



Review of retail and wholesale ISDN30 markets

Openreach response to the Ofcom consultation
dated 4 May 2010

18 June 2010

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1. Executive summary

This is an important consultation with implications for future competition and investment in business voice services. ISDN30 is widely perceived as a legacy service and Ofcom's proposals to introduce a charge control for the first time runs counter to the normal position whereby regulatory obligations are relaxed as services become obsolete. Ofcom's proposals risk significant adverse consequences, is disproportionate and would fail a proper regulatory impact assessment.

In the last completed market review in 2003, Oftel decided not to impose price regulation due to the existence of strong supply-side competition. The obvious benefit of this approach has been to encourage investment in new replacement products and services and the consensus amongst market analysts is that multi-line voice services based on IP are now real and credible alternatives to ISDN30.

Openreach considers that Ofcom has failed to establish the need for additional regulatory intervention beyond the current obligations. In particular:

- Ofcom's reliance on reported returns as a measure of excessive pricing is flawed since the assets underpinning ISDN30 are more or less fully depreciated;
- Ofcom's market definition is unduly narrow and insufficiently forward looking such that it has under-estimated the competitive constraints that ISDN30 faces from IP-based alternatives and from Communication Provider (CP) self-supply.

Openreach believes the proposal to introduce a charge control would fail a regulatory impact assessment since it is likely to:

- delay the tipping point from use of legacy services to IP-based alternatives to the detriment of UK consumers of such services;
- artificially stimulate and prolong demand for ISDN30 services, driving inefficient investment in obsolete technology and diverting investment from new technologies such as Super Fast Broadband;
- cool investment by CPs in IP-based alternatives;
- reduce CPs alternative self-supply and lead some suppliers to exit the wholesale market.

Openreach considers that Ofcom must complete and consult upon a full and proper regulatory impact analysis before making a final decision on whether additional regulatory obligations should be imposed upon wholesale ISDN30 services.

If Ofcom continues to consider additional obligations are required, then an alternative might be to extend the proposed safeguard cap intended to be introduced until a charge control consultation can be completed.

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Should Ofcom ultimately demonstrate that a traditional RPI-X charge control is warranted, then it will be important that:

- the level of the proposed control properly takes into account that ISDN30 is approaching the end of its life, with appropriate adjustments to asset values;
- Ofcom give an explicit commitment to remove such controls if they stimulate new demand and so drive inefficient investment decisions.

2. Introduction

This document provides Openreach's response to the Ofcom consultation entitled "Review of retail and wholesale ISDN30 markets" (referred herein as 'ISDN30 Consultation') dated 4 May 2010.

Ofcom last completed a review of the retail and wholesale ISDN30 markets in 2003. In March 2009, Ofcom issued a consultation document considering competition in the retail and wholesale markets for fixed line services, including ISDN30.¹ In light of responses to that consultation, Ofcom noted in its September 2009 statement that it needed to further assess the markets for retail and wholesale ISDN30 before reaching a conclusion.²

In the last completed market review in 2003, Oftel found that ISDN30 was subject to strong supply side competition from Ethernet services and especially 2 Mbit/s circuits. It also noted the potential substitution with ISDN2 and in particular the possibility that multiple ISDN2 lines could substitute for a low-utilisation ISDN30 line.³ There have been many substantive changes to market conditions since the last review in 2003 and the rate of change is rapid and increasing. There has been further evidence of these trends even since Ofcom's September 2009 statement.

Our response is structured as follows:

- Section 3 outlines the strategic context for this review, changes since the last review and provides a forward look at market developments;
- Section 4 considers Ofcom's approach to market definition and market power assessment, especially the extent to which Openreach is limited in its ability to exercise market power;
- Section 5 considers the case for additional remedies, while section 6 outlines likely impacts;
- Section 7 provides answers to the specific questions posed by Ofcom.

In addition, Openreach asked DotEcon to review the economic arguments presented by Ofcom in the ISDN30 Consultation. In particular, DotEcon were asked to consider the approach adopted by Ofcom in defining the wholesale market, in determining SMP, and to consider the appropriateness of the remedies being proposed by Ofcom. We draw upon DotEcon's report in various places within this Response, and have attached their full report in Annex 5.

This Response is provided on behalf of British Telecommunications plc (BT) by Openreach, a line of business within BT. A separate response has been provided on behalf of BT by BT Retail and BT Global Services relating to the retail aspects of the ISDN30 market.

¹ Ofcom, "Review of the fixed narrowband services wholesale markets – Consultation", 19 March 2009.

² Ofcom, "Review of the fixed narrowband services wholesale markets – Statement and Consultation", 15 September 2009, paragraph 1.5.

³ See Oftel, "Review of the fixed narrowband wholesale exchange line, call origination, conveyance and transit markets – Explanatory Statement" (Second Consultation), 26 August 2003, paragraphs 9.39-9.41.

3. Strategic context of this review

This is an important consultation with implications for competition and investment in new voice products for businesses. The proposals put forward by Ofcom in the ISDN30 Consultation will underpin the investment decisions between legacy and new infrastructure and impact the level of self supply by CPs other than Openreach.

It is therefore critical that Ofcom gets the balance right, maintaining incentives for efficient investment whilst facilitating competition at an appropriate and sustainable level in the value chain so as, overall, to maximise potential end customer benefits.

Openreach believes that the main objectives underpinning the review are the need to:

- maintain an appropriate framework which promotes efficient and sustainable competition to the benefit of end-users
- ensure appropriate incentives for Openreach and other CPs to invest and innovate
- ensure additional investment by BT and others takes place in the development of replacement voice services based on IP technologies
- avoid unintended consequences from any ex ante regulatory remedies, particularly any forced investment in legacy ISDN30 services beyond the competitive level and an artificial extension of the life of current ISDN30 services thereby reducing the availability and delaying the adoption of new voice services based on IP technology and the impact on CP self supply of wholesale ISDN30 services.

It is important that Ofcom bear in mind, when considering the form and detail of the remedies proposed, that the remedies support each of these objectives and be viable and appropriate over the entire market review period.

3.1 Changes since the last market review

The retail ISDN30 market is now highly competitive and there are over 300 companies active in the market. As a result Ofcom is proposing to remove the retail Significant Market Power (SMP) designation that currently applies to BT.

At the wholesale level, CPs, notably Cable & Wireless (C&W) and Virgin Media, have substantial wholesale ISDN30 businesses in which they supply their own downstream retail businesses. They have built their own network to provide ISDN30 services. Moreover, they often lease traditional wholesale access circuits (PPCs) to fulfil supply so a substantial part of the cost of their ISDN30 networks is not sunk.

New access technologies have evolved and matured while at the same time the regulatory framework, through the BT Undertakings to Ofcom and reviews such as the Business Connectivity Market Review (BCMR), has supported competition in the Ethernet and Broadband space. Low cost wholesale Ethernet and Broadband access services have thus become ubiquitous, enabling IP Voice alternatives to become established and credible.

Over the last two years, there has been a great deal of activity from CPs in the IP-based voice space. Both IDC and Current Analysis state that there have been large scale deployments of IP-based voice alternatives (“IP Voice”) within the UK by CPs such as Global Crossing, C&W, COLT as well as BT.⁴ To illustrate the level of activity the table in Annex 1 provides a snapshot of announcements in the last 12 months with regard to SIP Trunking and IP Voice.

These IP Voice alternatives offer end customers compelling advantages over traditional voice access products such as ISDN30. For example, Current Analysis show how SIP Trunking not only allows customers to reduce their ISDN30 estates and their need for premise-based Private Branch Exchanges (PBX) and TDM/IP gateways, but also can act as a key enabler for unified communications.⁵ SIP Trunking’s support for real-time value-added services including conferencing, video, instant messaging, and presence⁶ also distinguishes it from traditional narrowband voice services such as ISDN30.

The mobile operators are now aggressively targeting the business market with end-to-end communication propositions, of which IP Voice is a critical component – see Annex 2 for examples of recent “IP wins” over traditional voice services.

Analysts such as Illume Consulting believe that the number of providers who have entered the SIP Market over the last 18 months, both new entrants and incumbent CPs, will be a key factor in driving the adoption of SIP Trunking.⁷

Since the 2003 market review, the volume of wholesale ISDN30 channels was largely flat over the period until 2008. Since then there has been a substantial reduction in volumes of approximately 7% and this trend is expected to continue and accelerate as SIP Trunking and other IP-based voice alternatives are adopted by end-users.

3.2 Forward look at market developments

There is consensus among market analysts that IP Voice has become a more established and credible mainstream technology, driven by cost savings resulting from convergence and by customers looking at IP Voice as a gateway to unified communications. By 2014 i.e. during the review period, IP Voice is expected to capture around 50% of the business voice market.⁸ It is now a real and present alternative to ISDN30.

The terminal decline of ISDN30 is evidenced by CP announcement and launch of IP-based alternatives, described above. Significantly, BT has recently withdrawn plans to trial ISDN30 services on 21CN in recognition that market developments have fundamentally undermined the future viability of traditional ISDN30 voice services.⁹ In addition, BT Retail announced the launch of their SIP Trunking service in March and BT Global Services are now also entering the market.

⁴ Refer IDC, “Western European Hosted VOIP Market, 2009-2013”, May 2009;
Current Analysis, “Product Assessment – Cable & Wireless - IP Voice”, November 2009;
Current Analysis, “Product Assessment - COLT Telecom (UK) - IP Voice”, December 2009.

⁵ Current Analysis, “IP Telephony Market Assessment”, May 2009.

⁶ Presence: relates to the voice solution understanding your location and delivering communications appropriately, for example, to your mobile phone, fixed phone, or desk phone.

⁷ Illume Consulting, “UK SIP Trunking Report 2009”, January 2009.

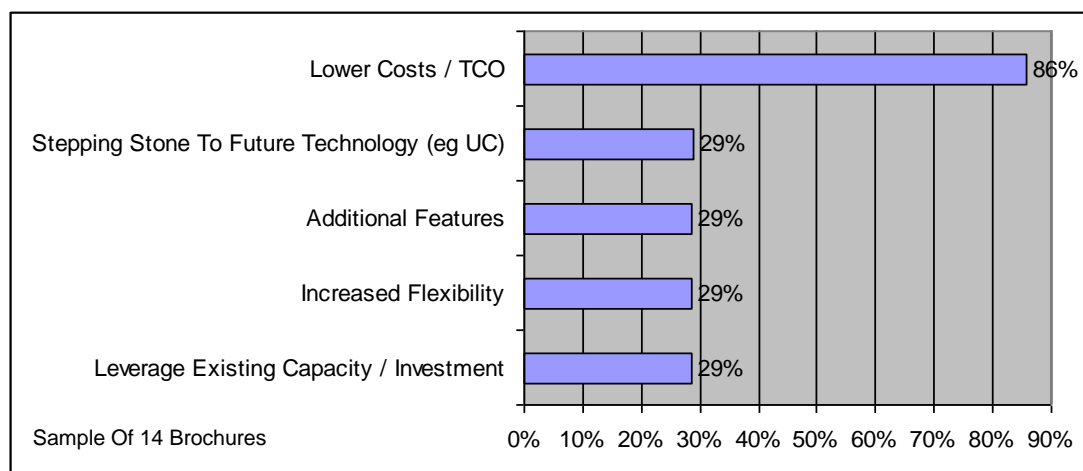
⁸ IDC, “UK Business Voice Forecasts, 2008-13”, April 2009.

