
*Ofcom consultation on the future of interconnection and call termination*

**TalkTalk response**

**June 2019**

**NON-CONFIDENTIAL**

This is TalkTalk Group's response to Ofcom's consultation on the future of interconnection and call termination published on 11 April 2019.

## Overview

1 We welcome Ofcom's decision to consult on how the regulation of interconnection, call termination and E2E connectivity may need to evolve as phone networks complete the migration to IP technology. Early engagement on industry developments, and their implications for regulation, in advance of the 2021 review of interconnection and call termination, is appreciated.

1.1

1.2 As Ofcom notes at §2.7, TalkTalk's core voice network is already IP. We are preparing for the transition to IP in the access network along with the rest of industry. Due to BT's extensive TDM network and its laggard approach to upgrading to IP, we have invested heavily in TDM interconnect technology with BT to access the lowest cost rates [✂].

1.3 We intend to migrate to IP interconnection with BT as soon as possible [✂]. To plan an orderly, efficient migration to IP interconnection, we need BT to announce a clear, structured approach to its IP migration and for it to have robust incentives to deliver to its timetable. Ofcom's regulatory approach must encourage this move through applying regulation to IP in a way that supports a smooth transition.

## Regulation during migration to IP

2 In general, when reviewing the approach to regulation during the migration to IP, we consider that Ofcom should make it an explicit goal to expedite the move to IP as quickly and as efficiently as possible while minimising industry disruption. TDM is at the end of its life and the transition to modern IP technology will be impeded if BT continues to sweat its assets rather than support the move to IP across industry. We believe that taking a regulatory approach which explicitly favours supporting the migration to the modern, more efficient technology would be consistent with the precedent set by Ofcom's approach to regulating ISDN in the 2017 Narrowband Market Review. However, while in that case prices were set far in excess of costs to expedite a move away from the legacy technology, we favour a different approach to incentivising the move away from TDM, as set out below.

2.1

2.2 As stated above, TalkTalk's network has an IP core and we are preparing for transition in the access network. The planning and execution of the access network transition to IP, and the arrangements for interconnection between networks during and after this transition, is highly dependent on BT's plans. There are currently 40,000 different number blocks that route to BT on TDM at 600 DLEs so the process of migrating to IP will be considerable. The management of the process by BT will have a material impact on CPs who will face costs associated with the resources and planning activities required to support the change. Costs will include retiring physical infrastructure and backhaul arrangements with third party providers in different parts of the country, as set out at §2.7 below. We need to be able to plan the change and finance it as a multi-year programme. It is therefore imperative that BT is required to conduct the migration in an efficient manner so that CP costs and disruption are minimised.

2.3 [✂]

2.4 [✂]

We would welcome regulatory support for greater transparency from BT, but also see a role for Ofcom in encouraging BT to cooperate more closely with its customers on IP migration in advance of the 2021 review of the interconnection and termination markets. We note that we require [✂] notice of any change to interconnection plans in order to support our planning processes.

2.5

The applicability of fixed call termination rates

*Q4.1: Do you agree that if BT's migration to an IP network is unpredictable, it could result in increased charges for providers routing calls to its network? Are there any other issues that might arise as a result of its migration?*

We agree that if BT's migration to an IP network is unpredictable it will result in increased charges for providers routing calls to its network. We need clear information on the timetable for BT's migration in order to plan for the retirement of TDM and media gateway equipment and to cease TDM backhaul contracts in an orderly and efficient fashion.

2.6

The following factors would contribute to increased costs arising from a lack of transparency and predictability of BT's migration:

2.7

- Maintaining TDM and media gateway equipment: if we are unable to plan for the efficient retirement of legacy equipment, we will face additional maintenance costs over an extended time period and be forced to make inefficient technology choices;
- Continuing TDM backhaul costs: if we are unable to exit TDM backhaul contracts in a timely manner and with sufficient notice, [✂].
- CPs need to be able to remove their TDM equipment by exchange and exit backhaul contracts on a geographic basis. Backhaul providers typically supply CPs in specific areas of the country, so this approach would support better co-ordination between CPs and backhaul providers; and
- Ongoing IP conversion costs: we will face continued IP conversion costs from BT until they complete their migration when we interconnect via IP Exchange (IPEX) to TDM. Under the current situation, the pricing for IPEX is negotiated on a commercial basis [✂].

