



BT's response to Ofcom's consultation document

"Business Connectivity Market Review

*Review of the retail leased lines,
wholesale symmetric broadband
origination and wholesale trunk segments
markets"*

27 March 2008

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

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1 Executive summary

Suppliers of business connectivity services are meeting the requirements of UK business by investments in infrastructure and product/service development in order to provide innovative solutions based on a range of technologies. Ofcom's data indicates that in the four years to 2006, 75% of low bandwidth circuits migrated to other connectivity solutions such as VPNs – often using DSL tails – and Ethernet-based services.

Regulation must facilitate this customer-led competition by taking a forward-looking view of markets and avoid introducing interventions which impede this competitive dynamic. BT therefore fully supports Ofcom's proposal to remove certain wholesale regulation in key business districts in London and for very high bandwidth services nationwide. However, we are concerned that elsewhere, Ofcom's other proposals would result in the application of inappropriate and disproportionate regulation which threatens the development of the market.

We would highlight the following key messages from our response:

- **Ofcom should remove all regulation on BT at the retail level:** The proposed market for retail low bandwidth leased lines is too narrowly defined given the range of alternative services available to businesses. Coupled with BT's offer of voluntary commitments regarding future provision of legacy products, this makes regulation of BT's activities at this level unnecessary and disproportionate. We believe concerns with the "replicability" of Partial Private Circuits will have been addressed before Ofcom concludes this review and do not justify the continuation of retail regulation.
- **Ofcom's analysis has understated the degree of wholesale level competition:** There is extensive alternative infrastructure in the provision of wholesale business connectivity services within many business areas – including, but not limited to, the defined Central and East London Area – and on many routes at the trunk layer. There is, therefore, further scope for Ofcom to remove regulatory obligations altogether.
- **A lighter touch and a more flexible approach to regulation is needed at the wholesale level, particularly in relation to the provision of wholesale Ethernet services and trunk segments:** The overall impact of the proposed deregulation in certain areas is outweighed by Ofcom's proposals to extend the scope of charge control regulation to lower bandwidth wholesale Ethernet services and trunk segments. Rigid charge controls generally risk distorting providers' investment decisions and delaying customers' take-up of more efficient services. BT considers that voluntary commitments are often a more effective way of addressing specific concerns.
- **It is time to close down the debate on dark fibre:** BT does not believe there is a case for mandating the provision of dark fibre and Ofcom should not proceed with a separate consultation.

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

2 Summary

Business connectivity markets are evolving rapidly

The business connectivity market, like most electronic communications markets, is dynamic and fast moving. There has already been extensive migration of business customers from traditional leased lines to other business connectivity services such as VPNs using DSL tails and to Ethernet-based services. Over the course of the coming years, i.e. the relevant period for the purposes of this market review, traditional services are certain to decline significantly, whilst there will be many developments which increase the attractiveness of new connectivity solutions. Communications providers are responding to these developments through investments in infrastructure and service development.

A flexible approach to regulation is needed in these changing markets

BT believes that only a flexible and principles-based approach to regulation will allow the market to develop in the best way for business customers. Regulation must facilitate customer-led competition by taking a forward-looking view of markets and market trends and Ofcom should avoid introducing artificial interventions which impede this competitive dynamic.

BT therefore fully supports Ofcom's proposals to remove certain wholesale regulation in key business districts in London and for very high bandwidth services nationwide. The evidence available to Ofcom demonstrates that competition is effective in these markets, removing the need for any regulatory constraints on BT's activities.

However, we are concerned that elsewhere Ofcom's other proposals in relation to product and geographic market definition and the setting of regulatory remedies could result in the application of inappropriate and disproportionate regulatory constraints which would threaten the development of the market. In particular:

- Ofcom's market analysis starts with narrowly defined retail markets based around particular technologies that do not take account of the significant migration to new products we refer to above. This is important because Ofcom's provisional conclusions support its proposals to continue retail level regulation and underpin its approach to wholesale regulation.
- Despite the welcome deregulation, Ofcom's overall analysis of wholesale markets does not take full account of the scope of competition from alternative infrastructure providers in certain geographies and on particular trunk routes.
- Ofcom's provisional conclusions about the extent of BT's market power in the defined markets result in proposals to extend charge control remedies into new areas. Such controls, especially those of the traditional 'RPI-X' type, risk distorting providers' investment decisions and delaying customers' take-up of more efficient services.

BT would therefore urge Ofcom to revisit its provisional conclusions in light of the evidence provided in this response about future market trends and the scope of competition. In particular, Ofcom should assess the scope for further deregulation and reconsider its proposals to extend price controls to areas where no such controls apply now, particularly traditional interface trunk services and wholesale Ethernet termination. As we demonstrate below, trunk is clearly not an enduring bottleneck of the type that justifies a charge control, and wholesale Ethernet is a developing market characterised by opportunity and potential for innovation, but also by risk and uncertainty.

Where regulation is required, we believe the remedies should be as light-touch and flexible as possible, particularly as they may be in force for the next four years. Prescriptive regulation is burdensome for all stakeholders including Ofcom itself, may inhibit the development of more effective solutions for customers and would not allow markets to deliver optimum solutions for businesses in the UK.

The continuation of retail regulation is not proportionate

We believe it is no longer appropriate for SMP remedies to be maintained on BT's low bandwidth retail leased lines. In our view, this would be inconsistent with the intentions of the European Commission in removing retail leased lines from the list of markets susceptible to regulation. In the case of digital low bandwidth leased lines, for which wholesale equivalents are available, it would also conflict with widely accepted principle that competition problems should be addressed at the wholesale level.

We note Ofcom's concerns about BT's high market shares in the defined market. However, as detailed above, we believe Ofcom has defined retail markets too narrowly, without taking account of customer migration to alternatives such as Ethernet and asymmetric broadband services. A broader market definition would alter Ofcom's overall approach to regulation at both the retail and wholesale level. Further, BT's market share in a combined analogue and low bandwidth digital retail leased lines market is skewed by our market share of almost 100% in analogue circuits. We recognise the issues raised by this legacy market and have proposed commitments to ensure the future provision of analogue circuits and to maintain current prices for a further two years. We believe these commitments render continued regulation of analogue leased lines unnecessary.

BT also notes Ofcom's concerns that not all the previously identified partial private circuit "replicability" issues have been addressed. In fact, our response shows that most of the operational issues have been addressed and that the outstanding financial replicability issues will have been addressed before Ofcom publishes its final statement on this market review. Once replicability is in place, we believe it will be indisputable that regulation at the wholesale level will address any competition issues in low bandwidth digital leased lines.

We appreciate Ofcom may want to ensure stakeholders are content that replicability has been achieved. Given this concern, we believe Ofcom should consider deferring final decisions on

retail regulation until stakeholders have had the opportunity to comment. Alternatively, if SMP remedies are retained, Ofcom should ensure that subsequent achievement of replicability acts as a trigger for significant reductions in regulation at the retail level.

Ofcom's wholesale market analysis should include asymmetric services

Overall, BT believes that Ofcom should take a technologically neutral stance and include symmetric and asymmetric access in their assessment of business connectivity. However, Ofcom only focuses on symmetric business connectivity solutions in assessing wholesale markets, despite its own research data showing asymmetric access to be of importance to the sharing of enterprise data and remote access to networks as well as internet access. This is consistent with BT's own market experience. We therefore believe that Ofcom should include asymmetric connectivity services within its review of the wholesale market.

Further geographic disaggregation of markets is possible

Ofcom only defines one sub-national geographic market apart from those in the Hull area, i.e. the market for traditional interface symmetric broadband origination (TISBO) services at 34-45Mbit/s in Central and East London (CELA). Ofcom's analysis concludes that none of the trunk routes between its identified "aggregation nodes" are competitive.

In our response we show that there are urban centres outside London where there has been significant access infrastructure build by other providers and where it would not be proportionate to impose SMP regulation on BT.

We also believe that where Ofcom finds BT does not have SMP on TISBO services above 8Mbit/s it should also remove regulation from wholesale Ethernet services. This is because the infrastructure build justifying the removal of regulation from one type of service (TISBO at 34Mbit/s and above) can also be used to provide the other service.

Trunk segments of leased lines have been removed from the European Commission's list of markets susceptible to regulation on the grounds that parallel infrastructure exists in most Member States. Evidence shows that extensive competing infrastructure exists in the UK: on almost half of the trunk routes identified by Ofcom there are five or more providers other than BT with a presence at both ends; and most of the routes between the largest cities have nine or more other providers present at both ends.

Ofcom's analysis of the trunk market requires, inter alia, that for a trunk route to be deemed competitive it is necessary that there are three providers at either end of the route and that three or more providers sell circuits to third parties on that route. The first condition is satisfied on most if not all trunk routes. The second is not necessary for there to be competition because trunk services tend to be self-provided, and the lack of a developed "wholesale market" should not disqualify routes from deregulation. Indeed, regulatory policy in the past has been designed to encourage infrastructure competition, not to create a market in the "wholesaling" of trunk services. We believe Ofcom's conclusion that there is not competition

on any major route in the UK twenty years after infrastructure competition began cannot be substantiated.

Ofcom's proposed new definition of "trunk" should be adjusted to avoid over-regulation

Ofcom proposes to move away from a definition of SDH trunk services based on BT's Tier 1 SDH nodes and their related catchment areas, to one based on forty major points of traffic aggregation in the UK, which Ofcom describe as "aggregation nodes" consisting of "islands" around central points, for example Manchester, Birmingham, London.

We think that if the aggregation nodes approach is to be adopted then there are a number of other aggregation locations which should be identified based on analysis of where other providers have alternative network. In addition, we believe Ofcom should revise its proposal that conveyance between core nodes within islands – such as those in London – is always reclassified as origination. This is because we think such routes can be competitive and therefore regulation is not appropriate.

One important issue not discussed in the consultation document is the precise definition of alternative interface origination under the islands approach. As a result, there is some uncertainty as to where the extent of BT's requirements to supply services on regulated terms would end. If the intention is to use the same aggregation nodes to define the limit of alternative interface, as well as traditional interface, origination, then this would mean that some metro node to metro node connectivity would be classified as origination. BT is not clear how this would work in practice and we seek further clarification in this area before we can fully respond.

We are also aware that the issues raised by Ofcom's proposal could have implications for the introduction of innovative backhaul products by Openreach and for the related planned review of the Undertakings definitions of core and backhaul. In particular, one of the motivations for the "island" concept is to ensure that Openreach can introduce in the most economically efficient manner new backhaul direct services which would, under current definitions, be defined as "trunk". The inter-relationship between SMP regulation discussed in the consultation document and BT's Undertakings warrants further consideration. BT does not agree that market definitions and SMP findings in the market review have necessary implications for the Undertakings, which are based on the existence of enduring economic bottlenecks. We would therefore wish to discuss further with Ofcom any implications of the proposed new definition of trunk on the Undertakings.

There is no need for charge controls to be imposed in the wholesale trunk market

We believe the presence of competing infrastructure, as discussed above, shows that trunk is not an enduring bottleneck and removes the justification for SMP and associated remedies – particularly charge controls – to be imposed on BT, even though Ofcom's analysis suggests our market share is high.

We understand a key concern for Ofcom in this market is BT's apparently high return on capital of around 59%. However, this measurement of our return is misleading. In reality, other providers purchase either end-to-end circuits consisting of trunk and termination, or termination alone: they do not purchase trunk in isolation. Since BT's returns from termination are low, our return from end-to-end wholesale circuits is around 15% to 16%.

Instead of imposing a new charge control on trunk, we suggest that Ofcom should be aiming to address this imbalance whilst permitting BT to recover its costs across trunk and termination. In our view, this could best be achieved by accepting a commitment from BT to reduce trunk prices and allowing us to adjust termination prices appropriately.

If, however, Ofcom decides to proceed with regulation and charge control of our trunk segments, we would urge Ofcom to define a single basket covering trunk and termination to facilitate the price rebalancing which we consider to be long overdue.

Regulation of Ethernet services in the Openreach portfolio should reflect the developing nature of this market

Ofcom proposes to maintain the current SMP designation on alternative interface origination services and to introduce a new price control. The Ethernet market is growing, with differing degrees of competition emerging in different geographies and at different bandwidths, and it is clear that many key areas such as city centres will not necessarily be enduring bottlenecks. Now that Openreach has delivered most of its Undertakings commitments, it is focusing on innovation and development of its portfolio. Indeed, Openreach plans to introduce new pricing structures that are likely to make a price cap redundant. BT therefore believes that a price control regime for Ethernet leased lines terminating segments would be premature, disproportionate and potentially damaging to further innovation.

If Ofcom concludes that a price cap is necessary, BT considers it essential that it should be light-touch and flexible, with the capability of being adapted to reflect uncertainty and change in this developing area of business connectivity. A key test for any proposed price cap should be that it does not adversely impact incentives to introduce the new and innovative services that the market demands.

It is time to close down the debate on dark fibre

Ofcom raises the question of whether it should consult further on the case for introducing dark fibre. BT does not believe that dark fibre constitutes a relevant economic market and it is far from clear how such a market might be defined. Were it to be so, however, we believe that it would be found to be highly competitive with many suppliers such that neither BT or any other player would be found to have SMP.

If dark fibre was to be mandated it would fundamentally alter the balance between CPs' buy or build decision and have a chilling effect on investment in competing infrastructure. It would also undermine the investment in wholesale lit fibre solutions that the market demands and

have a damaging impact on the thriving and highly competitive downstream markets that BT's current wholesale product set supports. Moreover, If dark fibre was mandated, there would be a strong case for removing requirements for any wholesale remedies based on lit fibre.

For these reasons we believe that Ofcom should use this opportunity to close down the debate on dark fibre for good. As long as the issue remains on the table, it casts a cloud of uncertainty over the industry and has a damaging impact on investment and innovation.

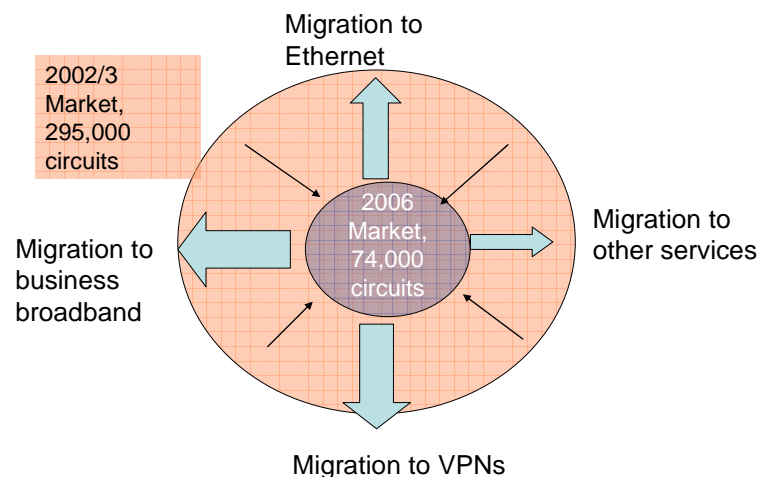
Conclusion

Business connectivity services are essential for the health and competitiveness of the UK economy. The regulatory framework for business connectivity that results from Ofcom's review will have profound effects on how these services develop over the coming years. This section of our response has summarised BT's views on Ofcom's proposals and our suggestions for how we think they should be made forward-looking to achieve the sustainable competition which will provide the best outcome for business customers. Our detailed ideas, which we would be happy to discuss with Ofcom and other stakeholders, are set out in the remaining sections of our response.

3 Retail market analysis

3.1 Summary of BT's views

- Ofcom has defined too narrow a set of retail markets based around specific technologies rather than the general “connectivity solutions” demanded by UK business customers.
- Ofcom’s provisional conclusions contradict our experience of the market and the propensity of customers to migrate between different technologies. Sales of traditional interface leased lines have been reducing rapidly as customers migrate to alternative solutions for their business requirements. This will continue, and we think that by 2011/12 sales will be only about 10% of the level on which SMP regulation was imposed in 2003. In just the four years to 2006, 75% of digital circuits migrated to other services.



- Competition in the broader business connectivity market is effective and BT’s competitors are utilising their own network capabilities as well as the supply of wholesale products and services such as Partial Private Circuits (PPCs), bitstream access, wholesale Ethernet access and backhaul and LLU to provide a broad suite of retail market solutions.
- BT recognises that some retail customers require certainty about the ongoing provision of their existing traditional interface leased lines connectivity solutions and has therefore offered commitments around the continued supply of analogue and low bandwidth digital circuits and engaged in dialogue around the provision of similar services on BT’s 21CN.
- Against this backdrop, the application of SMP-based *ex ante* constraints on BT’s activities in any part of the broad retail market is unnecessary and disproportionate. *Ex ante* regulation should – in line with established regulatory principles – focus on appropriate

wholesale level remedies to address identified problems. (Our comments on these wholesale remedies are set out in Section 4.) Furthermore, Ofcom's proposed approach does not take utmost account of the European Commission's recent Recommendation on markets susceptible to *ex ante* regulation.

- BT recognises Ofcom's concerns in relation to the "replicability" of retail leased lines utilising PPCs. We believe that all outstanding concerns will have been addressed before Ofcom concludes this market review. Ofcom should not therefore base any finding of SMP – and the remedies which flow from this – on any failure to achieve replicability. Ofcom should invite feedback from stakeholders on the progress BT has made in order to take full account of this in concluding the current market review.

This section of our response considers Ofcom's proposals relating to retail leased lines in the UK outside the Hull area. It contains our answers to Questions 1, 2, 4, 8 and 19. BT has no direct comments on the proposals relating to retail leased lines in the Hull area, and we do not, therefore, give an answer to Question 12 (Ofcom's questions are listed in Annex 1).

3.2 Ofcom's approach to analysing retail markets

Ofcom analyses retail level demand for and supply of business connectivity products and services for two purposes:

- (1) because it considers definition of the appropriate retail markets to be a necessary step in identifying appropriate wholesale markets which should be the focus of any ongoing future regulation; and
- (2) because Ofcom is actively considering whether regulatory remedies should be continued in the defined retail market for analogue and low bandwidth digital leased lines.

Ofcom takes as the starting point for its analysis the products and services it believes could be classified as "leased lines services" – i.e. analogue leased lines, digital SDH/PDH leased lines and digital alternative interface leased lines. Ofcom then considers a number of factors in order to assess where to draw the boundaries of distinct economic markets, including:

- a qualitative assessment of the underlying characteristics of each of these services in terms of contention, latency/jitter, resilience and symmetry compared to potential alternative products and services;
- an assessment of the potential scope for demand-side substitution based on analysis of prices relative to potential alternative products and services and SSNIP analysis based on end-user surveys; and
- an assessment of the potential for supply-side substitution from other alternative products and services.