⁹ Consult21, “21C End User Migration – Briefing”, 13 April 2010.

Uptake of SIP Trunking is expected to grow rapidly and will be the fastest growing sector of the IP Voice market — this will not only be driven by the cost benefits arising from the economies of scale SIP Trunking provides over ISDN30 and other traditional voice services, but also because SIP Trunking is the best placed of the IP Voice solutions to support real-time value added services such as video and presence.

The views of the benefits of SIP Trunking from market analysts primarily focus around cost reduction and as a key enabler of unified communications. Our own analysis of a selection of marketing collateral from both SIP Trunking providers and suppliers reflects this, with a very strong emphasis on cost savings / lower Total Cost of Ownership (TCO). Our analysis of alternative suppliers' marketing material is summarised in Figure 1 below, with more details provided in Annex 3.

Figure 1: Review of Key Benefits of SIP Within Marketing Collateral (Source: BT)



CPs can assemble a SIP Trunking proposition using readily available low cost Ethernet and Broadband access services and enable ISDN30 customers to reduce their Total Cost Of Ownership by at least 20% (and up to 70%) over 3 years (excluding free on net calls). End-users are increasingly aware through marketing activity of the magnitude of this differential in cost which will drive increased migration to SIP Trunking. Our analysis of the relative cost of ISDN30 and SIP Trunking solutions is outlined in Annex 4.

However, large enterprises in particular are increasingly looking beyond these cost dimensions and looking at deploying broader unified communication and collaboration solutions, to which IP Voice is a gateway.¹⁰ ISDN30 is predominantly a business product with the bulk of its revenue deriving from a small subset of retail customers [3<]. As a result, decisions by a relatively small number of end customers are very significant, and are expected to accelerate the erosion of ISDN30 volumes and substitution to alternatives during the review period.

As previously submitted to Ofcom, Openreach's forecast of demand shows significant decline in ISDN30 and growth in IP-based voice alternatives during the market review period.

¹⁰ Current Analysis, "IP Telephony Market Assessment", May 2009.

3.3 Summary

As shown, the period since the last review has seen significant change in the market place. These changes are expected to continue during the review period and in particular new services which offer additional functionality (such as SIP Trunking) will continue to grow in importance and the decline in wholesale ISDN30 volumes will accelerate. It is essential that Ofcom does not impose new measures now which could risk slowing the scale of this development of new services by imposing remedies which artificially distort incentives to be productively efficient and extend the life of a legacy product. Ofcom must get the balance right, maintaining incentives for efficient investment whilst facilitating competition at an appropriate and sustainable level in the value chain so as, overall, to maximise potential end-user benefits including extending consumer choice.

4. Market Definition & Assessment of Market Power

This section addresses impact of the changes outlined above on the wholesale market definition and the assessment of market power. Openreach considers that Ofcom has failed to take proper account of a number of material factors and in particular, that its assessment is not sufficiently forward-looking. As such, we believe that Ofcom should re-examine the conclusions reached and revise them (and its stance on additional remedies) accordingly.

4.1 Wholesale Market Definition

BT agrees with Ofcom that IP-based voice alternatives have growing influence in the retail market, especially SIP Trunking, and that Openreach ISDN30 volumes are in decline, c.7% since 2008 (5% reduction in the last year). Notwithstanding the increasing substitution to IP-based voice alternatives, Ofcom have limited the definition of the retail market to ISDN30 services, and concludes that direct demand-side substitutes at the wholesale level will be fairly limited.

Ofcom have discounted all but the following as direct substitutes:

- Self-supply: where retailers rely on their own network;
- Access to Openreach's network through WLR; and
- Negotiating third-party access to a non-Openreach network.

It should be noted that CPs can and do use PPCs to build their own ISDN30 networks. ISDN30 is a digital telephone line service using a **2 Mbit/s bearer circuit** in order to provide up to 30 digital channels (with a bandwidth of 64 kbit/s per channel plus a control channel of 64 kbit/s). When providing an alternative wholesale input, the 2 Mbit/s bearer connecting the CPs ISDN30 exchange equipment to the customer site is often a PPC. The cost of alternative supply therefore includes the **price** of the PPC 2 Mbit/s bearer and the additional costs of ISDN30 exchange equipment and service. This would suggest that PPC prices must to some extent act as a constraint to wholesale ISDN30 prices. It is apparent that any SSNIP in wholesale ISDN30 prices will tend to make alternative supply more attractive and any wholesale ISDN30 price decrease will tend to make existing and new alternative supply less attractive.

The critical part of Ofcom's analysis relates to indirect pricing constraints. Ofcom concludes that "competition from IP solutions has not developed to the point where it is likely to impose a sufficient competitive constraint on the price of ISDN30 exchange lines to warrant inclusion in the relevant retail market".¹¹ However, Openreach believes that Ofcom's analysis is not conclusive, especially with regard to the speed with which substitution to IP-based voice alternatives will develop. Taking the requisite forward-looking view, a wider market definition is likely to be appropriate.

¹¹ ISDN30 Consultation, paragraph 6.44.

4.1.1 Closeness of substitutes – features, availability and price

Ofcom acknowledge that an increase in ISDN30 exchange line prices may prompt businesses to bring forward their investment decisions and switch to SIP Trunking. However Ofcom maintain the overall market demand of ISDN30 exchange lines is likely to be relatively price inelastic in the short to medium term, yet this appears at odds with the evidence.

Openreach believes that the key features of SIP Trunking, the cost benefits of IP-based voice alternatives over ISDN30 and the capability to deploy broader unified communication and collaboration solutions, to which IP Voice is a gateway, are compelling propositions for ISDN30 customers. A comparison of the main features of ISDN30 with those of SIP Trunking suggests that the latter provide customers with all the features deemed important including high quality audio and resilience. These features are compared in Figure 2 below.

Figure 2 – Key features comparison (Source: BT)

Key ISDN Features	Availability on IP Alternatives
Cost Effectiveness	Yes – both SIP Trunking and Hosted VoIP offer cost advantages over ISDN30
High Quality Audio	Yes – suppliers are already offering guarantees around voice quality (e.g. Gamma)
High Resilience	Yes – SIP soft switches have the capabilities to load balance across multiple SIP trunks and are able to automatically recover from trunk or site failures
Call Centre Integration	Yes – SIP offers major features such as : <ul style="list-style-type: none"> • Offering direct interfaces to Interactive Voice Recognition (“IVR”) • Inbound Computer Telephony Integration (“CTI”) messaging • Unified Communications
Data Connectivity	Yes - bandwidth can shared across voice & data

Accelerated customer adoption of IP-based voice alternatives will be driven by a lower Total Cost of Ownership, better features / functionality, and an increase in the availability of a range of new IP-based alternatives to ISDN30. The adoption depends on two key factors:

- Availability of lower cost IP access options: this includes ubiquitous Ethernet and broadband solutions e.g. Ethernet in the First Mile (“EFM”) and Wholesale Broadband Connect (“WBC”). It also includes Ethernet access based on recently accelerated rollout of Next Generation Access (“NGA”). Large parts of the country are also served by cable (c.50%) and Local Loop Unbundling operators (for example, c.80% for TalkTalk).

- Penetration of IP-PBXs (i.e. voice switches at a customer site): 76% of European firms have deployed/ are deploying/ are piloting IP-PBX – these firms are likely to consider SIP Trunking as part of their strategic network planning.¹² The cost of incorporating SIP Trunking is therefore no longer a barrier given the wide availability of IP ready PBX switches.

CPs can assemble a SIP Trunking proposition with BT's EFM, NGA and WBC products and provide savings of up to 70% on the Total Cost of Ownership over 3 years (before reflecting the value of free on net calls) for ISDN30 customers. This analysis is outlined in Annex 4.

Moreover, as outlined in Section 3 above and in more detail in Annex 2, there are a large number of established providers currently offering SIP Trunking and IP-based alternative technologies in competition with ISDN30.

4.1.2 Ofcom consumer survey and other views

Ofcom acknowledge that there are conflicting views offered on the likely speed of migration to IP alternatives:

- "While the ISDN30 user survey indicated that most companies are not currently considering switching away from ISDN30, some communications providers and market analysts have indicated that the IP based services market could increase more rapidly [than we previously believed] over the period of the forward look",¹³ and
- "IP-based voice solutions are likely to impose an increasing competitive constraint on ISDN30 going forward."¹⁴

In reaching their conclusion that IP-based voice services are not in the relevant market, Ofcom appears to give significant weight to the views expressed by the respondents of its survey in which 84% of the consumers said they were not considering switching in the next two years.

This conclusion does not correspond with market analysts' views when considering this question. For example, a report by Illume Consulting notes that:

"The number of SIP Trunks (channels) deployed has grown from an initial figure of 51,000 at the beginning of 2009 to 98,000 at end of November 2009. We expect a total of over 800,000 IP trunks to be installed by the end of 2012."¹⁵

Similarly, a report by IDC notes that:

"Forecasts from IDC indicate that there will be significant adoption of IP-based alternatives capturing c.50% of the UK Business Voice market in the next 4-5 years."¹⁶

¹² Forrester, "The State Of Enterprise VoIP And Unified Communications Adoption In Europe: 2007", December 2007. Based on firms with 1000+ employees.

¹³ ISDN30 Consultation, paragraph 7.26.

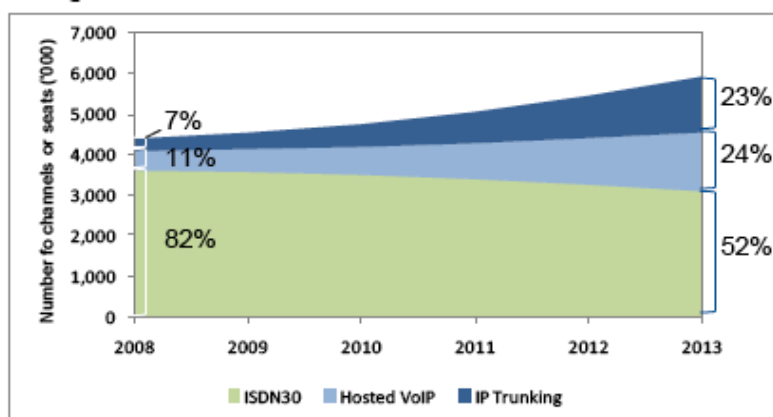
¹⁴ ISDN30 Consultation, paragraph 5.29.

¹⁵ Illume Consultation, "UK SIP/IP Trunking Market Report & Forecast 2010", February 2010.

¹⁶ IDC, "Western European SIP Trunking Market, 2007-2012", December 2008.

The IDC forecast is shown in Figure 3 below.

Figure 3: ISDN30 forecasts 2008 to 2013 (Source: IDC)



Importantly, Ofcom's survey found that customers were not generally aware of IP-based solutions as a substitute: 54% of respondents were unable to answer the question of what they considered would be the best replacement to ISDN30.¹⁷ However, the survey also found that switching was event-driven, in particular around a general upgrade or a replacement of PBX equipment, rather than triggered on price differentials alone.

IP-based voice alternatives to ISDN30 are more cost effective and provide greater functionality. These factors might not be sufficient to cause *immediate* switching from ISDN30, but to cause switching *when* once a trigger such as PBX replacement occurs. Under these circumstances, historic switching behaviour may be a very poor guide to switching in the future. The same may be true of surveys of switching intentions, in that these intentions might not be formulated until a trigger event such as a PBX replacement occurs. In addition, the understanding that analysts have of IP alternatives is likely to be in advance of consumers, who's awareness and understanding may be lagging. However, this is transitory as demonstrated by the availability of marketing material and other activity (see Annex 3). These considerations do not seem to have featured in the design or analysis of Ofcom's survey.

