

Question 1: Do you agree with our “no material change” considerations as set out above? In particular, do you agree with Ofcom that:

1.1 The characteristics of Traditional and Alternative Interface products are such that separate markets continue to exist for TI and AI products?

Response

Fujitsu believe that these products should remain as separately classed markets because they are based on very different technologies.

1.2 We should retain the main bandwidth breaks for traditional interface products but combine 34/45 Mbit/s and 155 Mbit/s services?

Response

Fujitsu have no comment to make.

1.3 VPNs continue to be outside the business connectivity markets? Please explain why.

Response

Fujitsu believe that VPNs are services that run over the top of the basic connectivity and as such are not within the market scope.

Question 2: What are your views on the extent to which broadband products can be used effectively for the delivery of business connectivity? How do you think this might change over the next 3 to 4 years?

Response

Fujitsu believe that the development of next generation access products has fundamentally changed the market for business connectivity. In particular:

FTTH Ethernet services based on the Ofcom/NICC ALA solution (or similar) are now available for residential customers which are capable of running at up to 1 Gbps symmetrically. Although these services are not deployed in this manner for residential (typically 50 to 100 Mbps contended services are offered) there is no technical reason why these same circuits cannot be used for business services at rates of up to 1Gbps and in specialist cases 10Gbps.

FTTC Ethernet services based on VDSL offer lower rates than FTTH (typically up to 80 Mbps) and can be deployed in slower speed symmetric configurations. This infrastructure can be used to deliver business services (of 10-40 Mbps symmetrical bandwidth). Although this is slow in terms of a fibre interface, for many business customers this will be sufficient.

Suppliers of Next Generation Open Access networks are now in a position to support business services over their mass market residential infrastructure which, subject to this market review, will dramatically increase the availability of high speed business services.

Fujitsu believes this creates a synergy between business and residential roll out that will see the mass migration away from leased lines and onto open access networks for all speeds up to and including 10Gbps. The service providers offering the end to end business connectivity will therefore be able to realise a saving on the cost of the access tails. It is possible some of these services may have less transparency than the existing leased line solutions but this is

unlikely to figure too highly in the minds of cost conscious IT managers who will find solutions to the capability gap by either substitution or tunnelling.

Fujitsu however caution that this opening up of the access network will have a significant impact on the core networks. In particular bandwidth requirements will go up and cost of delivery must come down.

Question 3: What are your views on the existence of a break in the market for Ethernet services provided at speeds above 1 Gbit/s; and the extent to which WDM-based products are part of the business connectivity market? If you consider they are, do you think they are part of the Traditional Interface market, the Alternative Interface market, or constitute a separate market within the business connectivity market? How do you think this might change over the next 3 to 4 years, given the rate of growth in bandwidth demand?

Response

Fujitsu have no comment to make on the existing market structure. Fujitsu believe that growth in this area will be in the alternative interface market.

Fujitsu believe that moving forward 10Gbps services are likely to be used by a small number of very large businesses and as transport for carrier networks. In this latter case they will increasingly compete with dark fibre. However Fujitsu believe that the existing model of offering business connectivity primarily at 1 Gbps is not useful to carriers looking for access network backhaul services and that this market will drive services operating at 10Gbps and above. WDM has a role because of the fibre tax regime in the UK and for transport of certain legacy services that cannot be supported

Question 4: Do you consider that:

4.1 There is still a separate market for trunk segments provided with a Traditional Interface which warrants SMP assessment for the purpose of considering ex-ante regulation;

Response

Fujitsu have no comment to make

4.2 The trunk routes identified in the last market review are still relevant to inform the definition of the trunk market; and

Response

Fujitsu have no comment to make

4.3 The analysis and identification of Trunk Aggregation Nodes carried out in the last BCMR are still relevant for competition and market entry. Please explain why.

Response

Fujitsu have no comment to make but note that the advent of open access networks may change the numbers of TANs.

Question 5: Do you think that separate markets could now exist for access and backhaul products? If you do, please explain why.