Although this approach seems reasonable, we are concerned that Ofcom's provisional conclusions contradict our actual experience of the market and customers' propensity to migrate to alternative business connectivity services. Overall, Ofcom's approach and analysis has resulted in the definition of too narrow a set of retail markets based around specific technologies, rather than around the general connectivity solutions demanded by business customers. In particular, Ofcom's conclusions that there are separate retail markets for traditional interface ("TI") leased lines at a variety of bandwidths overlooks the clear trend away from these services towards, among other things, the increasing use of DSL-based links, a broad range of VPN products and Ethernet-based point-to-point and point-to-multipoint solutions.

We have therefore set out in the next section details of our market experience and believe Ofcom should revisit its analysis in the light of this. In revisiting its analysis, we would also note that:

- much of the information on which Ofcom is basing its analysis was collected in November 2006 and this will mean a period of nearly two years has elapsed between the time of data collection and the time for implementation. In our view this is too long in such a dynamic market;
- on several occasions within the document Ofcom's comments point to a lack of data from communications providers ("CPs") on which to base analysis – a partial response from CPs may lead to a material overstatement of BT's market position; and
- the end-user survey results cited by Ofcom often seem to support our contention that markets should be defined more broadly.

3.3 BT's views on competition in the provision of business connectivity services and appropriate product market definition

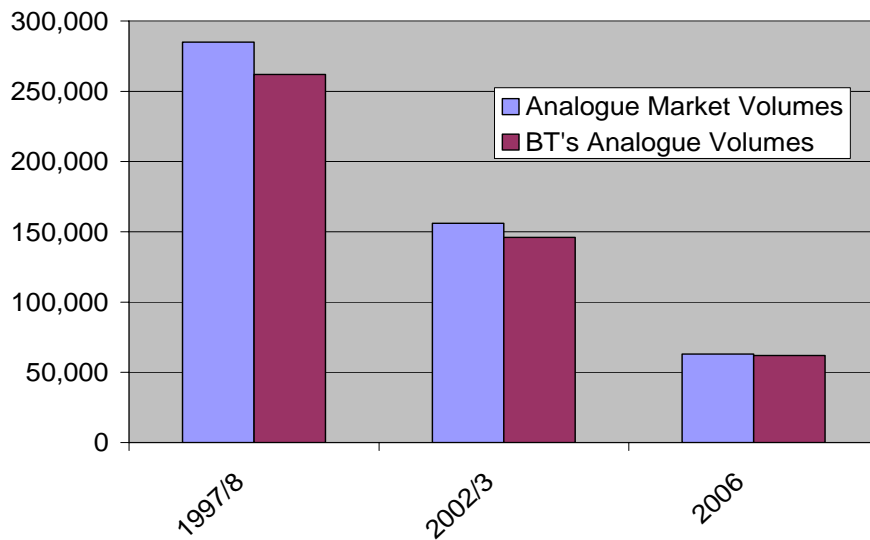
Traditional interface leased lines volumes are in decline

In the time since the last market review in 2003 there have been significant advances in the overall business connectivity market, including many changes in the overall purchasing behaviour of customers. The overall trend has been for a significant shift away from the purchase of traditional leased lines to alternative access technologies and more efficient communications services, such as VPNs using DSL tails. Ofcom's data shows that in the four years to 2006, the size of the market for all low bandwidth TI retail leased lines more than halved, and for digital circuits reduced by about 75%.

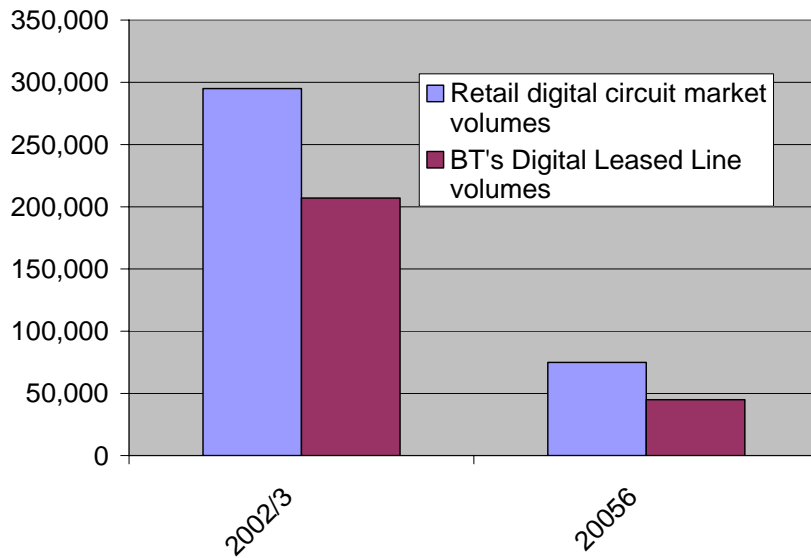
The decline in analogue and digital sales since the last review are brought out in the two graphs below. The graphs have been compiled from numbers quoted by Ofcom in the Final Statement and Notification for the previous Leased Lines Market Review in 2004 and those in

the current consultation document. Even though there may have been some “double counting” of volumes in 2003 (see paragraph B.26 of the 2004 Final Statement), the overall decline is clear and pronounced. It is certainly very difficult to square these numbers with Ofcom’s findings that there are barriers to switching for customers (even if there are some transitional costs involved).

Decline in analogue sales



Decline in Retail digital volumes since last Market Review



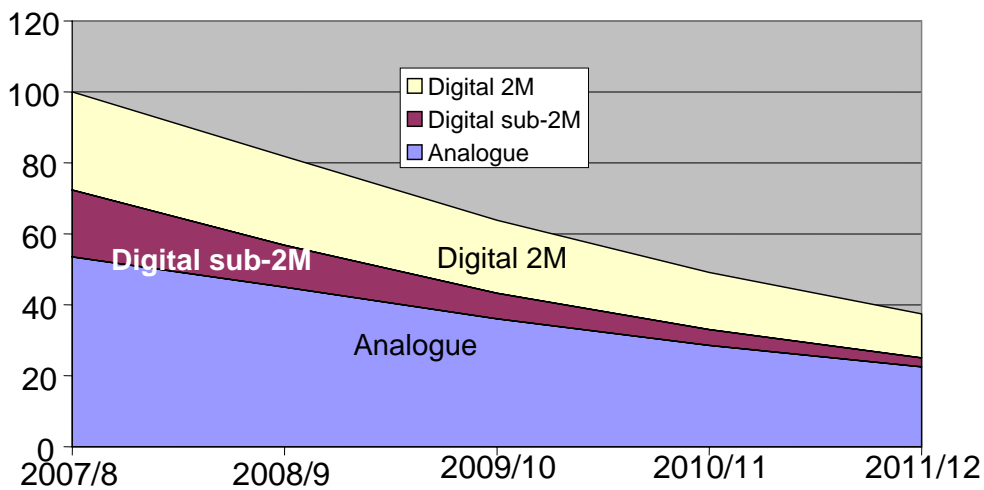
Source: Table B.1 from 'Review of the retail leased lines, symmetric broadband origination and wholesale trunk segments markets: Final Statement and Notification', 2004; and Figure 66 in the 2008 consultation document.

Customers are migrating towards alternative business connectivity services

We consider that the trend away from TI services to alternative products will continue. Among other things, our experience shows that customers are now contracting for shorter periods for components, such as TI leased lines, but longer for more ‘solution’ type purchases, which include a wider range of professional management and non-communications products. Customers are clearly planning on migrating away from TI leased lines, and the fact that all customers are not making the move immediately should not be taken to mean that TI services do not face competition from other services.

The figure below shows the likely sales trends for TI services over the review period. We expect all but a small minority of customers to have migrated away from 64Kbit/s services. Sales of analogue and 2Mbit/s services may not decline so steeply, but we still expect sales of low bandwidth TI services in total to be only about 40% of their 2007/8 level by 2011/12.

TI leased lines sales trends, 2007/8 to 2011/12



Ethernet services are now viewed as close substitutes for TI leased lines

Ofcom’s proposals suggest that alternative interface (“AI”) Ethernet-based services are not yet close enough substitutes for TI leased line services. The central reason for this finding is that AI services “are primarily based on packet or frame-orientated technologies... which means they are non deterministic in operation”. This suggests that these services are not substitutes for customers who value certain functions that are available on one type of service and not another. Ofcom also states that “The market trend data shows that switching from SDH/PDH-based to Ethernet circuits has not been observed to an appreciable extent” and that “migration from SDH/PDH is not expected by Ofcom to be significantly large”.¹

¹ Paragraph 3.146

However, our analysis above suggests that this underestimates the migration which has happened and, more importantly for a forward-looking market review, the level of migration which is forecast to occur in the future. In customer research BT has conducted, nearly two in three respondents say that they have started migrating to Ethernet-based services, and much more migration is expected over the next three years. Migration is happening in response to the perceived cost effectiveness and better service quality of carrier grade Ethernet. In this regard, the Metro Ethernet Forum, a global industry alliance comprising more than 120 organisations, has developed certification for carrier class Ethernet services. These services are tested to the tolerances of existing SDH standards and therefore replicate SDH in all functionality and performance. We would also note that much of the research commissioned by Ofcom, including the end-user research shown in Table 4 on page 55 of Ofcom's consultation document, suggests that TI leased lines and Ethernet are, in fact, being recognised as close substitutes by customers.

Supporting our assessment, Analysys has forecast that spend on Ethernet will have a compound annual growth rate of 17% for the period 2007 to 2012. Analysys states that Ethernet is "a truly global data standard" and significantly cheaper than legacy services that are being replaced. The interfaces are also more flexible for customers and features such as Quality of Service for end-users are being added and manageability improved for service providers.

Consistent with this, BT's technology strategy in the time period of this review, i.e. 2008-2012, is to replace its legacy platforms which have been providing traditional interface leased line services and to migrate customers to services provided by BT's 21CN. This will mean that BT's business connectivity portfolio will move towards Ethernet-based services. Ethernet technology will offer more flexibility to customers in terms of performance and price, and is better suited to LAN-based connectivity than TDM type services.

VPNs are also viewed as substitutable by business customers

Ofcom also concludes that VPNs are in a separate market to TI and AI services. Again, this is not supported by our view of market trends as customers have clearly migrated away from the use of TI leased lines to VPN-based solutions.

We would note here that analysis of Ofcom's own data on retail market requirements for trunk circuits strongly suggests that TI leased lines are not heavily used to provide connectivity over longer distances. Of the 10 busiest bilateral trunk routes identified by Ofcom (Figure 92), none are between what we would classify as major UK business centres (defined by business density) and of the top 30 busiest trunk routes identified by Ofcom, only 5 are between these major centres. In fact, the data shows that where circuits require trunk, these tend to be over

much shorter distances. Most of the “trunk” circuits provided are actually between Tier 1 nodes in London (under Ofcom’s proposed definition these would cease to be classified as trunk) while most of the other higher density routes are from London to “satellite” towns such as Slough, Reading, Luton, Chelmsford and Guildford.

We believe this pattern reflects the fact that over longer distances, businesses overwhelmingly choose to use VPNs to connect sites. This supports our view that VPNs and TI leased lines are close substitutes. We would also note that where BT sells PPCs it also appears from Ofcom’s analysis that these are primarily being used to provide VPN access and not to compete in the retail leased lines market. For instance, a comparison of Figures 66 and 67 in the consultation document shows about 4,000 circuits at 2Mbit/s sold by other CPs, whereas BT sells about 40,000 2Mbit/s PPCs.

Asymmetric DSL should also be considered within the broader market

In its discussion of the retail markets, Ofcom concludes (paragraph 3.311) that “asymmetric broadband services would not put a competitive constraint on the pricing of retail leased lines in the absence of regulation of wholesale leased line markets”. Ofcom’s view is that symmetric broadband origination services such as retail leased lines are not in the same market as asymmetric broadband services such as ADSL and cable modems.

BT does not agree with Ofcom’s provisional conclusions. With the increase of competition for LLU-based services many providers have built out to local exchanges using backhaul supplied by Openreach or other suppliers. Many of these providers are now actively marketing and selling 2Mbit/s connectivity comparable to that traditionally supplied via SDH leased lines. Reflecting this, we have seen extensive migration away from retail leased lines to asymmetric broadband services (either to connect to VPNs or to the public internet) and this therefore strongly suggests that there must be a constraining influence. BT believes this is especially the case for 64Kbit/s services where the uplink speeds are relatively low and where there has been a huge decline in recent years.

Overall, we believe that Ofcom should take a technologically neutral stance and include symmetric and asymmetric access in their assessment of business connectivity. This is supported by Ofcom’s own research which shows businesses use both symmetric and asymmetric services for connectivity.

BT will continue to provide services to existing TI customers

These trends support our view that significant substitution has taken place and will continue to take place between TI leased lines and these alternative retail business connectivity services such that we believe that a broad ‘business connectivity’ market exists. At the same time, BT has recognised that even as the majority of customers switch to new means of connectivity,

there will still be a residual customer base, which will choose services based upon the technical aspects of legacy products. BT has already consulted on the future of TDM services in its Consult21 forum and has concluded that some, but not all, of these legacy products would be supported on the new platform, at a wholesale level, thus allowing CPs (including BT's own downstream business) adequate opportunity to deliver services to these customers based on their requirements. We have also extended the life of our Digital Private Circuit Network to provide a longer window for customers to migrate to new services.

3.4 BT's views on Ofcom's geographic market analysis

Ofcom's approach to retail geographic market definition is to look for those areas of homogeneous competitive conditions based on a postal sector level of geographical granularity. We believe this is a practical suggestion.

However, we do not agree with Ofcom's view that national pricing is indicative of a national market, and we do not consider this view to be consistent with the guidelines of the European Commission on market analysis. This applies both to retail and wholesale markets. The principle reason why national pricing cannot be used to define markets is that it would mean that the de-averaging of prices on a geographical basis, by one supplier, would change the market definition. It cannot be right that the way in which one supplier chooses to behave can define the scope of a market.

Where national prices are mandatory, for example as under the Universal Service Obligation, then the imposition of a single price does "bind" markets together for the supplier in question because the uniform price requirement means that the supplier cannot price to two or more geographical markets. The supplier (but not its competitors) then effectively faces a "national market". This is when a common pricing constraint across areas is a relevant factor defining the geographical scope of markets.² However, this is not the case for leased lines where there is not a prohibition of geographical de-averaging.

The European Commission has written that: *"In the electronic communications sector, the geographical scope of the relevant market has traditionally been determined by reference to two main criteria: (a) the area covered by a network; and (b) the existence of legal and other regulatory instruments."*³

² Ofcom's paragraph 4.14 says that a common pricing constraint is "sometimes and additional consideration" in defining markets but not when it actually is.

³ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, paragraph 59.

The Commission also sets out that the relevant geographical market “*comprises an area in which the undertakings concerned are involved in the supply and demand of the relevant products or services, in which area the conditions of competition are similar or sufficiently homogeneous and which can be distinguished from neighbouring areas in which the prevailing conditions of competition are appreciably different.*”⁴

That is, geographical markets are distinguished by variations in the competitive conditions. In telecommunications markets like leased lines, the main criteria for this will be network coverage because network services by their very nature are consumed where they are purchased. The extent of competition therefore depends on whether there are competing networks in those locations. That one supplier has, in the past, behaved in a way which is not consistent with there being variations in competition (i.e. by keeping a uniform price) cannot be used to infer that variations in competition do not exist, it means only that that supplier has chosen not to respond to any variations (for whatever reason, such as that it has to demonstrate cost differences to de-average prices).

3.5 Ofcom’s finding of SMP and proposals to impose remedies

Ofcom’s narrow market definition results in unnecessary remedies

Given our views on the need to define the retail market more broadly, BT obviously questions Ofcom’s proposal to find that BT has SMP on the narrowly defined retail market for ‘analogue and low bandwidth digital leased lines’. Customers face significant choice in services to meet their connectivity requirements and in the suppliers who can provide these solutions.

Furthermore, BT recognises that certain customer types may be less likely to migrate away from the use of TI leased lines and has offered to make commitments to customers about ongoing service provision. Regulation should, therefore, focus on ensuring appropriate wholesale remedies are in place to facilitate the effectiveness of this competition in delivering optimal consumer outcomes. We do not believe that continuing retail level regulatory constraints on BT’s activities are appropriate in any part of the business connectivity market.

Ongoing retail level regulation is inconsistent with fundamental regulatory principles

We also note that the proposal to maintain SMP remedies at the retail level runs contrary to Ofcom’s principle of ensuring regulation focuses on identified upstream problems around market access. Our views on the appropriate retail level markets clearly differ from those

⁴ Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic communications networks and services, paragraph 56: <http://www.ictregulationtoolkit.org/en/Publication.2589.html>

proposed by Ofcom, but we would stress that even under Ofcom's proposed narrow definitions, we believe there is scope to remove existing SMP remedies at the retail level and focus regulation solely on appropriate wholesale solutions.

BT strongly believes that a core regulatory principle is that the delivery of effective competition in the provision of products and services to end-users requires that regulatory action should focus on ensuring fair access to key wholesale services needed by market players. Over time, this will result in regulation only being required in relation to the truly enduring economic bottlenecks. The continuation of *ex ante* regulatory intervention at the retail level is clearly inconsistent with this core principle.

Ofcom recognised this principle as part of its Strategic Review of Telecommunications, and it is clearly captured within the structure of the Undertakings which led to functional separation within BT in relation to the provision of different wholesale inputs into downstream retail products and services.

Ofcom's approach does not take utmost account of the Commission's Recommendation

The European Commission, in its Recommendation of 17 December 2007, has not included the market for retail leased lines on its list of markets susceptible to *ex ante* regulation. According to the Commission, with SMP regulation applied where warranted at the wholesale level, there should be few barriers to market entry into the retail market and, therefore, wholesale regulation should be sufficient to ensure that there is a competitive supply at the retail level (Relevant Markets Recommendation, p. 39).

Ofcom, nevertheless, provisionally concludes that market conditions in the UK confirm that BT continues to have SMP in this market (paragraph 1.37). In reaching this provisional conclusion, Ofcom provides only a brief analysis that the three-criteria test is satisfied. Ofcom's legal view appears to be that where a communications provider is currently designated as having SMP in a market, passing of the three-criteria test does not constitute a legal requirement for the imposition of regulatory remedies (paragraph 1.39).

BT is unable to find any support for this legal view in the Commission's Recommendation. Indeed, the Recommendation appears to require the contrary. Specifically, the Commission says:

- "For markets not listed in the Recommendation national regulatory authorities should apply the three-criteria test to the market concerned. For the markets in the Annex to [the previous] Recommendation . . . which are not listed in the Annex to this Recommendation, national regulatory authorities should have the power to apply the three-criteria test in order to assess whether, on the basis of national circumstances, a market is still susceptible to

ex ante regulation” (paragraph 17 of the Commission’s Recommendation of 17 December 2007).

