### CABLE&WIRELESS RESPONSE TO CONSULTATION : **"ROUTING CALLS TO PORTED TELEPHONE** NUMBERS"

### **ABOUT US**

Cable&Wireless is one of the world's leading international communications companies. It operates through two standalone business units - Worldwide and International. The Worldwide business unit (formerly known as the Europe, Asia & US business) provides enterprise and carrier solutions to the largest users of telecoms services across the UK, US, continental Europe and Asia, and wholesale broadband services in the UK. With experience of delivering connectivity to 153 countries - and an intention to be the first customer-defined communications services business - the focus is on delivering customers a service experience that is second to none.

Cable&Wireless has also launched our Fixed Mobile Convergence (FMC) service which integrates with our next generation network core, allowing our customers to route calls from their mobile handset via their fixed line service when in-building, roaming to our national mobile partner when outside their office. This capability is based upon the usage of spectrum licensed by Ofcom, utilising mobile numbers : therefore Cable&Wireless is a Mobile Network Operator (MNO).

### **SUMMARY**

Cable&Wireless does not support Ofcom's current proposals for direct routeing of calls to mobile ported numbers. We are supportive of direct routeing, but only when a case can be proven for all number types from all originating networks. Ofcom has chosen to narrowly focus on mobile-mobile calls : we regard this approach as flawed because the two markets are not that distinct. Significant volumes of mobile-destined calls are fixed originated (and vice versa), and the evolution of converged services will only exaggerate this blurring of the lines. We expand on the implications of this to Ofcom's proposals later in our response.

By focussing on mobile-mobile Ofcom risks development of a solution which is only ever applicable to this case, not being scaleable to the routeing of calls as a whole. Additionally, experience in other jurisdictions tells us that while Cable&Wireless may not be directly captured by the proposed regulation, we may be commercially compelled to utilise any database developed (possibly without an ability to influence its design), to avoid being the victim or facilitator of arbitrage.

Further, Cable&Wireless continues to disagree with Ofcom's approach of focussing the debate around General Condition 18 (number portability) rather than also considering the benefits to General Condition 17 (numbering). As and when direct routeing is justified, particularly in the domain of geographic numbering it will in our view be on the basis of increasing the low efficiency of numbering, hence avoiding the repetition of costly number changes : efficiency of porting will merely be a favourable side-effect.

Although disagreeing with Ofcom's proposals, if the decision were taken to go ahead, it is vital that it is regulated in order that the design involves all potential stakeholders, rather than being left to the large incumbent MNOs to agree between themselves. If possible, Ofcom should take measures to comprehensively ring-fence the implications to the mobile market, for example by improved regulation of mobile termination rates.

Many of our concerns were explored in detail with Ofcom when we met with them earlier this year and it is extremely disappointing that Ofcom has chosen to ignore those concerns in its draft proposals.

The following sections elaborate on our thinking.

### DETAIL

#### **DIRECT ROUTEING IS A NUMBERING EFFICIENCY MATTER**

Cable&Wireless is disappointed that once again Ofcom has chosen to address the subject of common numbering databases solely from a number portability standpoint, rather than one of overall numbering efficiency. In the mobile numbering space, there is some legitimacy to this in that the space is inherently flat, and technical details related to international roaming necessitate the issuing of numbers in large blocks. This is not the case in the geographic numbering space, however.

The UK has suffered a series of number changes. Although these followed a logical progression, they were unpopular with our own citizens and made for a difficult message internationally as we had to repeatedly explain the need for yet another change. None of these number changes has been caused by a shortage of numbers : in all cases it has been a shortage of number *blocks*, caused by the need to issue a large block of numbers to each CP wishing to provide service in a given area, coupled with the dynamic competitive nature of the UK market meaning many CPs wish to compete. At present, huge swathes of the country are subject to numbering conservation measures, where ever smaller blocks are assigned to CPs : whereas the unit of allocation for number blocks was once 10k, it is now 1k which means for business-oriented CPs such as C&W, we have to make multiple applications to meet our customers' needs. We are now at the technical limit of this subdivision, meaning that when areas do eventually run out of blocks – which is absolutely inevitable – Ofcom will have no choice but to either introduce overlay codes or carry out further number changes. This is a choice between an approach which is inherently anti-competitive or one which is highly unpopular and costly to consumers.

The only way to avoid this is to move away from the system of numbers being assigned in arbitrary blocks, to one where CPs can be assigned sufficient numbers to meet their market demand. A precondition to this is direct routeing of individual numbers, which in turn necessitates a common database. With such an approach there is no number portability per se, because the granularity of routeing is the individual number hence consumers need not have numbers from other CP's ranges : the concept of "ranges" goes away.

From the outset, Cable&Wireless has advocated that any cost-benefit analysis in the geographic space be based around these wider issues, rather than efficiency of number portability. We were persuaded by Ofcom that the subject could be focussed on portability, because the need for a common numbering database could be justified solely by this. It is therefore disappointing that now this is no longer the case, the wider numbering issues are being forgotten.

#### MOBILE, GEOGRAPHIC AND NON-GEOGRAPHIC ROUTEING ARE INSEPARABLE

Ofcom's analysis concludes that it makes sense to introduce direct routeing for mobile-mobile calls, but not for other traffic types. But according to Ofcom's own statistics<sup>1</sup>, more than 25% of mobile traffic is fixed originated : it should be noted that all international inbound traffic (including mobile roamers) and new entrant mobile traffic will appear to be fixed originated as well. Ofcom's data does not lend itself to verifying this, but we suspect the figures are similar (if not higher) in the reciprocal case. It therefore seems very strange to seek to optimise the routeing of mobile calls, but then ignore more than a quarter of the traffic involved. At the very least, this means that any claimed benefits for example of coping with failed CPs are negated, and Ofcom is right to exclude such considerations from its quantification of benefits.

Cable&Wireless believes that unless there are compelling reasons otherwise, introduction of direct routeing should be undertaken on a holistic basis, i.e. we all do it as an industry (whether fixed or mobile, origination or termination) or we don't do it at all.

#### THE CASE FOR DIRECT ROUTEING IN FIXED ISN'T MADE...BUT ONLY AT PRESENT

With the technologies deployed in UK TDM fixed networks, the business case for direct routeing does not prove in. It did not make sense when NERA did the analysis in the 1990s or when Mason did the analysis in 2003 and Ofcom are correct to conclude that it does not make sense now either.