Response

Passive Infrastructure Access (PIA) if applied to business services could in the future change the nature of the access market. This remedy is not currently available in the trunk market, however Fujitsu note that dark fibre is sold by some operators.

There is also some ambiguity in the demarcation between access and backhaul in the context of PIA. Do services like cabinet backhaul to an access PoP count as access or backhaul. How is this changed if the access PoP is further from the cabinet than the BT exchange that services the cabinet.

Question 6: Do you think that separate markets could now exist for broadband backhaul products and, separately, for mobile backhaul products? If so, please explain your reasons.

Response

Fujitsu believe that within the access part of the network, served by PIA, it is essential that mobile backhaul, residential and business services are all treated equally and that for PIA all restrictions against the services that can be carried over a fibre are removed.

Fujitsu note that some ambiguity exists where the mobile base station resides within an open access network operator's access network. Is this mobile backhaul or just another access service? Fujitsu note that its only differentiator from a standard access service is a requirement for synchronous Ethernet.

Beyond this Fujitsu have no comment.

Question 7: Do you think there are other sources of demand for symmetric broadband origination outside the services mentioned above which are relevant to our assessment? If so, please explain your reasons.

Response

Potentially community networks (such as a DIY wi-fi network using backhaul to reach a service provider) could fall part way between a residential and a business service.

Question 8: Do you agree that the three parts of our analytical approach discussed in paragraph 1.31 are still relevant and continue to provide an effective tool for assessing competitive conditions and for considering regulatory obligations? In particular, do you agree with Ofcom that:

8.1 the approach to identifying geographic markets used in the last BCMR is still appropriate, or is there any additional perspective that we should appraise to inform our competition assessment?

8.2 the definition of the CELA from the last BCMR is still relevant? and

8.3 there continues to be a trunk market which is national in scope? Please explain why.

Response

Fujitsu have no comment to make.

Question 9: Do you think that Ofcom should consider the extent to which other local geographic markets exist in the UK outside the CELA, and excluding Kingston upon Hull? Please explain the reasons for your answer.

Response

Fujitsu have no comment to make.

Question 10: In the last BCMR, we found no SMP provider in the market for high bandwidth 622 Mbit/s TISBO and high bandwidth AISBO provided at speeds above 1 Gbit/s in the UK and, separately, in Kingston upon Hull. Do you consider that deregulation has worked well in these markets? Do you think that the competitive conditions in these markets have improved, or do you consider they have deteriorated? Please explain, providing examples where appropriate, based on your company's first-hand experience.

Response

Fujitsu have no comment to make.

Question 11: In the last BCMR, we also found that BT had no SMP in the CELA for the provision of wholesale leased lines (PPCs) at speeds above 2 and 8 Mbit/s and up to, and including, 155 Mbit/s. Do you consider that deregulation has worked well in these markets? Do you think that the competitive conditions in these markets have improved, or do you consider they have deteriorated? Please explain, providing examples where appropriate, based on your company's first-hand experience.

Response

Fujitsu have no comment to make.

Question 12: In the last BCMR, we found that BT had SMP in the market for analogue and low bandwidth digital retail leased lines and imposed SMP obligations on BT as a result. The remedies were designed to ensure the continued availability of these legacy products at reasonable prices as well as to provide transparency and regulatory certainty to BT's competitors in this market. Do you have a view as to how these remedies have worked? Do you consider that we should continue to impose regulatory obligations on BT in this market if we were to find SMP or we should rely on wholesale remedies alone? Please explain your answer.

Response

Fujitsu have no comment to make.

Question 13: What are your views on how the current remedies have worked in promoting downstream competition?

Response

Fujitsu have no comment to make.

Question 14: How effective have the current remedies been in addressing the market failures identified in the last BCMR and in supporting competition and market entry? Please elaborate with some examples.

Response

Fujitsu have no comment to make.

Question 15: How effective have the regulated access products been from an operational perspective? Please provide examples where appropriate to illustrate your answer.

Response

Fujitsu have no comment to make.