- “Regulation will only be warranted if on a market that meets the three-criteria test, one or more operators are found to have significant market power. NRAs should follow the same basic criteria and principles when they identify markets other than those appearing in this Recommendation” (page 11 of Explanatory Note accompanying the Recommendation).

The Commission makes clear that the three-criteria test serves a separate and different purpose from the SMP assessment. The three-criteria test focuses on the general structure and characteristics of the market in order to identify whether the market needs to be analysed in more detail by the NRA. The SMP assessment, meanwhile, focuses on the market power of a specific operator in a given market to determine whether that operator should be subject to *ex ante* regulation (see page 11 of Explanatory Note accompanying the Recommendation).

Therefore, the three-criteria test is a first hurdle. Only when the test is satisfied (whether presumptively as a result of the market’s inclusion on the Commission’s List, or otherwise as a result of the NRA’s analysis) should a NRA move on to the SMP assessment.

Despite taking the view that it does not have to show that the three-criteria test is satisfied, Ofcom states that the criteria are met in the case of retail low bandwidth leased lines, on the basis that these services are not yet technically and commercially replicable and BT’s market share has remained persistently high (paragraph 1.39). BT disagrees that all three criteria are satisfied.

Barriers to Entry

In the case of digital retail low bandwidth leased lines, wholesale products have been fully available from BT since 2001. Therefore, we do not believe that barriers to entry exist, and any potential competition problems at the retail level are addressed by SMP regulation at the wholesale level. We recognise Ofcom’s concerns with replicability and these are addressed in the next section.

No tendency to effective competition

This second criterion is also not satisfied. As set out above, we believe that market dynamics are such that business customers are migrating to alternative business connectivity solutions such as DSL and Ethernet-based services, which other communications providers are competitively offering. Most PPCs are not even being used to compete in the retail TI market, reflecting the fact that competitors are providing different services to provide business connectivity. Viewed in this broader context, and given the migration which has occurred and is forecast to continue, the retail market for leased lines should be viewed as competitive.

Relative efficiency of competition law to address the market failure

Ofcom concludes that reliance on competition law alone will not be sufficient to promote the development of effective competition, but provides no explanation why this is the case. BT believes that the opposite is true. To the extent that Ofcom has concerns that BT will refuse to supply traditional leased lines or charge too much for them, competition law is available to address these problems. Furthermore, BT has proposed to pre-empt these problems by voluntarily committing to ensure their future provision and maintain current prices. In BT's view, these commitments plus the availability of competition law should alleviate Ofcom's concerns. Therefore, the third criterion is not satisfied either.

3.6 The relevance of replicability concerns

In its proposed market power conclusions, Ofcom places significant weight on replicability, stating that "BT's continued dominance in this market is linked to certain deficiencies in the way in which upstream wholesale services are provided to competing CPs, which make it more difficult for them to replicate BT's retail offerings."

In fact, most of the replicability issues relating to leased lines which were identified in Ofcom's April 2006 Statement "*The replicability of BT's regulated retail business services and the regulation of business retail markets*" have been resolved. We also believe that ongoing discussions with Ofcom should clarify that no material issues remain in relation to BT's concerns around internal accounting for PPCs and broader "commercial replicability" issues. An overview of the status of each of these issues as at 27 March 2008 is set out in Annex 2. In view of this, we do not believe that any perceived failure to achieve replicability in relation to PPCs should be used to justify Ofcom's provisional finding that BT has market power in the market for retail digital low bandwidth leased lines.

3.7 BT's proposed way forward

As set out above, we have significant concerns with Ofcom's analysis and proposed market definitions, findings of market power and remedies. Ofcom should reconsider its analysis in light of the issues raised above. Within this context, we still welcome a number of changes to the future regulation of retail leased lines proposed by Ofcom, namely that:

- instead of imposing a formal obligation, Ofcom will accept a voluntary commitment from BT with regard to new supply of analogue circuits and digital circuits at speeds under 2Mbit/s;
- BT will no longer be obliged to supply circuits at 8Mbit/s; and
- Ofcom will accept a commitment from BT on the pricing of analogue circuits.

However, we do not agree that Ofcom should impose any formal SMP remedies on BT in relation to the retail provision of analogue and low bandwidth digital leased lines. We do not believe that such an approach is justified or necessary given the extent of competition from other services; the proposed upstream wholesale remedies in relation to PPCs; and given the current position in relation to replicability.

If, however, Ofcom believes that stakeholders should be allowed a period to respond to BT's view that most replicability concerns have been addressed, then Ofcom should invite such comments at the earliest opportunity and defer any decision on the continuation of SMP remedies in the interim. Ofcom should not seek to re-impose SMP regulations for a further four years at this stage. BT makes this suggestion because we consider that to impose regulation for a further four years would clearly be disproportionate given the extent of the market decline and our efforts to achieve full replicability.

Without prejudice to BT's overall position, if Ofcom was to proceed to impose SMP remedies at the retail level, then it is absolutely critical that once Ofcom accepts that replicability has been achieved, immediate and significant freedoms will apply to BT in relation to retail market activities. Ideally this would be effected by removing the SMP designation on BT. However, short of this, Ofcom should ensure that any consent granted to disapply SMP remedies does not place further conditional constraints on BT's retail market activities by, for example, setting individual price floors at fully allocated costs rather than incremental costs. Such constraints are not justified by reference to competition concerns.

Finally, and again without prejudice to our overall views on Ofcom's proposals set out above, we would draw attention to two specific areas of inconsistency in Ofcom's proposals:

- Draft Condition I1.3 states that BT will have no obligation for new supply of retail analogue leased lines or retail traditional interface digital leased lines with a bandwidth capacity of up to and including two megabits per second. However, paragraph 8.355 also specifies retail traditional interface digital leased lines with a bandwidth capacity of eight megabits per second as a category of leased line which BT will not be obliged to supply. Condition I1.3 should be revised to reflect this.
- The reference in Draft Condition I1.3 to retail leased lines at 2Mbit/s appears to conflict with Condition I1.1, which obliges BT to supply such leased lines to third parties who reasonably request them in writing. This anomaly needs to be resolved before the final Statement from this market review is published.

3.8 Comments on methodology

Before turning to the wholesale market, BT would like to comment on two aspects of the methodology used in the consultation document. First, we comment on the relationship between market definition and SMP remedies. The latter are the effective output of the Market Review process, and we think that less importance can be attached to any one market definition as long as remedies are varied across the services in the market. We appreciate that Ofcom does recognise this in practice, but in Section 4 we suggest further why different remedies are appropriate within what is defined as the “low bandwidth TISBO market”.

Second, we have provided an illustrative example which shows the possible effects of using a single low bandwidth TISBO market when this includes two services where competitive conditions differ. In effect, whenever a market includes services with different competitive conditions, this should not be used to imply that market shares should be used which ignore crucial differences. This is especially important when market power assessments are largely based on market shares.

Relationship between market definition and remedies

If a set of services is aggregated when there are different trends in the factors underpinning service demand and supply, then a market analysis which is conducted on the average of trends needs careful interpretation when considering market power and then the appropriate remedies.

For example, within the market of low bandwidth TI leased lines up to 8Mbit/s, some services are in pronounced decline whereas 2Mbit/s services themselves are expected to show greater market resilience. (New supply of 8Mbit/s circuits is no longer even provided, and services at under 2Mbit/s will be withdrawn at some stage in the future.) The distinctions are important for market definition as the key function of the definition stage is to provide a framework for subsequent economic analysis⁵ (which in this case means assessment of SMP and consideration of the proportionate remedies). One example where this approach to market definition is recognised by Ofcom is in the proposal to consider access and backhaul to form the SBO set of services, which is on the basis that purchases of access and backhaul have “fairly similar” competitive conditions.⁶ The fact is that the TI definition does not include services which have “fairly similar” competitive conditions.

⁵ See for example, the OFT publication Market definition - Understanding competition law, December 2004 at http://www.ofcom.gov.uk/shared_ofcom/business_leaflets/ca98_guidelines/oft403.pdf

⁶ In paragraph 5.21 of the consultation document BCMR Ofcom explains that its view is that: “BT remains the main provider of backhaul as well as access services and therefore that the competitive conditions between access and backhaul remain fairly similar.” This implies that markets can be combined if competitive conditions are thought to be the same. In pointing out this example, BT is not commenting on the specifics of the case i.e. whether the facts of the example are correct.

The extent to which the aggregation of different services into discrete markets matters in practice depends on the remedies which are deemed to be appropriate. This reflects the accepted position, which Ofcom has advanced before, that market definition is “a means to an end and not an end in itself”. The practical application of this is that as long as the market definitions proposed by Ofcom are not used to impose the same regulation across all services in each defined “market”, then the precise market boundaries chosen by Ofcom will be less critical. In effect, if a certain definition of services is adopted at the market definition stage which includes a number of different services, then it becomes important later – at the market power and remedies stages – to consider the specifics of the services within the broader market. The key point for BT is that the issues about the retail market definition (whether these are “right”) ought not to be considered in isolation from the approach to remedies. Flexibility in the latter may be needed when there is aggregation in the former. Were this not to be the case then, given differences within the services in the low bandwidth TISBO market, BT would have more serious reservations about the proposed aggregation of services (which, for example, suggests that 2Mb/s leased lines are a substitute for 64kb/s services, but that broadband is not). Indeed, to be clear, BT considers that the business connectivity market is wider than that of low bandwidth retail leased lines but this does not imply that the same remedies should be applied across such a market.

Measuring analogue and digital shares together

It is recognised that only BT supplies analogue leased lines to UK businesses. It has also been recognised that there is no desire from other CPs to begin providing these products and so no wholesale remedies have been set. As acknowledged, BT has made retail market commitments in relation to such leased lines to allay potential concerns from customers about future supply. In these circumstances, Ofcom must avoid focusing on a share figure for services which includes analogue leased lines as a service subset. Ofcom highlights BT’s share of 80% of the overall “market” it has defined, but clearly our share of almost 100% for analogue circuits would skew this figure.

BT believes that in the market power assessment there is strong justification for further disaggregation, in particular by separating out analogue leased lines from low bandwidth digital leased lines. Ofcom should also consider separately the provision of leased lines at bandwidths below 2Mbit/s.

For example, including analogue lines services in the same market as 2Mbit/s digital leased lines will tend to obscure the position at the wholesale level. BT is the only notional provider and consumer of “wholesale analogue lines”. If this wholesale situation is amalgamated with the position for wholesale digital leased lines at 2Mbit/s – where BT faces competition and also supplies circuits to wholesale customers – the result will be a “hybrid” position showing

neither the position on the analogue side nor, more importantly in this context, on the 2Mbit/s digital side. The following illustrative numbers bring out the issues, where we illustrate the effects of including analogue and 2Mbit/s in one market. Suppose the national market position is as follows:

Illustrative example – Table 1

	Retail market size (ccts)	BT's retail share	BT's wholesale share
Analogue	100	100%	100%
Digital	100	50%	70%
Combined market	200	75%	85%

The combined market would show that BT has an 85% share at the wholesale level but in fact this is the combination of a 100% share in analogue and a 70% share for digital services. Given that the digital share is most relevant for considering whether BT has SMP at the wholesale level, it can be seen that combining the two types of low bandwidth leased line results in an over-estimate in the relevant share (i.e. that for digital services at the wholesale level). Aggregating the markets at the retail level will mask what is relevant at the wholesale level. The over-estimation will become more important when there are geographical variations in the level of competition in the provision of digital services. This is brought out by the two tables below, which separate the position shown in the table above into competitive and non-competitive areas/routes:

Illustrative example – Table 2 Competitive area/routes

	Retail market size (ccts)	BT's retail share (ccts)	BT's wholesale share
Analogue	30	30	100%
Digital	30	10	33%*
Combined market	60	40/60	66%

* based on number of sales to 3rd parties as for example on some trunk routes

Illustrative example – Table 3 Non- Competitive area/routes

	Retail market size (ccts)	BT's retail share(ccts)	BT's wholesale share
Analogue	70	70	100%
Digital	70	40	86%*
Combined market	140	110/140	93%

* 40 circuits to BT and 20 circuits to 3rd parties

In this case, under the combined definition BT would have wholesale shares of 66% and 93% in the two geographical areas. However, this would mask the position in the digital market where shares are 33% in competitive areas and 86% in the non-competitive areas.

Recognising differences between analogue and digital, and between areas of the UK, has therefore changed the relevant share from 85% (in Table 1) to shares of 33% and 86% (in Tables 2 and 3). In effect, averaging over different types of leased line and over different geographies or routes may lead to a finding of SMP which might be rejected under a more precise definition. That is, BT would be price constrained on digital services in competitive areas by infrastructure based competitors.

In BT's view, showing market shares for analogue and digital circuits together will therefore preclude an insightful analysis of geographic markets for low bandwidth retail leased lines. BT's sales figures suggest that our market shares in retail digital leased lines are significantly lower in metropolitan areas, but this is not something we can substantiate without knowledge of other CPs' sales.

4 Wholesale leased lines

4.1 Summary of BT's views

- BT fully supports Ofcom's proposals to remove regulation from traditional interface termination at 155Mbit/s across the UK and at 34/45Mbit/s in the Central and East London Area and from alternative interface termination above 1Gbit/s. The evidence clearly demonstrates that competition is effective in these markets, removing the need for any regulatory constraints on BT's activities.
- BT does not believe it should be deemed to have SMP in trunk services given the number of competing networks in the UK. Ofcom's test for competition on specific routes is also flawed as it requires an active "merchant market" for a route to be competitive when competition can be possible based on self-supply. If, nevertheless, SMP obligations are to be imposed on trunk services and these are to include a price cap then this should recognise that that trunk services are always purchased in combination with termination services. It is therefore the combined return on these services that would be relevant.
- A price cap on AISBO services is inappropriate given the emerging competition and rapid innovation in these services. Openreach also plans to introduce new pricing structures that are likely to make a new price cap unnecessary.
- Ofcom should recognise that infrastructure competition is not limited to the Central and Eastern London Area (CELA) but also exists in many other major urban locations, such as in Birmingham and Manchester.
- Given the steep decline in demand for TISBO services at bandwidths below 2Mbit/s, which is forecast to continue over the period of the review, it would be proportionate for Ofcom to address issues in relation to these services through voluntary commitments from BT rather than formal regulation.
- Regulation which seeks to promote investment at the deepest level in the value chain should recognise that unbundled copper access allows other providers to compete effectively with BT in the provision of SDSL services. There is no case for further regulation on these services.

This section of our response sets out BT's position on Ofcom's proposals relating to wholesale leased lines in the UK outside the Hull area. It contains our answers to Questions 5, 6, 9, 10, 11, 16, 17 and 18. BT has no comments on the proposals relating to wholesale leased lines in the Hull area, and we do not, therefore, give an answers to Questions 13, 14, 20 or 21.

4.2 Product market definition

Q5. Do stakeholders agree with our proposed wholesale product market definitions? In particular, do you agree with Ofcom that: i) a separate market now exists for high bandwidth AISBOs, and ii) the very high bandwidth TISBO market now includes circuits at bandwidths above 140/155 Mbit/s?

Ofcom defines three product markets for wholesale traditional interface leased line terminating segments (TISBO): at bandwidths at and below 8Mb; at 34/45Mbit/s; and at bandwidths above 34/45Mbit/s. A single market for wholesale traditional interface trunk segments is proposed. Two product markets for alternative interface terminating segments (AISBO) are proposed, one at bandwidths at and below 1Gbit/s, the other at bandwidths above 1Gbit/s.

We note that the wording of Question 5 incorrectly describes the latter market as comprising TISBO circuits at bandwidths above 140/155 Mbit/s. In fact, Ofcom proposes that TISBO circuits at, and not above, 155Mbit/s now fall in the very high bandwidth market. See, for example, paragraph 1.40.

Before considering separately Ofcom's proposals for TISBO, AISBO and trunk segments, we would like to offer comments on the definition of separate markets for TISBO and AISBO. As reflected in section 3, whilst BT accepts that strict technology substitution between TISBO and AISBO has not yet been achieved, the market clearly believes that for many applications e.g. internet access, content downloading, non-real time services etc, AISBO services provide sufficient performance and economic value to be a credible replacement. In addition, over the lifetime of the review, developments in Ethernet technology are expected to narrow any remaining performance gap to an almost indistinguishable level. Effectively, TDM and Ethernet technologies used at the transport layer will become interchangeable.

We set out in Section 3 above why we consider that, reflecting these developments, the retail market definitions take insufficient account of substitute services which are having a massive effect on sales of TI leased lines at the retail level. This analysis is also relevant to wholesale sales and would therefore impact Ofcom's definition of wholesale markets. However, as set out in Section 3.8, the critical issue for this market review is that Ofcom's overall approach to the setting of remedies takes account of the differences in the provision of different wholesale services in order to, among other things, avoid prescriptive regulation of services which are coming to the end of their product life cycle and disproportionate application of regulatory constraints on market behaviour. Therefore, without prejudice to our view that Ofcom has defined the retail markets too narrowly, this section focuses on ensuring Ofcom's approach to regulatory remedies is proportionate.

As noted at section 3.3, we believe that Ofcom should take a technologically neutral approach and include both symmetric and asymmetric access in their assessment of business connectivity. However, Ofcom only focuses on symmetric business connectivity solutions in assessing wholesale markets despite its own research data showing asymmetric access to be of importance to the sharing of enterprise data and remote access to networks as well as internet access. This is consistent with BT's own market experience. We know other CPs adopt a similarly mixed approach in the provision of connectivity services to businesses. We therefore believe that Ofcom should include asymmetric connectivity services within its review of the wholesale market.

TISBO

The proposed product market definition for wholesale low bandwidth TISBO includes digital circuits at bandwidths of 64Kbit/s and 2Mbit/s. In fact, the conditions of competition for each of these categories of wholesale leased line vary materially, and BT therefore believes that Ofcom should recognise that different remedies are appropriate for the different services even if these are defined as being in a single market.

The 64Kbit/s products are technically different to the 2Mbit/s products. Typically they are connected to the end user via an X21 interface and delivered over copper access to line powered Customer Premises Equipment (CPE). The 64Kbit/s channels are routed over a separate platform of 500 switch points known as the Digital Private Circuit Network and do not use the SDH network which can only recognize 2Mbit/s connections. The relative prices, including changes to CPE, of the two categories of circuit means that a significant price increase would be needed to cause users to switch from 64Kbit/s to 2Mbit/s circuits.

Further, 64Kbit/s services are at a different stage of their product life cycle and they are rapidly declining into niche applications. Volumes of 64Kbit/s services are forecast to decrease by about 90% between 2007 and 2012, whilst 2Mbit/s circuits will show a much smaller reduction in volumes over the same period. As a consequence there are no plans to provide a 64kb/s switching fabric on 21CN, and the Digital Private Circuit Network will be closed in 2014 or sooner with industry agreement.