While consumer survey results are important, in this case they are a less reliable indicator of the potential for migration than analysts' views, given the lag in consumer awareness of alternatives noted above and that there will always be a difference between what respondents may say in response to a hypothetical question and what they will ultimately do. Customers' actions will in part depend on how successful telecoms suppliers are in conveying the benefits of IP services to customers who may be satisfied with their ISDN30 service and thus not considering replacement until the attractiveness of alternatives (discussed in the next section) are fully explained to them.

We also note that equal weight is given to each customer surveyed by Ofcom. Obviously the key will be marginal customers who would move to substitutes in response to a SSNIP. This market is particularly characterised by a relatively small number of large enterprise customers accounting for a disproportionately large share

¹⁷ ISDN30 Consultation, paragraph 4.50.

of ISDN30 retail revenues. As a result, it is possible that even a small proportion of customers deciding to switch could rapidly lead to the decline of ISDN30 volumes.

4.1.4 Triggers to switching

Although a consumer survey of this nature might be a sensible way in which to glean the likely behaviour of customers in relation to switching decisions this analysis does not appear to have probed sufficiently the question of how switching to IP-based alternatives might occur. In particular, there are a variety of triggers that might instigate a customer switching decision:

- PBX replacement as part of a regular renewals cycle (though many PBXs are already IP capable);
- moving offices;
- integrating tele-workers into an office phone system;
- moving to a more mobile workforce;
- extending functionality of a telephone system to allow better integration with data and other services; and
- purchasing IP access services (where greater bandwidth or reliability may permit the service to be used to carry SIP or VOIP traffic).

Such additional triggers would necessarily need to be taken into account in considering the likely extent of switching. Ofcom notes that:

“Switching to IP services appears likely to arise as companies upgrade or replace their systems, but, as this happens relatively infrequently (it can represent a large overhead), substitution to IP services is likely to happen only gradually over time.”¹⁸

In undertaking its survey, Ofcom considers triggers related to general upgrades and the changing of PBXs.¹⁹ Ofcom does not seem to have considered any of the other triggers set out above.

In addition, ISDN30 services are bought as wholesale services by providers of integrated communications services to corporate customers. Such services will typically be procured on contracts running for a number of years. Once these services are re-tendered there is the opportunity for another provider to compete, possibly with an IP-based voice service forming part of the new integrated offer. This is yet another source of potential residual customers, in that switching away from ISDN30 is not immediate, but will nevertheless occur in time.

All these factors mean that we must expect to see some phasing in any switching response by customers. However, this does not necessarily mean that the long-run impact of switching is reduced as trigger event will occur at some point. For example, PBXs have a limited lifetime and eventually need replacing. Companies will also move offices frequently, typically on say a five-year cycle. A forward looking

¹⁸ ISDN30 Consultation, paragraph 3.6.

¹⁹ See for example, ISDN30 Consultation, paragraph 4.58.

assessment of market conditions should not be limited to switching behaviour today, but rather the likelihood of switching during the review period.

4.1.3 Dual running

In Ofcom's survey 41% of end users who had migrated from ISDN30 had retained at least some of their ISDN30 services. Ofcom concludes that:

"The degree of 'dual use' of IP services and ISDN30 might suggest that the services are not good substitutes because, if they were fully substitutable, then users would not seek to retain both services."²⁰

Openreach considers that Ofcom's assertion is incorrect. It ignores another interpretation of 'dual use'. Given that voice services are critical business applications, it is not surprising that customers would choose to mitigate deployment risk through a period of dual running. Openreach believes that a more likely interpretation is that these customers have made the strategic decision to switch to an effective substitute and that dual running is a necessary but transitory step in relying solely on an IP-based voice alternatives.

'Dual use' does not therefore indicate that the services will not be substitutes once past this transitional (demonstration) phase. In any event, before concluding that dual use is indicative of imperfect substitution, Ofcom should undertake further analysis and not proceed on the basis of an assumption which may or may not be accurate.

4.1.4 Supply side substitution

We agree that because the ISDN30 market is forecast to decline over the medium term that supply side investments are "unlikely to be economic given the limited time period over which sunk costs could be recovered and the fact that adding further capacity to a market forecast to decline is likely to lead to a fall in the expected wholesale price of ISDN30 over the period of the investment".²¹ We note that this conclusion must also apply to further investment by Openreach that may be artificially driven by a forced regulatory reduction in wholesale ISDN30 prices. Ofcom's position here clearly shows that such investment would be economically inefficient.

The upfront investment required in order to provide a wholesale ISDN30 exchange offering is considerable, and in a market that is rapidly declining, there is a very small window of opportunity for a provider to recoup the costs incurred. The forward-looking economic costs of ISDN30 are likely to be higher than BT's reported costs as the latter do not represent the annualised cost of installing new ISDN 30 channels given the limited window for continued service delivery. The specific reason that entry is deemed unlikely (which is usually an indicator of market power) in this case has a specific reason and should not be used to infer that BT's market share is indicative of market power. This is discussed further in Section 4.2.1.

4.1.5 Declining volume of ISDN30

Ofcom recognises the decline in Openreach wholesale ISDN30 volumes of c7% since a peak in 2008 but maintains "... it is difficult to distinguish a possible structural

²⁰ ISDN30 Consultation, paragraph 4.46.

²¹ ISDN30 Consultation, paragraph 6.21.

decline in demand for ISDN30 from the effects of the recession".²² Openreach believes the evidence strongly suggests the decline in Openreach wholesale ISDN30 volumes is mostly due to switching away from ISDN30 and is indicative of structural decline in ISDN30. The examples of customer loss presented in annex 2 illustrates that customers are switching to IP alternatives. Indeed, one might reasonably expect bandwagon effects to come into play at some point as the cost and functionality advantages of IP-based replacements become more widely appreciated by customers and as SIP standards solidify. This would indicate the possibility of a tipping point in the near future when even customers who are not at a trigger point still realise the value of shifting away from ISDN30 to a modern technology.

4.2 Market Power Assessment

The following arguments form the basis of Ofcom's assessment of Openreach's alleged market power:

- increased competition has failed to materialise at the wholesale level, in particular in relation to self-supply;
- Openreach's market share is high, at 71% of wholesale ISDN30 channels
- prices have remained stable; and
- Openreach earns significant profits (ROCE of the order of 74%).

Ofcom concludes that competitive constraints are not effective at the wholesale level and therefore that Openreach benefits from a position of SMP.

Openreach believes that Ofcom's approach materially overstates Openreach's market power and should be re-examined.

4.2.1 Market entry

A limited scope for market entry can be indicative of market power but is not the case here as wholesale ISDN30 is a mature and declining product. Whilst the upfront investment required in order to provide wholesale ISDN30 exchange lines is considerable, in a market that is declining, there is a very small window of opportunity for a provider to recoup the costs incurred. Indeed, a declining industry may well be one characterised by consolidation, where market participants consider alternative ways to manage excess capacity during the decline. Therefore a finding that entry is not envisaged in a declining market is unsurprising and not determinative of market power here.

In these cases the lack of entry opportunities is primarily a function of the product life cycle and not market power. Therefore, Openreach does not consider that limited entry in the case of wholesale ISDN30 is indicative of market power.

4.2.2 Market share and pricing constraints

Notwithstanding the narrow market definition which excludes alternatives such as IP-based voice solutions, it is the case that on a forward-looking basis there are

²² ISDN30 Consultation, paragraph 7.14

effective constraints on the pricing behaviour of Openreach. Ofcom has concluded the constraints from alternatives are not sufficiently strong to warrant inclusion within the market boundary. However, Ofcom should still consider these in assessing the ability of Openreach to exercise market power.

“...[G]oing forward we expect the ISDN30 market to decline as businesses replace their systems and switch to IP-based solutions. It is unclear, however, how quickly the ISDN30 market will decline. Based on the additional evidence gathered, we consider that switching to IP services will likely happen at a slightly faster rate than envisaged in the retail consultation. While the ISDN30 user survey indicated that most companies are not currently considering switching away from ISDN30, some CPs and market analysts have indicated that the IP-based services market could increase towards the end of our forward look period.

Overall, IP-based solutions are likely to impose an increasing competitive constraint on ISDN30 going forward.”²³

In the case of ISDN30, Openreach is not able to profitably increase prices without the risk of losing out to alternate suppliers; of wholesale ISDN30 or IP-based voice alternatives. The number of CPs offering IP-based voice alternatives is testament to the fact that few barriers prevent the entry of firms, either in the short or the medium term. Therefore, there are considerable constraints that mean that Openreach is limited in its ability to act independently of providers of alternatives.

4.2.3 Historic prices for ISDN30

Wholesale ISDN30 prices have remained flat over time which Ofcom suggests is indicative of market power. In fact, while nominal prices have not changed, they have fallen by c21% in real terms since the last review.

As a matter of principle, it is perfectly possible that in a situation where sunk investments are needed to support constant or growing demand for a product with expected obsolescence, the efficient price might be constant prices or even an *increase* over time. If this did not happen, resources would be inefficiently diverted away from alternatives with a good future to a legacy product with a limited future. Paragraphs 38 to 42 in the DotEcon report discusses prices as a guide efficient investment.

Therefore, the price remaining flat in nominal terms over the period is not a strong indication of market power but instead reflects the requirement to sink investment in a product with expected obsolescence.

4.2.4 Profitability

Openreach does not consider that the reported high returns in BT’s Regulatory Financial Statements are *prime facie* evidence that prices are above the competitive levels for ISDN30. As Ofcom acknowledge, the reported returns in part reflect the fact that the asset base is heavily depreciated.²⁴ This means that reported returns may overstate those that would be achieved should costs reflect those that would be incurred to sustain an established network in, or close to, a steady state.

²³ ISDN30 Consultation, paragraphs 5.28-5.29.

²⁴ ISDN30 Consultation, paragraph 7.20.

Ofcom also appreciates the potential danger associated with bringing prices closer into line with reported costs, such that any large price reductions might stimulate new demand which might require further investment in technology which is being rapidly superseded.²⁵

These circumstances are more fully considered in the DotEcon Report in Annex 5. DotEcon make a number of observations.

ROCE and IRR profitability measures

First, DotEcon explain that the ROCE profitability measure used by Ofcom is not in line with the way in which competition authorities have recently assessed profitability. This include circumstances particularly analogous to ISDN30 such as the Competition Commission inquiry of the Rolling Stock Leasing Market (ROSCO) in the rail sector where considerable upfront investment was required to provide a product; and the Netherlands Competition Authority investigation into PIN transaction network services where a firm was keen to encourage take-up of a platform.²⁶

In such cases, competition authorities have recognised that ROCE is not a good indicator of levels of profitability. This is because ROCE fails to reflect profitability over the life-time of the product (including the early years where losses were incurred) and focuses instead on a snap-shot view of commercial performance later in the life of the product. Unless there is some special reason that a market will remain in a predictable, steady-state situation for a long period, there is no reason to expect that gross margins (i.e. margins excluding recovery of asset costs) or rates of return on assets will remain constant.