At the time of the Sagentia analysis which led to the changes to GC18 proposed in 2007, the situation was very different. At that time, it was envisaged that CPs would be rapidly migrating to Next Generation Network (NGN) technologies : 2012 was chosen as a timeline when the bulk of networks would be NGN, based upon using BT's 21CN deployment plans as a proxy. With properly designed NGN technologies, the economics of direct routeing are very different : a lookup to a central (within a network) reference database is inherent to NGNs, so the question of introducing an industry common numbering database becomes more about the integration costs of getting the industry data into the CP database, rather than the development of network functionality to query the database and route the call accordingly..

The picture has changed dramatically in the meantime, however. Most CPs have slowed down the rollout of their NGNs compared to industry plans. BT, whose plans are pivotal as they impact upon the economics of everyone else's deployment, have changed from a target of having all voice lines migrated to 21CN by 2012, to one where probably less than 5% of lines will be served by 21CN in that timescale.

The cost-benefit analysis for direct routeing at present therefore has to be based around TDM technologies. Cable&Wireless agrees with Ofcom's conclusions that a move to direct routeing for fixed termination has a massively negative NPV, but we do query some of the numbers : see our Confidential Annex. We believe the economics still wouldn't be right even if wider numbering issues were factored in.

<sup>&</sup>lt;sup>1</sup> Ofcom Telecommunications Market Tables Q4 2008, comparison of Fixed Table 5 (13Bn of fixed traffic to mobile) versus Mobile Table 6 (50Bn of mobile interconnect traffic)

Cable&Wireless disagrees with Ofcom's analysis that part of the reason for direct routeing being economic for mobile but not fixed is the availability of international standards. The 3GPP standard<sup>2</sup> referred to provides options for the support of portability in mobile networks. One of these options is usage of signalling relay functions, and is based on the approach laid down in the national standard NICC ND1208, indeed it is our understanding that the two were developed in parallel. The international standard does not, however, provide guidance on how individual MNOs will populate their own local number portability database based upon the contents of a pan-industry one, or the number formats used between networks, which were the focus of the suite of standards developed by NICC to facilitate the aborted changes to GC18. On the fixed side, whilst it is correct that there is no single international standard which lays down how to implement number portability, there are various ETSI and ITU documents<sup>3</sup>, and the well-known mechanisms for support are all based around international standards such as ENUM and INAP. As such, the level of international standards such as end which implementations : both provide a framework around which national agreements must be made.

Moving forward, we are at a stage where design choices are being made about NGN deployments. Disturbingly, when introduction of a common numbering database was under consideration by UKPorting, some early-movers with NGNs implied that these were unsuitable for integrating an industry database, or the cost was prohibitive. It is important that Ofcom communicates clear policy goals that direct routeing of calls is a strategic aim, and that where NGNs are deployed this should done in a manner that will facilitate usage of a common numbering database. The NICC standards that were developed for UKPorting may not be the ones finally used, but provide sufficient enough a steer to allow CPs to incorporate ability to utilise a common database into their NGN architectures.

#### ABSENT AN HOLISTIC APPROACH, THE CASE FOR MOBILE-MOBILE IS QUESTIONABLE

Cable&Wireless believes an holistic approach to direct call routeing is best. If a piecemeal approach is taken, it is inevitable that there will be separate solutions which will ultimately cost industry – hence consumers - more.

For example, it was clear from the UKPorting activity that the cost of the common database was driven by issues such as platform availability and number of CPs wishing to access, and was largely independent of the volumes of numbers that it contained. If there were to be separate databases for fixed and mobile, then many notionally "fixed" CPs have mobile interests and would need to access the latter. Conversely, most large MNOs now have fixed interests so would need to access the fixed database. As such, each database would need to be dimensioned to cope with pretty much every CP requiring access, and each CP would have development costs to access both databases. Whilst the maxim that "two can live for the price of one" is not entirely true, it follows that the costs of separate databases will inevitably be far higher than an integrated one.

It is clear that direct routeing will make sense in the future for fixed, as NGN deployments occur. If a database is deployed now for mobile purposes, it will certainly be built around the requirements of the five established MNOs so is unlikely to be suitable for subsequent expansion to cover the requirements of the fixed industry. Any decision to implement direct routeing solely for mobile-

<sup>&</sup>lt;sup>2</sup> 3GPP TS 23.066

<sup>&</sup>lt;sup>3</sup> Notably ITU Q.169.1, plus Q-Series Supplements 3 and 4

mobile must therefore be justified by significant savings in the interim period which outstrip the longer term additional costs.

Whilst Ofcom's analysis has yielded a positive NPV, Cable&Wireless does not accept that a compelling case has been made to implement direct routeing for only mobile-mobile calls. The benefit indicated (excluding costs) is claimed to be £14M/yr. We do not have access to the same level of information as Ofcom as the market data tables only provide aggregate mobile traffic rather than specifically mobile-mobile, however Cable&Wireless believes that this estimate is reasonable.

Taken in context, though, this saving amounts to only 23p per mobile subscriber per year<sup>4</sup>, which against average revenues per user per quarter of £49.92<sup>5</sup> means the savings amount to a benefit of only 0.12% of revenues per year...before any costs of achieving this saving are considered.

When Ofcom sought to introduce direct routeing in short timescales via the UKPorting initiative, Cable&Wireless' experience was that it used up an inordinate amount of our skilled resources – perhaps in excess of 10% of our best engineering and planning colleagues' time plus resource from our commercial and process teams. Our impression was that other CPs (both mobile and fixed) were similarly stretched. We see no reason why this will not be repeated if the plan to direct route mobile-mobile calls goes ahead, and believe that such a drain on industry resources simply cannot be justified for something which amounts to such a proportionately small saving.

As we set out in subsequent sections, Cable&Wireless also believes that there will also be unintended consequences from the approach of treating fixed and mobile as separate worlds.

### MOVING FORWARD SOLELY WITH MOBILE-MOBILE DIRECT ROUTEING COULD HAVE UNINTENDED CONSEQUENCES

Cable&Wireless is concerned that Ofcom has not fully considered the consequences of a regime whereby calls to mobiles are routed using a different approach according to where they're originated.

The Consultation is silent on the issue of how calls from fixed CPs and new entrant MNOs should be routed, but we can only assume that the intent is that these calls continue to be routed to the MNO rangeholder. The rangeholder would then determine if a number is ported, and onward route to the recipient MNO.