AISBO

In the consultation document, Ofcom define access and backhaul as a single market in which it proposes to designate BT with SMP and impose price control remedies. However, Ofcom has accepted Undertakings from BT in which 'BT's Backhaul Network' and 'BT's Access Network' are defined separately and different obligations are imposed on backhaul products by virtue of the 'Backhaul Principles'. This would suggest that access and backhaul products have different characteristics and that, even if they are defined as being in the same market, it may be appropriate to reflect the differences between them in any remedies imposed.

Ofcom has defined two bandwidth-delineated markets for low and high bandwidth AISBO services, with the breakpoint between the markets set above 1Gbit/s. Given the relative size and particularly nascent nature of the market for services at bandwidths above 1Gbit/s, BT agrees that this is a reasonably pragmatic conclusion.

Wholesale trunk segments and the Commission's Recommendation on Relevant Product and Service Markets

Ofcom defines a market for wholesale leased line trunk segments. As the consultation document points out, trunk segments are no longer identified by the European Commission as a market susceptible to ex ante regulation, and this market is therefore no longer listed in the Commission's Recommendation on Relevant Product and Service Markets ("the Recommendation"). The explanatory note accompanying the Recommendation, of which national regulatory authorities must take the utmost account, sets out three cumulative criteria which should be satisfied before a market which is not listed in the Recommendation can be defined and reviewed.

The first of these criteria is that the market is subject to high and non-transitory entry barriers. The explanatory note makes the following comment with regard to this criterion:

"...in all Member States parallel network infrastructures are being constructed, in particular on major routes. This suggests that entry barriers are low...In the majority of Member States, the NRA has found the market...to be effectively competitive as a number of parallel networks have been established...Therefore the market for wholesale trunk segments of leased lines is withdrawn from the recommended list on the basis that there are no longer high and non-transitory entry barriers and that there is a clear trend towards effective competition based on parallel infrastructures"

Since there is extensive parallel infrastructure in the UK, which we show in Annex 4, we do not believe that the first criterion set by the Commission has been met with regard to trunk segments. Equally, we do not consider that Ofcom has given adequate justification for its contention that all three criteria are met.

Bandwidth breaks for trunk segments

We do not believe Ofcom should define the trunk market as applying to all bandwidths of TI leased lines given the bandwidth breaks it proposes in its definition of TISBO markets. This ultimately leads to counter-intuitive outcomes where a CP could purchase, for instance, a 155Mb/s PPC requiring a trunk element from BT with the terminating segment being free from regulation, but the trunk segment having to be priced at regulated terms. The logic of this is unclear as if alternative providers can supply the terminating segments on a national basis in competition to BT, then they should also be able to provision the trunk segment.

New definition of trunk services

In the consultation document, Ofcom proposes a significant change to the definition of trunk services from one based on BT's Tier 1 SDH nodes to one based on major points of traffic aggregation in the UK. BT's initial views on this proposal are set out in Annex 3 'Changes to the definition of trunk services'. BT will be seeking further clarification about the exact implications of the proposed reclassification. We have nevertheless commented on the aggregation nodes listed by Ofcom and suggest that a number of nodes ought to be included in the list. Our justification is provided in Annex 3.

In addition, we also believe that the links between aggregation nodes in main urban/business areas, eg London, should not always be deemed to be "origination". In such areas, the aggregation opportunities are themselves very large and infrastructure competition has been established. In these circumstances, BT should not have any obligations to provide connectivity.

4.3 Geographic market analysis

Q6. Do stakeholders agree with our proposed wholesale geographic market definitions? In particular, do you agree that a separate market now exists for high bandwidth TISBOs in the Central and East London Area (CELA)?

Apart from the markets in the Hull area, the only distinct sub-national geographic market which Ofcom proposes to define is that for 34/45Mbit/s wholesale traditional interface symmetric broadband origination in the Central and East London Area (CELA). BT believes Ofcom has taken an over-cautious approach to geographic markets, and we consider that there is evidence to support the conclusion that further geographic markets exist for business connectivity. We therefore suggest that Ofcom reviews its analysis of the UK's top business locations.

TISBO

BT agrees with Ofcom that a separate geographic market for circuits at 34/45Mbit/s should be defined in the Central and East London Area. We also believe that separate geographic markets exist, and should therefore be defined, for other major business centres apart from London. The evidence which leads us to this view is set out in Annex 5 'Evidence of access competition outside the Central and East London Area', where we demonstrate the extent of competition at the access level in the UK generally and also provide more detail of alternative networks in Birmingham and Manchester. Our initial analysis suggests that there are in addition 10 other locations where there are multiple networks operators and which are therefore likely to include some competitive areas.

AISBO

In BT's view, Ofcom has not taken a sufficiently forward-looking approach in determining the geographic dimensions of the low bandwidth AISBO market in which it proposes to find that BT has SMP. The Commission's market analysis guidelines explain that:

“Market definition is not a mechanical or abstract process but requires an analysis of past market behaviour and an overall understanding of the mechanics of a given sector. In particular, a dynamic rather than a static approach is required when carrying out a prospective, or forward-looking, market analysis.⁷”

Given the need to take a dynamic, forward-looking approach, BT believes that Ofcom should have placed greater emphasis on understanding the underlying potential for competition in the provision of low bandwidth AISBO on a geographic basis. As set out in Section 3.4, BT's past pricing approach should not be used to determine a national market.

We recognise that Ofcom does partially consider the underlying potential for competition through its network reach analysis. This analysis clearly identifies that the underlying potential for competition differs enormously by geography, with competitive access suppliers presently being focused primarily on metropolitan areas, especially the London area. BT's own analysis of the presence of competing suppliers, set out in contained in Annex 5 to this response, strongly supports this conclusion.

As Ofcom recognises, those operators that have the infrastructure in place to self-provide TISBO services will also be able to self-provide AISBO services. It is clear that there are economies of scope in providing both services, as most competing access providers have configured their networks such that they are able to share both the duct and the fibre between the different services they supply.

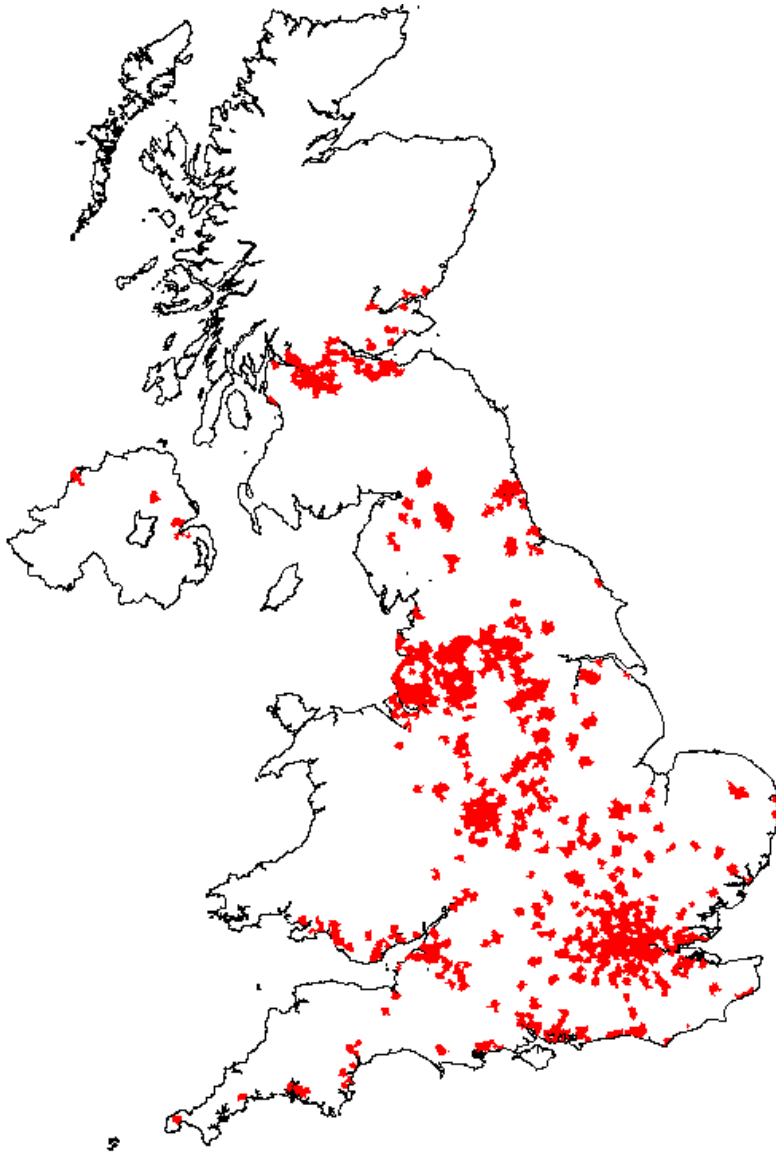
Ofcom's wholesale service share analysis (as represented in Figures 49 and 50) demonstrates that the variations in the competitive conditions are already being manifested in service shares that differ by geography, particularly in the London area. BT believes that these figures underestimate the present geographical differences in the level of competition as they are based on data which we understand is some 15 months old. We also understand that Ofcom's analysis suffers from some gaps in the data provided by other providers. It is inevitable that there will be some limitations in the data available to Ofcom, but the fact is that the limitations work one way only, increasing the estimated BT share over that which is actually the case.

⁷ Commission guidelines on market analysis and the assessment of significant market power under the Community framework for electronic communications networks and services (2002/C 165/03), paragraph 35.

The AISBO market is still a developing market and it is expected that there will be significant growth in the market in the relatively near term, not least as customers migrate from TISBO to AISBO services. Operators that already have in place the local network infrastructure, which is presently being used to provide both TISBO and AISBO services, will obviously use this infrastructure to compete effectively in the AISBO market. It seems highly probable that operators that already have local network assets in place will in the future use them to self-provide AISBO services.

On the basis of Ofcom's own analysis of the existing network infrastructure and how this infrastructure is likely to be used by competing access providers as the AISBO market develops further, it seems clear that the conditions of competition already differ geographically and this can only become more pronounced over time.

The growth in LLU has also led to greater geographic variation in the conditions of competition as it has incentivised investment by providers in their own backhaul services. There are now over 1,000 exchanges served by at least one alternative backhaul supplier, representing 58% of BT's exchanges which have been unbundled for LLU and covering over 60% of businesses in the UK. As may be expected, these exchanges are concentrated in metropolitan areas, as the map below demonstrates:



Location of exchanges with one or more alternative backhaul infrastructure suppliers

Once a CP has chosen to invest in duct and fibre into a BT exchange, it can choose the type of services that can be supplied over this infrastructure. Voice, broadband and point-to-point leased lines (TISBO or AISBO) can all be supplied over this “converged” backhaul infrastructure thus improving the economics of deployment for the CP concerned.

As discussed in section 3.4 of our response, Ofcom has placed great emphasis on fact that BT has priced its services on a national basis. This rebuts Ofcom’s conclusion that national pricing can be used to imply the existence of a national market. In addition, there are three very strong practical reasons that have led BT to price wholesale AISBO products on a national basis:

- First, setting up Openreach has required enormous efforts on the part of BT. The operational challenges have been significant and every effort has been made to implement the Undertakings, to the equal benefit of all of Openreach's customers. At the same time there have been significant challenges to improve Openreach's service quality and develop its product range in response to requests from its customers. Against this backdrop it is entirely understandable that Openreach has continued with a simple pricing structure and not moved to the sub-national pricing that competitive pressures have actually demanded.
- Second, during this period, Openreach has also faced the significant challenge of developing effective working relationships with its customers. It is vital for Openreach that it has the trust of its customers and although geographically de-averaged prices have been internally debated, there was a concern that a move to sub-national pricing could have been viewed with suspicion by some customers.
- Finally, following the establishment of Openreach, a key internal challenge has been to understand Openreach's disaggregated cost base. Obviously, it would have been premature to move to geographic pricing to meet competitive challenges, in the absence of a sound understanding of costs on a geographic basis.

However, these factors will not continue to be of such relevance to Openreach going forward and Openreach expects to introduce in the reasonably near term different pricing structures, potentially including geographic, zonal pricing models.

To summarise, BT believes that:

- Ofcom has not placed sufficient emphasis on the geographical differences that already exist on the supply side and which can only become more pronounced in the future; and
- Ofcom has placed too great an emphasis on the importance of national pricing whilst not recognising why Openreach has maintained a national pricing policy to date.

We therefore strongly contest Ofcom's conclusion that there is a national market for low bandwidth AISBO services and believe that geographic markets should be defined in London and other major metropolitan areas.

Wholesale trunk segments

Ofcom concludes⁸ that there is a market for wholesale trunk segments distinct from symmetrical broadband origination based on differences in the economics of competition for the trunk services. It also suggests that these differences vary on a geographical basis.

⁸ Paragraph 5.131

Ofcom bases its geographic analysis of the trunk segments markets on the identification of routes with homogeneous competitive conditions. The rationale is that if a number of routes could be grouped together on the basis of similarities in competitive conditions, they could be defined as being in a separate geographic market from the other routes.

The first step Ofcom takes in this analysis is to apply three thresholds, each of which must be passed for a route to be further considered for inclusion in a separate 'competitive' geographic market. These are:

- that there are two or more other CPs located within 10km of at least one BT Tier 1 at both ends of the route;
- that three or more CPs including BT are selling circuits to other CPs on the route; and
- that there are ten or more circuits on the route.

In BT's view, the second and third thresholds are not legitimate for determining the competitiveness of markets. The second ignores the importance of self-supply and the third, based on materiality, is not an appropriate indicator of the existence of competition problems.

Nevertheless, the application of the three thresholds does lead to the identification as potentially competitive routes representing nearly 60% of total circuit counts. However, Ofcom then moves to a second step in the analysis which involves considering BT's wholesale shares on these routes on two different bases, i.e. both including and excluding self-supply. Because BT's shares are deemed to exceed 40% on most of the routes, Ofcom determines that it would not be material to define a separate market for 'competitive' trunk routes.

This approach does not take account of the European Commission's view, expressed in the explanatory note to the Recommendation, that it is the existence of parallel infrastructure which has made the market for trunk segments effectively competitive. It produces results which are counter-intuitive: for example, only four of the routes from the London aggregation nodes to other aggregation nodes are highlighted as competitive using both of the market share bases described, and only two of these (London-Newcastle and London-Cardiff) are among the top 25 routes out of London in terms of CPs with a presence at both ends, i.e. those with five or more other CPs.

BT believes that rather than applying the three thresholds and market share tests in defining geographic markets for wholesale trunk segments, Ofcom should base its analysis on the number of other CPs present at both ends of a route. This approach would be consistent with the Commission's rationale for removing trunk segments from the Recommendation. The number of routes that would then be included in a separate geographic sub-market based on different thresholds would be as follows:

Number of other providers	Number of routes	Percentage of total routes
3 or more	681	87%
4 or more	567	72%
5 or more	384	49%

4.4 Market power assessment

Q15. For those markets where we have found no SMP and propose to deregulate, do you agree with Ofcom that the available evidence supports the finding of no SMP?

BT fully supports Ofcom's proposals to remove regulation from traditional interface termination at 155Mbit/s across the UK and at 34/45Mbit/s in the Central and East London Area and from alternative interface termination above 1Gbit/s. The evidence clearly demonstrates that competition is effective in these markets, removing the need for any regulatory constraints on BT's activities:

- Very high bandwidth TISBO circuits at 155Mbit/s. Ofcom proposes that these circuits should be moved from the high bandwidth to the unregulated very high bandwidth TISBO market, a proposal which we believe is justified by the evidence on the related retail market cited in section 3 of the consultation document. With regard to the very high bandwidth TISBO market, Ofcom shows in section 7 that a large number of operators are present in this market and that the market is attractive to potential entrants who are willing to incur the required fixed costs in pursuit of the revenues that can be earned from the downstream retail market. BT's share is well below the 40% level at which single dominance concerns usually arise and is close to the 25% at which such concerns are normally dismissed.
- High bandwidth TISBO circuits at 34-45Mbit/s in the Central and East London Area. This market is similarly characterised by low barriers to entry and expansion. Ofcom also rightly points out that the network analysis in section 6 of the consultation document substantiates the fact that there is substantial infrastructure competition in this area. BT's share in this market is less than half that of the biggest player and falls well below the 25% threshold.
- High bandwidth AISBO above 1Gbit/s. The evidence shows that the factors indicating vigorous competition in the markets discussed above are also present in the high bandwidth AISBO market. In addition, Ofcom points out that BT's shares have fallen significantly since the last market review and that two of the major players in this market do not have significant shares in any other wholesale leased lines market, demonstrating the lack of economies of scope available in the market and reinforcing the low barriers to entry.

In light of these facts, we believe it is incontrovertible that BT does not have a "position of economic strength affording it to behave to an appreciable extent independently of

competitors, customers and ultimately consumers⁹ in these markets and we therefore agree with Ofcom's conclusion that BT does not have SMP in them.

Q9. Do stakeholders agree with our assessment of SMP in wholesale TISBO markets (excluding Hull)?

Q10. Do stakeholders agree with our assessment of SMP in wholesale AISBO markets excluding Hull?

Q11. Do stakeholders agree with our assessment of SMP in the wholesale trunk segments market?

Ofcom has based its assessment of SMP at the wholesale level on the following factors: market shares; control of infrastructure not easily duplicated; economies of scale and scope; lack of countervailing buyer power; barriers to entry and expansion; and absence of potential competition.

If Ofcom defined geographic markets for wholesale leased lines as discussed above, we believe that an assessment based on these factors would show that BT did not have SMP in many such markets. For example, if BT's share in 34/45Mbit/s wholesale leased lines in the UK outside CELA and Hull is 45%, it is likely to be considerably below the 40% at which single dominance concerns arise in major business centres outside London. We show why we think this inference can be drawn by the evidence presented in Annex 5 which shows the number of CPs with networks in major business centres and also local network maps for two illustrative business centres.

Whilst BT welcomes Ofcom's conclusion that we do not hold a position of SMP in high bandwidth AISBO market above 1Gbit/s, we do not believe that Ofcom's finding of SMP in the low bandwidth AISBO market is correct in certain metropolitan areas.

Ofcom, in its analysis of the supply-side of the AISBO low bandwidth market, suggests that the same factors apply as in the low bandwidth TISBO market. However, as Ofcom recognises in its discussion of the low bandwidth TISBO market, BT is able to provide wholesale circuits using its copper access network. However, there are significant differences in the supply conditions of fibre and copper access. Whilst BT's copper access network is largely ubiquitous, we have only built fibre access connections in response to specific customer demand and typically in a competitive situation with other local access operators. In view of this, we do not believe it is valid to argue that the same factors apply between the low bandwidth TISBO and the AISBO markets.