This is especially the case where large sunk costs have been incurred and where a consideration of simple snapshot accounting metrics would be highly susceptible to the depreciation assumptions used and to the pricing policies implemented over time by the investor. In particular, latter year snapshot profits may appear high when, in reality, they are simply reflecting investments (and losses) from preceding years or the ex-ante risk that the investment may have posed.

The OFT's Economic Discussion Paper 6 "Assessing profitability in competition policy analysis" supported the use of IRR metrics, over and above other profitability metrics. The paper notes that:

"...the internal rate of return (IRR) and the net present value (NPV) are the conceptually correct measures of profitability of an activity (an investment, a line of business, or a company)".²⁷

The paper also gives a view on the relative merits of the alternatives, including ROCE and Return on Sales:

"where the IRR estimate may be less reliable, other measures of profitability can be useful as "proxy" measures, in addition to, or instead of, the IRR. However, this is only relevant to the extent that these other measures do not

²⁵ ISDN30 Consultation, paragraph 7.20.

²⁶ Detail of these cases in contain in paragraphs 79 to 81 of DotEcon report, included at Annex 5 of this Response.

²⁷ Office of Fair Trading, "Assessing profitability in competition policy analysis", Economic Discussion Paper 6, July 2003, paragraph 1.4.

significantly and systematically diverge from the IRR; and that they provide additional information about a company”.²⁸

We therefore consider that Ofcom should instead have considered lifetime profitability measures — such as an IRR method — to assess whether there has been a level of excessive profitability which requires regulatory intervention.

Profitability of investments near “end of life”

The second issue with using the “snapshot” profitability measure of ROCE is that it does not take into consideration the limited remaining life of the product. Any investment made now to provide the ISDN30 service has a much shorter time horizon over which to recover cost than a similar investment made previously. That is, later investments have a narrower time window in which they can be expected to generate revenue.

This means that the right economic signals are given by charges which are higher than those which prevailed before the service was in decline. DotEcon provide an analogy for this situation in paragraph 71.

Forward-looking costs

Ofcom state that profitability analysis should be forward-looking. Ofcom has also stated that historic losses should not be taken into account. In particular, Ofcom says:

“With reference to the likely continuing life of the service, we understand that ISDN30 is based on legacy technology and that IP-based alternatives are emerging. However, ... our research shows continuing demand for ISDN30 at the retail level over the forward look period. We believe that there will be a continuing demand for ISDN30 for the foreseeable future and therefore are concerned about excessive profitability going forward, and not with lifetime profitability.”²⁹

It is not clear exactly what is meant by “profitability going forward”, but this seems to mean either projections of future ROCEs or a forward-looking truncated IRR (starting from the current date to the end of life of the product). Neither approach is adequate where there are costs which are already incurred but not yet recovered. For example, a truncated IRR could not possibly be limited to the Weighted Average Cost of Capital (WACC), as if it was this would mean that a firm could never incur a loss in expectation of a future profit.

There is a further issue of regulatory commitment and “hold-up”. If Ofcom is really suggesting that only forward-looking profitability from the current date matters – and “bygones should be bygones” – then this is tantamount to hold-up of any past investment made in sunk assets and in developing a market for the service.

Openreach appreciates these are complicated issues. IRRs themselves require assumptions and the results need some interpretation. Forward-looking costs also raise issues, such as what they imply for the treatment of past losses and for the costing of new services in situations where unit costs are likely to be significantly higher than in the past. The alternative option of using ROCE rather than IRR as a

²⁸ *Ibid*, paragraph 1.9.

²⁹ ISDN30 Consultation, paragraph 7.22.

single measure of profitability might seem to be practical approach but this is only because it ignores such considerations. Because of this, ROCE does not provide an adequate assessment for the purposes in hand.

4.3 Conclusions on market definition and market power assessment

Openreach believes that Ofcom has defined the market too narrowly. In particular we note that:

- IP-based alternatives are increasingly seen as a substitute for ISDN30;
- Ofcom put undue weight on the results of its consumer survey;
- Ofcom fails to adequately consider the views of market analysts;
- trigger effects will have a bearing on the rate of migration;
- Ofcom has failed to determine the real reasons for dual running.

This alone seems sufficient to justify widening the relevant market.

In the alternative, if Ofcom does not agree with a broader market definition, the market situation at very least implies to us that:

- market boundaries might change during the review period; and
- using a narrow definition at this point in time ought also be associated with remedies which reflect likely market developments just outside the narrow definition.

On closer analysis the indicators of market power that Ofcom rely upon; lack of market entry, high market share, flat historic prices and reported returns, suggest that Openreach's market power is limited in scope. Moreover, Ofcom's assessment of SMP fails to give sufficient weight to the degree to which IP-based voice alternatives and self supply act as constraints on Openreach's prices. Finally, Ofcom's assessment of excessive pricing / profitability has not adequately considered the whole life costs of ISDN30.

Should Ofcom ultimately not agree with a broader market definition or change their assessment of SMP then the factors outlined above should at least be reflected in the consideration of any proposed remedies. The likelihood that market boundaries will change in the near future, the existence of strong pricing constraints and the inconclusive evidence of excessive pricing suggest additional regulatory remedies are not required.

5. Context for the consideration of additional remedies

In light of Openreach's concerns about the narrow market definition and overstatement of Openreach's market power, Ofcom's conclusions about appropriate additional remedies are based on unsound foundations. Openreach is particularly concerned with the proposal to impose a new remedy, a charge control and some of our initial concerns are set out below.

5.1 Ofcom's review of demand is not sufficiently forward looking

Openreach believes that the evidence suggests that switching from ISDN30 to IP-based voice alternatives will be much faster than Ofcom has concluded. Therefore, Openreach believes that Ofcom's market review of demand when assessing the imposition of a charge control has not been sufficiently forward looking in that Ofcom rely on a view of likely levels of switching over the four-year period that are substantially understated.

This is critical when Ofcom considers the impact of its ISDN30 regulation not only on BT, but on the market more broadly. In carrying out an impact assessment, in accordance with Section 7 of the Communications Act 2003 (the Act), Ofcom should consider different options for regulation, including alternatives to formal regulation, and then using objective criteria should select the best option. In its Impact Assessment Guidelines, it notes "[g]iven Ofcom's commitment to promoting open and competitive markets, it will normally be appropriate to identify any impacts which each of the options would have on competition."³⁰

Openreach notes that the current consultation does not adequately address the negative impact of the imposition of the proposed remedy. Before concluding that any charge control is appropriate, Openreach considers that Ofcom must complete and consult upon a full and proper regulatory impact analysis before making a final decision on whether additional regulatory obligations of the type proposed should be imposed upon wholesale ISDN30 services.

Even if we accept that the market is no wider than ISDN30 and that Openreach benefited from SMP today, it is not the case that this situation will persist and that the returns earned by Openreach would continue at current levels during the review period. This is because even if IP-based voice alternatives were not considered an effective constraint today, they are expected to do so during the review period.

5.2 Migration

As outlined above, Openreach considers that migration to IP-based voice alternatives is already significant and will accelerate during the review period. The key evidence which supports this is summarised below.

- *Analysts views:* reports by Illume Consulting, Current Analysis and IDC all point to rapid growth of IP Trunking and decline of ISDN30.
- *Market readiness:* there have been large scale deployment of IP Voice within the UK by providers such as Global Crossing, C&W, COLT as well as BT. In the last year or so there have been an increasing number of announcements – see

³⁰ Ofcom, "Better Policy Making: Ofcom's approach to Impact Assessment", July 2005, paragraph 5.22.

Annex 1. 76% of European firms have deployed/ are deploying/ are piloting IP-PBX; a key enabler for purchasing IP Voice solutions.

- *Recent IP wins*: the results of Ofcom's consumer survey and the examples of IP wins outlined in Annex 2 are evidence that IP solutions are replacing ISDN30.
- *IP Trunking and ISDN30 are close substitutes*: A comparison is presented in Section 4 above and shows SIP Trunking provides customers with all the features deemed important including high quality audio and resilience.
- *Benefits to end users*: The views of the benefits of SIP Trunking from market analysts primarily focus on cost reduction. Our analysis of ISDN30 customers' Total Cost of Ownership shows saving of at least 20% (and up to 70%) over 3 years from deploying SIP Trunking.
- *Openreach ISDN30 volume decline*: Openreach ISDN30 volumes declined by approximately 7% in 2008, and approximately 5% in FY 2009/10 alone, as IP-based voice alternatives have grown. This decline is expected to continue and accelerate.

5.2.1 Critique of Ofcom's evidence and conclusions on migration

Ofcom concludes that switching to IP-based voice alternatives over the review period is likely to be slow. Ofcom's conclusions and our views on each one are set out below:

Consumers considering switching: 84% of those that answered Ofcom's consumer survey said they were not considering switching from ISDN30 to IP Trunking in the next two years. This is at odds with market analysts' views and may be misleading since a relatively small number of large enterprise customers account for a disproportionately large share of ISDN30 retail revenues. Therefore only a small number of **customer** switching decisions would lead to switching of a very large number of ISDN30 **lines** to IP.

Reliability: 59% of Ofcom's sample included reliability among its functional values and Ofcom concludes that because IP-based alternatives are perceived as less reliable this will significantly slow the migration to IP Voice. However, Ofcom acknowledges that "*CPs are addressing these problems by the use of QoS enabled bearer circuits or by the provision of dedicated bandwidth*".³¹

The Ofcom survey also finds that reliability is considered as one of the main deciding factors of customers that *have already* switched to IP-based solution in making their decision to move. Whilst this might be because these particular customers have different perceptions of the risk around IP-based offerings, it may also show that at first users may simply be insufficiently aware of the features of the IP-based voice alternatives until they have experienced it through a trial.³² Once they find that the new offering is in fact reliable, then they are keen to switch on reliability grounds. If this is so, then wider take-up of IP-based alternatives may create a bandwagon effect, where take-up in later years is rapid compared with take-up in the earlier years.

³¹ ISDN30 Consultation, paragraph 4.38.

³² Given the likely high costs to customers of poor reliability of voice services.

CPs have many low cost ubiquitously available access options to address this gap and therefore Openreach believes that this perception is unlikely to be long-lasting.

SIP interoperability was cited in the consultation as one of the motivations behind concerns over the reliability of SIP. This is highlighted too in the Ingate White Paper where *“if a company is looking to use SIP Trunks from more than one vendor e.g. in order to implement least cost routing, they would normally have to deal with the complexities of interoperating with several SIP trunks that each behave in different ways”*.³³

The Ingate White Paper suggests that enterprise edge devices can mitigate various interoperability issues of SIP Trunking including:³⁴

- the complexities of interoperating several SIP Trunking networks;
- interoperability issues when an endpoint is located behind a SIP-unaware MAT box (home user, hotel, etc); and where
- call transfer features are required as part of the communication service provided as some operators and SIP user agents do not support this feature.

In terms of converging standards, SIPconnect was developed by the SIP forum as a set of best practices for interfacing an enterprise PBX implementation with an ITSP that attempts to eliminate some of the unknowns and incompatibilities.³⁵ SIPconnect refers to a number of IETF RFCs specifications and provides a minimum set of requirements that need to be implemented in ensuring interoperability. SIPconnect covers the following areas:

- Domain Name Service;
- Signalling security;
- Firewall traversal and Number Address Translation;
- Authentication and accounting;
- PSTN and SIP addressing;
- Quality of Service (QoS);
- Handling of media.