It is clear from the Consultation that it's intended that directly routed mobile-mobile calls would be subject to the termination rate of the terminating MNO. This differs from the situation today where the net termination rate is the rangeholder rate minus half Donor Conveyance Charge.

Contrary to the assertions in the Consultation, the difference between these rates could be material. Although headline MNO termination rates are converging, Cable&Wireless' experience is that it is not the case at any particular time of day. We are aware of MNOs that are charging a flat ppm termination rate regardless of time of day, MNOs adopting conventional time of day charging and other MNOs adopting counter-intuitive rates where for example the evening termination rate is

<sup>&</sup>lt;sup>4</sup> Based upon Ofcom Telecommunications Market Data Tables Q4 2008, Mobile Table 4.

<sup>&</sup>lt;sup>5</sup> Based on average of Ofcom Telecommunications Market Data Tables Q4 2008, Mobile Table 5, weighted by subscriber numbers in Mobile Table 4.

higher than the daytime one. The situation is also highly volatile, with some MNOs changing their rates almost monthly – Table 1 shows the applicable rates over recent months. That the overall headline average rates are converging is irrelevant : what matters to a CP paying another CP's termination rate is the level of that charge for a given minute of traffic at a given time of day. It therefore follows that unless Ofcom regulates the MNOs to have converged termination rates at any instant in time<sup>6</sup>, there could be a material difference between the rates payable under the existing regime and rates payable under a direct routeing regime.

| Rate<br>applicable<br>from           | Period | 02     | T-Mobile | Orange  | Vodafone | H3G    | Difference<br>between<br>lowest &<br>highest <sup>7</sup> |
|--------------------------------------|--------|--------|----------|---------|----------|--------|---|
| 1 <sup>st</sup> August<br>2009       | D      | 4.2359 | 4.2320   | 6.1000  | 4.3720   | 4.6116 | 44%   |
|                                      | E      | 4.2359 | 4.2320   | 2.9000  | 4.3720   | 3.0000 | 51%   |
|                                      | W      | 4.2359 | 4.2320   | 2.9552  | 4.3720   | 10.500 | 255%  |
| 1 <sup>st</sup><br>September<br>2009 | D      | 4.2359 | 4.2320   | 6.4210  | 4.3720   | 9.7760 | 131%  |
|                                      | E      | 4.2359 | 4.2320   | 2.4980  | 4.3720   | 3.0000 | 75%   |
|                                      | W      | 4.2359 | 4.2320   | 2.2755  | 4.3720   | 2.0000 | 119%  |
| 1 <sup>st</sup><br>October<br>2009   | D      | 4.2359 | 2.0182   | 2.8680  | 4.3720   | 5.0000 | 148%  |
|                                      | E      | 4.2359 | 2.0182   | 2.4980  | 4.3720   | 3.0000 | 117%  |
|                                      | W      | 4.2359 | 12.6700  | 11.2116 | 4.3720   | 10.500 | 199%  |
| 1 <sup>st</sup><br>November<br>2009  | D      | 4.2359 | 5.1462   | 7.3500  | 4.3720   | 5.7564 | 74%   |
|                                      | E      | 4.2359 | 5.1462   | 2.4980  | 4.3720   | 5.7564 | 130%  |
|                                      | W      | 4.2359 | 2.2000   | 1.2079  | 4.3720   | 2.0000 | 262%  |

#### Table 1 : Mobile Termination Rates – are they really converged?

<sup>&</sup>lt;sup>6</sup> Cable&Wireless believes that Ofcom should take this approach. At present, we have little confidence that it's possible to ensure MNOs are actually adhering to the MTR price controls.

<sup>&</sup>lt;sup>7</sup> Difference of maximum termination rate at any instance as a percentage of minimum termination rate.

Ofcom's usage of averaged rates misleadingly envisage this differential at nearer 20%.

As fixed originating networks would route calls to the MNO rangeholder, Cable&Wireless can foresee two potential eventualities arising;

Alternate 1 : The rangeholder onward routes to the recipient MNO and continues to outpay only their own rangeholder termination rate, minus half the DCC. Obviously this will be highly unpopular to the recipient MNO if their termination rate is higher than the rangeholder rate. Further, there will be an incentive on the rangeholder MNO to pass-off traffic that was originated on their network as being originated elsewhere, in order to secure a lower termination rate than would ordinarily be payable (i.e. rangeholder rate minus half DCC, versus recipient termination rate). With reference to Table 1, for example taking weekend calls in November, rangeholder MNOs could save up to 75% of their termination costs were they to portray calls as having ingressed from a fixed CP rather than having been originated on their network.

Superficially this would be immediately obvious because there would be a mobile CLI on the calls. However, the calls would also have a mobile CLI if

- a. They were originated on a new entrant MNO that was not subject to the direct routeing obligation (indeed, the originating customer would likely have ported their number to that new entrant, so could have a CLI relating to the rangeholder) or
- b. They were originated on a mobile handset that was roaming overseas, hence had been sent via the international network of a fixed CP.

...as such having a mobile CLI would not be synonymous with a call being subject to direct routeing regulation. Also, where convergence services are involved, calls originated on the rangeholder MNO (hence being subject to the direct routeing obligation) could exhibit a geographic CLI in any case.

Additionally, there would be an incentive on other MNOs to refile traffic destined for the recipient network via a fixed transit network, to secure the lower rangeholder termination rate.

Although all such actions would be against the regulation, Cable&Wireless' point is that it would be impossible for Ofcom (or recipient MNOs) to police such arbitrage opportunities, particularly if they were applied selectively.

• Alternate 2 : The rangeholder onward routes to the recipient MNO and pays the recipient network termination rate. For the case where the recipient network termination rate is higher than the rangeholder rate, Cable&Wireless finds it inconceivable that the rangeholder would not pass this higher termination rate onto the originating fixed network, either in the form of a higher termination charge for that particular call, or a blended increase to their own termination rate reflecting the volume of numbers they'd exported. In the Republic of Ireland where such arrangements prevail, for example, we have experienced the recipient termination rate being directly passed through to us.

For the situation where rates are passed through on specific calls, this leaves Cable&Wireless in danger of being in a loss-making situation as we'd be charging (either to our wholesale or retail customers) based on the rangeholder rate. In the extreme, we could be the victims of arbitrage by those CPs that having consulted the MNP database knowingly pass traffic to

numbers ported to a high termination rate recipient via us.