⁹ Framework Directive, Article 14(2)

The table below shows the significant mergers and acquisitions which have taken place since the last market review, and which have led to the emergence of strong vertically integrated players. The financial problems being experienced by the telecoms sector at the time of that review have largely been addressed, and new investment in areas such as LLU and associated backhaul and core networks is evidence of this trend.

Original Entities	Merged Entity
Ntl, Telewest, Virgin mobile	Virgin Media
Cable & Wireless, Energis	Cable & Wireless
Thus, Your Communications	Thus
Global Crossing, Fibrenet	Global Crossing
Verizon, MCI	Verizon
KCom, Affinity	KCom
Sky, Easynet	Sky
O2, Be	O2
Pipex, Homecall, Bulldog, Toucan	Pipex
Carphone Warehouse, AOL, Onetel, Opal	Carphone Warehouse
Tiscali/Video Networks	Tiscali

The refinancing of many CPs in the early years of the new millennium means that they are operating from a lower cost base than those who remained solvent, bestowing them with significant competitive advantage.

In a significant proportion of cases, BT faces the same cost as its fibre competitors due to the requirement for additional building work to deliver point to point dedicated services. Also, the majority of fibre services Openreach currently supplies are, due to the nature of customer demand, less than 5km long. This demonstrates that having a large network is not necessarily an advantage, particularly given the concentrated nature of both demand and supply which permits local competitors to prosper.

It is interesting that Ofcom recognises that there are economies of scope in providing fibre-based access services. Indeed, the fact that it is only likely to be economically viable for operators to provide both TISBO and AISBO services, could be taken as an argument for there to be a single market on the supply side. In recognizing that there is an essential relationship between the provision of TISBO and AISBO services, Ofcom has nevertheless underestimated the future migration from TISBO services to AISBO services and underestimated the future competitiveness of the AISBO market. As both end-users and CPs make the decision to move, in many cases they will have the opportunity to change supplier or indeed to extend their own infrastructure if they so choose. Given these obvious economies

of scope it again questions Ofcom's analysis of SMP, specifically in the CELA and other metropolitan areas.

Furthermore, BT does not consider that Ofcom's assessment of SMP has taken sufficient account of the extent to which other technologies are now able to be employed to provide Ethernet services. It is likely that these technologies will, over time, extend the geographical areas that are under competitive supply. For example, CPs are bonding BT's metallic paths which not only avoids the high sunk costs associated with fibre-delivered services, but also leads to Ethernet services being more widely available than the limited footprints of large metropolitan areas. As at 31 January 2008, CPs had unbundled 1,841 exchanges and a total of 1,934 were in plan and build, with 610 exchanges containing six more operators. Given that bonded copper solutions are able to deliver effective substitutes to 10Mbit/s Ethernet fibre access services, this provides a very different picture of competition to that painted by Ofcom's analysis. In this case, technological developments have very clearly substantially lowered barriers to entry in this part of the market.

BT believes that Ofcom has not recognised the presence of other technologies capable of substituting AISBO services such as cable modem, microwave radio, WiMax and free space optics, which provide considerable scope for market entry. Ofcom's recent auction of radio spectrum in the 10, 28, 32 and 40GHz bands provides further scope for competition to both TISBO and AISBO point-to-point services.

4.5 Remedies

Q16. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale TISBO markets excluding Hull?

Q17. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale low bandwidth AISBO market excluding Hull?

Q18. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale trunk market?

Business connectivity markets are going through a period of significant change and uncertainty. The cost profiles of many services will be radically altered, especially old services whose unit costs will increase as volumes decline at rates which it may not be possible to forecast with accuracy. In addition, a particular risk of the remedies proposed in the BCMR is that they could shore up business models based on technology which will soon be obsolete and inhibit migration to new and more efficient technologies and services.

In view of this, we believe that formal regulation on the traditional model should be avoided in business connectivity markets. Such regulation is inherently inflexible and can be difficult to remove or adjust as market conditions change. Instead, BT would encourage Ofcom to explore simple but flexible alternatives to formal regulation, where appropriate taking the form of voluntary commitments, in markets where Ofcom confirms its proposals that BT has SMP and that remedies are needed. Prescriptive regulation is burdensome for all stakeholders including Ofcom itself; may inhibit the development of more effective solutions for customers; and can inhibit markets from delivering optimum solutions for businesses in the UK.

Our comments on specific proposed remedies are set out below.

Charge control for wholesale trunk segments

As we have argued above, BT believes that the presence of competing infrastructure should remove the justification for SMP and associated remedies – particularly charge controls – from being imposed on BT. We understand a key concern for Ofcom in the TISBO market is BT's apparently high return on capital. However, any focus on our return from trunk services in isolation will be misleading. In reality, other providers purchase either end-to-end circuits consisting of trunk and termination, or termination alone – they do not purchase trunk in isolation. BT's returns from termination are low and so consequentially our return from complete circuits sold to other CPs is around 15% to 16%, which is not an unreasonably high return on capital.

Instead of imposing a new charge control on trunk, we suggest that Ofcom should be aiming to address the imbalance in returns in trunk and termination, whilst permitting BT to recover its costs across the services together. In our view, this could best be achieved by accepting a commitment from BT to reduce trunk prices while adjusting termination prices appropriately. We consider this is more proportionate given the declining market for T1 retail leased lines as shown in Section 3.

If, however, Ofcom still decides to proceed with regulation and formal charge control of our trunk segments, we would urge Ofcom to define a single basket covering both trunk and termination to facilitate the price rebalancing which we consider to be overdue.

Charge control for wholesale Ethernet services

We have already argued that the market for wholesale Ethernet services is growing, with differing degrees of competition emerging in different geographies and at different bandwidths. It is clear that there is effective competition in many key areas, such as city centres, where business densities are greatest.

Now that Openreach has delivered most of its Undertakings commitments, it is focusing on innovation and development of its portfolio. However, rather than develop new products

requested by CPs, under a price control regime Openreach would be better rewarded by focusing its efforts on more cost effective ways to deliver existing products, even if they do not fully meet the needs of a changing market. In short, Openreach would move from being focused on innovating to meet the needs of its customers to being focused on delivering efficiency gains to meet its regulatory requirements.

A key justification for the proposed control is that it would address other CPs' concerns over pricing. Openreach plans to introduce new pricing structures in the near future which are likely to make a new price cap redundant and disproportionate. In addition, these new structures may include geographic pricing, and a price control could have unintended consequences for this development. Further, BT recognises that there may be a basis for different charging where there are public safety and policy considerations, such as in relation to products used in relation to the CCTV market.

Finally, a price control could act as a significant disincentive to investment to other players, with the lower potential returns discouraging them from investing in backhaul, constraining the growth of further backhaul competition and stopping the expansion of competing networks beyond certain geographic areas. BT therefore believes that introducing a price control regime for Ethernet leased lines terminating segments would be premature, disproportionate and potentially damaging to further innovation.

If Ofcom nevertheless concludes that a price control is necessary, BT considers it essential that it should be light-touch and flexible, with the capability of being adapted to reflect uncertainty and change in this developing area of business connectivity. A key test for any price cap should be that it does not adversely impact incentives to introduce the new and innovative services that the market demands.

We would also like to comment on the analysis set out in Annex 12 of the consultation document in relation to wholesale Ethernet pricing and costs. The analysis has obviously been undertaken at a very high level, with a number of strong assumptions being made over the allocation of costs between products and sub-products, and with much of the data used to form these assumptions having been taken from inconsistent sources. Furthermore, the analysis considers only selected WES and WEES products and it is not possible to extrapolate the conclusions drawn on this small dataset to any other products.

In addition to a number of concerns as to the assumptions and methodology used, it should be noted that applying a simple sensitivity analysis to Ofcom's results does appear to have quite material impacts on the estimates of profit.

For example, Ofcom's estimates for profit are extremely sensitive to both the number (volume) of rentals and the approximate total cost of WES access fibre; small percentage

increases in one or both of these inputs result in a disproportionate decrease in the estimated profit. Similarly, small percentage changes in the volumes and costs of WES backhaul circuits lead to a disproportionate reduction in the estimated profit.

Furthermore, the information used by Ofcom is for 2006/7 and is hence already out of date, particularly in the context of such a dynamic market, where new products have been and continue to be introduced. An example of such a product is WES Local Access, which has reduced BT's margins when looking at the Ethernet portfolio in its entirety.

Therefore, we do not believe the analysis in Annex 12 is sufficiently robust to form the basis of any policy proposals.

Charge control for TISBO

At the retail level, Ofcom proposes to accept voluntary commitments from BT in relation to the supply and pricing of analogue leased lines. TISBO circuits at 64Kbit/s are in a similar position as retail analogue leased lines – both are legacy products with declining volumes which will become obsolete over the period before the next Business Connectivity Market Review. In view of this, BT proposes that 64kbit/s TISBO circuits should be covered by voluntary commitments similar to those we have offered, and Ofcom is minded to accept, in relation to retail analogue circuits.

SMP remedies, including charge control, for exchange space

Ofcom proposes that accommodation services should be designated as a 'technical area' associated with the wholesale leased line products in which BT is found to have SMP. This means that BT will be obliged to provide these services on reasonable request, without undue discrimination and on cost-oriented terms, and that they must be included in the reference offer for the relevant product. Ofcom also proposes that accommodation services should be subject to charge controls.

The key accommodation services provided by BT in relation to regulated products are the Openreach co-mingling product and the Netlocare product provided by BT Wholesale. With regard to the co-mingling product, Openreach has already agreed to review and consult on the feasibility and commercial implications of allowing equipment connected to the BT network (in relation to Openreach access services) to be housed within space allocated for LLU purposes. In defining such access, Openreach will have regard to the desirability of offering LLU operators improved flexibility over LLU related infrastructure (such as, for example, Ethernet) and, in time, successor or supplementary Openreach access services, while avoiding escalating demands for LLU space to deal with equipment for which other solutions are already provided under Annex 4 of the Undertakings.

Openreach has consulted with CPs on a separate Ethernet accommodation product and Ofcom in paragraph 6.30 of its latest TSR report acknowledged that a positive outcome to BT's consultation on space and power allocation should go a significant way towards addressing the issues identified in its review of the implementation of the Undertakings.

Subject to CPs' agreement, Openreach is planning to launch a separate Ethernet accommodation product to enable CPs to terminate Ethernet or LLU and Ethernet equipment. Openreach is also considering having different terms and conditions as well as different charges from the current co-mingling products even though the pricing structure (licence fee, security and service charges) would remain the same. Openreach would also commit to reviewing the use of the Ethernet accommodation product as the Ethernet product portfolio evolves.

BT understands that Ofcom's main motivation in proposing additional regulation on accommodation services is the pricing difference between the Openreach accommodation products and Netlocate. BT believes these comparison are not valid: prices for accommodation associated with Openreach services has been deliberately set at the level aimed at encouraging take-up of Openreach products and should not be taken as a "benchmark" for the pricing of BT's other accommodation services. The most relevant comparison for Netlocate pricing is with the prices charged by other providers of similar accommodation. BT understands the charges for a rack in such accommodation is in the range of £5,000 to £15,000 per year, depending upon location and facilities offered. The current Netlocate rental of £3,100 compares well with these market prices.

Nevertheless, in order to encourage take up, BT has announced a cut in the rental price to £2,500. We do not believe that with such current prices there is a justification for a price cap on Netlocate or any other of BT's accommodation services.

SMP remedies for "Interconnection Services"

The definitions and interpretations associated with draft SMP conditions HH1-HH6 to be imposed on BT in the low bandwidth AISBO market state that the relevant obligations will apply to "Interconnection Services". BT is concerned that the terminology used in defining "Interconnection Services" is more consistent with SDH products that fall within the TISBO market. We note that the definition has been taken directly from the SMP conditions relevant to the TISBO market and do not consider that this is appropriate. Ofcom seems to recognise, in the main text of the consultation document¹⁰ that at least two of the proposed Interconnection Services (ISH and CSH) are actually provided in support of TISBO rather than AISBO products.

¹⁰ Paragraph 8.78

Openreach does not currently provide ISH, CSH or IBH in relation to Ethernet products which fall within the AISBO market. If Openreach were required to provide such products, by virtue of an SMP condition, this would have significant implications for the existing product portfolio and related contracts.

Charge control for excess construction charges

Ofcom's rationale for proposing a price control on excess construction charges is given in paragraph 8.171 of the consultation document, which states that "a number of CPs have also argued that BT's charges for ancillary services such as Excess Construction Charges are excessive, and are applied in a discriminatory manner". We also understand that other CPs believe that the processes surrounding excess construction charges are not sufficiently transparent and that the charges are applied too frequently.

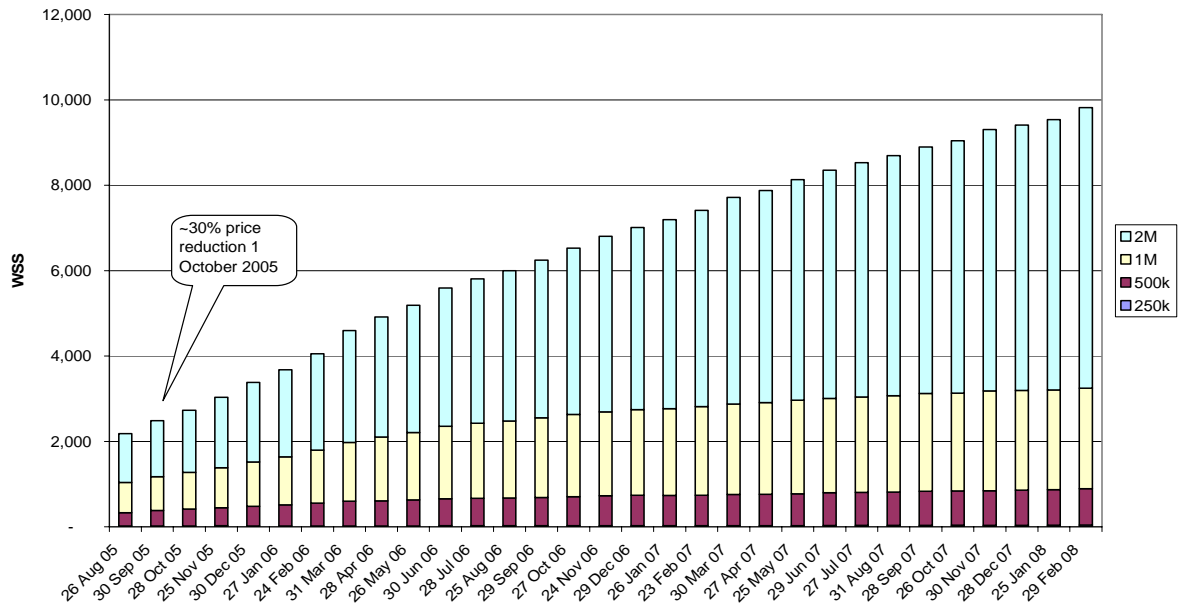
BT does not agree with these views. We believe our excess construction charges are legitimate and not excessive. If the charges are applied frequently, this is mainly because the fibre access network is still in the early stages of deployment and construction work is therefore required more often than would be the case with the copper network. At the same time, BT wants to address the concerns of providers, including those of our own downstream operations. We are already taking measures to clarify and resolve some of the issues. At the forthcoming Ethernet Customer Forum, for example, we intend to present proposals for a stand-alone survey product. This presentation will help to clarify processes and explain clearly the circumstances in which excess construction charges are incurred.

We are also collating information on excess construction charges that will help us better understand providers' concerns and identify areas of materiality and possible improvements. Once this review has been concluded, we will be happy to discuss commercial options for revised excess construction charges with the industry. We believe that industry dialogue is far more likely to result in a satisfactory outcome than prescriptive formal regulation which is likely to be inflexible and costly to administer.

Charge control for SDSL

BT has made considerable efforts to make SDSL attractive to other providers and has invested material sums in making the product available at over 800 exchanges. Although service levels were affected during the launch of Openreach, recent action has restored performance to desired levels. However, despite a considerable price advantage over 2Mbit/s leased lines, take-up remains disappointingly low as the following graph shows.

IPstream SDSL Working System Size by Line Speed



Recent history also suggests that the market is insensitive to price, as there was little response to the price reduction made in 2006. Further, any market power BT may have is severely constrained by the presence of LLU operators in most areas, and there have recently been announcements by some operators of large expansions of their SDSL footprints. For example, Easynet state on their website¹¹

“The Easynet Connect investment in local exchanges around the UK enables us to control your service end to end and deliver a unique range of business grade SDSL broadband products. We now have more SDSL coverage than BT. “

Given the potential for competition, the likelihood that demand will be increasingly met by Ethernet or new ADSL services, and the apparent insensitivity of this market to price reductions, we feel that imposing a price control on a small declining product would be disproportionate to any benefits. BT would therefore propose, particularly in light of the product inelasticity, that a voluntary price commitment would be a better balanced response to Ofcom’s concerns than a formal price control.

Charge control for Radio Base Station Backhaul (RBS)

BT’s RBS services are expected to decline significantly as mobile operators migrate to NGNs and higher bandwidth Ethernet services. In fact, BT is currently engaged in technical trials of new Ethernet services with mobile network operators. We believe that imposing a price control on RBS would involve disproportionate expense. In fact, BT’s practice over recent

¹¹ <http://www.easynetconnect.net/sdsl/>

years has been to keep RBS prices in line with PPC prices. We are willing to make a commitment to maintain this arrangement.

Other comments on AISBO SMP remedies

BT welcomes the removal of the specific remedies of advanced notification of price changes, terms and conditions, and technical changes and requests for new network access, in the market for AISBO services at low bandwidth. We are also pleased that Ofcom has agreed in principle to remove the distance limitations on BES and WES services and that this issue will be discussed in a future consultation on BT's Undertakings.

5 Dark fibre

5.1 Summary of BT's views

- BT does not believe that dark fibre constitutes a relevant economic market.
- Were such a market defined, we believe that it would be found to be highly competitive and that neither BT nor any other player would be found to have SMP.
- Mandated dark fibre would fundamentally alter the balance between providers' buy or build decisions and chill investment in competing infrastructure.
- It would also undermine the investment in wholesale lit fibre solutions that the market demands and damage the thriving, highly competitive downstream markets.
- For these reasons we believe that Ofcom should use this opportunity to close down the debate on dark fibre for good.

Q22. Should Ofcom investigate the case for introducing a dark fibre remedy by undertaking a market review of the relevant market? If such a review were to be undertaken, it is likely that BT or another CP would be found to have SMP in that market? And if SMP were to be found, what would be the pros and cons of requiring the dominant provider to make dark fibre access in the network available to third parties?

