Future of interconnection and call termination

Response to Ofcom's first consultation

1. Executive summary

Internet protocol (IP) networks have the potential to reduce the costs of voice services, increase competition and bring important benefits to consumers. However, Ofcom's failure to regulate appropriately BT's legacy time division multiplexing (TDM) network means that there are inadequate incentives on BT (and other communication providers, CPs) to migrate to IP networks in a swift and efficient way.

Ofcom must use this consultation and the next narrowband market review to (i) create appropriate incentives on BT (and other CPs) to support and carry out a swift and efficient migration from TDM to IP, (ii) ensure a more even playing field between BT and other CPs in an 'all-IP' world, while (iii) recognising that BT's market power is unlikely to decrease significantly until at least the end of the next narrowband market review period.

In the next narrowband market review, Ofcom should therefore:

a) require that TDM operators (including BT) bear the costs of TDM to IP conversion, switching and conveyance. Under-investment in IP technology and the continuation of TDM networks stifles migration, distorts competition and ultimately prejudices customers;

b) regulate BT's IP and TDM interconnection circuits and maintain the end-to-end access condition that applies currently to BT. While the migration to IP might weaken BT's market power in the long term, BT will retain its significant market power (SMP) in wholesale call origination (WCO) and remain a major (and the main) transit and terminating operator until at least the end of the next narrowband market review period;

c) refrain from taking regulatory action in relation to IP interconnection standards. Industry engagement will be sufficient to prevent consumer harm arising from a lack of standardisation given existing commercial and regulatory incentives; and

d) adopt a LRIC-based charge control for the future regulation of fixed and mobile call termination rates.

2. Interconnection and end-to-end connectivity

BT will retain its SMP in WCO and remain a major (and the main) transit and terminating operator until at least the end of the next narrowband market review period. In addition, the current regulatory framework rewards BT for maintaining a legacy network, while CPs with, or migrating to, IP networks are (or risk) being penalised, which fails to create proper incentives to support the migration to IP networks.

In the next narrowband market review, Ofcom should therefore:

a) require BT (and other TDM operators) to bear the costs of TDM to IP conversion, switching and conveyance;

b) regulate BT's IP and TDM interconnection circuits and maintain the end-to-end access condition that applies currently to BT;

c) refrain from taking regulatory action in relation to IP interconnection standards; and

d) consider reviewing how BT charges for number porting.

2.1. BT will have SMP in WCO for the duration of the next narrowband market review period

While BT's market power in relation to the supply of WCO services should diminish in the future, BT is likely to retain its SMP until at least the end of the next narrowband market review period. Any finding to the contrary needs to be backed up by sufficient data and evidence rather than the expected outcome of current market trends.

Currently, if CPs use BT's wholesale line rental (WLR) services, they also need to use its WCO services. With BT's intention to remove its WLR services from the market, a significant number of these lines are likely to migrate to BT's single order generic ethernet access services, which do not require call origination to be provided by BT. CPs that have the requisite (IP voice switching) infrastructure will therefore be able to originate calls themselves. We agree that this will weaken BT's position in WCO.

BT's current plan is however that WLR services will be available to purchase until 2023 and will only be completely phased out in 2025, such that the effects of this transition are unlikely to have played out before the end of the next market review period.

In addition, CPs that do not have the requisite (IP voice switching) infrastructure will either have to build it – which we think is highly unlikely considering the costs involved – or source WCO from a third party. As most of these CPs already have commercial relationships with BT for the supply of

broadband services, we expect BT to remain the main provider of WCO to these CPs.

The situation during the next market review period is therefore unlikely to be markedly different from the current situation, where BT has SMP in WCO despite alternatives to its WLR and WCO services already being available. Any finding to the contrary needs to be backed up by sufficient data and evidence rather than the expected outcome of current market trends.

2.2. BT will be a major (and the main) transit and terminating operator for the duration of the next narrowband market review period

IP networks have the potential to offer the flexibility, security, resilience and scalability to enable direct interconnection between networks without the use of BT as a necessary transit operator. However, there is no certainty that IP networks will evolve in that direction. Certainly, we doubt that any substantial changes in how networks are organised will have completely played out until at least the end of the next narrowband market review period and it is likely that BT will remain an important transit and terminating operator.

In particular:

a) Large CPs may not have sufficient incentives to interconnect with every single network directly and instead rely on BT's network as this may be more cost effective.

b) Even if large CPs do decide to invest in direct interconnection with other networks, this is likely to take time to develop.

c) Smaller/new CPs may not be able or willing to make the necessary investments to interconnect with other networks and will be relying on BT's network.

d) In any case, unless and until there is a widely available central telephone numbers database, BT, as the owner of the vast majority of UK fixed numbers, will continue to have an essential role as a porting (and so transit) network operator. Previous failed attempts to create such a database may suggest this could be difficult to achieve in the short term.

e) BT has a very strong position as a retailer of standalone fixed voice services and broadband services. In 2016 it had a market share of 71% in the market for standalone fixed voice access to voice-only customers based on number of lines [1] – we expect that BT will convert most of these customers to its IP offering. In 2018 it had a 34.6% market share of residential and small business broadband

[1] Ofcom review of the market for standalone landline telephone services, pages 16-17, published on 26 October 2017.

connections. [2] On that basis, even in an 'all-IP' environment, BT is likely to remain the main terminating operator.