For the case where the rangeholder passes on the costs incurred via a higher blended rate, we are at the mercy of whether the rangeholder fairly applies this, and in any case would be subject to higher termination rates as a result of an MNP process over which we have no control.

The sums of money involved are by no means insignificant : although traffic volumes may be lower than geographic, the higher termination rates charged on calls to mobile handsets mean that calls to MNOs represent the majority of Cable&Wireless' termination outpayments. Also, without visibility of which numbers are ported, we would be forced to accept the call termination bills from the MNOs at face value, because we would have no means of validating their claims of ported call volumes.

For this reason, in responding to this Consultation, Cable&Wireless has to work on the contingency that this scenario would arise, hence assume that (regardless of what we're mandated to do from a regulatory standpoint) we could face a commercial compulsion to query the mobile portability database to either route calls or validate our interconnect bills.

One of the scenarios above leaves Cable&Wireless as potentially becoming an agent of arbitrage, the other leaves us as potentially becoming a victim of arbitrage. Both arise because of the piecemeal approach to optimising one type of call routeing (mobile-mobile) while ignoring every other type :again, we urge that a more holistic approach be taken.

### IF DIRECT ROUTEING IS TO BE INTRODUCED FOR MOBILE-MOBILE A PROPER DEGREE OF RING-FENCING MUST BE INTRODUCED AND ASSURED...

Clearly, many of Cable&Wireless' concerns stem from our fear that regardless of any regulatory mandate, we could be commercially compelled to utilise a direct-routeing solution. This eventuality arises from the (instantaneous) differential between MNO termination rates, and also from the prospect that portability costs such as donor conveyance charges could be passed onto originators. If Ofcom could provide absolute surety that these concerns would not come to fruition and hence any commercial implications would be ring-fenced amongst the large MNOs, then we would be largely unaffected by the changes so be less concerned. For this to be the case, we would require;

• Mobile termination rates would need to be regulated to be converged at the same level at each of day, evening and weekend periods, and the definition of these periods would to be aligned.

Alternatively, Ofcom could regulate to ensure that MNO rangeholders continue to charge their own termination rate, and hence recipient MNOs receive the rangeholder rate minus DCC. However, if this approach is taken, Cable&Wireless believes it would be necessary to adopt it for all calls to mobiles (including when originated on MNOs captured by the direct routeing obligation), because otherwise as we set out above the opportunities for arbitrage are too great, and there is no feasible mechanism to overcome them.

• The cost stack associated with mobile call termination should exclude, and continue to exclude, any costs associated with number portability.

#### ...AND ALL STAKEHOLDERS SHOULD BE ENGAGED

Cable&Wireless disagrees with Ofcom's proposals as they stand, but recognises that Ofcom may proceed with implementing them nonetheless. If this is the case, then we would urge Ofcom to rethink their proposal that the large MNOs could get together to agree to implement direct routeing between themselves.

As set out above, unless Ofcom takes action to normalise MNO termination rates on a time-of-day basis, we believe it inevitable that we will either come under pressure to become facilitators of arbitrage, or will be victims of arbitrage ourselves unless we utilise the MNP data. The measures we describe in the previous section would protect fixed CPs in the short term hence superficially mean that fixed network CPs need not be involved in devising the mobile solution. However, at some point direct routeing *will* make sense for fixed call origination, and if the design for mobile direct routeing is such that it's only feasible from mobile networks, it will be impossible to introduce an holistic solution.

It is entirely rational that the large MNOs, faced with a need to direct route, will do so in the manner which results in least possible cost to them. There is a strong probability that in these circumstances the technical solution would be one which is not practicable for incorporating into fixed networks<sup>8</sup>, or alternatively that we could be penalised by the commercial arrangements.

Cable&Wireless believes it essential that all potential stakeholder be involved in establishing both the technical and commercial arrangements. The idea put forward in paragraph 5.18 of the Consultation that fixed operators be afforded only observer status in any negotiations is absolutely unacceptable to Cable&Wireless.

Ofcom recently engaged with the CTOs of all major CPs, and persuaded them to take ownership of technical standardisation via a new company, to be jointly owned by industry. So far over 70 stakeholders have signed up and provided funding for the new NICC(Standards) Ltd. It seems very strange that, at the first set of standards which Ofcom is requiring industry to agree since that initiative, MNOs are being encouraged to meet as a private group rather than using the NICC(Standards) Ltd organisation which Ofcom was so desperate to create.

On the commercial aspects, although UKPorting was at times unwieldy, it did ensure that all stakeholders were engaged on the subject of cost allocation.

Regrettably, we do not believe that an industry "own-initiative" approach will be able to deliver the correct degree of stakeholder engagement in absence of a regulatory mandate to create a level playing field. As such, if Ofcom do wish to go ahead with direct routeing, Cable&Wireless views Option 4 (i.e. a regulatory mandate) as the only acceptable option.

<sup>&</sup>lt;sup>8</sup> For example rather than using a common database, MNOs could use mobile-specific signalling to query ahead to the rangeholder network to determine that a number is ported hence the call should be directed to the recipient.

### **ANSWERS TO CONSULTATION QUESTIONS**

# QUESTION 3.1: DO YOU AGREE THAT THERE IS A PROBLEM IN THE WAY MOBILE ORIGINATED CALLS TO PORTED MOBILE NUMBERS ARE ROUTED? IF NOT, WHY NOT?

Cable&Wireless acknowledges that the routeing of traffic to ported mobile numbers is sub-optimal. However, we disagree with Ofcom's approach of picking on only a portion of the traffic flows and optimising that. It is equally sub-optimal that calls originated from fixed and new entrant networks are routed via MNO rangeholder, and that calls to fixed numbers are routed via the rangeholder. Indeed, the whole concept of having a rangeholder is sub-optimal.

As described above, we believe the issue should be considered holistically. At this time the business case for an overall move to direct routeing cannot be justified, but we are confident that the case will be made as network technology evolves. By picking off one particular traffic flow now, Ofcom risks unnecessary segmentation which will ultimately cost industry far more.