5.2 Overview

The issue of mandated access to dark fibre as a remedy is often raised at times when a significant review of the regulatory framework for fixed electronic communications, such as the Business Connectivity Market Review, is carried out. The introduction of any obligations to supply dark fibre in the access network would represent a significant change in public policy and have far-reaching and damaging consequences for the industry. As long as this issue is unresolved, the industry will face uncertainty which is damaging to investment. BT therefore believes that Ofcom should come to a definitive conclusion on this question. However, rather than launch a formal consultation, which in view of the complexity of the topic would be a time-consuming and resource-hungry exercise, we would urge Ofcom to determine in its final statement in this review that there is no case for mandating access to dark fibre as a remedy and to close this issue down for good. The rationale supporting our view is set out below.

5.3 The characteristics of fibre access provision

Central to any discussion of this particular issue are the economic characteristics of the provision of fibre-based products to business customers. In identifying these characteristics,

it is instructive to draw out the important and tangible distinctions between the fibre access network and the copper access network. There is a tendency to view dark fibre as a direct parallel to unbundled access to the copper loop. As the following discussion demonstrates, however, there are in fact very significant differences between the fibre and copper access networks.

Coverage

BT has a ubiquitous copper network, to a significant extent deployed prior to the establishment of competition in the UK telecommunications market. By contrast no provider, including BT, has a ubiquitous fibre network. The key issue with all fibre in the access network is that it has been built in response to customer demand. Certainly, all of BT's fibre access network has been created in a competitive market where end-user requirements tend to be competitively tendered to the market, and the investment required to provide service is a key component to the decision made to win the business. Typically a building will only be connected when a customer demands a product that can be most efficiently supplied over a fibre access connection. Many of these fibre connections were deployed in a competitive environment, and certainly today BT continues to face aggressive competition in connecting business customer premises, at least in many major cities. This would imply that, should Ofcom wish to impose a dark fibre remedy, the same obligations would be imposed on a number of market players and not just BT. This would reflect the numerous, geographically orientated, fibre investments made by other infrastructure owners across the UK.

Potential for competitive provision

As Ofcom recognizes, there is a crucial distinction between the copper and fibre access networks. BT does not have a competitive advantage in deploying fibre that it might have previously benefited from in respect of copper. Although, as Ofcom rightly recognizes in its analysis of the supply of fibre based products, there are potential economies of scale, scope and density, BT was only able to develop cost economies on the same basis as other competing access operators.

It is clear from Ofcom's own network reach analysis that competitive supply of fibre access is a reality in the UK market. Indeed as outlined elsewhere in our response, BT believes that Ofcom's analysis understates the level of competition in the provision of fibre.

Maturity versus growth

It clearly follows from the above discussion that, unlike with the copper access network, there is likely to be substantial future growth in the demand for and provision of fibre access circuits. When we look at the copper network it is easy to understand what it is that we are referring to: it is well established and will only change in a very minor way at the margins.

The fibre access network, by comparison, is dynamic and a work in progress. It is not stable and will develop very considerably in the future. New technologies will drive the adoption of fibre-based services by more and more business customers, whilst in the medium to long-term fibre (in certain circumstances) could become the means to connect residential customers.

SMP in a dynamic, developing market?

Given these characteristics, it is difficult to see how BT could have SMP in the dark fibre access market. This is a market in which competition is not only theoretically possible, but in which competition has been extremely effective and so, as Ofcom recognises in its discussion of dark fibre, it is simply not the case that BT or any other player can be presumed to have SMP in this market.

5.4 What is a Dark Fibre Market?

Ofcom provides a general discussion of what it means by a dark fibre remedy, but it does not identify what the relevant market would be in which this remedy could potentially be applied. In itself, this is a very challenging issue, as Ofcom typically approaches the issue of market definition by considering specific product value chains e.g. wholesale AISBO circuits are clearly used to provide retail Ethernet services. Two obvious questions arise then in relation to dark fibre:

1. Into what market is dark fibre providing a wholesale input?
2. Is it even reasonable to think of a dark fibre market?

A wholesale input into which downstream market(s)?

Ofcom argues in this consultation that a number of wholesale markets are effectively competitive (e.g. high bandwidth AISBO, very high bandwidth TISBO) and hence there are no regulatory obligations. It is clear, however, that should a dark fibre remedy be mandated it would be upstream of these markets and could be used as an input into them.

The basic problem is that dark fibre would be capable of being used to provide any leased line services and indeed also could be used to provide traditional voice lines. What it could be used for would only be limited by the network and customer premises equipment employed in each case. This poses a serious challenge for Ofcom, as the practical implication would be that it would be imposing wholesale regulation on a market that it had previously found to be effectively competitive. Alternatively Ofcom would be forced to impose restrictions on what use could be made of the dark fibre and then be able to police those restrictions.

A relevant market or so-called “bottleneck”

If the relevant market is in some way being defined as fibre access connections, is this actually a market as such? Is it more accurate to think of these simply as network assets, which if they were to be regulated would have to be done so through some other means (although it is, of course, by no means clear that they would in fact be classed as a form of “bottleneck”, as they are clearly open to competitive supply)?

5.5 Implications of a Dark Fibre Remedy

Ofcom rightly wants to understand the pros and cons of a dark fibre remedy. It is clear that there are some direct implications of a move to regulating dark fibre.

Competitive supply and investment incentives

The most obvious impact would be on the competitive structure of the supply market. It is a generally accepted precept of regulation that with tighter and more intrusive regulation:

- a clear message is being sent out by the regulator that there is no reasonable prospect of effective competition in this market; and,
- this becomes a self-fulfilling prophecy, as the regulation undermines competitive supply.

Therefore, a move to a dark fibre remedy would mean the end of any prospect for effective competition in fibre-based services. Ofcom remains committed to facilitating competition wherever it is economically viable, so it would need to understand that this approach to regulation would effectively rule out competition in an area that at this point in time is still open to competitive supply.

In destroying investment incentives for competitive supply, it would also have a considerable impact on BT’s investment incentives. Additionally, as discussed below, moving to dark fibre could strand existing investments that were originally mandated by regulation; this could only serve to reduce further BT’s investment incentives in fibre access.

Stranded network assets

It is obviously not clear how Ofcom would proceed in relation to dark fibre, but one conceivable approach could lead to there being significant stranded assets in downstream wholesale markets. Were Ofcom to take the extreme measure of defining a fibre market to include existing fibre connections and then impose a dark fibre remedy in this market, it would obviously undermine the investment made in downstream wholesale markets. It must be remembered that this existing wholesale market owes its shape and existence at least in part to regulation that has been imposed by Ofcom. It is entirely inappropriate that public policy should create such a situation.

It is worth noting that the same did not happen in LLU, or at least certainly not to the extent that could happen in wholesale leased line markets. The introduction of LLU-based competition took place at a similar time as BT was introducing regulated downstream wholesale products and hence more rational decisions were able to be taken in deploying the wholesale assets. In the case of leased lines there is already a vibrant wholesale market that has been shaped and mandated by regulation and now regulation would effectively strand the assets that it is at least partly responsible for being deployed.

Mandating a new business activity

If a dark fibre remedy were implemented, this would in effect require BT to become at least in part a new type of business, providing property leasing and maintenance services. It would be difficult to think of these as telecommunications services.

Impact on the downstream wholesale and retail markets

It must be recognised that BT's wholesale products have made a major contribution to the effectiveness of competition in the downstream retail markets. BT offers a wide variety of fibre based access services, which are provided to the whole telecommunications industry on an equivalent basis – a globally unique proposition, enabling vibrant and effective competition for services to businesses and end-users.

It is difficult to know exactly what would happen to this existing vibrant wholesale market, should a dark fibre remedy be introduced, but it seems inevitable that it would be undermined to a very significant degree. Basically the nature of the market would change with competition based on wholesale leased lines being gradually edged out of the market.

Ofcom would not be able to justify continued regulation at multiple points on the value chain, so it would only introduce a dark fibre remedy if it intended to deregulate the downstream wholesale markets. At the same time, by requiring BT to operate dark fibre and removing its wholesale obligations, it would be fragmenting BT's resources and giving it the incentive to focus more on internal rather than external supply of wholesale products. This would certainly lead to a significant reduction in innovation in wholesale services provided externally. As it is by no means clear that all operators would wish to compete in this market using a dark fibre input, there would be a real danger that competition at the retail level would be undermined.

Would dark fibre be an appropriate remedy?

Ofcom recognizes that it would need to demonstrate that the benefits of moving to dark fibre exceeded the costs, but it is difficult to envisage how this could be the case. As demonstrated above, there would be significant costs attached to introducing dark fibre, not least in terms of the negative impact it would have on competitive provision of fibre access products and the damage that would be done to the wholesale market. Moreover, if dark fibre was mandated, there would be a strong case for removing requirements for any wholesale remedies based on lit fibre.

Ofcom points to the possibility of innovation gains, but it would need to be very confident about precisely what gains would result, not least given that the existing wholesale market is already characterised by both a diversity of products and a commitment to providing those products to all operators on an equivalent basis. The same innovations argument was employed in relation to the LLU market, but at this stage of development what seems to have emerged in this market is effective price-based competition rather than highly innovative products.

In short, BT does not believe that dark fibre would be an appropriate remedy.

Annex 1

List of Ofcom questions

Section 3 – Retail product market definition

Q1. Do stakeholders agree with our proposed retail market definition? In particular, do you agree that separate markets continue to exist for traditional interface and alternative interface retail leased lines?

Q2. Do stakeholders believe that there is evidence that might support an alternative view?

Section 4 – Retail geographic market definition

Q3. Do stakeholders agree with our proposed approach to geographic market definition?

Q4. Do stakeholders agree with our proposed retail geographic market definition?

Section 5 – Wholesale product market definition

Q5. Do stakeholders agree with our proposed wholesale product market definitions? In particular, do you agree with Ofcom that: i) a separate market now exists for high bandwidth AISBOs, and ii) the very high bandwidth TISBO market now includes circuits at bandwidths above 140/155 Mbit/s?

Section 6 – Wholesale geographic market definition

Q6. Do stakeholders agree with our proposed wholesale geographic market definitions? In particular, do you agree that a separate market now exists for high bandwidth TISBOs in the Central and East London Area (CELA)?

Section 7 – Market power assessment

Q7. Do stakeholders agree with our proposed approach to SMP assessment?

Q8. Do stakeholders agree with our assessment of SMP in the retail low bandwidth market (excluding Hull)? In particular, do you agree with our assessment that regulation in this market is still required for the time being?

Q9. Do stakeholders agree with our assessment of SMP in wholesale TISBO markets (excluding Hull)?

Q10. Do stakeholders agree with our assessment of SMP in wholesale AISBO markets excluding Hull?

Q11. Do stakeholders agree with our assessment of SMP in the wholesale trunk segments market?

Q12. Do stakeholders agree with our assessment of SMP in the retail low bandwidth market in the Hull area?

Q13. Do stakeholders agree with our assessment of SMP in wholesale TISBO markets in the Hull area?

Q14. Do stakeholders agree with our assessment of SMP in wholesale AISBO markets in the Hull area?

Q15. For those markets where we have found no SMP and propose to deregulate, do you agree with Ofcom that the available evidence supports the finding of no SMP?

Section 8 – regulatory remedies and impact assessment

Q16. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale TISBO markets excluding Hull?

Q17. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale low bandwidth AISBO market excluding Hull?

Q18. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale trunk market?

Q19. Do stakeholders agree with Ofcom's assessment about the appropriate regulatory option and our proposed remedies for the retail low bandwidth traditional interface market in the UK? In particular, do you think that Ofcom should accept BT's proposed voluntary undertakings that it will continue to supply new analogue and sub-2Mbit/s retail circuits until 2011 or earlier if, subject to industry agreement and consent by Ofcom, the underlying platform is closed at an earlier date; that it will not increase its prices for analogue services more quickly than the rate of inflation (RPI- 0%) for a period two years following the publication of the LLMR statement i.e. from 2008 to 2010; and that it will commit to a further two-year cap, the level of which would be agreed with Ofcom prior to 2011?

Q20. Do you think Ofcom should accept KCOM's proposed voluntary undertaking not to increase the prices of its wholesale TISBO services by more than RPI+0% over the next four years?

Q21. Do stakeholders agree with our assessment of the appropriate regulatory option and our proposed remedies for the wholesale AISBO markets in the Hull area?

Q22. Should Ofcom investigate the case for introducing a dark fibre remedy by undertaking a market review of the relevant market? If such a review were to be undertaken, it is likely that BT or another CP would be found to have SMP in that market? And if SMP were to be found, what would be the pros and cons of requiring the dominant provider to make dark fibre access in the network available to third parties?

Annex 2

Progress on leased lines replicability

This Annex outlines the current state of BT's progress on the delivery of the nine leased lines replicability issues identified in Ofcom's April 2006 Statement "The replicability of BT's regulated retail business services and the regulation of business retail markets".

1. Implementation of revised forecasting penalties

- BT has reviewed the relevant cost data and formulated revised forecasting penalties. These will be implemented with effect from 1 April 2008, thereby resolving this replicability issue.

2. Implementation of an option to re-designate or 'grandfather' multiplexers on cost-oriented terms

- BT implemented re-designation on 6 September 2006. However, we do not believe grandfathering is a cost effective option, given the obsolescence of the PDH equipment concerned and the very small numbers left in the installed base, which amount to fewer than 200 units.
- Since September 2006, no CP has ever requested grandfathering. A briefing has been sent to customers asking them once more whether they have any need for grandfathering. If no positive responses have been received by the middle of April 2008, we will consider this matter closed.

3. Successful conclusion of the Master Services Agreement or PPC contract review process

- Following extensive discussions between BT and the industry PPC Customer Group, revised PPC reference offer terms and conditions were agreed in early 2008. BT has sent out the amended reference offer for signature by customers. We believe this has met the replicability concerns in this area.
- A single Master Services Agreement is being discussed separately with industry as part of the migration to 21CN. Given the agreement reached on the revised PPC reference offer, BT does not believe that implementation of a Master Services Agreement is necessary for replicability.

4. Provision of adequate billing accuracy and bill verifiability

- A new PPC billing system is being phased in during April, May and June 2008. Following extensive consultation, the new system will give customers a choice of two formats. In the meantime, a new PPC pricing tool designed to allow customers to get an estimate for work

before placing an order was implemented in early 2007. Customers can also use this facility to verify their bills. There is further work on billing underway, but BT believes this should be regarded as part of a continuous improvement process and no longer a barrier to replicability.

5. Implementation of relevant price changes for ISH extension circuits

- BT changed the prices of ISH extension and path protected services to make them consistent with pricing for the relevant network components with effect from 23 January 2008. We therefore consider that this issue has been resolved.

6. Introduction of Key Performance Indicators (KPIs) to allow the performance of the BT Retail Customer Management Centre (CMC) to be compared to that of the BT Wholesale CMCs.

- BT has investigated CMC performance and found that whilst there are some differences in how the processes work in the respective CMCs, these differences do not provide any advantage to our retail businesses. However, we recognise that the lack of discrimination needs to be demonstrated. To this end, we hope to implement a new KPI for CMCs as part of the wider project on improved KPIs to be delivered in April.

7. Availability of enhanced 'Service Level Agreements' on PPCs designated for use in 'safety of life' or national defence applications

- This issue was based on a misconception that enhanced SLAs were not available to CPs, arising from an error in the BT Price List. This error was rectified in July 2007, and we do not believe there is any continuing replicability issue in this area.

8. Resolution of an issue relating to potential double payment for equipment cancelled after the order confirmation and subsequently deployed in fulfilment of another order

- BT has revised the relevant procedures, which came into force in March 2008.

9. Issues relating to financial replicability

- Ofcom has also raised concerns about whether the way in which BT accounts for its own use of wholesale inputs to retail leased lines ensures an appropriate level of equivalence with retail competitors who use PPCs. Ofcom's concerns are summarised in Annex 13 to the Business Connectivity Market Review consultation (see paragraph A13.46). BT is actively engaged in ongoing discussions with Ofcom in order to resolve these issues.
- To be clear, BT does not - and is not required to - purchase PPCs in the same way as other communications providers, i.e. there is no "equivalence of inputs" requirement via

BT's Undertakings. Rather, to ensure there is no undue discrimination, we have a process for calculating appropriate internal charges for our use of the relevant inputs provided by BT Operate- i.e. appropriate PPC equivalents. The model used is contained in the Internal Reference Offer which was updated and extended following extensive consultation with industry in 2005.

- Ofcom's concerns relate in part to the need to ensure that the process for calculating appropriate internal charges is implemented in a way that does not unduly disadvantage BT's competitors. Reflecting this, much of the focus of discussions with Ofcom has been on providing transparency about how the process is implemented - for instance, to address their concerns about how BT should account for a number of non-rental charges associated with PPCs and about how BT calculates the relevant volume information to feed into internal costs. Overall, we believe that these discussions will allay Ofcom's concerns and demonstrate that we have complied with the agreed process for accounting for our own use of wholesale inputs. This work may result in increased transparency of the workings of this process moving forward. We believe that discussions with Ofcom will mean that replicability concerns should be addressed in the near future and ahead of Ofcom's final statement as part of the Business Connectivity Market Review.

Annex 3

Changes to the definition of trunk services

In the consultation document, Ofcom indicates a preference for moving away from a definition of SDH trunk services based on BT's Tier 1 SDH nodes, and their related catchment areas, to one based on major points of traffic aggregation in the UK. Ofcom describe these as "aggregation nodes" and a list of such nodes is proposed in Table 15 in the consultation document. These are based on a combination of major urban centres and BT's network, which has tended to grow around major centres amongst other factors. BT's understanding is that these aggregation nodes are to be considered technologically neutral, at least insofar as the nodes have a role in defining markets for the purposes of business connectivity services, and that they would also apply to business services delivered using AI technology.

BT notes that Ofcom has not defined the exact zone or island around each aggregation node and this is an important consideration if this Option is to be implemented. This is an issue BT would be happy to discuss with Ofcom.

BT also notes that Ofcom has not specifically defined alternative interface origination and therefore it is not yet clear where the extent of BT's requirements to supply services on regulated terms ends in network terms.

One application of the aggregation nodes is to define the limit of alternative interface origination as well as traditional interface origination. This is not discussed in the consultation but is an important issue as a large number of BT's metro nodes would be outside the suggested islands. BT surmises that this would mean that some metro node to metro node connectivity would be classified as origination, and that wholesale supply obligations would follow.

It is not clear from the consultation what form such obligations (i.e the requirement to provide service) might take. It is also important to recognise that the consultation does not consider that the metro nodes outside of aggregation islands are assets which provide enduring economic bottlenecks. Whilst competitive conditions may vary across the UK, and SMP may exist, it cannot be assumed that infrastructure competition will not develop in locations not included on the list of aggregation nodes. In fact, for many of the nodes outside the aggregation islands there is already some competing infrastructure.

