Report for BT

Market definition in the Ethernet and WDM business connectivity markets

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Contents

1 Executive summary

1. BT commissioned Analysys Mason to contribute to its response to Ofcom's Business Connectivity Market Review consultation, published 15 May 2015 (the "Consultation Document"). We focus on the product market definition, as set out in Section 4.2 of the Consultation Document. Our focus is on the substitutability of services of different bandwidth, based mainly on price and cost evidence in the market. We do not consider the geographical market definitions set out in the Consultation Document, nor do we focus on the substitutability of services offered using different technologies.

2. Ofcom has set out two proposed business connectivity market definitions in Section 4 of the Consultation Document. These are:

   - Traditional Interface Symmetric Broadband Origination ("TISBO"), which includes leased line services using legacy analogue and digital interfaces.

   - Contemporary Interface Symmetric Broadband Origination ("CISBO"), which includes leased line services using modern interfaces, including Ethernet and WDM, of all bandwidths.

3. In contrast to its findings in the previous Business Connectivity Market Review (BCMR),[1] Ofcom has proposed a single CISBO market, containing all bandwidths and technologies. It has argued that there is a "chain of substitution" that links low bandwidth services with high and very high bandwidth services.

4. It is our view that there is a break in the chain of substitution between Ethernet services up to and including 1Gbit/s bandwidth and those above 1Gbit/s bandwidth.

5. Whilst it is evident that price differentials have narrowed since the last BCMR, our analysis suggests that the current price differentials are still significant enough to limit customer switching between services at different bandwidths. It is also evident that the cost of Ethernet and optical equipment has fallen since the last BCMR. However, there are technical and operational differences between services at different bandwidths that impose additional costs, beyond the basic equipment costs, and present barriers to switching between services at different bandwidths.

6. We have performed a simplified hypothetical monopolist[2] test that indicates that the prices of ≤1Gbit/s and >1Gbit/s services are such that they do not constrain each other either up or down the bandwidths.

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[1] Ofcom Business Connectivity Market Review Consultation Document, 18 June 2012.

[2] A hypothetical monopolist test is used to determine whether two products (A and B) are in the same market. It imagines a monopolist offering product A. It tests whether the monopolist could profitably impose a small significant non-transitory increase in the price (SSNIP) of product A, or whether customers would migrate in sufficient numbers to product B to prevent this. If the SSNIP can be imposed profitably, then products A and B are not considered to be substitutes, and are not considered to be in the same market.
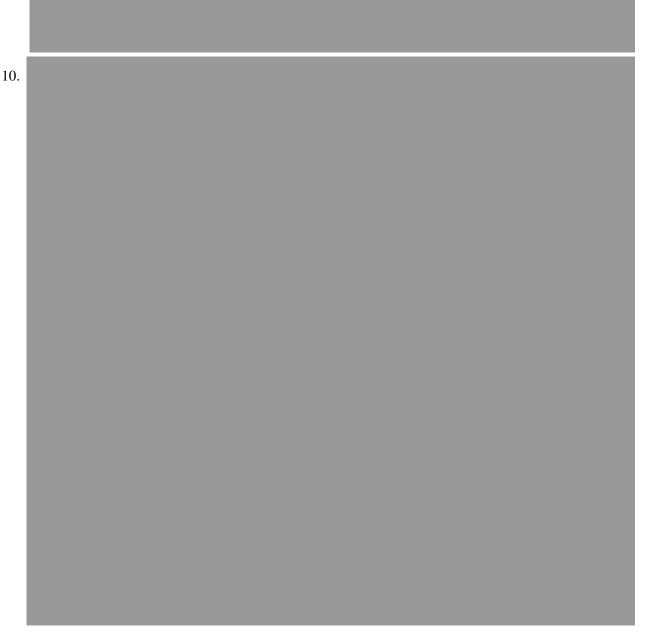
7. This simplified test focused on the total cost of ownership (TCO) and the total cost of migration on an end-to-end basis, and allows us to assess the likelihood of migration up or down bandwidths as the result of a SSNIP. Our test is not a true hypothetical monopolist test as we have not factored in the potential impact of price elasticity of demand. However, we do not believe the impact of price elasticity of demand to significantly change the results, particularly as business bandwidth demand will be much less elastic than consumer demand. We therefore believe that our results are still valid to a first approximation.

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11. Finally, there are sufficient technical and operational differences between ≤1Gbit/s and >1Gbit/s Ethernet services that the required engineering work to perform the migration imposes a barrier to switching between these services. In addition, there are also sufficient technical and operational differences between the services offered using Ethernet and WDM technologies that the required engineering work to migrate imposes a barrier to switching between them when moving up and down bandwidths. In particular:

- An Ethernet circuit requires two sets of customer premises equipment (CPE) linked by a single fibre. The ≤1Gbit/s and >1Gbit/s CPE are different, and have different capabilities. This means that there is engineering and reconfiguration work required to migrate between these services.
- In addition, the ≤1Gbit/s CPE only supports a single service (e.g. 1Gbit/s) per link. That is, in order to deploy multiple 1Gbit/s links, multiple fibres and multiple pairs of CPE are required. This imposes additional costs on customers installing multiple 1Gbit/s links.

- A WDM service requires a fibre pair and different CPE compared to an Ethernet service. This imposes additional costs on migration between WDM and Ethernet services, as a new fibre pair and a new CPE are required.

12. Based on our analysis, we believe there is a break in the chain of substitution between ≤1Gbit/s and >1Gbit/s services. Hence, the CISBO market, as defined by Ofcom, could comprise up to two separate markets – a "low bandwidth CISBO" market for bandwidths up to and including 1Gbit/s; and a "high bandwidth CISBO" market for bandwidths above 1Gbit/s.