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FAIR AND REASONABLE CHARGES FOR GEOGRAPHIC CALL TERMINATION:

COLT'S RESPONSE TO THE OFCOM CONSULTATION.

Non-Confidential

26 November 2010

1 EXECUTIVE SUMMARY

In the UK Colt provides voice and data services to business customers.

Colt originates and terminates geographic traffic by virtue of being directly interconnected with BT and other Communication providers (CPs).

Colt has been disadvantaged by the expired reciprocity agreement in comparison to other CPs because of the structure of its network and the way it routes it outbound traffic.

Colt attempted to remedy this position by means of a dispute with BT (having failed to negotiate a solution) but Ofcom did not uphold the dispute in its draft determination (which at the time of writing is subject to consultation[1]).

Colt welcomes this consultation and favours the second option ('option 2') identified by Ofcom (paragraph 1.24) with two modifications.

In sections 3.1 and 3.2 Colt identifies eight criteria which should be met by a new reciprocity agreement. Ofcom's preferred option 3 meets only four of these. As proposed, option 2 meets six, and Colt therefore suggests two modifications to option 2 to achieve 100% compliance.

The table below analyses the three options against the required criteria:

Criteria	Option 2	Option 3	Option 2 modified
Ensures CP termination rates are not excessive	✓	✓	✓
Recognition of differing footprints	✓	×	✓
Encourages BT build out to CP DLE	×	×	✓
Encourages CP build out to BT DLE	✓	✓	✓
Gives Control to CPs over ToD pricing	×	×	✓
Encourages market for LTT	✓	✓	✓
Prevents 'gaming'	✓	✓	✓
Simplicity (Practicability)	✓	×	✓

The primary reason for having a reciprocity agreement is to ensure that CP termination rates are not excessive. All the options achieve this aim.

The differing geographical 'footprints' of CPs compared with BT's ubiquitous network presence should recognised in the termination rates. Option 2 achieves this; option 3 does not.

BT should be encouraged to build out their network to reach CPs' local switches (the 'right switch' is defined as the one that the called customer is connected to). Neither option as proposed achieves this, but Colt's '*Right Switch Wrong Switch'* modification to option 2 provides the necessary incentives.

Similarly CPs should be encouraged to build their network to BT's network (though not to DLEs in the case of NGN networks) and all options achieve this aim. Note that Colt shares other CPs' concerns that to achieve BT DLE rates, Next Generation Network (NGN) interconnection is presently only possible with BT at local switch level, forcing the CP's NGN interconnect architecture to replicate the legacy TDM network.

Control of time-of-day and day-of-week charging may be important to some CPs. As proposed neither option gives control over charging profiles for CPs, but Colt's proposed scheme to which CPs could opt in provides a solution.

The market for Local Tandem Transit (LTT) should be encouraged and all options achieve this aim.

Similarly all options remove the incentive for 'gaming' – where a CP with two interconnect contracts can achieve a higher termination charge by sending only ST

[1] http://stakeholders.ofcom.org.uk/binaries/consultations/dispute-colt-bt-termination/summary/Colt_and_BT_Termination.pdf

traffic through one of its interconnect agreements and terminating all traffic through the same routes.

Simplicity (or Practicability) of arrangements is achieved by option 2, but option 3 will inevitability lead to CPs attempting to negotiate 'wrong switch' termination rates – and this will lead to disputes with Ofcom.

However, at paragraph 1.25 (bullet point 4) Ofcom state that option 3 is simpler to apply than option 2. Colt does not agree with this assessment.

2 INTRODUCTION

Colt is the leading information delivery platform for European business, enabling its customers to share, process and store their vital business information. An established leader in delivering integrated networking and IT managed services to major organisations, midsized businesses and wholesale customers, Colt operates a 19 country, 25,000 km network that includes metropolitan area networks in 34 major European cities with direct fibre connections into 17,000 buildings and 19 Colt data centres. Colt has made a £4 billion pan-European investment in it's next generation fibre network infrastructure.

In the UK Colt provides voice and data services to business customers. Colt originates and terminates geographic traffic. Colt is interconnected with BT at both Digital Local Exchange (LE) and Tandem levels and has interconnection with several other Communication Providers (CPs).