Amendments to the list of aggregation nodes

BT suggests that a number of other locations should also be considered as qualifying as being aggregation islands on the basis that the volume of aggregation at these locations means that a number of CPs in addition to BT have, or in the medium term are likely to have, installed competing infrastructure. The specific locations that BT suggests should be added to the list in Table 15 of the consultation document are as follows:

Aggregation node	Rationale for inclusion
Basingstoke	The western corridor out of London has sufficiently high business density to support more aggregation nodes. There are multiple fibre networks in this area.
Bracknell	The western corridor out of London has sufficiently high business density to support more aggregation nodes. There are multiple fibre networks in this area.
Derby	A number of CPs already interconnect with BT for TDM at a major network node in Derby.
Exeter	The current proposal has no aggregation node in the South West. CPs requested a point of handover in Exeter as part of the 21CN consultation, and this is being provided.
Falkirk	BT has chosen to site a major network node in Falkirk. This is designed to serve Edinburgh and shows that the physical location of a node is not necessarily a good indication of the exact area it serves.
Kendal	All networks that extend into Scotland tend to have a western route via Kendal due to the physical geography of this area.
Maidstone	The current proposal has no aggregation node in Kent. CPs requested a point of handover in Maidstone, as part of the 21CN consultation, and this is being provided.
Darlington / Stockton / Middlesbrough	This area is sufficiently large to justify an aggregation node. This is on the eastern route of most trunk networks.
Peterborough	Peterborough is one of BT's major 21CN nodes. There are currently multiple trunk networks going through Peterborough.
Stoke-on-Trent	This is mid-way between Birmingham and Manchester. Most major trunk networks go via Stoke-on-Trent.

We therefore suggest that if Ofcom considers that Option 2 should be implemented, then the list of identified aggregation nodes is expanded to include those listed above.

Option 2 and intra-nodal conveyance in major urban areas

Under Option 2, BT understands that connectivity between nodes in different islands is to be classified as trunk services but that traffic between BT's nodes within an island would be classified as origination. Thus, for example, traffic between BT's Tier 1 nodes in the London island would be origination and subject to a revised regulatory treatment.

BT considers that this is wholly inappropriate where the nodes in question are in urban/business locations where there are very significant aggregation opportunities even where nodes are relatively close together and there already exist competing infrastructures. Certainly, this reclassification should not apply in those geographical areas where Ofcom has found that there is competitive infrastructure provision.

Insofar as the analysis in the consultation document goes, this comprises the Central and East London Area ("CELA") where Ofcom has found that there are operators able to provide services to businesses throughout the CELA market without needing to access wholesale products from other operators, and that no insurmountable barriers to interconnection between CPs exist. In the CELA, Ofcom's analysis shows that any business site could be connected to a CP network for a single 34Mbit/s circuit. Clearly, connecting to more than one major interconnect node in this region should not be a problem when the bandwidth (and hence value) of the traffic involved would be many times higher.

In such circumstances, there can be no question that BT has either SMP or is in control of an enduring economic bottleneck. BT therefore suggests that there cannot be a universal rule that all intra-nodal traffic within an island be classified as origination. BT should not then have any obligations to provide connectivity between nodes in CELA which by themselves form some of the largest aggregation points in the UK's network. CELA should therefore be considered competitive for fibre services so that the requirement to supply symmetric broadband origination falls away, leaving BT to choose what services it wishes to supply CPs.

Relationship of Option 2 to the Undertakings

We are aware that the issues raised by Ofcom's proposal could have implications for the introduction of new backhaul products and for the related planned Review of the Undertakings which is likely to look at the definition of 'BT's Backhaul Network' and 'Core Node'. In particular, one of the advantages of the "island" concept is to ensure that Openreach can

introduce in the most economically efficient manner new backhaul services, some of which would, under current definitions, be defined as “trunk”.

These comments have been provided in the context of this market review and are relevant to considerations of SMP regulation. Whilst BT acknowledges that there should be consistency in regulation imposed at different times, it must also be recognised that market reviews (which deal with market definition and SMP) should not have an automatic application to BT’s Undertakings (which deal with enduring economic bottlenecks) without further consideration. The two approaches to regulation are not based on the same premise. In view of this, BT would expect to discuss further with Ofcom any implications for the Undertakings of the proposed new market definition of trunk and, implicitly, and access and backhaul.

Annex 4

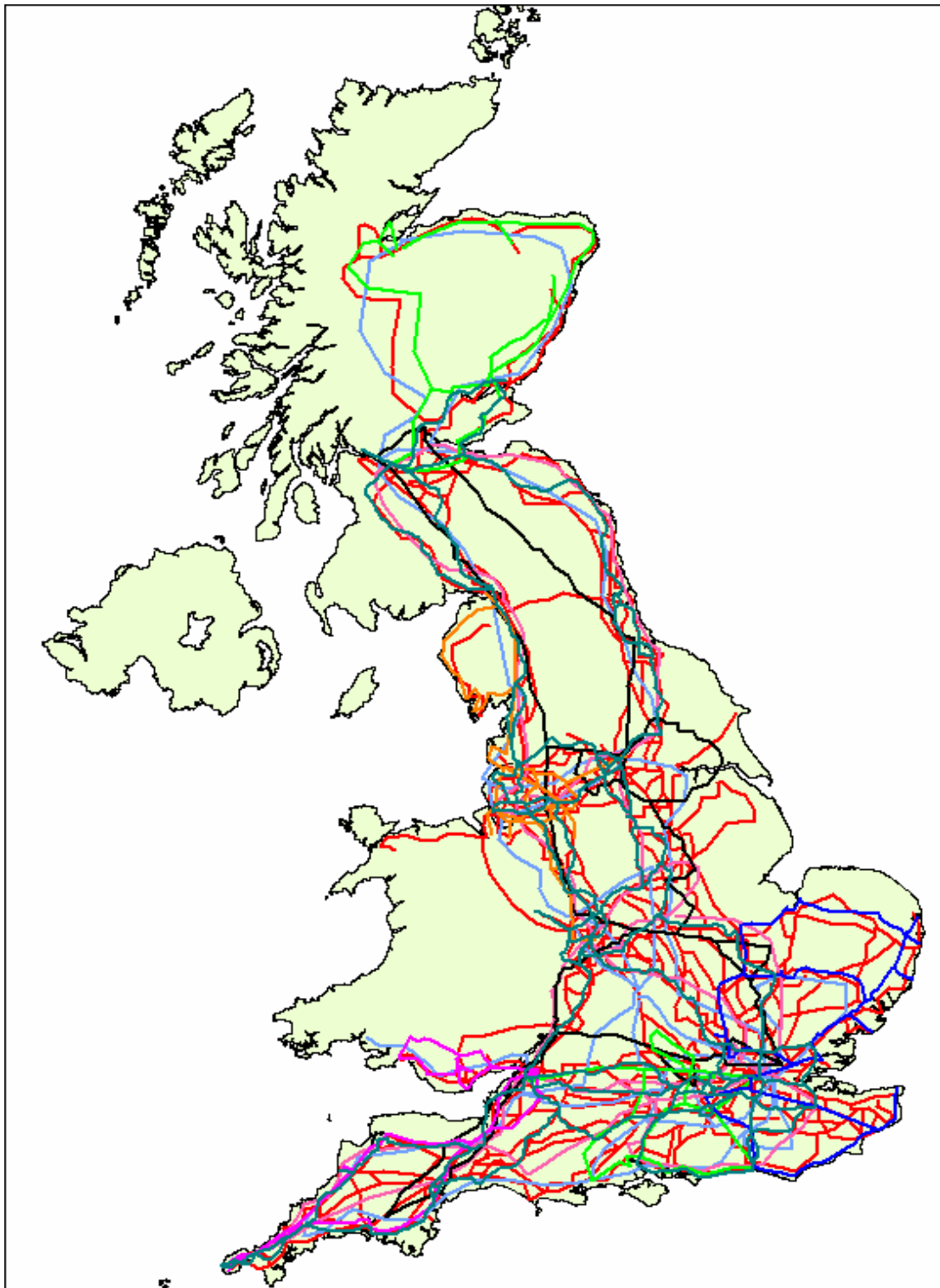
Evidence of trunk infrastructure

Many CPs have published some form of network map, showing where they have their infrastructure. BT has in the past included such maps in its regulatory responses to highlight the extent of alternative infrastructure. Rather than reproducing such maps in this response, we have attempted to overlay the multiple networks onto the single map shown overleaf. This is only possible when the published maps have maintained a geographic nature and is not possible for many of the more schematic representations.

With only a sub-set of UK networks maps available in the required geographical format it is not possible to use this data for a full quantitative analysis, but we believe nevertheless that it gives a good overview of the degree of variation of alternative infrastructure present in the UK.

This shows that there are many operators in the South East, extending through the Midlands, up to Liverpool/Manchester and Leeds. Networks typically also extend up the east and west coasts to Edinburgh and Glasgow respectively. Many operators have also built down to the South West where there are landing points for the trans-Atlantic cables. There are also a few operators who have selectively extended beyond these areas, covering East Anglia, Kent, Scotland and parts of Wales.

Annex 4 Figure 1 – Trunk infrastructure in the UK



Annex 5

Evidence of access competition outside the Central and East London Area

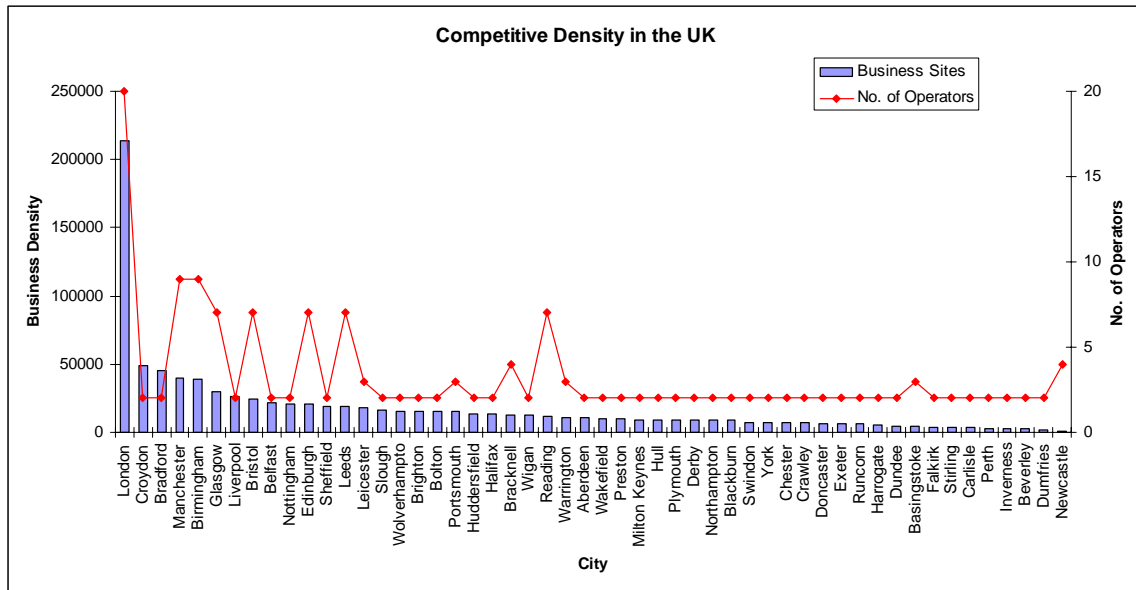
Introduction

1. London is the main UK concentration of business customers, and parts of it are already served by up to 20 operators with many more service providers using these facilities and infrastructure. In addition to operators' metropolitan networks, there are operators and service providers with their own, independent nodes and Points of Presence (PoPs). These are used to provide connectivity and interconnection with customers and other operators' infrastructure, further increasing the competitive supply.
2. Although London has, by far, the highest concentration of businesses in the UK there are other metropolitan areas where businesses concentrate. Due to the high density of potential customers, these areas have attracted alternative communications providers who have invested in installing alternative infrastructure to serve these areas.

Competition in other business areas in the UK

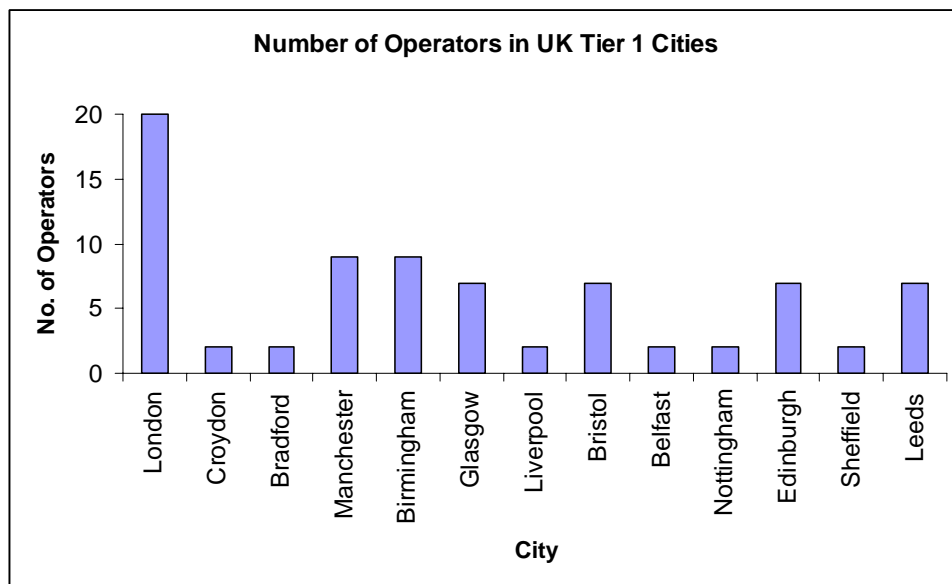
3. Figure 1 shows the relative size of each the largest metropolitan areas, based on a simple calculation of the number of business sites within 10km of each city centre. Also plotted on this chart is the number of alternative operators who are known to have built access infrastructure in these areas. As would be expected, the largest cities have attracted the highest number of alternative providers. It can also be seen that there is not complete correlation between these two sets of data. This is because clearly any investment decision is not solely based on business numbers across the whole area, but will be influenced by local concentrations and industry sectors. For example, Reading has attracted more operators, probably due to the large number of hi-tech companies based in and around Reading.

Annex 5 Figure 1 – Major metropolitan areas in terms of business density



- It is instructive to split this list of cities. The top 12 cities can be classed as “Tier 1” cities. These, combined with London, constitute over half a million business customers, or approximate 13% of the total number of UK businesses. These are shown separately in Figure 2 and highlight the high degree of competitive infrastructure in these largest cities. These were the areas where the first alternative infrastructure companies focused.

Annex 5 Figure 2 – Tier 1 Cities



5. Companies entering the infrastructure market later, such as KCom and Thus, have pursued a different strategy. With these major markets already being well served (in terms of suppliers, they have built out more extensively to the smaller “Tier 2” cities, thereby being the main alternative local operators in these areas. As the market has matured, and mergers and acquisitions taken place, some of these smaller providers have consolidated with other operators with complementary coverage of the Tier 1 cities, and have become more national in nature.
6. Data that we have collect shows that there are seven major cities where seven or more communications providers claim to have installed their own fibre access infrastructure. This is summarised in Table 1 below.

Annex 5 Table 1 – Fibre access operators in major business areas

City MAN	BSkyB	C&W	COLT	GEO	Global Crossing	KCom	nti:Telewest Business	THUS	Verizon	Viatel
Birmingham	x	x	x	x	X		x	x	x	x
Bristol		x			X	x	x	x	x	x
Edinburgh	x	x			X		x	x	x	x
Glasgow	x	x			X		x	x	x	x
Leeds		x			X	x	x	x	x	x
Manchester		x	x	x	X	x	x	x	x	x
Reading		x	x		X	x	x		x	x

7. All the companies above offer Ethernet services over their own infrastructure. The only restriction being that GEO currently only does so in London, and not in the other metropolitan areas it serves.
8. Brief profiles on each of the companies listed on Table 1 are included below.
 - i. **BSkyB (Easynet)** - operates a fibre network which has 36 PoPs and runs through more than 50 major towns and cities with well over a million businesses and nearly 3,000 large corporations located within 1.5 km of its footprint via more than 1,000 unbundled local exchanges. The company continues to invest in network infrastructure, recently upgrading its core ring capacity to 1 Tbps, scalable up to 4 Tbps. Having merged with Marconi’s ipsaris in 2001, Easynet has 4,450 route km of fibre cable, with approximately 350,000km of optical fibres throughout the UK. They have over 500 local exchanges available in UK to

deliver bespoke managed network solutions including Etherstream™ and SureStream™ and this figure had risen to almost 1,200 UK exchanges by end 2007.

- ii. **Cable & Wireless** - sells voice, CPS, data network services (i.e., ATM, frame relay and private lines), managed hosting, security and storage, MPLS IP VPN, IP telephony, IP LAN and IP infrastructure services. In August 2005, Cable & Wireless acquired Energis, the UK's third largest fixed line operator. In total, C&W's UK network includes more than 450 nodes, 17,500 km of cable and 72 points of interconnect to the BT network. A DWDM core interconnects all major core nodes — approximately 30. Over 250 SDH rings, a mix of STM-16 and STM-64, reach about 220 nodes. C&W has shed its SME customers and it is in the process of reducing its customer base from 30,000 to 3,000 large corporate, public sector and carrier clients as part of its strategy to focus on selling managed IP services to the largest UK companies. C&W has designed a technically advanced NGN with carrier-class IP and Ethernet devices from Tellabs, and next-generation SDH from Marconi. As of February 2006, C&W had invested approximately £51m in its Metro Ethernet network, with nine P-nodes, two soft switches in operation and the first 20 GigE exchanges completed.
- iii. **COLT Telecom Group S.A.** - offers businesses and government institutions voice, data and IP-based services over an exclusive fibre network that interconnects 32 city networks in 13 countries with last-mile fibre to over 10,000 buildings in Europe. COLT operates high- bandwidth MANs in the UK's main business centres — London, Birmingham and Manchester — and in 28 other cities across Europe, along with PoPs in around 100 European cities including Reading and Bristol. COLT has expanded market reach outside of its MANs, using DSL and off-net Ethernet access rather than leased lines to connect customer sites. Retail sales account for 60% of COLT's revenues with wholesale services making up the rest, although the vast majority of the company's customers are corporate. The company claims over 24,000 directly connected customers, including more than 4,000 'Major Enterprise' clients and more than 19,000 SMEs. The UK accounts for 19% of COLT's overall revenue. COLT is concentrating on moving further up the enterprise value chain with managed services, IP telephony, mobility and a comprehensive suite of Ethernet services. In 2007 the company enhanced its 'Switched Ethernet VPN' offering with 'Ethernet Private Network' (E- PN), a new any-to-any service based on Ethernet-over-SDH available across COLT's geographical footprint.