## QUESTION 3.2: DO YOU AGREE WITH OUR ASSESSMENT OF THE ISSUES ASSOCIATED WITH ONWARD ROUTING?

Cable&Wireless believes that Ofcom are correct to omit the issues identified in clauses 3.19..32 from any cost-benefit analysis because the approach being proposed would impact only calls originated on large MNOs, leaving other calls subject to the underlying concerns. For example, it is an empty victory if those calls originated on large MNOs still work when a rangeholder fails, if more than a quarter of the traffic comes from other sources hence fails. However, the benefits identified could be incorporated into a framework that attempts to justify direct routeing of all calls.

We believe there are further benefits of direct routeing (but only if applied to all calls), as follows;

#### 1. EASE OF ESTABLISHING PORTABILITY ARRANGEMENTS

Although GC18 mandates that a customer be able to port their number on demand, it is well-known that the facility to port from any CP to any other CP does not exist. Under the existing bilateral arrangements, it is simply not feasible to do this because of the sheer volume of CPs in the UK marketplace. This is already the case for fixed telephony, and with the increasing number of new entrants in the mobile space, will also be the case for mobiles as well.

Cable&Wireless is sure that all CPs work with reasonable endeavours to ensure that porting relationships are established with all other CPs to/from whom they anticipate their customers will wish to port. However, the process of Service Establishment is a painful one in both the fixed and mobile markets.

Some of this is about contracts and processes, and Cable&Wireless would welcome initiatives to establish either common contracts or contracting with a central point to overcome the need for the bilateral web. Much, though, is about establishing the bilateral routeing arrangements to ensure that portability prefixes (for GNP and NGNP) and IRNs (for MNP) are correctly routed.

Direct routeing would allow (and require) these prefixes to be built on originating networks<sup>9</sup> using business-as-usual DMA arrangements, negating the need for costly portability service establishment/maintenance "bolt-ons".

For the porting process itself, from the UKPorting negotiations it is clear that the major database vendors provide a message hub as an inherent capability of their service proposition. Assuming this was utilised, the web of bilateral arrangements could be dispensed with (subject to concluding a contractual framework to remove that element from the equation).

Combining these elements, a new entrant would just need to contract and test with the database provider, and establish their routeing codes in originating networks using business as usual processes. After having done this, their customers would have the facility to import/export numbers to/from any CP : a first for the UK market.

Obviously direct routeing is an enabler for this nirvana, rather than a total solution : it is, however, a prerequisite that Ofcom appears to have neglected in its analysis.

#### 2. EASE OF SERVICE CLOSURE

Over the years, much store has been put in the need to direct route in order to cope with the failure of the rangeholder. Little, however, has been said about the need to facilitate a rangeholder wishing to have an orderly exit from a service. Typically, the rangeholder can be left in the position of being required to keep a service platform open, or having to engineer costly transfers of number ranges to other platforms, in order that exported customers they no longer serve receive continuity of service. Although the rangeholder receives half the DCC (mobile) or the APCC (GNP, NGNP), this cannot come near to the ongoing costs experienced in this situation.

As an example, Cable&Wireless has recently acquired Thus, which in turn had made various acquisitions over the years. One of these services was reliant on a platform that has reached end-of-life, and a strategic decision has been taken that the service be closed. The issues we have experienced have included;

- Per the above considerations, Cable&Wireless has a significant web of porting arrangements, but these are focussed around the needs of our enterprise customer base, meaning the type of CP to which the non-strategic customers may wish to port are not the ones with whom we have porting arrangements. Where possible we've expedited things by allowing migration using existing portability contracts that other parts of the Cable&Wireless group hold, but in some cases it hasn't been possible to meet the customer's choice.
- The service platform was being decommissioned : this is the reason for the service closure. We found ourselves in a Catch-22 situation, in that this meant that moving forward the affected number ranges needed to be rehosted onto other platforms in order to maintain continuity of service for exported customers, but we were unable to do that prior to closing the service, otherwise customers who hadn't/weren't porting their numbers would prematurely lose service.

<sup>&</sup>lt;sup>9</sup> It must be noted that for GNP, the current 5xxxxx prefixes are not scalable to be built on each originating network as the nature of their allocation makes them non-aggregatable. Mercury (as C&W was then known) warned Oftel of this at the outset but were over-ruled. The NICC standards required the establishment of "Destination Groups" to replace GNP prefixes to overcome this. C&W is agnostic whether it is appropriate to extend these to MNP.

This meant that in effect the numbers need to be ported twice in succession, once with the old platform providing the functionality, and when the number ranges are rebuilt onto platforms which do have a future, once again on these platforms.

- Being a legacy service, the number ranges involved are sparsely utilised. As the data will in
  effect be frozen with the exports to the recipient CPs that the customers have chosen, these
  ranges will remain poorly utilised.
- In the future, although we have no relationship with the customers any more, we will have to maintain a service desk lest they choose to subsequent port to another recipient network.
- Our "reward" for what we regard as a necessary process to remain a good corporate citizen is 0.0269 ppm for ported geographic and 0.1465ppm on ported non-geographic numbers, applied to an ever-dwindling amount of traffic : we cannot hope to recover our costs.

If direct routeing were in place, then per our first additional benefit, the customers could possibly have chosen to migrate to *any* CP they wish, and (other than as a call originator) Cable&Wireless' involvement in the scenario would cease once the porting process had completed.

#### 3. CONTROL OF PORTED NUMBERS

As identified in our previous benefit, the existing onward routeing system means that exported numbers remain on the rangeholder CP's provisioning systems, albeit marked as exported. Regrettably, since the time of Ofcom carrying out its information gathering, we have had the situation where a rangeholder has corrupted this data, meaning a number that CableWireless had imported was re-issued to a customer of the rangeholder. This was particularly distressing, because the ported customer involved was a bank branch and the rangeholder customer was a residential subscriber.

Had direct routeing been in place, then the number would no longer be maintained on the rangeholder network, and it would have been impossible for them to re-allocate the number to another customer without the appropriate access keys for the common database records involved.

### QUESTION 4.1: DO YOU AGREE WITH OUR PROPOSED APPROACH FOR ASSESSING THE NET BENEFIT? IF NOT PLEASE EXPLAIN WHY NOT.

Cable&Wireless disagrees because the benefits of (all traffic type) call routeing are primarily about numbering efficiency, with portability being a secondary benefit. Additionally, in the case of portability, there are the extra benefits raised in our response to Question 3.2.

We fully accept that direct routeing of itself does not yield either the numbering efficiency benefits, or the improved portability benefits. This is not, however, a justification to simply ignore them. Ofcom could create an holistic cost-benefit-analysis of direct routeing with the incremental changes needed to yield the full benefit, or alternatively could use option pricing theory in the evaluation.