Today most new IP PBXs support a majority of SIPconnect requirements. Compliance with SIPconnect would future-proof services and equipment. Since 2007, the SIP Forum have been certifying IP PBXs and service providers complying to SIPconnect with a “SIPconnect Compliant” logo to raise awareness of the SIPconnect standard among businesses.

³³ Ingate Systems, “SIP Trunking benefits and best practices – White Paper”, (undated), page 12. Available from <

http://www.siptrunk.org/dokumentation/white_paper_What_is_SIP_Trunking_A.pdf>.

³⁴ *Ibid*, page 12.

³⁵ See SIPconnect website at <<http://www.sipforum.org/sipconnect>>.

IP enabled PBX: 62% of ISDN30 customers in the survey have an IP enabled PBX and Ofcom conclude that PBX replacement creates an additional barrier to switching. Ofcom's survey results appear low compared to other analyst reports (76% of firms have IP enabled PBX). Moreover, the cost differential between IP Trunking and ISDN30 substantively reduces this factor.

Experience of those who switched: 70% believe they have saved money; improved QoS and reliability was also cited by 39% and 35% respectively. However, 75% required investment in new equipment to move; 51% said a general upgrade triggered switching and 23% that a PBX replacement triggered switching. Ofcom's conclusion is that the requirement for investment and the event factors driving switching will be significant obstacles to take up of IP alternatives.

- The majority of end users in Ofcom's survey said they consider replacing their PBX less than every 5 years. Therefore, within the life of this review most customers are likely to experience this trigger.
- Ofcom offers no evidence as to how often firms consider general upgrades but it would be logical to assume that due to the adverse economic outlook many firms will be considering how they might save money now and in the short term. Since switching to IP reduces cost it is therefore likely that most end customers will consider a general upgrade within the life of this review.
- 70% of customers who have switched saved cost. One assumes this cited cost saving includes the cost of investment in new equipment. Therefore, Openreach believes that the requirement to invest in new equipment is unlikely to be a major barrier to switching.

Dual running: Ofcom assumes that dual running suggests ISDN30 and IP-based voice solutions are not substitutes. However Openreach believes that a more likely interpretation is that these customers have made the strategic decision to switch and that dual running is merely a transitory step before moving to an IP-based solution.

Openreach ISDN30 volume decline: As previously explained, there is evidence that indicates Openreach wholesale ISDN30 volume decline is structural rather than a function of the recession.

5.3 Conclusion

Openreach considers that Ofcom has significantly overstated market power and also failed to consider whether this will change during the period of the review. In summary, during the period in question:

- It is questionable whether the Ofcom survey correctly captures the proportion of ISDN30 **lines** that customers will consider switching; it is understated.
- The perception that IP-based voice alternatives offers lower QoS and reliability issues are being addressed by CPs and are therefore likely to reduce to the extent that it was considered to represent a barrier to switching
- It is likely that most ISDN30 customers will be presented with the triggers Ofcom maintain will slow switching, therefore these will not be as big an obstacle to switching as Ofcom suppose.

In addition there are a number of factors that should be given more weight in deciding whether the rate of switching and therefore any market power is likely to endure during the review period:

- The benefits, especially lower cost of ownership, of switching to IP-based voice alternatives is compelling; customers who have switched typically report a cost saving in Ofcom's survey even with the requirement to invest to make the switch.
- It is likely that most of the decline in Openreach ISDN30 volumes is due to factors other than the recession, with migration to other services being likely.
- The rate of market announcements and continuing significant deployments of IP-based voice capabilities in the UK suggests that the IP Voice market is continuing to grow very quickly.

Openreach believes that the balance of all the evidence available suggests that switching from ISDN30 to IP-based voice alternatives will be much faster than Ofcom has concluded. There is already a dynamic in place leading to irreversible replacement of ISDN30 services by IP-based voice alternatives; there may be 'residual customer' issues that mean that customers might not respond until trigger event occur, but eventually they will switch and will not switch back.

Therefore, Openreach seeks that Ofcom "recognise the competitive constraints from IP services in the SMP assessment"³⁶ and then take that into account in setting the remedies to ensure that they are proportionate.

³⁶ ISDN30 Consultation, paragraph 4.62.

6. Impact of the proposed charge control

One of the key considerations for Ofcom when assessing whether a charge control for ISDN30 is appropriate is to minimise unintended consequences *“In developing policy proposals, our aim will be to think widely about the possible impacts, taking account of the whole value chain and knock-on effects across the communications sector. By doing so, we will seek to minimise any unintended consequences”*.³⁷

In this section we outline how Ofcom’s proposed charge control has the scope to lead to serious adverse unintended effects. These points are covered in more detail in DotEcon report in Annex 5.

We also set out an alternative approach based on extending the proposed safeguard cap for the duration of the market review period.

6.1 Charge control

6.1.1 Price signals

If prices are to provide signals for economically efficient decisions by consumers and rival operators, it is the forward-looking, incremental cost of meeting new demand that should be considered, rather than the cost of serving current demand. Efficient price signals should not be determined by accounting costs determined retrospectively by the depreciation and amortisation policies applied to date.

Consider a simple example of an alternative operator deciding whether to build its own infrastructure or use a wholesale ISDN30 service from BT to meet new demand. For this decision to be efficient, the wholesale price needs to reflect the forward-looking cost of the BT’s investment needed to provide the ISDN30 service over the ever-shortening remaining lifetime of the new asset. The costs of providing services in the past are irrelevant to this question.

An analogous argument applies to the case of an alternative operator currently serving a customer by some other means, but then deciding to switch to BT’s service instead. This is an incremental demand for BT. For this switching decision to be made efficiently by the alternative operator, the price of BT’s service needs to reflect the ever-shortening lifetime of any new investment. If the price were set lower than this, the alternative operator would be switching inefficiently to BT’s wholesale service.

6.1.2 Consumer harm

Ofcom has noted that 14% of respondents to their survey question felt that a price decrease would not affect their decision to switch away, it follows that 86% of those consider that a reduction in ISDN30 prices would be a consideration in their decision to switch.³⁸

Therefore a charge control set at an inappropriate level is likely to artificially stimulate demand for ISDN30 during the review period at a time when many customers are considering migrating over to a new technology, such as SIP Trunking. Intervention is

³⁷ Ofcom, “Better Policy Making: Ofcom’s approach to Impact Assessment”, July 2005, paragraph 1.5.

³⁸ ISDN30 Consultation, paragraph 4.54.

likely to delay the realisation of end user benefits from superior technologies. The adverse impact of such intervention on consumers will be magnified as the tipping point (when even customers who are not at a trigger point realise the value of shifting away from ISDN30 to a modern technology) is delayed.

6.1.3 Inefficient investment

A charge control set at an inappropriate level could also lead to the reduction of investment in IP Voice below the efficient level. Moreover, lower wholesale ISDN30 prices will reduce the scope for **new** self supply and since a substantial part of the self supply operator's network is not sunk when existing contracts come up for renewal lower wholesale ISDN30 prices will reduce the scope for supplying their existing installed base via their own network.

Therefore, the proposed charge control risks driving inefficient ISDN30 demand and potentially require considerable investment by Openreach to ensure that the demand continues to be served. As a higher proportion of overall demand is supplied by Openreach ISDN30, this artificial increase in demand is likely to force Openreach to divert important investment to an obsolescent product to meet this inefficient demand. This diversion is likely to be from investment in new technology and capabilities and especially the Super Fast Broadband programme.

Moreover, a number of the components required for an expansion of Openreach's ISDN30 platform are no longer manufactured, especially exchange electronics, so it may be impossible and/or more costly than now to source the components required to supply this demand. Furthermore, the result would be artificial promotion and manufacture of last-generation outmoded technology.

6.1.4 Form of charge control

Ofcom recognises that it will be difficult to estimate the cost of ISDN30 provision. There are complex issues about how to value the assets involved and treat historic investments in ISDN30. Further, wholesale ISDN30 exchange equipment is 'end of sale' and options to source new supplies are largely opportunist e.g. the second hand market. An assured supply of equipment to meet a large volume increases will not be sustainable.

A traditional forward-looking LRIC costing exercise will be of no practical value in this situation. For any service reaching the end of its life and being replaced with a new generation of technology, the cost of replacement on a like-for-like basis will trend upwards and become increasingly prohibitive. At some point the most economical way of providing the service will become through the new technology. Therefore, an appropriate regulated price cannot be determined by pretending that the old technology is still being used (for example, through modelling the cost of a notional steady-state network).

6.1.5 Proportionality

In the consultation, Ofcom states that it considers a charge cap to be appropriate and that the "mechanics" of the charge control will be discussed in a subsequent consultation. Openreach is concerned that Ofcom appears to be proceeding on the basis that the case for a charge control has been definitively made out; Openreach does not consider this to be the case.

In the March 2009 consultation Ofcom considered the case for and against the imposition of a charge control and initially concluded that such intervention would be disproportionate:

“...to move from the existing arrangements where BT has no price regulation to a situation where it is subject to [...] charge control may be considered a strong response. Ofcom also needs to take into consideration the additional regulatory burden in terms of the resources required to consult on, set and monitor a charge control, and in terms of BT commitment to meet the obligation.”³⁹

The factors which Ofcom relied upon to come to this view remain true today – i.e declining ISDN30 volumes, the growing importance of alternatives such as IP solutions, significant cost of regulation, risk of artificially increasing demand for a declining product, difficulty of sourcing equipment for new supply etc.

Given Ofcom's revised position on the proportionality of a charge control it is all the more important for a thorough impact assessment to be undertaken before Ofcom decides to impose a charge control. The negative impact of any charge control has not been addressed in the current consultation.

6.1.6 Impact assessment

As stated above, Openreach is concerned with the absence of a comprehensive impact assessment which considers the implications (both positive and negative) of the proposed charge control. Ofcom is required to perform such an assessment before it decides whether or not to impose additional regulatory obligations.

As a result of both the unduly narrow market definition and incomplete assessment of market power assessment, as described above Openreach does not consider Ofcom's proposals for additional regulation to be proportionate (in pursuance to section 47 of the Act); in particular insufficient justification has been demonstrated that a charge control is necessary.

Ofcom has failed to demonstrate that there is a risk of excessively high prices or any form of prize squeeze, as is required by section 88 of the Act. As explained above, an accounting methodology that gives a single year snapshot of a company's profitability such as ROCE is inappropriate for the assessment of excessive prices/profitability for ISDN30 rather, the methodology adopted should consider lifetime profitability.

Therefore, in relation to the proposal to impose a remedy of a charge control, Ofcom has not sufficiently demonstrated that the tests set out in both sections 47 and 88 of the Act have been met.

6.1.7 Conclusions

The requisite impact assessment would not conclude that the implementation of a RPI-X price regulation is appropriate or proportionate. In such circumstances “Ofcom

³⁹ Ofcom, “Review of the fixed narrowband services wholesale markets – Consultation”, 19 March 2009, paragraph 17.7.

would not generally proceed with a policy option unless any negative impacts on competition were outweighed by the benefits that would accrue.”⁴⁰

Ofcom’s proposal to impose a charge control has the scope to lead to serious negative consequences. There is a significant risk of the proposed obligation causing inefficient investment and consumer harm.

Ofcom must complete and consult upon a full and proper regulatory impact analysis before making a final decision on whether additional regulatory obligations should be imposed upon wholesale ISDN30 services.

6.2 Alternative approach

Should Ofcom still determine that a form of charge control is required, a more proportionate approach is to introduce a safeguard cap until the next market review rather than impose a RPI-X type control from April 2011. This would have the advantage of avoiding the unintended consequences outlined above.

