that to protect the interest of UK consumers a ruling to this effect is made.

Many operators are supporting in practical terms a phase 3 approach to NGNs already. BT's own residential VOIP service is provided as standard and works well. Converting this best efforts service to one which is assured is possible but the motivation to make it so is not consistent with maintaining legacy revenues. Ofcom conclusions must consider this point. This is not just a BT issue as the self interest of industry is to keep the internet services best efforts and in some way limited despite the claims of unlimited.

Ofcom's concerns that legacy services account for proportionally more cost recovery is noted, and thus the implication that IP based services will need to bare more of the costs as we understand them. BBBritain believe it is inevitable that if fully exposed to possibilities of IP networking customers will see a significant change in their bills, from an obsession with billing for micro-events to billing for connectivity. Thus re-balancing can be accommodated as long as the total bill does not change.

It can be argued that Voice costs still reflect the BT historic costs, while the SMS 'costs' are justified by re-covering the taxation of the 3G auction process. To remain competitive and innovative, there is an opportunity to find a true cost for 'bit' transfer. Ofcom sponsored research (Analysis Mason -Delivering Video -Oct 2008) shows how this could reduce from circa £80 per Mbps for peak hour capacity for backhaul) to £5 per Mbps by 201X, a factor of 16 times. The research does not explain why it takes this long, but one assumes they are scale benefits to be had while the underlying costs remain the same. From a users perspective these benefits of lower bit charges could be released early if Ofcom gets its decision making correct and the Government is less greedy in its taxation of the industry.

The notion that Phase 3 is sometime in the future cannot be sustained. It is here now as customers use Internet hosted services to supplement and supplant their legacy communication services. The re-focus by BT must be welcomed. The legacy services

where there is demand can be accommodated on the retained legacy network while those whose future can be improved on NGN or the Internet can be re-invented rather than emulated with the restrictions of the old CPE and network.

The reduction in the POI (points of interconnect) point to the absolute need to separate the operation of the data transport layer from all service provision. This must be the same layer that supports access to the public internet. Ofcom should not be thinking of call origination and termination, there are only bits sent and received. Some bits may have different priorities but at the data transport layer they are all bits.

The notion that LLU would be efficient could only ever be made by manufacturing a margin within the historical cost story supporting the Telecoms industry. It was engineered after 2 failed attempts to give the appearance of competition to achieve a particular short term policy goal of ensuring consumers had a choice in the high street for this particular definition of product. It also gave the impression of operators investing in Network, but not to the extent or reach that it could be considered a national asset in meeting national long term goals.

The Internet has provided operators the biggest reason to upgrade its facilities. It is the Internet as an innovative open platform which has driven demand for bandwidth. As is evidenced in 5.20 it is operators which determine whether there data transport is engineered to support services such as Skype, or whether such services are blocked in some fashion.

The discussion on NGNs would not be occurring if the Internet did not exist. Seeing NGNs as somehow separate and different from the Internet is a mistake. Some services may require extra security or need to be configured slightly different, but the underlying transfer of bits is the same. Even the Skype services or BT's own residential VOIP work as applications on top of the best efforts infrastructure. Thus it is peculiar that Ofcom suggest that the Internet is acting as a barrier to NGN investment. The Internet, being largely open and transparent has been a true source of competition. The only sensible approach to NGN investment is to embrace the Internet principals fully, and insure all legacy voice services are fully exposed to the rigour of truly competitive and creative forces. If additional services like security or encryption are needed, these can be valued added services on top of the data transport. A policy to make special provisions for NGNs will be inconsistent with the drive for Universal high speed connectivity to the Internet.

Regarding point 5:23. Telecommunications companies cannot develop services in the manner they used too. Communications services using the internet are actively substituting for existing services.

Regarding point: 5:25, Ofcoms belief in infrastructure competition is tied to it's belief in copper based LLU and its market definitions for voice, data, fixed and mobile. It is BBBritain contention that a great many users already behaving on the basis of 'being connected' and having access to a suite of services.

This points to two distinct markets, a market for connectivity – loosing the distinction between fixed and mobile; and a market for services consumed while connected.

There may be room for a number of data transport layers but the economies tend to lend itself to one properly configured high speed access in non urban areas as is the case now.

The notion that there is infrastructure competition can be argued over given the networks behave as one logical network.

Re: 5:26 Telecom operators must not be allowed to favour one service over another. It is no longer a telecommunications network. It is a data transport layer supporting multiple services.

Re: 5:27 Those restricting Internet application usage or favouring their own hosted applications are doing no more than proving that an open and neutral data transport layer is a necessary building block of Digital Britain. UK policy cannot hope to deliver the objectives of Digital Britain, unless users have proper and simple control of they use their connectivity.

A proper regulated demarcation between data transport and services would allow the full potential of the Internet to be enjoyed by users and developers. The demarcation would immediately demand the publication of emergent properties of the connectivity being sold. Ofcom are not describing Internet services in this section but the properties of the underlying transport.

Such a demarcation would also provide a clear line should service providers wishing to invest in incremental NGN services.

Re: 5:28 Operators will avoid the move to bulk data transfer and continue to collect termination revenues. This failure of NGN-UK demands Ofcom steps in to insure the interests of customers and UK industry are protected against operators determined to protect legacy revenues.

Re:28 and 29 – Interconnect based on bulk data transfer can be achieved. Ofcom and NGN-UK will fail UK consumers and industry if it fails to ensure the changes are announced in 2009/10. BT's re-focus means BT and industry cannot re-create the past, and investment in IMS platforms are difficult to justify and so it important for Ofcom to insure industry does not inhibit improved connectivity to the web.

Re: 5:30-31 Ofcom appear to be implying that the future networking options are so disruptive to existing revenues that they cannot think of a means to motivate operators to make such services available now. BBBritain would recommend the creation of an access and transport service, which demands unifying the access costs, to reflect the bundling already available in the retail market. This should include mobile access. Services are a separate market.

Re: 5:32-33 – The incumbents hope is to create this intelligence layer and thus create a differentiator and control for themselves. The BT re-focus suggest the control layer as envisaged is not needed, nor efficient to create.

Re: 5:36 Consumers are already using the internet for conveyance and will continue to do so. The change is already occurring and BT's re-focus provides a dramatic proof. This is

not an extreme case, it is already occurring.

Re: 5:38 – The Internet is a powerful competitive force and it is essential Ofcom uses its office to ensure the data transport and interconnect is in place so legacy voice face the full rigour of competition. This will not happen if Ofcom accept industry arguments that Voice needs to be run as a vertically integrated service, but will occur if Ofcom drive for greater transparency in today's connectivity options.

Ofcom's support for the existence of the intelligence and control is unusual, given BT re-focus and the success of the Internet is placing such capabilities at the edge of the network.

By way of a final comment, the BT re-focus was essential if it was to meet customer demand for connectivity. It is important Ofcom achieves a similar re-focus as it takes on new responsibilities in seeking investment and the delivery of universal high speed connectivity to the public Internet.

Thank you for taking the time to read this submission.

End of submission

Address any questions to;

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Kind regards

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