For the latter, the approach taken would be to recognise that the introduction of direct routeing yields the *opportunity* to take additional steps to optimise numbering and portability downstream. The value of this opportunity is then assessed using option pricing theory. The cost and benefits of taking the additional steps to move away from fixed-block assignment would be estimated. Coupled

with the probability of this extra step being taken (and timing), financial models can be used to assign a value to the opportunity created, which would then be incorporated into the base case cost-benefit-analysis of direct routeing.

Accepting that the chance to utilise such advance techniques has been overlooked, Cable&Wireless agrees that the model used by Ofcom takes the correct approach to evaluating the benefits of bypassing the rangeholder.

### QUESTION 4.2: DO YOU AGREE THAT WE HAVE IDENTIFIED THE RELEVANT COST DRIVERS RESULTING FROM A MOVE TO DIRECT ROUTING? IF NOT PLEASE EXPLAIN WHY NOT.

From a principle standpoint, Ofcom have identified the correct costs. However, Cable&Wireless believes that Ofcom under-estimates the skilled technical and commercial resources required to reach industry agreement. As we state above, the UKPorting initiative took significant levels of skilled resource out of CPs' business as usual operations and product developments. Although superficially these would be covered under the capital cost elements of Ofcom's analysis, we are not sure whether Ofcom has done, and if so whether this has been on the basis of actual resource cost, or the more accurate approach of assessing the opportunity cost of commercial activity that would be foregone.

### QUESTION 5.1: DO YOU AGREE WITH OUR ASSESSMENT OF DOING NOTHING? IF NOT, PLEASE EXPLAIN WHY.

Cable&Wireless does not agree with Ofcom's assessment of the do nothing approach. While accepting that such an approach forgoes a saving of  $\pounds 14M/yr$  across the mobile industry, this amounts to just 23p per mobile subscriber per year, or 0.12% of annual revenues. Far from "do nothing", this option amounts to letting the mobile industry devote its finite resources to something which would be more revenue generative.

Cable&Wireless would also highlight that an option has been omitted, namely "given the evident interweaving of the fixed and mobile market, defer any changes until they are feasible for all call types". This would be our preferred option.

#### QUESTION 5.2: DO YOU CONSIDER THAT AN INDUSTRY AGREED SOLUTION IS LIKELY TO EMERGE THAT WOULD DELIVER DIRECT ROUTING NO LATER THAN 2012? IF NOT, PLEASE EXPLAIN YOUR REASONS. WOULD YOU BE SUPPORTIVE OF SUCH A SOLUTION?

Cable&Wireless cannot comment on the likely thinking of the CEOs of large UK MNOs.

While supporting the principle of co-regulation, Cable&Wireless has profound concerns about this approach. As set out in our earlier analysis, we are unconvinced that the effects of direct routeing can be ring-fenced to the mobile community. Whilst Ofcom could provide some immediate confidence by regulating mobile termination rates to be set at a converged level at any given time of day rather than the current regulation of averaged rate, we still cannot be sure that some unforeseen eventuality will make it necessary for fixed operators to direct route calls to ported

mobile numbers in the future (for example, a downstream decision by Ofcom to allow recovery of the DCC from originators that do not direct route).

By the large MNOs devising a solution with no influence from other potential stakeholders, it is inevitable and entirely rational that the approach adopted will be the lowest cost one for networks utilising mobile technology. However, the consequence of this is that it may be totally impossible (or at least economically non-feasible) for fixed operators or non-GSM-based mobile operators to dovetail into this direct routeing approach. As such, Ofcom's prophecy that fixed operators will not direct route because it isn't economically feasible to do so becomes self-fulfilling. Cable&Wireless finds the material in 5.18, i.e. that fixed operators be allowed to attend meetings but not be allowed to actively participate, to be particularly objectionable and to be setting a dangerous precedent (note that we say this as a communications provider with mobile interests, hence not being subject to such a ban on speaking).

Cable&Wireless could only support a co-regulatory approach if it utilised open technical standards, for example developed by NICC, and if the commercial arrangements for access to the data were endorsed by Ofcom.

#### QUESTION 5.3: WHAT STEPS DO YOU CONSIDER OFCOM SHOULD TAKE TO ENSURE THAT SUCH AN INDUSTRY COMMITMENT IS SERIOUS? DO YOU AGREE WITH THE PROPOSED STEPS SET OUT BY OFCOM OR ARE THERE ADDITIONAL MEASURES THAT SHOULD BE TAKEN?

While disagreeing with the approach, Cable&Wireless believes that to go forward on this basis would require a legally binding Memorandum of Understanding between the involved MNOs and Ofcom. This would have to set out the deliverables and encompass such issues as wider stakeholder engagement. We are hesitant about whether a CEO commitment is sufficient : non-legal undertakings by company officers cannot be considered to be binding on their successors.

#### QUESTION 5.4: WHAT STEPS DO YOU CONSIDER SHOULD BE TAKEN TO ENSURE THAT ANY INDUSTRY SOLUTION THAT EMERGES DOES NOT FORECLOSE THE OPPORTUNITY FOR OTHER MOBILE OPERATORS TO PARTICIPATE IN THE SHORT TERM OR LONGER TERM?

Cable&Wireless queries why participation is restricted to mobile operators, with the fixed community being disenfranchised? Nevertheless, we consider that the necessary measures are that the technical solution be developed under the auspices of NICC (which has procedures to ensure that stakeholders are adequately engaged) and that the commercial arrangements be endorsed by Ofcom.

### QUESTION 5.5: IF THERE WAS A FIRM COMMITMENT TO AN INDUSTRY-LED SOLUTION, WHAT ROLE WOULD YOU EXPECT OFCOM TO PLAY?

Ofcom should act as an observer at all relevant meetings, highlighting any aspect that they consider could prevent any stakeholder from utilising the solution in the future.

#### QUESTION 5.6: DO YOU AGREE WITH OFCOM'S PROPOSAL FOR A BACKSTOP TO MANDATE DIRECT ROUTING IN THE EVENT THAT AN INDUSTRY INITIATIVE FAILS? DO YOU AGREE THAT REVIEWING THE SITUATION IN LATE 2010/EARLY 2011 IS APPROPRIATE BEFORE DECIDING ON THE NEED TO MANDATE?