- iv. **GEO.** – Geo. owns the newest, most fibre-rich data network in the UK. Employing the highly secure environment occupied by the gas mains pipeline, Geo.National infrastructure provides a foundation on which to build scaleable, dedicated optical fibre cable solutions for the long term. Geo. operates a 2064 km fibre network throughout the U.K. connecting all of the UK's major commercial centres and has three MANs in London, Manchester and Birmingham. The company is focused on providing infrastructure and custom built implementations of networks for other carriers and large enterprise customers while not providing any capacity services themselves. Carriers who purchase Geo. infrastructure are free to implement a network as they see fit on the Geo. network. In 2006, they launched GEO.Metro, a 1Gbps or 10Gbps Ethernet or fibre-only service, available within the M25 area. Geo.Metro fibre runs between 3 and 15 metres below street level using the capital's sewer system.

- v. **Global Crossing UK (GCUK)** – Now owned by Singapore Technologies Telemedia, GCUK operates one of the country's largest national networks, reaching approximately to within two km of 64% of UK businesses. The takeover of Fibernet significantly enhanced GCUK's 13,200 km network reach, service capability and sales proposition within both the UK retail and wholesale markets. The integration of Fibernet has also bolstered GCUK's Ethernet portfolio with a variety of products offering speeds of up to 10 Gbps. Between them, Global Crossing and Fibernet have MANs in London, Bristol, Birmingham, Edinburgh, Glasgow, Leeds, Manchester and Reading and have more than 90 PoPs in over 50 towns and cities across the UK.

- vi. **KCom** – operates a 2,200 km broadband network with 24 MANs across the UK and targets the SME segment. The acquisition of Omnetica and formation of Affiniti added to the company's strengths in targeting medium and large business customers. The company offers a product called Etherline Internet which provides an adaptable dedicated link to the Internet, aimed at companies requiring a very high speed Internet connection for a company Local Area Network (LAN). Provided over KCom's national IP network, the service options vary from 1Mb/s to 60Mb/s providing dedicated access with a high-speed "always-on" connection.

- vii. **ntl:Telewest Business** – operates the UK's second largest access network which comprises 186,000km of local and metro network and reaches 85% of UK businesses. ntl:Telewest Business is a leading communications provider to businesses, public sector organisations and service providers in the UK. It delivers a complete portfolio of voice, data and internet solutions nationwide. The ntl:Telewest Business network also has the largest Ethernet presence in the UK

with 330 Ethernet nodes which serve 70,000 organisations across the UK. They have 162 voice telephony switches across the UK and over 130 IP service nodes for internet and IPVPN services.

- viii. **THUS Group plc** - began life in 1994 as Scottish Telecom, an offshoot of the privatised energy company Scottish Power. In 1999, it was floated on the London Stock Exchange as THUS, with Scottish Power retaining a majority shareholding. In 2002, THUS was demerged from Scottish Power in a deal which effectively wiped out the majority of the company's debts, placing the company on a sound financial footing. THUS operates a national 10,600 km fibre network with more than 190 points of presence in 20 key business centres, including 15 metropolitan area networks. They also have connectivity to 12 Telehouses in London, Manchester and Edinburgh. THUS's goal is to be the leading alternative service provider in the UK business market, and by its own reckoning, it currently controls around 7% of the national market for fixed enterprise services. The company's marketing strategy is to grow its SME customer base under the Demon brand whilst reaching out to large domestic corporate customers with managed IP solutions. THUS is also having success with Ethernet services (one of the few providers able to offer speeds of up to 10 Gbps), now provisioning 23,000 Ethernet circuits in the UK, and it is increasing sales of IP-based services and SIP trunk services.

- ix. **Verizon (ex MCI)** – operates a UK network of around 7,500km with 17 MANs (London MAN measures 161km). They have a business unit dedicated to the SME segment across Western Europe and a part of this specifically addresses the SME segment in the UK called “Business Markets.” This unit targets the 98% of businesses that employ between five and 250 employees and spending up to GBP 5,000 per month on telecoms services (their definition of a SME). Since 1996, Verizon has been a prominent provider of Ethernet services and Verizon Business Ethernet Services deliver access to corporate networks, the Internet, and network-based applications at ranges from 1 to 1000 Mbps (a.k.a. Gigabit Ethernet).

- x. **Viatel** - In the UK Viatel has over 100 PoPs, approximately 450 km of its own fibre and four highly secure data centres in Egham, Bracknell and London (2). It has more than 10,000 business customers, providing them a range of business communication services that help companies of all sizes to access the internet, connect their people and places, manage their web applications and increase the security of their data. Ethernet services are offered with connections from 2Mbps to 1000Mbps and coverage across the UK.

9. In addition to the companies listed above, Vtesse offers Ethernet services over its own network. This network is believed to be based on a combination of infrastructure it has constructed and other assets it leases. Although it offers services in the cities listed above, it has not been included in the table because some of the assets may be those of the other CPs.
10. Vtesse Networks is a privately funded company, founded in 2000, who build private optical networking services within and between client premises. They design, build and operate UK National, Metropolitan and Campus private fibre optic networks, engineered to carry data communications traffic within and between data centres, headquarters and regional office buildings. To achieve this as cost effectively as possible, they lease existing dark fibre over which they can offer their services and often "aggregate" fibre routes. This means that an end-to-end route might consist of pre-existing fibre from multiple sources, plus dedicated new "digs" to provide missing links and final connectivity to customer premises.

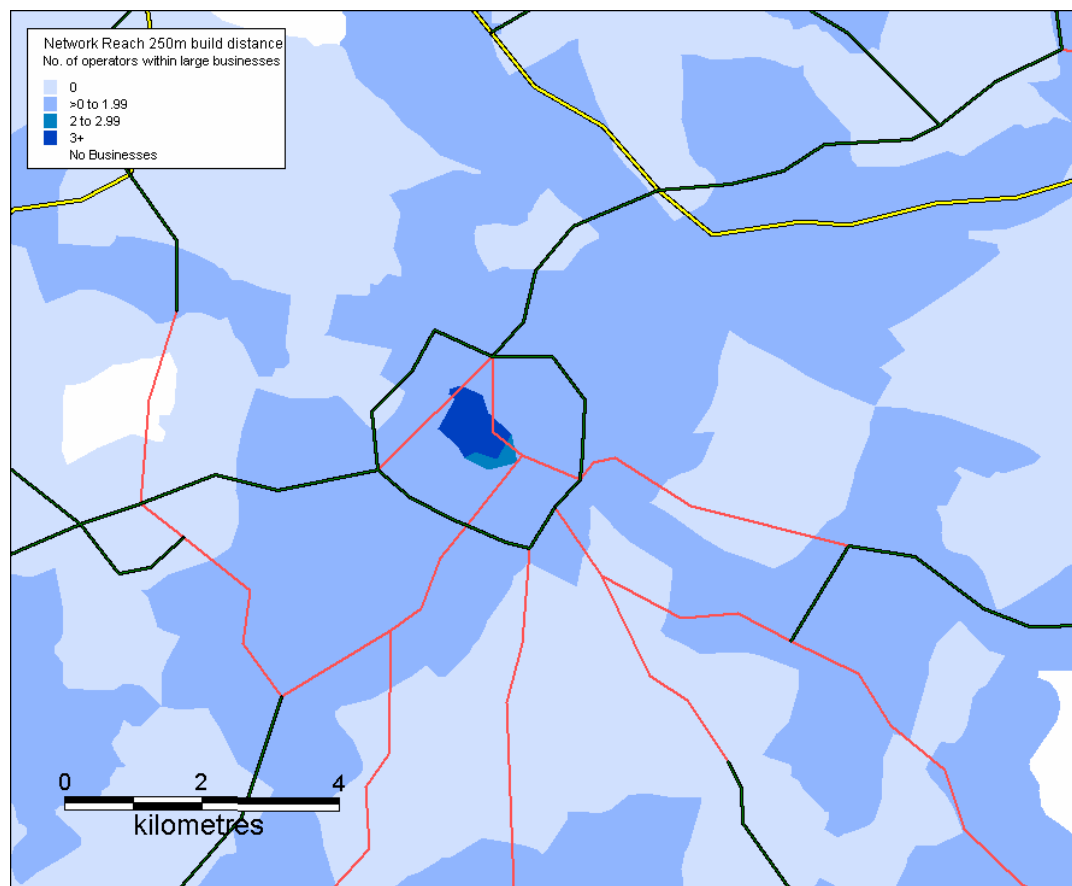
City Analysis

11. Ofcom undertook an analysis of the network reach of operators across the UK to help assess the competitive conditions on a geographic basis (Annex 7). The output of this analysis, for selected cities, is presented in Figures 76 to 83. This is then used as an input when considering geographic markets in Section 6.
12. Ofcom concluded that there is a contiguous group of postal sectors in Central and East London (CELA) where there are on average 2 or more operators (in addition to BT) which can serve the selected business sites. This has formed the basis for the sub-national "CELA" market for high bandwidth TISBO services.
13. However, Ofcom also conclude that outside of London there are is a very limited number of postal sectors where there might be competitive conditions, and even these contain a limited number of business sites. This result is somewhat counter-intuitive as it would be expected that alternative providers would have built their networks in areas where there are a high number of potential customers. It is also contrary to anecdotal evidence which indicates high levels of competition in the major metropolitan areas.
14. BT cannot attempt to repeat the analysis undertaken by Ofcom as we can not request detailed network information from other network operators. However, the sections below shows two cities where we have a very limited amount of information that has been published by other network operators. These show a competitive position, and one at odds with that shown in the BCMR.

Birmingham

15. Ofcom published their results for Birmingham in Figure 78. Most of the area shown has either no operators or below 2 operators. However, the area shown is over 3,000km², significantly larger than the whole of the area contained within the M25. BT is not, and has not, suggested that access competition exists across such a wide area. We accept that investment in alternative access infrastructure will only be economic in tightly defined areas where the density of business is high. Even in London the CELA area only covers approximately 45 km², or 1.5% of the area in Figure 78.
16. Figure 3 therefore shows an extract of the data published in Figure 78, but zoomed into the central Birmingham area. At this scale, it is possible to identify an area in central Birmingham when Ofcom's analysis shows there are 2 or more operators.

Annex 5 Figure 3: Ofcom results showing the number of operators in Birmingham
(Major roads also shown)

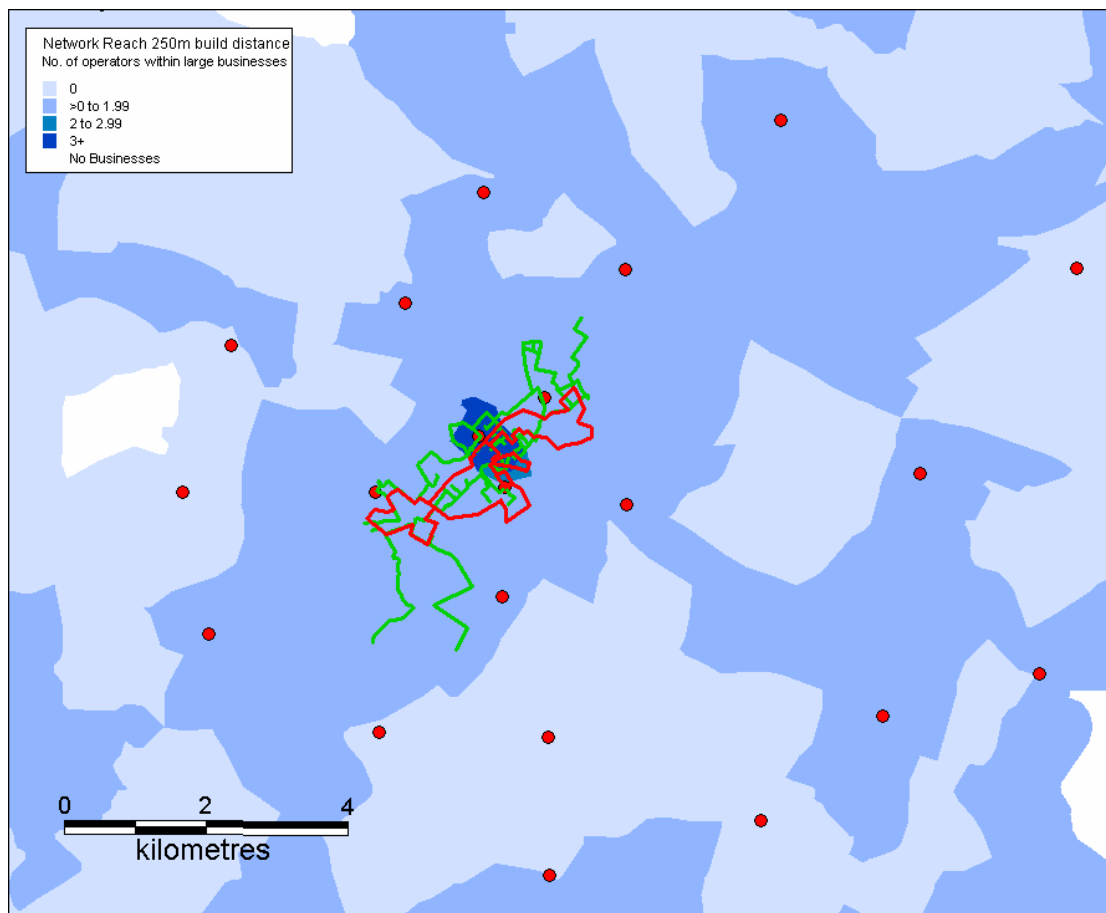


17. Although nine operators have fibre access networks in Birmingham only two of these have published detailed street-level maps of their network infrastructure. Of those that

have not published maps, Virgin media has almost ubiquitous coverage across this area, although this is targeted on residential customers, it is a fibre-to-the-cabinet architecture, and hence will also provide good fibre coverage.

18. As BT provides connectivity between a CP's licensed space within a BT exchange building and CP's external fibre we have a record of where CPs have their own backhaul infrastructure. This data shows that there is alternative fibre infrastructure built to a large number of BT's exchanges. Figure 4 shows the two alternative fibre networks in red and green, and the points of where CPs use an alternative backhaul provider (the roads have been removed for clarity).

Annex 5 Figure 4 – Alternative infrastructure in Birmingham

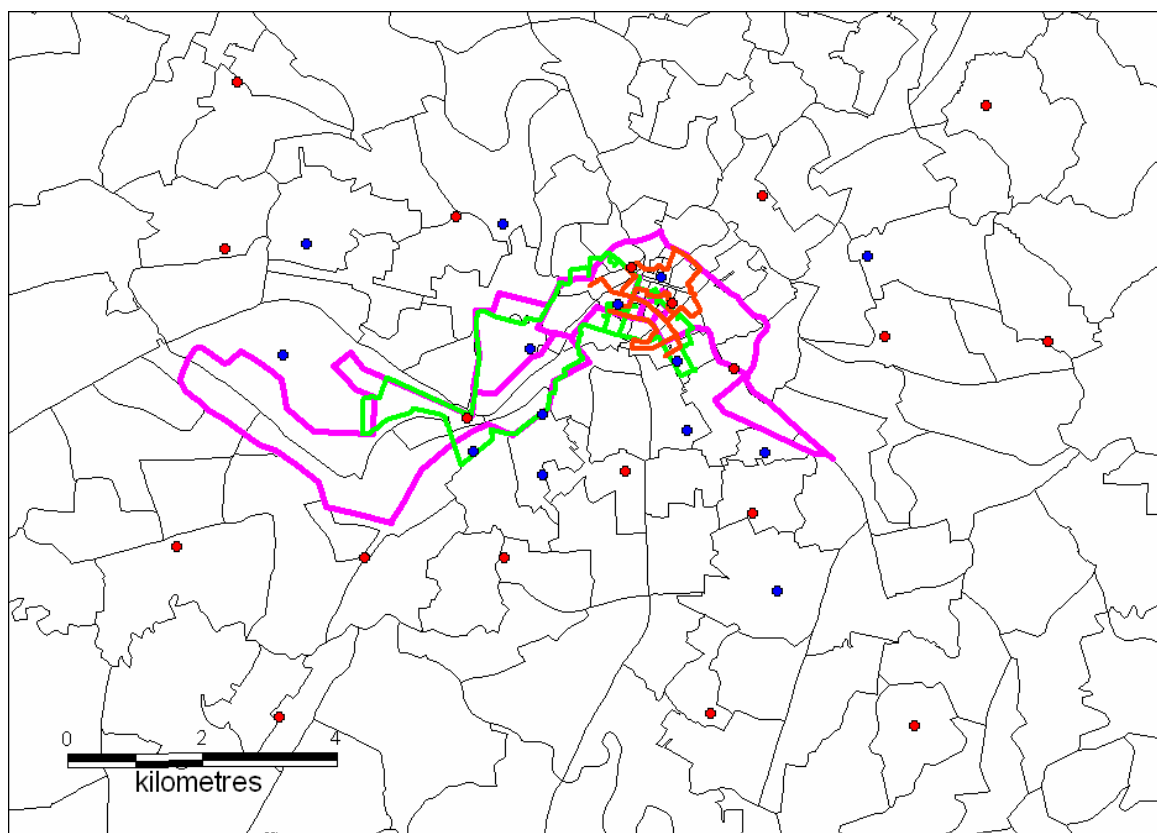


19. Given that both the published networks extend considerably beyond the area identified by Ofcom, and that there are at least seven other operators claiming coverage in Birmingham (including ntl:Telewst Business), BT believes that Ofcom's analysis does not reflect the true extent of competitive infrastructure in Birmingham. On this, it is also worth noting that there is competitive backhaul in areas where Ofcom's analysis shows no operators present in that postal sector.

Manchester

20. According to BT's research, there are also nine alternative access providers in Manchester. Although referred to in the text of the BCMR (A7.61) the contestability analysis results for Manchester have not been published. Of the nine operators, three have published network maps. These are shown in Figure 5. The network shown in red, covering the tight central business district of Manchester, is based on the very old data and shows the access infrastructure in 1999 when the network was originally built. This network may have expanded significantly in the intervening years.

Annex 5 Figure 5 – Alternative infrastructure in Manchester



21. A fourth operator has published the locations of its points of presence in the Manchester area and these are shown as the blue dots on the map. Although these are less informative of where an operator could potentially provide service, as the true coverage would be greater, they do appear to be well distributed across Manchester indicating the widespread presence of this 4th operator, extending beyond the three fibre networks shown.

22. As in the case of Birmingham, the locations of where CPs provide backhaul from BT's exchange buildings are shown as red dots, again indicating that alternative infrastructure extends across much of the area shown.

23. Virgin media also has extensive coverage across this area, which would add further to the position of access infrastructure competition in Manchester. Adding this to the picture above justifies BT's view that there are areas, in addition to CELA, where competitive conditions are such that sub national geographic markets can be identified.