3 EXPIRED RECIPROCITY AGREEMENT

The former reciprocity agreement ran from 1997 to 2009 over three periods of geographic termination charge control. The agreement was reached by industry under guidelines issued by Oftel as part of their Consultation Statement[2]. At appendix C Oftel made the following points.

> • *Charges for call termination are paid by the customers of other operators, which will be competing with the terminating operator in retail markets. Consequently, operators have incentives to set high call termination charges which raise their competitors' costs.*
>
> • *Operators have weak incentives to minimise costs of call termination because the implications of high costs are faced by the customers of competing operators.*

Oftel concluded that, in the absence of regulation, all licensed operators (including BT but also fixed "OLOs"[3]) would have the incentive and ability to set high geographic termination rates.

At the same time, however, Oftel considered that it would be undesirable to set termination rates by reference to the costs of each CP. It was undesirable because it would distort competition by giving less efficient CPs the benefit of efficiencies achieved by others.

Oftel noted that the implication of this was that charges for call termination should be the same between CPs. One way to implement that would be to derive CP call termination charges from BT's charges. Significantly, however, the call termination service provided by CPs was not the same as the call termination service provided by BT - each CP switch would typically provide termination for a much larger catchment area than each BT switch. A CP providing call termination was effectively offering a mixture of two BT interconnection services, DLE segment and Single Tandem (ST) segment. CP call termination charges were therefore to be a combination of BT's charges for both services.

It is to be noted that the decision to use a mixture of BT's ST and DLE charges was in no part based on how each CP routed calls *to* BT or how much they paid to BT. It was expressly to recognise a difference in geographic footprint (or network topology) and the resulting difference in efficient costs. Crudely, each CP had to convey a call further on average in order to terminate it. BT had more switches simply by virtue of an enduring first-mover advantage borne of the fact that it was the former state incumbent monopoly that had grown to provide universal service in even the most uneconomic areas.

[2] http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/pricing/ncct797.htm
[3] Other licensed operators, now referred to as "Communications providers" or "CPs".

Oftel could have examined the costs of each CP to work out exactly how much extra cost each CP faced as a result of having fewer, larger switches. Quite reasonably, however, Oftel considered it impracticable to assess the costs of each one of the many CPs.

The approach that was agreed upon by BT and industry (in its final form) is described here[4]. In essence, the termination rate that BT pays the CP is the same as the average charge that the CP pays BT, where that average charge is a mix of BT's Local Exchange (DLE) and Tandem (ST) rates in the proportion of minutes sent to each switching layer. Three rates were calculated separately in the three time of day periods; day, evening and weekend.

Whilst this methodology may have had advantages in 1997, its deficiencies are now all too evident.

The principle of recognising the different geographical footprints of CPs compared to BT's ubiquitous network presence is recognised in Ofcom's **option 2** but has been abandoned in **option 3**.

3.1 Benefits

Despite its shortcomings, described below, the expired reciprocity agreement was still delivering three benefits at the time of its expiration:

- It exercised control over CP termination rates (its primary purpose)
- It recognised the difference in BT and CP DLE footprints.
- The MSO element encouraged BT to build network to CP DLEs – up to the point where 92.5% of traffic delivered by BT to the CP was sent to the 'right switch'.

Control of CP Termination Rates. As observed above, CP termination rates must be fair and reasonable, and it was stated by Oftel that

> *Oftel's view is that charges that were not based on BT's are unlikely to be "fair and reasonable*[5]

Under the expired reciprocity agreement Single Switch Operators (SSO) could not receive less than the BT DLE rate (currently 0.2560ppm daytime) and could not receive more than the BT ST rate (currently 0.3715 daytime). Multi-Switch Operators (MSO) enjoy a small 'wrong switch' premium in addition to these rates[6].

Recognition of footprint. BT, with a total of 666 DLE switches (or equivalent) has a very different geographic switch footprint from all other CPs. Each BT DLE serves on average an area of 140 square miles and—with the use of concentrators in non-urban areas—customer lines are generally less than 5 miles in length.