Question 16: Do you consider that the current set of remedies should be simplified? If so, how?

Response

Fujitsu have no comment to make

Question 17: Do you consider that the scope of the charge control was correct in terms of the products and services subject to the control? Has the charge control been effective? Looking ahead, what changes, if any, do you consider would be appropriate for any future charge control(s)?

Response

Fujitsu have no comment to make

Question 18: What are your views on the role that passive remedies could play in this market for the promotion of downstream competition? In your view, what implications might adoption of passive remedies have on the provision of active remedies?

Response

Although subject to dispute with regards to some aspects, PIA has made it possible for new access network providers to compete with BT Openreach thus providing an opportunity for competition within the UK access network. This is particularly important given the requirements relating to state aid and the current BDUK procurement activity.

However the current PIA offering excludes business services and mobile backhaul services which significantly disadvantages the user of PIA versus BT Openreach. The omission of these services from PIA means that PIA as it stands does not therefore meet the requirements set out by the EU regulator for unbundling the access network.

This is problematic with respect to BDUK because any operator competing with BT Openreach cannot use the duct infrastructure to support businesses and mobile operator backhaul within the Open Access Network, while BT Openreach can. This significantly impacts the business cases of companies bidding for BDUK contracts against BT

Openreach and must throw into doubt compliance with the EU rules regarding state aid because PIA does not fully support physical unbundling.

An Open Access Network operator must be able to support all of the homes and businesses in an area. It is clearly problematic if a residential customer can get a high quality low cost symmetric broadband service (potentially up to 1 Gbps) but a business has to pay significantly more because of the PIA rules. The fact that this restriction prevents an integrated business/residential/mobile infrastructure to be deployed by an Open Access Network operator will also result in fewer homes receiving high speed broadband. This is because small residential developments in the vicinity of a business park cannot share the backhaul infrastructure (because PIA cannot be used to the businesses) and are therefore (simply by regulation) uneconomic to serve. If PIA was allowed to the businesses then both the business park and the residential customers could be served by the open access network and share the same duct back to the operator's PoP. A similar argument applies to homes on routes to mobiles base stations that can potentially be served by PIA.

Another consideration is that if mobile/wireless spectrum is used to provide broadband access in very remote areas, where fibre/copper cannot be used, this infrastructure cannot itself utilize PIA even though many of its customers are residential broadband customers. This appears to be inconsistent when compared with the scenario where PIA can be used for backhaul from a cabinet that provides residential broadband services.

As a minimum therefore PIA must be expanded to remove all restrictions on the customers that can be served or the services offered with it where PIA is used as the basis for an Open Access Network serving a mix of residential and business (including mobile and wireless backhaul). This must also ensure that the network technology is not mandated, point-to-point fibre, PON and VDSL are all valid technologies for service delivery. Failure to do this will disadvantage customers in the final third and render the BDUK tender process itself questionable.

Note an Open Access Network means one supporting as a minimum a VULA type service, e.g. NICC ALA.

Fujitsu believe these changes to PIA should be accelerated ahead of the full completion of the market review so as to support the BDUK tendering process.

As to the wider question of the impact of PIA on business services Fujitsu make the following observations.

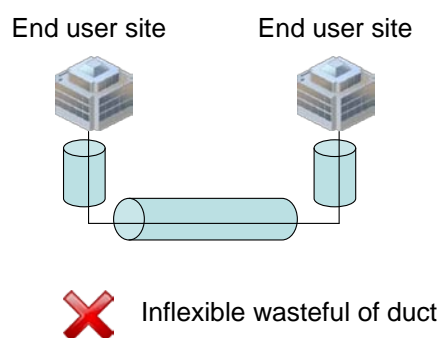
The biggest risk is cherry picking i.e. whether PIA should be available to companies wishing to serve just businesses or offer mobile backhaul in an area thus potentially constraining finite access network resources for their niche service offerings. This comes down to the benefits of competition against the potential risk of damaging the viability of provision to an area by allowing cherry picking of the most lucrative business customers. This concern may stop Ofcom allowing PIA to be used unless it is part of a full open access offering as discussed above.