2.8 Efficient migration will depend on full transparency of BT's migration plans and ensuring it is sufficiently incentivised to deliver on its plans. An exchange-by-exchange approach to migrating number blocks to IP is needed to support CPs in developing robust plans for retiring TDM equipment at each exchange in an efficient manner and to manage the costs outlined above. Migration should be organised so that all number blocks attached to a DLE are transitioned within a limited timescale. [✂].

*Q4.2: Please state which of these measures you consider would be appropriate for securing efficient migration and why?*

2.9 We consider that mandating the pace of migration (option 2) would risk creating potential unintended consequences of Ofcom imposing timescales on BT rather than BT setting them within certain parameters defined by Ofcom. We believe it is better to apply options 1 (Timetable) and 3 (FTR at the DLE and at an IP POI) in combination with some additional protections and incentives to migrate as proposed below.

2.10 As proposed under option 1, BT should be required to set a timetable for migration of each number block to IP for interconnection purposes and to specify when the FTR will be available at an IP POI for each number block. In addition, we consider it appropriate for Ofcom to require BT to take an

exchange-by-exchange approach to re-designation of number blocks to IP and to target locations in an efficient manner.

BT should be required to provide the indicative exchange-by-exchange plan with at least 12 months' notice and confirm the plan with 6 months' notice. Any changes to the plan after this point would require at least 3 months' notice, unless there were exceptional circumstances.

2.11 In addition to requiring BT to publish a timetable for migration (option 1), we consider that Ofcom should also apply Option 3 – requiring BT to offer the regulated FTR for each number block at the DLE and on its IP network in parallel following the re-designation of that number block to its IP network for the purposes of interconnection (although we suggest some modifications to the approach as discussed below). This will support CPs in managing the migration of interconnection arrangements in an efficient manner and avoid a 'cliff-edge' for CPs by applying the FTR simultaneously at the DLE and the IP POI for a period of time.

2.12

We consider that Option 3 should be implemented in a way that ensures all parties are incentivised to migrate to IP in an efficient manner and without undue delay:

2.13

- Rather than waiting for the full number block to be re-designated, the FTR should apply at both the TDM and IP interconnects for a set time prior to the migration of the number block, ensuring that proactive migration by CPs is not commercially penalised by BT; and
- The FTR on BT TDM should be set below costs decreasing over time on sliding scale to incentivise BT to migrate within a specified time period.

The migration timeframe should be subject to further consultation with industry stakeholders.

*Q4.3: Would the regulation of charges for media conversion, switching and conveyance for calls routed via IP networks be an effective means of preventing excessive charges and promoting an efficient migration to IP?*

2.14 We consider that regulation would be an effective way of preventing excessive and opaque charges for media conversion, switching and conveyance for calls routed via IP networks and would therefore help to promote an efficient migration to IP. We also agree with Ofcom that the regulated charges could be gradually reduced over time to promote a more efficient migration. Ofcom should also consider whether it would be appropriate to set an end date, at which point media conversion costs would be set at zero for any number blocks not yet migrated. In addition to preventing excessive charges, regulation would support the predictability of these charges [✂]. [✂]. Regulation of media conversion, switching and conveyance for calls routed via IP networks should be applied in addition to Options 1 and 3 discussed above. We consider that this would provide sufficient certainty for CPs to plan their own migrations to IP interconnection in advance of BT's migration if it was more efficient for them to do so, rather than facing the uncertainty and variability of commercial IPX rates.

2.15 Regulated rates for media conversion, switching and conveyance for calls routed via IP networks to numbers still residing on TDM should reflect the efficiently incurred incremental costs. We would therefore expect that the regulated rates should be minimal as the costs associated with supporting media conversion, switching and conveyance have already been sunk, and fixed costs can be recovered from charges on other products such as WLR. We believe that BT has already invested in the capacity to support IP to TDM conversion on IPX via interconnects to major UK operators with significant volumes of traffic. We therefore consider that there is likely to be sufficient capacity to

support the total traffic volumes without additional investment, especially taking into account the continued decline in landline calls. The costs associated with media conversion should therefore be minimal and this should be reflected in any regulated charges. Low media conversion charges would increase the incentives on BT to switch away from its legacy TDM technology.