At the other end of the scale are small CPs, the vast majority of which have one switch only. Here the switch is theoretically servicing an area of up to nearly 94,500 square miles. (In practice single Switch CPs are geographically more locally focussed).

Never the less, the reciprocity formula recognised the larger footprint of the small CPs since their termination rates are generally calculated to be the maximum BT ST rate.

The reason for this is due to the relative economics of CPs delivering their traffic to BT at either DLE and ST levels. Clearly, interconnection at local level costs less than interconnection at tandem level (which is 45% higher). However, there is a cost to the CP of increasing its network reach to get the DLE (for instance by renting BT IEC circuits which can connect the CP to the relevant BT DLE). The CP will not take up the

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[4] http://www.btwholesale.com/pages/static/service_and_support/service_support_hub/online_pricing_hub/cpl_hub/cpl_pricing_hub/reciptory_offer.html

[5] See the consultation document at paragraph 2.9

[6] A 'right switch' is defined as the one that the end customer is connected to. A 'wrong switch' is usually a tandem switch requiring the CP to onward connect the call.

option of connecting to a DLE if the savings do not outweigh the extra costs. Since the minimum capacity for interconnection is a 2Mb/sec trunk, sufficient traffic would need to flow from the CP to the DLE to utilise this capacity (or multiples of it), The distance between the CP's switch and the BT DLE also directly affects the cost of renting the network capacity. It is unlikely that a CP would connect to a BT DLE that was further than 35 miles away[7].

These factors force small CPs to almost exclusively send their BT geographic traffic at the tandem layer incurring the higher cost.

These restrictions and disadvantages do not apply to BT who, with its (inherited) ubiquitous network coverage, is able to connect to every small CP at their switch, with little distance and therefore cost.

The expired reciprocity formula, quite correctly, recognised the inherent disadvantage suffered by small CPs. The formula determined that CPs who deliver all their traffic to BT at ST level would receive the same termination rate from BT.

MSO Status encourages BT network build out. CPs with two or more switches, and where BT delivered more than 7.5% of traffic to the 'wrong' switch for termination, were entitled to a higher termination rate for the minutes that were delivered to the 'wrong switch'. This surcharge provided a direct incentive to BT to build out its network to CPs' DLE switches so that their costs could be minimised. There is evidence that this incentive has worked in recent years and that BT has increased its network reach in order to minimise or eradicate MSO termination costs.

3.2 Disadvantages of the expired reciprocity agreement

By the time the reciprocity formula expired there were a number of very evident shortcomings:

- It discourages CPs to invest in network build out and rewards BT for maintain the *status quo*. There is no incentive for BT to invest.
- It does not give CPs any control over their time of day profile for termination charges.
- It kills the market for Local Tandem Transit (LTT) to BT's advantage
- It encourages 'gaming' by networks with more than one interconnect agreement[8].
- The arrangements were complex rather than simple and practical

No incentive for CP network build out. If a CP bears the cost of building its network to a BT DLE it benefits from lower termination rates payable to BT. However, it then suffers from lower termination rates payable by BT for BT-originated traffic termination on the CP's network. This benefit to BT is entirely at the expense of the CP; BT has done nothing to earn the benefit. This distortion disincentivises the CP to build a more efficient network.

However, it benefits BT since they pay a lower termination rate to the CP without making any investment. BT continues to interconnect with the CP at either 'right switch' or 'wrong switch' level and do not have any costs of network build to the CP's local exchange switches. Where a very CP has MSO status, BT has an incentive to connect to the CP's DLEs in order to remove the CP's MSO status. However, in the case of mid-size CPs such as Colt with SSO status, BT has no incentive to build out to DLEs because they will not receive a lower termination rate as a result of making the investment in a more efficient network.

[7] Calculation based on 250,000 minutes per month per E1, using IEC circuits with setup costs amortised over two years

[8] Where networks merge or are taken over they may continue to interconnect with BT using the legacy interconnect agreement rather than novating the agreements.

Lack of control. CPs have no control over how their termination rates are shaped across the times of day and across the months within the charge control year. If BT changes their rates, CPs' rates change at the same time and in the same time of day profile as BT. CPs therefore have no ability to 'shape' their traffic across the charge control period.