2.3. Ofcom should require BT to bear the costs of TDM to IP conversion, switching and conveyance as soon as possible

An originating provider (OP) with an IP network routing calls to numbers residing on BT's TDM network has three options: (i) commercially negotiate access to BT's IP Exchange product (IPEX); (ii) use its own (or a third party's) media conversion, switching and conveyancing assets; or (iii) use a combination of the two. Under each of these options the OP will incur a net cost, while BT is unlikely to provided it prices above costs. In addition, considering BT's significant role as a transit and terminating operator, most CPs will have no choice but to interconnect with BT on a regular basis.

As a result:

a) BT is unlikely to have any incentive to conduct good faith commercial negotiations for IPEX as it can continue to leverage its existing SMP to earn high profits on largely depreciated old TDM assets, and this has certainly been our experience to-date. [3] It is also unlikely to have any incentive to encourage migration to IP networks; even less so if it views the 'all-IP' future as more competitive.

b) Other CPs that are yet to develop an IP network will risk being overcharged for IPEX or forced to maintain or invest in media conversion, switching and conveyancing assets if they migrate at a different rate to BT's rate. This diminishes their incentive to migrate efficiently and swiftly.

c) Other CPs that already have IP networks are forced to maintain investments in outdated and inefficient assets (or accept being overcharged for IPEX).

BT is therefore being rewarded for maintaining a legacy network, while CPs with, or migrating to, IP networks are (or risk) being penalised. This distorts competition, which in turn harms consumers through higher prices and lower quality services (for example, through the delayed availability of HD voice calling). This is contrary to Ofcom's stated aims for this consultation:

> *"In considering the regulatory options, we have had regard to [...] in particular encouraging the provision of network access and service interoperability, **efficiency and sustainable competition, efficient investment and innovation, and the maximum benefit for customers**. In particular, we want to enable providers to make efficient technology choices [...]."* [4]

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2 Ofcom telecommunications data revenues, volumes and market share update Q4 2018, table 16, published on 2 May 2019.

3 See Sky's response to Ofcom's 2016 narrowband market review dated March 2017 and Sky's letter to Ofcom regarding the regulation of IP interconnection dated 29 June 2018.

4 Paragraph 4.2.

In light of this, we agree that an unpredictable migration could harm CPs. Migrating CPs would be exposed to the risks described above. CPs with IP networks would be unable to organise the transition of their networks towards IP/IP rather than IP/TDM interconnections. A public mandated BT migration timetable would allow CPs to plan their own migration or transition to match BT's, thus reducing the risks identified. Requiring BT to offer the regulated fixed termination rate (FTR) for each number block at both the DLE and on its IP network simultaneously for a specified time period following the re-designation of that number block to its IP network would offer CPs some flexibility as to how closely they match BT's migration timetable. We support both proposals.

They are however insufficient to address the risk of harm to CPs and consumers fully and to guarantee that all parties involved have a sufficiently strong incentive to migrate swiftly and efficiently to IP networks. Indeed, in the absence of additional regulatory intervention:

a) BT would still have no incentive to sell IPEX on a commercially viable basis;

b) other CPs with TDM networks would be forced to adapt the pace of their migration to BT's migration; and

c) BT would continue to be rewarded for maintaining a legacy network, while early adopters would continue to be financially penalised.

Ofcom should therefore require BT to bear the costs of TDM to IP conversion, switching and conveyance to guarantee a swift and efficient migration.

Alternatively, and at the very least, BT's charges for media conversion, switching and conveyance should be charge-controlled on a LRIC basis. Although this is an insufficient solution as early IP technology adopters would continue to be penalised, at least BT would not be allowed to make a profit from its inertia.

Either way, Ofcom should regulate as soon as possible and certainly by April 2021 (when the current narrowband market review period ends).

2.4. Ofcom should regulate BT's TDM and IP interconnection circuits in the next narrowband market review

The extent to and duration for which interconnection regulation will be required is likely to depend on how (and when) the UK's future 'all-IP' network is structured and evolves and Ofcom should impose regulation on BT's TDM and IP interconnection circuits until at least the end of the next narrowband market review period.