The risk from an RPI-X control being set wrongly is highly asymmetric. If the price is maintained at or close to current price then investment in substitutes would be encouraged and, given bandwagon effects, consumer benefits will not be delayed. However, setting the price too tightly would wastefully divert investment into the legacy technology and impede the switch to the new, superior technology (along with any associated innovations in functionality). This strongly suggests that a cautious approach should be adopted in considering the imposition or setting of any price cap.

ISDN30 is a declining product soon to be replaced by a superior technology. If Ofcom has concerns in relation to wholesale prices charged to customers, a safeguard cap would prevent Openreach increasing prices over the course of the short window whilst customers migrate to IP based solutions. At the same time a safeguard cap will be simpler to implement than a RPI-X type control, provide regulatory certainty to Openreach and others and allow Openreach the flexibility to manage migration to the new technology over a sensible timeframe.

6.3 Interim safeguard cap and alignment of price controls

Openreach considers that Ofcom’s assessment has not been sufficiently forward looking and switching from ISDN30 to IP-based voice solutions will be much faster than Ofcom has concluded. Therefore Openreach does not agree that either a price control or an interim price cap is required.

It is clear that the second consultation cannot proceed from the assumption that the case for a charge control has been sufficiently made out: it has not.

Should Ofcom still determine that a form of charge control is required, the assessment of the charge control should be done in a consistent manner. There is a high proportion of common costs shared between ISDN30, LLU and WLR. The renewal date for LLU and WLR (April 2011) provides an opportunity to synchronise the management of these controls so that consistency in the treatment of costs is achieved.

⁴⁰ Ofcom, “Better Policy Making: Ofcom’s approach to Impact Assessment”, July 2005, paragraph 5.23.

For these reasons, Openreach agrees that Ofcom should make use of consistent cost information and ensure a common modeling approach is adopted by aligning the dates of the LLU, WLR and ISDN30 controls.

6.4 Structure of proposed price control

The Access Directive states “The method of cost recovery should be appropriate to the circumstances taking account of the need to *promote efficiency and sustainable competition* and maximise consumer benefits”.⁴¹ Notwithstanding our views that a charge control is disproportionate, if following a thorough impact assessment Ofcom demonstrates that a charge control is appropriate, the following would need to be taken into account:

- the prices set in any control should take account of the fact that ISDN30 is approaching the end of its life, with appropriate adjustment to asset values;
- the level of prices set will need to maintain incentives for efficient investments in alternative technologies and migration to those services;
- there is flexibility to review the control should the modelled actual future volumes of ISDN30 diverge substantially from the forecast volumes used in the control calculations.

Ofcom should give an explicit commitment to remove such controls if they stimulate new demand and so drive inefficient investment decisions.

⁴¹ European Commission, “Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities”, 24 April 2002, paragraph 20.

7. Answers to Ofcom's questions

Question 6.1 Do you agree or disagree with our market definition? Please give reasons for your view.

Openreach believes that Ofcom has defined the market too narrowly. In particular we note that:

- IP-based alternatives are increasingly seen as a substitute for ISDN30;
- Ofcom put undue weight on the results of its consumer survey;
- Ofcom fails to adequately consider the views of market analysts;
- trigger effects will have a bearing on the rate of migration; and
- Ofcom has failed to determine the reasons for dual running.

This alone seems sufficient to justify widening the relevant market.

In the alternative, if Ofcom does not agree with a broader market definition, the market situation at very least implies to us that:

- market boundaries might change during the review period; and
- using a narrow definition at this point in time ought also be associated with remedies which reflect likely market developments just outside the narrow definition.

On this latter point, we note Ofcom's comment that "it is important to bear in mind that in overall assessments on SMP it is possible that some markets will display both features consistent with a no SMP finding and features consistent with an SMP finding."⁴² Whilst market definition has to be binary (in the sense of including or excluding alternative services to the focal product) this is not the case for factors preventing Openreach from exercising any market power and the identification of appropriate remedies, which can and should reflect a fuller assessment of competitive conditions.

Please also refer to section 4.1 of this Response and paragraphs 2 to 11 of the DotEcon report.

Question 7.1 Do you agree or disagree with our assessment in which we have provisionally concluded that Openreach has SMP in the provision of wholesale ISDN30 exchange line services in the UK excluding the Hull area? Please give reasons for your view.

In answer to question 6.1, Openreach explained that it considers that the market definition is likely to be unduly narrow especially in relation to IP-based voice services which already, and will increasingly, represent effective substitutes for ISDN30. The implication is that market boundaries might change in the near future

⁴² ISDN30 Consultation, paragraph 5.6, where the comment is made in the context of market power assessment at the retail level.

and therefore Ofcom should reflect likely market developments just outside the narrow definition in any conclusions it reaches.

Ofcom considers lack of market entry, high market share, flat historic prices and high reported returns to be conclusive evidence of significant market power. Openreach believes the evidence suggests that Ofcom's assessment materially overstates Openreach's market power:

- *Lack of market entry:* lack of market entry in a declining market is not surprising and is not indicative of market power.
- *High market share:* Openreach is not able to pass on price increases without the risk of losing out to existing suppliers of alternative technologies at a faster rate than would otherwise occur. The number of CPs offering IP-based voice alternatives is testament to the fact that few barriers prevent the entry of firms, either in the short or the medium terms. Therefore, there are effective constraints that mean that Openreach is limited in its ability to set prices independent of these alternatives.
- *Flat historic prices:* the price remaining flat over time is not a strong indication of market power but should be considered in relation to the requirement to sink investment in a product with expected obsolescence.
- *High reported returns:* Accounting approaches do not necessarily reflect the true economic profits associated with the investment; highly depreciated assets will tend to substantially overstate true profits. Therefore the high reported returns for ISDN30 are not conclusive evidence of market power.

Closer analysis of the indicators of market power that Ofcom reference, would tend to suggest that Openreach's market power, especially on a forward looking basis, is in fact limited in scope.

Please also refer to section 4.2 of this Response and paragraphs 12 to 17 of the DotEcon report.

Question 7.2 Do you agree or disagree with our analysis assessment in which we have provisionally concluded that KCOM has SMP in the provision of wholesale ISDN30 exchange line services in the Hull area? Please give reasons for your view.

Openreach has no comments in response to this question.

Question 9.1 Do you agree or disagree that Ofcom should impose a requirement to provide network access on reasonable request on Openreach and KCOM in the markets for wholesale provision of ISDN30 services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of a remedy to provide network access upon reasonable request in the markets for provision of wholesale ISDN30 services.

Ofcom has noted that this obligation is technologically neutral and that where technology changes, it may not be reasonable to exactly replicate a specific form of

network access provided on a legacy technology when this is replaced.⁴³ BT is no longer proceeding with trials for ISDN30 over its 21CN,⁴⁴ and therefore it can be expected that BT would not be able to exactly replicate the current service on 21CN upon reasonable request.

Question 9.2 Do you agree or disagree that Ofcom should impose a requirement not to discriminate unduly on Openreach and KCOM in the markets for wholesale provision of ISDN30 services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement not to unduly discriminate in the markets for provision of wholesale ISDN30 services.

Question 9.3 Do you agree or disagree that Ofcom should impose a requirement to publish a reference offer on Openreach and KCOM in the markets for wholesale provision of ISDN30 services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement to publish a reference offer in the markets for the provision of wholesale ISDN30 services.

Question 9.4 Do you agree or disagree that Ofcom should impose a requirement to notify charges, terms and conditions on Openreach and KCOM in the markets for wholesale provision of ISDN30 services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement to notify charges, terms and conditions to provide transparency in the provision of wholesale ISDN30 services, consistent with existing requirements of offering 28 days notification of such changes.

Openreach interprets that the requirement that the “Dominant Provider shall send to Ofcom and to every Third Party which it has entered into an Access Contract... a written notice of any amendment to the charges...” is satisfied by notification to the parties via email.

Question 9.5 Do you agree or disagree that Ofcom should impose a requirement to notify technical information on Openreach and KCOM in the markets for wholesale provision of ISDN30 services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement to notify technical information a minimum of 90 days in advance of providing new wholesale services or amending existing technical terms and conditions in respect of wholesale ISDN30 services.

The proposed Condition AAA(IS)6(b).1 states that “this obligation for prior notification shall not apply where new or amended charges or terms and conditions are directed or determined by the Office of Communications...”. As this Condition relates to technical information, the reference to charges should be removed.

⁴³ Ofcom, “Review of the fixed narrowband services wholesale market – Statement and Consultation”, 15 September 2009, paragraph 11.25.

⁴⁴ See for example Consult21, “21CN Voice End User Migration: Pathfinder Volume POTS status”, Briefing, 13 April 2010, page 6.

Question 9.6 Do you agree or disagree that Ofcom should impose a requirement to provide transparency as to quality of service on Openreach in the markets for wholesale provision of ISDN30 services, consistent with other WLR services? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement to provide transparency as to the quality of service of BT in the relevant market for wholesale ISDN30 services.

Question 9.7 Do you agree or disagree with Ofcom that it is appropriate to extend the current KPI reporting requirement for other exchange line services to ISDN30? Please give reasons for your view.

In general, Openreach considers that KPI measures should be agreed and developed between BT and its customers rather than mandated by Ofcom.

That said, in 2009 Openreach agreed to provide, on a voluntary basis, the KPIs for ISDN30 in line with the new direction for WLR Analogue and ISDN2 for the interim period until completion of the ISDN30 review. Openreach now agrees to the formal extension of the KPI reporting requirements to ISDN30. However, Openreach still has concerns about the detail of the condition.

In Annex A, Clause (6) requires “the Dominant Provider shall provide to each third party, on a confidential basis, the information required in KPIs (i) to (viii) below for that third party”. In discussions between Openreach and Ofcom last year, Ofcom stated that the intention of this clause was for Openreach to continue to make available to CPs its KPI reports from the Openreach website.⁴⁵ As Openreach has over 450 WLR CPs, it is unable to manually compile individual reports for each CP each month, although some CP specific statistics are available from its KPI Online tool – Ofcom explicitly noted that it did not intend to mandate this tool.⁴⁶

To better reflect the intention of this clause, Openreach requests that the wording be amended to “the Dominant Provider shall make available to each third party, via a link on any relevant website operated or controlled by the Dominant Provider, the information required in KPIs (i) to (viii)” and be applied across all wholesale exchange line services.

Question 9.8 Do you agree or disagree that Ofcom should impose an obligation on Openreach to comply with obligations governing accounting separation as set out by Ofcom in the market for provision of wholesale ISDN30 in the UK except the Hull area? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement to comply with the obligations governing accounting separation in respect of wholesale ISDN30 services.

⁴⁵ Openreach’s current and historical KPI reports are available from the following link::
<http://www.openreach.co.uk/org/products/wlr/pstn/pstn.do>

⁴⁶ Ofcom, “Review of the fixed narrowband services wholesale market – Statement and Consultation”, 15 September 2009, paragraph 11.120.

Question 9.9 Do you agree or disagree that Ofcom should impose an obligation on Openreach to provide WLR products in the ISDN30 exchange line market? Please give reasons for your view.

As noted in the answer to question 9.1 above, we have concerns if Ofcom imposes on Openreach an obligation to provide WLR products in the ISDN30 exchange line market which continues to apply regardless of the extent to which the product becomes obsolescent.