Market for Local Tandem Transit. The market for Local-Tandem-Transit (LTT) is distorted. Whilst large CPs may have connections to nearly all BT's DLE switches, small CPs are likely to have almost none, and mid-sized CPs will have just a proportion. With LTT, the CP has alternative routes to reach BT's DLEs, which is to divert its outbound traffic away from BT's tandem layer and send it to a LTT provider. The LTT provider would be one of three[9] large CPs with near 100% DLE connections. In a competitive market place the CP would expect to receive a discount on the LTT service compared to BT's ST rates.

Under the expired reciprocity arrangements, if a CP chose to send its traffic for BT geographic termination via a third party LTT provider, instead of to BT at single tandem level, the DLE-ST split as measured by BT would have been 100% DLE. The termination rates paid by BT to the CP were therefore at the DLE minimum level, rather than in proportion to the DLE and ST (LTT) termination split.

Unless the CP has a significantly greater numbers of outbound minutes than inbound, the loss in termination revenue is greater than the savings made in termination costs. Therefore it makes no economic sense for CPs to use third party LTT as an alternative to simply sending traffic directly to BT at ST level and preserving their inbound termination rates. Colt's recent dispute with BT over geographic termination rates was concerned with this issue.

It is notable that, in the Wholesale Narrowband Market review in 2009[10] Ofcom concluded that BT does not have Significant Market Power (SMP) in the LTC & LTT market (paragraph 8.129). However, in the analysis contained in section 8 there was no mention of the dis-incentivising effect of reducing termination revenues on CPs who build their network to BT's DLEs and thereby create the LTT market.

'Gaming'. The term 'gaming' is used in the consultation to describe what happens when two or more CPs merge (or get taken over) but their interconnect contracts are not novated. By maintaining two separate interconnect agreements (and therefore separate reciprocity formulae) it is possible for the CP to send all DLE traffic to BT using one of the interconnect agreements and to make sure that 100% of the traffic sent via a second interconnect agreement is at ST level. By then receiving all termination traffic through the second interconnect agreement, the CP can ensure that all the traffic they terminate will be at the highest level possible.

Complexity. The arrangements were complex since BT had to analyse every CP's bill once a year to determine the spit in traffic that it terminated from the CP at DLE and ST levels in three time periods, and then calculate the termination rates for each time period.

BT's Network Efficiency. BT has no incentive to increase the efficiency of its network.

The underlying principal of reciprocity is that the costs of the more efficient network should determine the reciprocal charges between two networks. (The practicalities of achieving this are discussed in section 3 above).

BT however, have persuaded Ofcom that because it has a falling number of minutes on its TDM network the cost per minute charges should rise. Ofcom has allowed an increase of 3.75% per annum for the four years to September 2013.

Colt does not accept the argument that 'it doesn't matter if it is the more inefficient network's costs that prevail because these are balanced by the in and out flow of

[9] See section 8.45 of the Ofcom Wholesale Narrowband Market Review September 2009 http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

[10] http://stakeholders.ofcom.org.uk/binaries/consultations/wnmr_statement_consultation/summary/main.pdf

traffic'. The more efficient network may generate more traffic than it terminates and if this is the case it is disadvantaged by the loss in charges in the shortfall of terminating traffic.

4 OFCOM OPTIONS

In this consultation Ofcom have out forward two options for change in the reciprocity arrangements.

- Option 2 proposes an industry average for the DLE—ST Blend
- Option 3 proposes that CPs receive DLE rates only.

Colt favours Option 2 with two modifications.

The table below summarises how the two options and Colts proposed modification address the required criteria of an ideal solution as reviewed in section 3 above.

Criteria	Expired Agreement	Option 2	Option 3	Option 2 modified
Ensures CP termination rates are not excessive	✓	✓	✓	✓
Recognition of differing footprints	✓	✓	×	✓
Encourages BT build out to CP DLEs	✓ (MSO) × (SSO)	×	×	✓
Encourages CP build out to BT DLE	×	✓	✓	✓
Gives Control to CPs over ToD pricing	×	×	×	✓
Encourages market for LTT	×	✓	✓	✓
Prevents 'gaming'	×	✓	✓	✓
Simplicity (Practicability)	×	✓	×	✓

4.1 Option 3

In option 3 Ofcom proposes that all CP termination rates should be set at the BT DLE rate.