There is an argument that allowing PIA for business and mobile backhaul services will encourage higher bandwidth services at lower costs than not allowing PIA. This benefit is most likely to be seen initially at the high end where dark fibre, WDM or 10G/n times 1 G services will become cheaper than they are today. This can of course be countered by the incumbent reducing their prices to bring them more into line with the actual cost of providing the services, since there is a definite cost of utilizing PIA. Today's active services, if flexible and priced based on the true cost of delivery, should be cheaper than PIA certainly at bit rates of 1 Gbps and below.

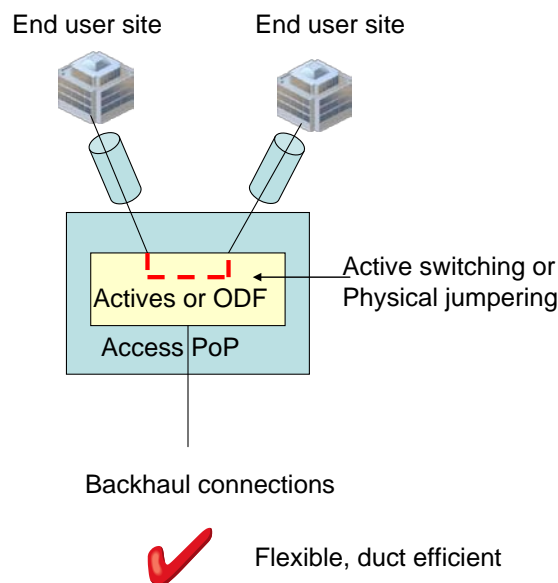
This argument might mean that a cherry picking operator would lose out to a full service operator as the full service operator benefits from economies of scale. Whether this would apply in an area where adequate broadband is not yet provided is less clear.

It should also be noted that the duct space is finite, and in some locations scarce. It is therefore more space efficient to serve a large number of customers in a fibre bundle than the equivalent number of customers in smaller bundles. Inefficient use of duct space will be an issue if direct physical business to business connections are allowed. If it is not limited in any other way Fujitsu believe that the scope of PIA should be limited to prevent end customers (i.e. businesses), from connecting directly to each other using the passive infrastructure because this will lead to wasteful use of limited resource. It would also be subject to churn as businesses relocate. In order to prevent this Fujitsu suggest the following.

- PIA should not be permitted for services originating at one end user site and terminating at another without passing through a point of flexibility in the domain of the access network. This point of flexibility must permit flexible connections between end user sites and between end user sites and the backhaul network, either by active equipment or by physical fibre jumpering.



Example of a direct connection between end users which must not be permitted.



Example of a flexible connection between end users.

In respect to trunk/backhaul services, Fujitsu note that there is a lack of compelling layer 2 services for backhaul of ALA traffic from access networks because of the bandwidths required.

This means that today an open access network requires dark fibre for backhaul to a point of common interconnect. This has an unfortunate consequence that because of the nature of the UK's fibre tax the access network operator is incentivised to deploy either WDM or 100G Ethernet interfaces instead of a more natural (i.e. cheaper when ignoring fibre tax) n times 10Gbps backhaul solution.

Fujitsu believe that the choice and competitiveness of backhaul within the final third is very limited when compared to large cities and towns within the UK. It is Fujitsu's view that market intervention (possibly via a passive remedy such as PIA) will be required within this area.

Question 19: Have business connectivity markets changed since the last review? If so, how? How might business connectivity markets develop during the next four years?

Response

Fujitsu have no comment to make on the first part of the question. As regards the second part of the question, Fujitsu expect that open access networks and PIA will drive higher bandwidths and lower costs for business connectivity.

Question 20: Do you have any comments about arrangements for withdrawing regulations as TI services reach the end of their lives?

Response

Fujitsu have no comment to make

Question 21: Are there any other issues or views you would like to put forward that are not mentioned in this paper?

Response

Fujitsu have no comment to make