In its September 2009 statement, Ofcom noted that “where the copper access network remains in place, it remains reasonable to require BT to provide WLR”.⁴⁷ Openreach does not consider this condition to be appropriate for ISDN30.

ISDN30 is a mature product with a limited lifespan, and the economic conditions in the market may lead towards replacement or withdrawal. For example, there may be increases in costs associated with maintaining provision of the service, or providing for incremental demand, such that it requires inefficient capital expenditure and investment. Also, the existence of effective substitutes in the market will remove the need for any regulatory intervention. These points have been discussed elsewhere in this response.

Should Ofcom continue to consider that this remedy is required, then BT requests at a minimum that this condition can be reviewed during the market review period. Therefore, BT requires that the condition be amended to include the words “Except in so far as Ofcom may otherwise consent in writing”.

Question 9.10 Do you agree or disagree that Ofcom does not need to impose an obligation on Openreach to comply with a functional specification for ISDN30? Please give reasons for your view.

Openreach agrees that the maturity of the ISDN30 product means that Ofcom does not need to impose a requirement to comply with a functional specification.

Openreach agreed a list of requirements with industry to provide WLR3 ISDN30, which enhances the existing WLR2 product that complies with the existing functional specification. The industry agreed features are sufficient to ensure consistent and quality of ISDN30 and given the advanced state of maturity of the product, can reasonably be expected to endure as fit for purpose for the lifetime of the product.

Question 9.11 Do you agree or disagree that Ofcom should impose an obligation on Openreach to follow a statement of requirements process to handle new requests for network access in the market for provision of wholesale ISDN30 in the UK except the Hull area? Please give reasons for your view.

Notwithstanding the concerns raised in the response, should Ofcom determine that BT has SMP, then BT is not opposed to the imposition of the requirement relating to a Statement of Requirements (SOR) process to hand new requests for network access in respect of wholesale ISDN30 services.

⁴⁷ Ofcom, “Review of the fixed narrowband services wholesale market – Statement and Consultation”, 15 September 2009, paragraph 13.24.

Question 9.12 Do you agree or disagree that the condition should allow changes to be made to the current SOR process if agreed by Openreach with industry? Please give reasons for your view.

Openreach supports movement away from an Ofcom mandated process towards as industry agreed process, including the ability to make any changes to the process as agreed with industry. The change to ISDN30 will bring the SOR process into line with that for WLR Analogue and ISDN2, and Ofcom's proposals for services covered under the Wholesale Local Access market review.

Question 9.13 Do you agree or disagree that Ofcom should impose an obligation on Openreach to comply with obligations governing cost accounting systems and processes as set out by Ofcom in the market for provision of wholesale ISDN30 in the UK except the Hull area? Please give reasons for your view.

Openreach does not agree that Ofcom should impose a new obligation on Openreach to comply with obligations governing cost accounting systems and processes for wholesale ISDN30 services. This is because, as set out elsewhere in this response, Openreach does not consider a remedy for a charge control to be appropriate or proportionate for these services.

If, once a thorough impact assessment has been undertaken, Ofcom nevertheless demonstrates that a charge control is appropriate, then Openreach requests that the standard DSAC and DLRIC information which Ofcom usually seeks to be published in response to a cost orientation obligation should not be required.

Any information required by Ofcom to demonstrate compliance against prospective charge control assumptions would be better disclosed as non-published Additional Financial Information (AFI).

Question 10.1 Do you agree or disagree that, based on Openreach's reported returns, Ofcom should impose a charge cap on Openreach's charges for ISDN30 services? Please give reasons for your view.

The wholesale ISDN30 charge cap proposed by Ofcom is inappropriate given concerns about the definition of the relevant market, overstatement of Openreach's market power and failure by Ofcom to take a sufficiently forward looking approach. Moreover, as set out in detail in section 4 above, we consider Openreach's reported returns to be an inappropriate measure of any excessive pricing or profitability.

Openreach does not consider a charge control to be proportionate (in pursuance to section 47 of the Act) or that sufficient justification that this remedy is necessary has been demonstrated.

Openreach is concerned with the absence of a comprehensive impact assessment which considers the implications (both positive and negative) of the proposed charge control. Ofcom must complete and consult upon a full and proper regulatory impact analysis before making a final decision on whether additional regulatory obligations should be imposed upon wholesale ISDN30 services.

However, following a detailed impact assessment, should Ofcom decide that intervention is still required, given the propensity for unintended consequence and the market changes which will occur during the review period, a safeguard cap may be more appropriate.

Notwithstanding our views that a charge control is disproportionate, if following a thorough impact assessment Ofcom demonstrates that a charge control is appropriate, the following would need to be taken into account:

- the prices set in any control should take account of the fact that ISDN30 is approaching the end of its life, with appropriate adjustment to asset values;
- the level of prices set will need to maintain incentives for efficient investments in alternative technologies and migration to those services;
- there is flexibility to review the control should the modelled actual future volumes of ISDN30 diverge substantially from the forecast volumes used in the control calculations.

Ofcom should give an explicit commitment to remove such controls if they stimulate new demand and so drive inefficient investment decisions.

Please also refer to sections 5 and 6 of this response and paragraphs 18 to 83 of the DotEcon report.

Question 10.2 Do you agree or disagree that, in order to manage consistency in the setting of charge caps for Openreach services, the proposed charge cap for ISDN30 should be developed and set alongside the reviews of existing controls for other Openreach services, scheduled to complete in 2011? Please give reasons for your view.

Notwithstanding our views that price regulation of ISDN30 is disproportionate, if a price control is demonstrated to be appropriate, any assessment should be done in a consistent manner.

There are a high proportion of common costs shared between ISDN30, LLU and WLR. The renewal date for LLU and WLR (April 2011) provides an opportunity to synchronise the management of these controls so that consistency in the treatment of costs is achieved.

For these reasons, Openreach agrees that Ofcom should make use of consistent cost information and ensure a common modeling approach is adopted by aligning the dates of the LLU, WLR and ISDN30 controls.

Question 10.3 Do you agree or disagree that a charge ceiling set at the current level of charges should be applied to wholesale WLR ISDN30 services provided by Openreach to prevent increases to charges in the period between the ending of the market review and setting of the charge cap? Please give reasons for your view.

As stated in response to Q10.1 above, Openreach believes that the proposal to impose a charge control is disproportionate. Therefore Openreach does not agree that an interim price cap is warranted in preparation for a full price control in April 2011.

Notwithstanding our views that price regulation of ISDN30 is disproportionate, if a price control is demonstrated to be appropriate, then Openreach agrees that a charge ceiling set at the current level of charges is appropriate and indeed should be extended for the whole of the market review period.

Annex 1 - SIP & IP Voice Market Announcements

Company	Announcement	Weblink
Verizon	Verizon Business offers multi-site IP trunking in Europe	http://www.fiercevoip.com/story/verizon-business-offers-multi-site-ip-trunking-europe/2009-04-01
	Verizon Business Reduces the Complexity of VoIP for European Enterprises	http://newscenter.verizon.com/press-releases/verizon/2009/verizon-business-reduces-the.html
	Verizon Business Helps European Companies Maximize the Potential of their IP Networks	http://newscenter.verizon.com/press-releases/verizon/2009/verizon-business-helps-3.html
Global Crossing	Global Crossing Expands VoIP Local Service	http://www.globalcrossing.com/news/2009/july/27.aspx
	Global Crossing Extends VoIP Service to Microsoft Enterprise Customers	http://www.globalcrossing.com/news/2009/february/03.aspx
Colt Telecom	COLT enhances Carrier VoIP service to support Intelligent Networking services	http://www.colt.net/UK-en/MediaCentre/COLT_041324
Thus	VoIP & Web Connect offers small business first-step towards VoIP connectivity	http://mediacentre.thus.net/latest-news/2009/08/thus-cuts-costs-through-single-connection/
Gamma Telecom	New instant SIP Trunking service cuts provisioning time to seconds and provides 100% accuracy	http://www.gammatelecom.com/gamma_press_releases.asp#69
	Talkswitch® and Gamma Telecom announce compatibility – Full SIP Trunk interoperability brings flexibility and choice to small business in the UK	http://www.prnewswire.co.uk/cgi/news/release?id=220835
Spitfire	Spitfire SIP Trunking completes Vortex testing	http://www.spitfire.co.uk/press/SF046.doc
Viatel	Viatel launch Hosted Voice-based homeworking solution	http://www.viatel.com/v/page/homeworking.ph
Teleware	Free resilience on all DDIs with TeleWare SIP Trunking	http://www.teleware.com/pdf/PR1719_sip_trunking.pdf
	TeleWare enhances SIP Trunking Solution	http://www.teleware.com/pdf/PR813_SIP_Trunking.pdf

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VOIspeed	VOIspeed announces successful completion of VoIP Unlimited SIP trunk testing	http://www.voispeedltd.co.uk/contents.php?contents=9&show_n_id=271
Gradwell	Gradwell becomes first UK provider of new Hosted Unified Comms product	http://www.gradwell.com/about/news/article/507
	Gradwell expands Business VoIP services with SpinVox	http://www.gradwell.com/about/news/article/416
Intechnology	InTechnology launches UK's first Unified Comms solution with integrated IP telephony	http://www.intechnology.co.uk/MainPage.aspx?ID=394
	InTechnology unveils new PBX Connect service	http://www.intechnology.co.uk/MainPage.aspx?ID=351
Exponential-e	Exponential-e bolsters private SIP interconnect to enable Gamma's channel to produce bespoke solutions	http://www.exponential-e.com/documents/Exponential-e_Gamma_Telecom.pdf

Annex 2 – Examples of IP wins over traditional voice services

Over the last two years, there has been a great deal of activity from communication providers in the IP Voice space. Both IDC and Current Analysis state that there have been large scale deployments of IP Voice within the UK by providers such as Global Crossing, Cable & Wireless (C&W), COLT as well as BT.⁴⁸

Global Crossing recently announced a 4 year £12m contract with the Crown Prosecution Service to migrate their traditional telephony services to a hosted IP telephony service.⁴⁹ According to Current Analysis, C&W have Aviva and Tesco as flagship IP Centrex voice accounts in the UK. In terms of number of customers, C&W supports tens of thousands for hosted IP voice customers (IP Centrex or IP PBX) and over 100,000 IP voice end points (IP trunking/gateways).⁵⁰ Current Analysis also provide insight on the progress made by COLT's IP Voice solution, where they have around 100 customers and an average customer site size of circa 150 users.⁵¹

BT Retail and BT Global Services have grown their Hosted Voice business by 81% [3x]. BT can demonstrate a number of references for IP Voice, with two of the most notable being:

N3 (NHS)

N3 is the NHS national broadband network linking hospitals, medical centres and GPs in England and Scotland. In March 2007, N3 was IP Voice enabled thereby allowing the NHS to significantly reduce voice call costs. It is now one of Europe's largest VPNs and in November a NHS centre in Essex became the 100th NHS site to get IP Voice as part of the N3 network.⁵² The volume of calls being made over N3 is growing rapidly with the number of IP Voice minutes over N3 having risen from one million to six million in the last year. To cite a specific example, IP Voice and the supporting N3 infrastructure is used by NHS Direct to connect 36 NHS contact centres across the country.