Of the eight criteria discussed above, Option 3 fulfils the requirements of four criteria only and fails on the remaining four:

Recognition of differing footprints. No recognition is made of the fact that BT has an inherited and inbuilt advantage in its network footprint. BT can easily connect to every CP's DLE (or 'right' switch) whereas, in reverse, this is impossible for all small CPs. This would represent a complete break from the principles established by Oftel in 1997. The consultation provides no argument or justification for breaking this very important principle.

Encourage BT to build out to CP. If BT only has to pay DLE rates to the CP for termination of calls, irrespective of how it delivers calls (at 'right' switch or 'wrong' switch level) there is no incentive for BT to build out its network to CPs' DLE switches.

As discussed below, the chances of a CP achieving a commercial agreement with BT over an increased termination rate because of 'wrong' switch delivery is vanishingly small. A CP would need to have the appetite to lodge a dispute with Ofcom to resolve the issue and its notable that Ofcom proposes unattainably difficult criteria for success (paragraph 5.47).

Control over Time of Day Pricing. By linking CPs' termination rates to BT's, CPs are afforded no control over their termination rates. The profile of their Day, evening and Weekend rates are forced to be identical with BT's whether this is appropriate to their business needs or not. Whenever BT chooses to alter their rates the CP is forced to follow suit whether or not they wish to follow that profile during the charge control period or not.

Simplicity and Practicability. A flat rate for CP termination rates of BT's DLE rates appears to be simple and practical. However, any multi-switched CP who wishes to receive a more appropriate termination rate for their multi-switched calls is forced to enter into commercial negotiations with BT who has no incentive or interest whatever in agreeing a higher termination rate. This will inevitably end in deadlock and will result in a dispute being lodged with Ofcom. This is neither simple nor practical.

Right Switch–Wrong Switch. The possibility of a higher rate in certain circumstances (i.e. where traffic is delivered to the 'wrong' switch) is discussed in the consultation at paragraphs 5.42—5.48. Paragraph 5.47 indicates that to achieve a higher rate the CP would have to demonstrate that

(i) the DLE rates does not cover their costs of conveyance and termination; and

(ii) their costs are efficiently incurred; and

(iii) that a higher termination rate would have demonstrable consumer benefit.

Paragraphs 3.9 and 5.60 state that the higher rate would have to be achieved by commercial negotiation. However, it is most unlikely that commercial negotiation between a CP and BT would result in higher termination rates for a CP since the CP has no bargaining power. This would inevitably mean that a dispute referred to Ofcom would be the only way of resolving the issue.

4.2 Option 2

In option 2, Ofcom proposes that CP termination rates should be the same across all CPs based on the industry average split of DLE and ST delivery.

Colt notes that this would mean that the 'X' factor in the blended rate would be around 75% DLE delivery, with the remaining 25% being ST delivery[11].

At present rates this would give a daytime termination rate of

- 75% * 0.2560 + (1-75%) * 0.3715 = 0.2849

giving a premium of 11% over the DLE rate.

Option 2, without any modifications, meets the following criteria:

- It ensures CP termination rates are not greater than what is fair and reasonable.
- It recognises that CPs have different footprints from BT, and that it is not possible or practical for most CPs to interconnect with BT at DLE level. The 11% premium on termination rates resulting from the industry average blend provides some compensation for the fact that small CPs are forced to pay ST rates for the traffic that terminates on BT's DLEs.
- It encourages CP build out to BT DLEs. The DLE and ST charge structure still apply to BT's termination rates and therefore CPs are incentivised to build their network out to BT's network where economically viable. However there is no penalty for doing so in the way the CP's own termination rates are affected.
- It encourages market for LTT. Large CPs who are fully connected with BT's DLEs can offer a Local Tandem Transit service to smaller CPs in competition with BT's ST rate. Small CPs will therefore be able to deliver traffic to BT's DLE switches in a competitive market since (as mentioned in 3.2 above) there are three CPs who are positioned to offer an LTT service as well as BT themselves.
- It prevents 'gaming' by CPs with more than one interconnect contract since CP's the termination rate is fixed at the industry average level.
- Simplicity (Practicability). The expired reciprocity agreement required BT to calculate the termination rate for each individual CP with whom they interconnect, and to repeat this calculation annually. Option A however, reduces

[11] approximately 75% 'industry average' figure supplied informally by BT in December 2009

this to one calculation only covering the whole industry and therefore simplifies the process considerably.