Indeed:

a) BT is likely to retain its SMP in WCO and remain a major (and the main) transit and terminating operator and so will continue to be able to leverage this into interconnection with its network, for example by overcharging for the supply of interconnection circuits or discriminating between CPs.

b) This ability to leverage its market power into interconnection with its network is unlikely to be affected by the move to IP networks. We agree that in an 'all-IP' environment, interconnection between CPs and BT will occur at far fewer points and that as a result interconnection costs to BT's IP network are likely to be lower than with TDM networks. We however disagree that *"the ability BT has to leverage its SMP in WCO and WCT into interconnection to its* [IP] *network"*[5] will necessarily be reduced as a result. Rather, BT will retain its ability to leverage its SMP in WCO and wholesale call termination into interconnection to its IP network, but the effect of this on CPs may be more limited than in relation to its TDM network as the overall cost to CPs should be lower.

c) Maintaining a regulatory treatment that favours TDM networks over IP networks by only imposing a charge-control on TDM interconnection could make TDM interconnection cheaper, therefore creating a potential further disincentive to migration.

2.5. Ofcom should maintain the end-to-end access condition that currently applies to BT until the end of the next narrowband market review period

As explained above, BT should remain a key transit and terminating operator and the pattern of interconnection is unlikely to change substantially until at least the end of the next narrowband market review period.

On that basis, without the end-to-end access condition that currently applies to BT: (i) BT might still not have sufficient incentives to ensure end-to-end connectivity; and (ii) CPs relying on BT as a transit operator could still face the risk of BT refusing to purchase call termination on reasonable terms. Our initial view is therefore that the end-to-end access condition that currently applies to BT is likely to be required during the next market review period.

2.6. BT's charges for number porting should be reviewed

Although this is not directly raised in the consultation, the cost base in relation to porting charges should be much lower in an 'all-IP' environment. BT should therefore either not be allowed to charge for number porting or the LRIC of porting should be reviewed based on IP costs.

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5 Paragraph 4.28.

2.7. Industry engagement in relation to IP interconnection standards will be sufficient to prevent consumer harm arising from a lack of standardisation

While we agree that a lack of standardisation of IP interconnection could give rise to consumer harm, we consider that this is unlikely to materialise and that industry engagement will be sufficient to ensure adequate IP interconnection, such that no regulatory action from Ofcom is required at this stage.

In particular:

a) CPs will have strong commercial and regulatory incentives to ensure seamless interconnection given customer expectations and existing regulatory obligations.

b) Divergence between CPs should be limited and easily dealt with. We expect most (if not all) CPs will adopt session initiation protocol standards. While there are optional parameters within these, and CPs are likely to make different choices, session border gateways (i.e. the points at the end of IP networks used to interconnect) are hugely configurable, such that any issues resulting from differences between the IP standards of CPs should be easily solvable.

c) Imposing specific IP standards on CPs would place an unnecessary and potentially prejudicial burden on them. CPs that have already adopted specific standards (such as Sky), will have configured their networks on that basis. While the interconnection elements of networks (through the session border gateways) are easily configurable, changes made to other parts of networks would be more difficult to reverse or amend. Imposing specific standards could therefore result in substantial harm to early IP network adopters. More generally, imposing specific standards would limit the flexibility of CPs in the development of their networks in the longer term. This could also increase costs to CPs if such standards were made UK-specific; e.g. this would likely result in suppliers being required to adapt their products and services to these UK-specific standards and hence charging more for these.

3. Call termination

In the next narrowband market review, Ofcom should adopt a LRIC-based charge control for the regulation of fixed and mobile call termination rates and CPs should retain discretion to designate points of interconnection (POIs) at which the FTR will be available, but subject to limitations.

3.1. Ofcom should adopt a LRIC-based charge control for the regulation of fixed and mobile call termination rates in the next narrowband market review

At this stage, we would be in favour of Ofcom continuing to set prices based on LRIC for fixed and mobile termination rates. This would:

a) offer stability and certainty by maintaining the current regulatory framework;

b) limit the risks of arbitrage or artificial inflation of traffic by limiting the opportunities for this (as explained by Ofcom in paragraphs 7.19 to 7.21 of the consultation); and

c) be unlikely to result in disincentives to investment or a negative impact on competition. The focus of retail competition has shifted to data services and the cost of telephony components in retail offerings has decreased. As a result, telephony components represent only a small part of overall retail prices and are not key drivers of retail competition. On that basis, the risk of regulation distorting competition or disincentivising investments are limited. In any case, setting the price of call termination on a LRIC basis should ensure these remain low, which should ultimately benefit consumers.

3.2. CPs should retain discretion to designate POIs at which the FTR will be available subject to limitations

We agree that in an 'all-IP' environment, conveyance costs should not be strongly distance dependent. However, if CPs have complete discretion to designate only one POI at which an FTR would be available, this could impact the resilience of the network and limit the availability of such an FTR (for example, in relation to smaller CPs with limited networks).

We therefore propose that CPs retain their discretion to designate POIs at which an FTR would be available, but that CPs need to (i) designate at least three geographically distinct POIs at which an FTR would be available to ensure adequate resilience, (ii) ensure that these POIs can serve any end points on their networks, and (iii) ensure that these POIs are in reasonable geographic proximity to future large scale IP interconnection peering and aggregation sites.

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