DFTS (MOD)

The Defence Fixed Telecommunications Service (DFTS) Programme is a Private Finance Initiative contract between BT and the Ministry of Defence (MOD). The overall objective of DFTS is to lead to substantial savings in the overall annual cost of MOD fixed telecommunications. The contract delivers voice, data, LAN interconnect, and other WAN services to the MOD. The infrastructure will provide stable WAN services in over 2,000 locations, including IP Voice services to over 200,000 subscribers and common Ethernet-based connectivity to 150,000 terminals.⁵³

Further recent wins involving IP Voice demonstrate IP voice is a market with strong growth.

⁴⁸ IDC's "Western European Hosted VOIP Market, 2009-2013", May 2009.

⁴⁹ <http://www.totaltele.com/view.aspx?ID=450107>.

⁵⁰ Current Analysis' "Product Assessment – Cable & Wireless - IP Voice", November 2009.

⁵¹ Current Analysis, "Product Assessment - COLT Telecom (UK) - IP Voice", December 2009.

⁵² <http://www.n3.nhs.uk/News/N3VoiceServicesreach100thsite.cfm>

⁵³

http://www.defencemanagement.com/article.asp?id=200&content_name=Communications&article=5142

Table 1 - Some BT IP Voice Wins

Customer Name	Information Regarding Win
Norfolk Country Council ⁵⁴	<ul style="list-style-type: none"> • 5 Year £32.9m contract • Core voice and IP telephony service to bring unified communications to 20,000 workers at around 1,000 sites • Replaces ISDN30, ISDN2 & PSTN with a managed IP telephony service
[X]	[X]
[X]	[X]
Vodafone	<ul style="list-style-type: none"> • IP-enabled voice and broadband as a nationwide managed service to Vodafone UK by BT Wholesale⁵⁵ • Supports launch of Vodafone ONE, a unified communications solution for SMEs
Mobile Operator	<ul style="list-style-type: none"> • Managed service deal with BT Wholesale including provision of IP Voice services to enable operator to launch integrated end to end services for the UK business market

The importance to the voice market of the last two contract wins in the table should not be underestimated – mobile operators are now aggressively targeting the UK business market with end to end communication propositions, of which IP Voice is a key element.

BT is therefore not only seeing growth in IP Voice at a retail level, but also at a wholesale level too. [X]

In addition, table 2 below provides examples of customer contract losses from ISDN30 to IP-based voice alternatives in 2009. These losses are from many market sectors and clearly show the potential for IP-based voice alternatives to replace ISDN30 in a wide variety of business contexts.

Table 2: Examples of BT ISDN30 losses to SIP/other IP during 2009

[X]

⁵⁴ <http://www.btplc.com/News/Articles/ShowArticle.cfm?ArticleID=013AAF2D-3DA3-4904-A2DD-5B368D8ACAF0>

⁵⁵ <http://www.btplc.com/News/Articles/ShowArticle.cfm?ArticleID=1DB3424C-9B97-4B05-80B0-2C978B00EFB2>

Annex 3 – Marketing Collateral Analysis (Detail)

Company	Company Type	Produce Name	Proposition	Key Messages	Key Benefits
Evangelize Communications	Software Provider	EC SMARTSIP	MS OCS based SIP connectivity solution	Flexibility in terms of devices Integration with MS Active Directory Fully leverage MS OCS Cost effective and fully featured	Lower cost of deployment Reduced time in enabling extensions Maximise investment Reduced costs
Sprint	CP	SPRINT SIP TRUNKING	Network based telephony solution	Share capacity over one IP network for multiple locations and applications. Maximizes capacity, while minimizing trunking costs Combine voice and data that helps eliminate long-distance and local connectivity charges	Improved Performance and Reduced Costs Simplification and Future Enabling
Inclarity	Software Provider	INCLARITY SIP TRUNKING	Software which enables PBX, fitted with an IP gateway to route all inbound and outbound calls via the internet.	Retain existing PBX functionality whilst leveraging IP capabilities to offer a more effective and efficient telephony system.	Allows free calls between sites Creates a common dial plan Supports homeworkers Enables savings on existing telephony charges Keep existing telephone number Stepping stone to a fully hosted telephony solution
Uniwold Communications (Part of Gamma)	CP	IP DIRECT CONNECT	A SIP trunking voice termination service that provides voice telephony calls using IP protocols and creates a voice VPN across multiple sites.	Customers can keep existing BT numbers and the service offers emergency services support. The managed SIP connection supports devices using SIP registration as a means of connection. IPDC helps transform sites from analogue to IP based technology, where the PBX or IP PBX is connected to Gamma's network over an IP link.	A range of call management features including a pre-configured incoming call divert service to improve call handling Free calls between on-net sites to save money A dedicated network for your business creating QoS and real control over communications services Lower costs and faster provisioning than ISDN Quality of Service with a business grade service Forms an integral part of a converged network
Avaya	Telecoms Supplier	AURA	Unified communications platform built on SIP architecture - SME version also available	Enterprise-wide, On-demand Unified Communications: Aggregated, Enterprise-wide Presence: Multi-vendor Interoperability: Enterprise-wide Dial Plans: Unify media, modes, networks, devices, applications and real-time, actionable presence across a common infrastructure, creating the web-style, on-demand access to services and applications that users increasingly expect from their enterprise communications solution.	Cost Savings Business Continuity Increased Productivity Increased Customer Satisfaction Evolve at Your Pace Interoperability Leverage Existing Investments
Concise Telecoms	Telecoms Solution Provider	VOIP & SIP TRUNKS	Converged communication system	Unite all communication devices to make and take calls, text, video, and email via the most cost effective route	Flexibility Reduced Costs Reliability Control

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Company	Company Type	Produce Name	Proposition	Key Messages	Key Benefits
Verizon	CP	BURSTABLE ENTERPRISE SHARED TRUNKS	Service whereby Verizon dynamically monitor use of concurrent call ports across all locations and allow a location to 'burst' over the quantity ordered/billed for that location, if ports are idle at other locations and customer has sufficient bandwidth to support.	leverage trunking resources by accessing idle port capacity at the Enterprise level to meet peak busy hour requirements at a location level.	Improve Network Utilization Control costs Combine with Verizon IP Trunking service
Verizon	CP	VOIP / HOSTED IP CENTREX READINESS ASSESSMENT	Professional service to evaluate a customer's business landscape and network infrastructure before implementing a Verizon VoIP or Hosted IP Centrex solution.	Avoid the pitfalls that can arise during the important, yet often complex, transition to IP.	Take advance steps to address any existing limitations that could lead to delayed VoIP or HIPC implementation, poor voice quality, or difficulty in extending the service to all users Maintain high voice quality throughout and after VoIP or HIPC implementation Resolve post-implementation issues quickly and efficiently Plan appropriately for future growth and scalability needs
Global Crossing	CP	GLOBAL CROSSING ENTERPRISE VOIP SERVICES	Suite of VOIP service offerings	Carrier reliability and security for maximum savings on overall telephony costs, reducing total cost of ownership	Cost-savings from the elimination of gateways, costly ISDN facilities, Maximization of bandwidth utilization in a converged IP environment.
Inclarity	CP	HOSTED VOIP	Broadband based hosted VOIP solution	Taking telephony to the next generation is simple when you see how expensive current PABX solutions are compared to VOIP	Reduced telephone call and line rental costs High level of business telephony functionality for all users Zero maintenance and support charges Future-proof technology, thereby protecting your telephony investment Seamless integration of multiple locations Improved productivity and work-life balance through flexible working A scalable solution
Telappliant	Telecoms Solution Provider	TALKASSURE VOIP TRUNKING	Broadband based VOIP solution	Replace legacy ISDN circuits, with multiple telephone lines over a single high speed Internet connection.	Cost Savings Global Inbound Numbering Enhanced Teleworking Scalability Simplified Management Redundancy
Cbeyond	CP	BEYOND VOICE WITH SIP CONNECT	Broadband based SIP solution on Cisco technology	Fully flexible IP phone and data service — plus powerful tools like data security, mobile services, Web hosting and more — all through one provider and one bill.	Mobilise the workforce Extend communications to home workers Affordable all-in-one solution
Metaswitch	Platform Provider to CP	IP BUSINESS TRUNKING; HOSTED IP PBX	SMB solution	Provide high-function, low-cost telephony services to SMBs by leveraging standards-based, IP infrastructure.	Deliver SMB revenue generating services Maximise flexibility Incentivise customer loyalty Increase ARPU Lower TCO Future proofed solution
Gemini TML	Broadband Provider	SIP TRUNKS	Broadband based SIP solution	SIP is the next logical step in the evolution of voice communications; routing voice calls over the internet provides additional features over and above ISDN and analogue lines, and they are more cost effective.	Additional features More cost effective

Annex 4 – Price and Total Cost of Ownership (TCO) comparisons

NGA

BT has publicly announced its first 91 exchanges for the first three phases of NGA, and has committed to rolling out NGA to 40% coverage of UK households by 2012. [X]

BT is already experiencing strong demand for NGA from businesses, [X].

The 10Mbit/s upstream bandwidth available from the Openreach Generic Ethernet Access (GEA) product mean it is well suited to supporting at least 30 IP voice channels if required whilst also delivering an expected price point advantage of 56% versus ISDN30 (see diagrams A1 and A2 below). Alongside this, Openreach is currently working through the joint consultation process with Communications Providers (CPs) as to its future NGA voice portfolio. This could include a multi-line voice product in addition to the GEA products.

More recently, BT has announced plans to increase its NGA roll-out to two-thirds of the UK by 2015, at a cost of £2.5 billion.

WBC

WBC is a BT Wholesale product currently available to 55% of UK households. [X] BT Wholesale has announced plans to take the WBC footprint up to 75%, [X].

WBC can already deliver 10-15 voice channels over 1Mbit/s upstream. BT Wholesale is currently consulting with CPs on increasing upstream bandwidth to 2Mbit/s by deploying the technical standard Annex M⁵⁶ which will therefore support 20-30 voice channels. Other CPs such as Tiscali already offer this enhanced capability today.⁵⁷

As the average number of ISDN channels per system is 17, WBC is well suited for meeting the multi-line voice needs of SME customers, particularly given an expected price advantage of 57% over ISDN30 (see Diagrams A1 and A2 below). Hence, BT Retail's plan for launching its own SIP Trunking service targeted at this market segment is based on WBC-based access. Indeed, other CPs already have such propositions in the market today, such as Spitfire who offers SIP Trunking over 2Mbit/s SDSL.⁵⁸

EFM

BT offers both wholesale and retail EFM services, currently available from around 600 exchanges. BT continues to roll out EFM capability with coverage expected to reach over 800 exchanges subject to demand. [X]

Our price point analysis highlighted that an EFM-based SIP Trunking service would deliver an expected price advantage of 18% over ISDN30 (see Diagrams A1 and A2 below). [X]

⁵⁶ Annex M is an optional specification in ITU-T recommendations G.992.3 (ADSL2) and G.992.5 (ADSL2+)

⁵⁷ http://www.tiscali.co.uk/presscentre/press_release/2008/july/071408wholesaleannexm.html

⁵⁸ http://www.spitfire.co.uk/SIP_Trunking.shtml?headerbar=0

As EFM is already available as part of BT Wholesale Ethernet, this capability is therefore available to all CPs. For example, Viatel announced the launch of Viatel Ethernet in March 2009 using EFM as a development of the BT Wholesale Ethernet product.⁵⁹

Diagram A1 – Price point comparison alternative options

[X]

Diagram A2 – TCO analysis of IP based alternatives

[X]

⁵⁹ <http://www.viatel.com/v/page/Ethernetaccess.php>