However, as proposed in the consultation, option 2 does not:

- Encourage BT build out to CP DLE
- Give Control to CPs over ToD pricing

Colt therefore proposes two amendments to Option 2 in order to address these issues.

Right Switch - Wrong Switch Charge. This is similar to the MSO status under the expired reciprocity agreement. As identified in section 3.1 the MSO status element of the expired reciprocity agreement worked well in encouraging BT to build out its network to larger CPs' DLE switches. It is essential that the new reciprocity arrangements continue to incentivise BT to deliver traffic to the correct DLE switch. Where BT delivers traffic to the CP's 'wrong' switch the CP should be able to make a charge equivalent to the BT ST charge. This ability should be integral to the reciprocity arrangements and should not require commercial negotiation or recourse to the dispute process[12].

CP control over Time of Day and Day of Week pricing. As proposed, both option 2 and option 3 do not provide any flexibility for CPs to shape their traffic by being able to set their termination rates by time of day or day or week (day, evening and weekends). For many CPs this may not an issue.

However, where a CP has strong reasons for wishing to set its own termination rate profile, it should be possible for the CP to opt into a scheme to enable this to happen. The scheme would operate in a similar manner to the one used by the Mobile Network Operators (MNOs). The CP would measure its traffic in each time period and ensure that the average charge it achieves is within the charge control. The CP would be required to fund the cost of an independent audit each year to verify its calculations. The Charge Control would need to specify a Target Average Charge (TAC).

5 CONCLUSIONS

Colt is strongly in favour of the consultation's option 2 proposal to set an industry average blend of DLE and ST rates for CP termination charges.

Option 2 inherently meets six out of the eight required criteria and Colt's suggested modifications provide solutions for the remaining two.

Option 3 will cause a reduction in termination revenues for all CPs apart from BT. This will reduce the incentive on CPs to port in their new customers' numbers onto their network. Option 3 would provide reduced outbound termination costs for all CPs including BT, but BT would be by far the largest beneficiary. In effect it would provide a windfall for BT of several million pounds at a time for no justifiable reason.

[12] Colt is not suggesting that where a CP required BT to deliver traffic to its tandem layer for technical reasons – e.g. in providing a resilience product – BT should pay tandem rates to the CP. This point was addressed in Colt's reciprocity dispute: http://stakeholders.ofcom.org.uk/binaries/consultations/dispute-colt-bt-termination/summary/Colt_and_BT_Termination.pdf

6 NGN INTERCONNECT

Colt is at the vanguard of the provision of IP voice services to UK and European customers and is experiencing rapid growth in its IP customer base. Colt also maintains its TDM network which continues to operate at maximum capacity.

BT has a proportion of customers on its IP network ('Pathfinder'). It therefore makes sense for the relevant area codes to appear in the EBC tables as IP numbers so that when calls to the numbers are made from IP handsets on other networks the calls could be handed over an IP interconnect.

Only this way can the transition from TDM to IP networks happen efficiently without unnecessary protocol conversion occurring twice over.

However, this requires an IP interconnect product from BT which is charge controlled at the same level as the charge controls applied to the BT TDM network. BT's IPX product has higher charges as it is viewed as a 'bolt on' to the existing TDM network. IPX costs therefore represent the sum of the underlying TDM charges plus the IPX protocol conversion and service costs.

Colt is opposed to the present position where a CP operating an IP network is forced to build their network to BT DLEs and then perform protocol conversion at the DLE in order to interconnect using TDM. The result of this is that the CP's IP network is forced to take on the topology of BT's TDM network whereas interconnection should properly be at metro nodes.