Cable&Wireless disagrees with changing mobile-mobile routeing procedures in isolation to the wider routeing of calls, so clearly would oppose any regulatory mandate. However, if Ofcom is minded that direct routeing of mobile-mobile calls should be in place within a given timescale, then it is appropriate that a regulatory mandate should be set. Indeed, to avoid uncertainty we believe that this should be done from the outset (i.e. Option 4).

### QUESTION 5.7: DO YOU AGREE WITH OUR ASSESSMENT OF OPTION (3)? PLEASE SET OUT YOUR REASONS.

In principle, it is correct that there should be a shift of the additional charges involved in onward routeing of calls to ported numbers, away from rangeholder/recipient networks and onto the originating network. This is because the basis of number portability changed with the introduction of EU legislation some time ago, altering portability from being an obligation on CPs to enhance competition, to an end-user right. Arguably, this made portability something which telecoms networks inherently had to support, meaning that its costs should be borne across all minutes.

However, Cable&Wireless considers that it would be unacceptable for the burden of portability to fall on the originator for calls to mobile numbers, while remaining on the recipient network for calls to geographic and non-geographic numbers. As such, while we accept a change to the incentives is probably desirable and necessary in due course, it should not be done until it can be carried out holistically. We agree with Ofcom's analysis that to make this change solely for mobile-destined calls will mean that the fixed community will be responsible for meeting part of the cost of MNP, while the cost of GNP and NGNP would remain solely borne by fixed operators. This would result in a transfer of costs to fixed networks, and Cable&Wireless believes the cost to us alone would run to a six figure sum annually. We do, however, find it curious that this option is rejected because ramifications could run through to the fixed networks, while the proposed solution, which suffers from exactly the same issues, is considered acceptable.

# QUESTION 5.8: IF OFCOM WAS TO TAKE OPTION (3) FORWARD, WHAT WOULD BE THE COSTS INVOLVED IN (I) MAKING CHANGES TO WHOLESALE BILLING SYSTEMS AND (II) OTHER COSTS? PLEASE EXPLAIN THE BASIS OF YOUR ESTIMATES.

Cable&Wireless has not completed an analysis of the likely development costs in our role as an MNO rangeholder.

However, from the fixed network standpoint this approach would make it impossible for us to audit our interconnect bills for terminating calls to mobile numbers (which run to hundreds of millions of pounds annually) without recourse to a database of ported numbers.

We do not believe that it would be practicable to use such a database solely to validate bills (i.e. continue to route calls to the rangeholder and use the database to check their bills for DCC), because to do so accurately would require a check on the ported status of each number on the data

that the call was made (which may or may not be the same status as indicated by the database at the point of bill verification). Further, the cost of developing a billing system capable of doing this would be significant.

As such, Cable&Wireless believes that our only practicable approaches would either be to accept the DCC bill as presented to us by MNOs (which, per our response to question 5.7 would be a considerable sum of money), or to utilise the database contents to direct route. The first approach represents a large commercial risk, the second a significant network investment which by Ofcom's own figures is not economically efficient.

#### QUESTION 5.9: DO YOU AGREE WITH OFCOM'S ASSESSMENT THAT MANDATING DIRECT ROUTING FOR MOBILE ORIGINATED CALLS TO PORTED MOBILE NUMBERS IS LIKELY TO BE THE MOST EFFECTIVE WAY OF REMOVING ROUTING INEFFICIENCIES? IF NOT, WHAT OTHER FACTORS THAT WE SHOULD TAKE INTO CONSIDERATION, AND WHY ARE THEY RELEVANT TO OUR ANALYSIS?

Cable&Wireless agrees that a mandate to direct route represents the best way to overcome routeing inefficiencies. However, as stated, we believe it a mistake to mandate direct routeing of one call type at an early stage, rather than taking an holistic approach. This is particularly the case given the limited benefits, scope for balkanisation of routeing approaches and overall greater cost implications.

#### QUESTION 5.10: DO YOU AGREE THAT IF OFCOM WERE TO MANDATE DIRECT ROUTING, THE OBLIGATION SHOULD BE DESIGNED IN A WAY THAT WOULD AVOID MOBILE OPERATORS HAVING TO USE DIRECT ROUTING WHERE THE SCALE OF PORTED TRAFFIC IS NOT SUFFICIENT TO JUSTIFY THE UP-FRONT INVESTMENT TO IMPLEMENT DIRECT ROUTING?

Cable&Wireless agrees with the approach, but note that Ofcom must keep a careful watch that the commercial arrangements do not penalise latecomers or smaller MNOs.

#### QUESTION 5.11: DO YOU AGREE THAT BY FRAMING THE OBLIGATION IN A WAY THAT OBLIGES MOBILE OPERATORS TO ROUTE CALLS TO MOBILE PORTED NUMBERS IN THE SAME WAY AS NON PORTED TRAFFIC SHOULD AVOID THE RISKS OF ANY UNINTENDED CONSEQUENCES? IF NOT, PLEASE COMMENT ON HOW THIS OBLIGATION COULD BEST BE FRAMED.

Cable&Wireless absolutely agrees with the principle. However, as discussed in our introductory comments, we have concerns as to how Ofcom would actually enforce this as it would be trivial to obfuscate the origin of traffic, at least at the margins.

#### QUESTION 5.12: DO YOU AGREE THAT THE OBLIGATION TO PROVIDE INFORMATION ON PORTED MOBILE NUMBERS SHOULD APPLY TO ALL MOBILE NETWORK OPERATORS FROM THE START AND NOT JUST THE FIVE INCUMBENT MNOS? DO YOU AGREE THAT IF THERE IS A CENTRAL DATABASE OF PORTED MOBILE NUMBERS, THIS SHOULD CONTAIN ALL PORTED MOBILE NUMBERS INCLUDING THOSE OF NEWER ENTRANTS WHO WOULD NOT BE OBLIGED TO IMPLEMENT DIRECT ROUTING FROM THE START?

Cable&Wireless accepts the logic of including porting data for all MNOs rather than just those subject to a direct routeing obligation.

However, it must be noted that (since the "web" of porting arrangements between new entrants is incomplete) when a new entrant wishes to direct route calls as an originator, they will need to ensure that suitable databuild arrangements are in place for them to route calls to all potential recipients : in brief they will need to ensure that the IRN of all recipients are routable from their network and across any intervening transit networks. Ofcom should be mindful of the implications of this for the market for transit between mobile operators.