*Q4.4: Do you agree that it remains appropriate that telecoms providers maintain their discretion to designate a single POI at which the FTR will apply?*

2.16 We agree that telecoms providers should maintain their discretion to designate a single POI at which the FTR will apply, subject to the designated POI having sufficient capacity for all the delivered traffic, being fully resilient, and having failover options available. It is preferred that there should be more than one POI available for CPs to interconnect to guarantee throughput of all traffic offered at the FTR. It should not be made unduly onerous to interconnect and telecoms should not place unreasonable costs on CPs through the re-designation of the POI.

2.17 We consider that the rules around the liability for costs of interconnect rental and set-up charges should be defined on similar terms to today, whereby the originating operator pays the costs of reaching the terminating operator.

Interconnection

*Q4.5: Do you agree with our assessment about how BT's market position in relation to interconnection might change during migration to IP?*

2.18 During migration to IP, it is likely that BT will maintain its SMP in WCO, being the only route for CPs to ingress calls from customers connected via IDA and CPS. This SMP will lessen when the transition to IP is completed.

2.19 Migration to IP may promote competition due to reduced interconnection costs between CPs. However, the viability of smaller CPs maintaining multiple interconnections with other operators, or other operators offering transit to these CPs, is questionable and it is likely that there will still be a significant requirement for BT's continued provision of transit. We are therefore not sure that BT's transit traffic will decline to the extent Ofcom anticipates.

*Q4.6: Do you agree that there is unlikely to be a need to impose regulation on BT's interconnection circuits once migration to IP is complete?*

2.20 We agree that it is unlikely to be necessary to impose regulation on BT's interconnection circuits when the migration to IP is complete. Where operators are both "originators" and "terminators" of traffic, interconnect circuit rental costs are naturally constrained because interconnect is needed in both directions.

*Q4.7: Do you agree that we should continue to regulate BT's TDM interconnection circuits as the industry migrates from TDM to IP based networks?*

2.21 We agree that Ofcom should continue to regulate BT's TDM interconnection circuits during the migration as BT will continue to hold market power. Regulation should apply until migration is fully complete.

*Q4.8: Do you agree that it would not be necessary to impose regulation on interconnection circuits at BT's IP network during migration?*

2.22

We agree with Ofcom's preliminary assessment that regulation of interconnection circuits at BT's IP network is not necessary. However, we believe that more thorough analysis should be completed in the market review to test this assumption.

2.23

## Approach to E2E connectivity

*Q5.1: Do you agree that BT's role is less central to the provision of end-to-end connectivity and that telecoms providers now have a choice of transit providers with whom they can interconnect?*

3

We believe that it is premature to take the view that BT's role is less central to the provision of E2E connectivity:

3.1

- Whilst there are other transit providers, none of them have the reach that BT do, and it would not be practical for smaller CPs to interconnect at the same scale;
- BT will continue to have market dominance in transit since the majority of calls will originate from mobile networks and these networks are mostly likely to default route to BT; and
- BT still has the largest fixed base and therefore it will be necessary to interconnect with them to terminate a large number of calls.

3.2 We therefore consider that it is not clear that there will be sufficient competition in the transit market to warrant a reassessment of BT's position of dominance in the market at this stage.

*Q5.2: How might the transition to IP networks change the pattern of interconnection and how might this affect how E2E connectivity is achieved?*

3.3 The level of investment required to IP interconnect with BT is substantially lower than TDM, which will allow more operators to interconnect directly over time at lower capital cost. We therefore expect this to lead to more variation in the provision of interconnection over the medium to long term, which will affect E2E connectivity.

*Q5.3: Do you agree that General Condition A1 is sufficient to ensure that telecoms providers can obtain interconnection and that additional access obligations may no longer be required to ensure end-to-end connectivity? If not, please explain why and what obligations you think are necessary.*

3.4 At present and in the short to medium term, we do not consider that GCA1 will be sufficient given that BT still has the largest base of fixed customers. We appreciate that this may change over time as the market develops, but we consider that removing the supplementary obligations on BT would be premature at this stage.

## 4 Technical standards for IP interconnection

*Q6.1: Do you agree with our initial view that a lack of standardisation of IP interconnection may give rise to a risk of consumer harm?*

4.1 We agree that a lack of standardisation of IP interconnection carries a high risk of consumer harm arising from lost calls and/or call features. VoIP systems are much more readily available to all parties through the ease of installing open source applications, and these are open to wilful abuse and/or incorrect configuration through lack of experience. Allowing IP interconnects to emerge without proper standards for interoperability could easily lead to consumer harm.

*Q6.2: To what extent is there divergence among telecom providers in respect of the IP standards they are using? Do you consider a lack of standardisation of IP interconnection to be (or likely to be) an isolated issue or more widespread, which may require an industry-wide solution?*

4.2 As Session Border Controller (SBC) vendors are global, they are not all familiar with the UK telecommunications environment. In particular, the arrangements to support interworking with the legacy TDM protocols can be open to different interpretations. This leads to variability in the way different CP solutions perform. Newer collaboration solutions from non-traditional telecommunications vendors (e.g. Microsoft) are good examples of where UK variances are not understood.

*Q6.3: What measures, if any, do you consider may be appropriate to address risks arising from a lack of standardisation of IP interconnection?*

The following measures would be appropriate to address the risks:

4.3

- SIP standards for the UK, coupled with a best practice guide will help to address the risk of accidental deviation from the standardised configuration.
- An industry-wide acceptance test plan for any new interconnects would also be a useful addition, with contractual agreements to back up the standards.

*Q6.4: Would it be useful to consider the case for intervention in relation to technical standards for interconnection ahead of our next market review?*

4.4 Yes, technical standards should be considered in order to ensure that the mechanism of future transcoding is understood and costs between CPs are borne fairly. Currently, IP based CPs must bear the cost of conversion to TDM prior to delivery at BT's DLE, in order to obtain FTR. Conversely, when delivering a call to a CP, BT hands over at the DLE and the CP still bears the cost of conversion to IP to terminate the call. This imbalance should not continue.

## 5 Future regulation of call termination

*Q7.1: What are your views on the factors that we have highlighted as having a bearing on the setting of termination rates? What other developments should we consider?*

5.1 Ofcom has identified an appropriate set of considerations for call termination. At present, termination rates, particularly for landline calls, are at a very low level which is effectively of no relevance in price setting. At a rate of around 0.03ppm, total interconnect payments to landline operators taken as a whole are in the low single digit millions per quarter, and are falling as landline volumes continue their swift decline.

5.2 There does remain the scope for some operators to adopt rogue behaviours which could adversely affect consumers, as identified by Ofcom at §7.29 and §7.41. In light of the low level of termination rates, Ofcom's regulation of fixed termination rates should be focussed on preventing such behaviours.

5.3 The mobile termination rate is somewhat higher, and remains a more significant cost to consumers, both because of the higher rate and the higher usage of mobile phones compared to landlines. Ofcom is correct to highlight the continual fall in the cost of mobile termination with each successive generation of mobile technology. In order to incentivise mobile operators to invest in capacity for

the most recent generation of technology, it should set the termination rate solely on the basis of the up-to-date technology in general usage. At present, this means that the termination rate should be set solely on the basis of the cost on a 4G network. Mobile networks should have been able to amortise their costs of 2G and 3G capacity by now, and Ofcom should not penalise consumers to support these outdated technologies.

*Q7.2: What are your views on the options we present for regulating the fixed and mobile call termination markets? Which appears to be the most appropriate regulatory option?*

5.4 In the fixed line market, the most appropriate option is to adopt light touch regulation. This could be accomplished by adopting an approach of mandated reciprocity with a benchmark in case the operators cannot agree. The benchmark need not be fully cost reflective and it could be set some way above the current level (for example, at 0.1ppm) without imposing meaningful harm to consumers. This would minimise the need for Ofcom to expend regulatory time, and impose burdens on operators, for a charge control which is now largely of academic interest.

5.5 In the mobile market, it appears likely that charges may be some way in excess of costs at present, based on the analysis set out by Ofcom in §7.8. It is also much more material in terms on consumer pricing. Ofcom should therefore continue to set a charge control on a LRIC basis, with the costs solely assessed with reference to those of 4G networks.