#### QUESTION 5.13: WHAT DO YOU CONSIDER TO BE AN APPROPRIATE TIMESCALE FOR IMPLEMENTATION OF DIRECT ROUTING FROM THE POINT AT WHICH OFCOM ISSUES A FINAL DECISION? PLEASE PROVIDE A FULL AND DETAILED EXPLANATION AS TO WHY YOU AGREE OR DISAGREE WITH THE 2012 TARGET DATE PROPOSED BY OFCOM.

Clearly Cable&Wireless disagrees with the 2012 target, in line with our position that direct routeing should not be introduced for mobile-mobile traffic alone.

If the unfortunate decision is taken to implement a mobile-specific solution, however, we consider that 2012 represents a reasonable target. An appropriate timeline could be;

| Agree technical specification <sup>10</sup>                               | - | August 2010                |
|---|---|----------------------------|
| Initial tender process to assess CDB cost +<br>MNOs assess internal costs | - | November 2010              |
| Ofcom reconstructs CBA with detailed costs                                | - | March 2011                 |
| GC18 amended  | - | April 2011                 |
| CDB contract awarded  | - | July 2011                  |
| CDB available/tested  | - | February 2012              |
| CDB populated   | - | June 2012                  |
| CDB fully utilised  | - | October 2012 <sup>11</sup> |

# QUESTION 6.1: DO YOU AGREE THAT IT IS APPROPRIATE FOR OFCOM/INDUSTRY TO APPOINT A QUALIFIED INDEPENDENT THIRD PARTY TO WORK WITH INDUSTRY TO DEVELOP A PROVISION TECHNICAL SPECIFICATION FOR DIRECT ROUTING? IF NOT, PLEASE STATE WHY.

Cable&Wireless does not oppose such an approach, but the role of the consultant would have to be tightly defined. For example, their role should absolutely not be to develop a technical specification, as this is the remit of NICC : they could, however, have a role of facilitating/project managing such production. Additionally, the relationship with Ofcom would need to be carefully considered : there is a thin-line between being a mediator/facilitator amongst the CPs involved, and a quasi-agent of Ofcom driving compliance with the agreed timescales.

<sup>&</sup>lt;sup>10</sup> Cable&Wireless disagrees that the cited standard 3GPP TS 23.066 provides an "off the shelf" solution to this. It is a framework standard, indeed NICC ND1208 is more prescriptive about how a database of ported numbers be used for MNP, specifying matters such as digit formats on which TS23.066 is silent. Both documents, however, do not describe how the database should be populated and downloaded into CP networks. Within the NICC standards-suite, ND1631 and ND1022-24 resolved these issues. However they were written for an holistic solution to call routeing, and an MNP-only solution will require extensive re-writes. The original documentation set took some 2½ years to agree between industry.

<sup>&</sup>lt;sup>11</sup> The delay between the database being populated and actually utilised is to reflect external factors – it would be naïve in the extreme to attempt a major network reconfiguration during the London Olympics. We fully expect all networks to be frozen in line with Christmas Freeze procedures during this time.

#### QUESTION 6.2: DO YOU AGREE WITH THE CRITERIA FOR SELECTING AN INDEPENDENT EXPERT/CONSULTANCY? IF NOT, PLEASE STATE WHAT DIFFERENT/ADDITIONAL SKILLS OR QUALITIES THIS INDEPENDENT PARTY SHOULD BRING?

Cable&Wireless considers the skillsets listed appropriate. We would add knowledge of the process of technical standardisation.

# QUESTION 6.3: IF YOU WOULD LIKE TO RECOMMEND SUITABLE EXPERTS/CONSULTANCIES TO OFCOM, PLEASE DO SO, ON A CONFIDENTIAL BASIS.

Cable&Wireless has no input to provide on this issue.

#### QUESTION 6.4: DO YOU AGREE THAT THREE MONTHS IS AN APPROPRIATE PERIOD OF TIME TO PRODUCE A PROVISIONAL TECHNICAL SPECIFICATION FROM WHICH STAKEHOLDERS CAN DERIVE REASONABLE ACCURATE COST ESTIMATES? IF NOT, EXPLAIN WHY AND DETAIL WHAT YOU CONSIDER TO BE AN APPROPRIATE TIME SCALE.

In line with our response to Question 5.13, Cable&Wireless considers this timescale to be totally unrealistic and a recipe for further industry discord. To achieve these timescales would require suspension of other commercial developments with consequent customer impact, and a compelling case for this has not been made.

#### QUESTION 6.5: DO YOU AGREE THAT A FURTHER THREE MONTHS IS A SUFFICIENT PERIOD OF TIME TO DERIVE COST ESTIMATES BASED ON THE PROVISIONAL TECHNICAL SPECIFICATION? IF NOT, PLEASE EXPLAIN WHY AND DETAIL WHAT PERIOD YOU THINK WOULD BE APPROPRIATE.

Cable&Wireless considers this a realistic timescale.

### QUESTION 6.6: DO YOU AGREE THAT THE CONDITIONS WE HAVE SET OUT AS BEING NECESSARY TO MAKE THIS PROCESS SUCCESSFUL IN ITS AIMS ARE APPROPRIATE?

Cable&Wireless has reservations about the role of the consultant in this context. If they are to facilitate agreement of the technical specification and commercial framework, we find it difficult to understand why there would be any need for them to request access to CP facilities or CP information. We do agree with the need to provide resources to fulfil compilation and agreement of the technical and commercial framework : during the UKPorting initiative Cable&Wireless saw no evidence of an unwillingness on the part of CPs to do this.

## QUESTION 6.7: DO YOU HAVE ANY OTHER SUGGESTIONS WHICH WOULD HELP TO MAKE THIS PROCESS CONSTRUCTIVE AND EFFECTIVE?

Cable&Wireless has no input to provide on this issue.

#### QUESTION 6.8: DO YOU AGREE WITH OFCOM'S PROPOSED NEXT STEPS FOLLOWING RESPONSES TO THIS CONSULTATION? IF NOT, HOW DO YOU THINK OFCOM SHOULD PROCEED TO BRING THIS ASSESSMENT OF CALLS TO PORTED NUMBERS TO A FINAL DECISION?

In line with our response to Question 5.13, Cable&Wireless agrees with these steps.

**Enclosures : confidential Annex**