Summary:

Stour Marine welcomes the new consultation and is strongly in favour of any new regulation position which will reduce the current method some large operators use to delay or prevent much smaller operators from competing in a fair and equitable manner.

From Stour Marine's recent experience the most contentious issue when agreeing interconnect arrangements with the "big four" operators has been in fixing the basic commercial rate for calls termination onto the Stour Marine network. Most operators accept the previous guidelines set by Ofcom while others seem to disagree with the current regulation and so unilaterally assign all new operators as "VOIP" (Over The Top) operators and so offer rates far below any reasonable cost. The time taken to exhaust bi-lateral negotiations and then bring the matter to OfCom for resolution can take more than a year which is always to the detriment of the smaller operator. These delaying tactics will ultimately be also to the detriment to the industry and the market as a whole as it will lead to reduced competition as without viable commercial terms small operators cannot survive or flourish.

The current proposals by Ofcom to categorise mobile operators into 3 groups and so define the applicable call termination rate is also strongly supported but the deployment and definition of this must be sufficiently firm and clear so that disputes which required resolution, can be quickly determined. The critical question which forms the corner stone of this process is who will define into which category any particular (small) operator is contained and assuming that this body is OfCom, will this decision be open for challenge/appeal by other operators. Should any challenge or appeal to OfCom's determination by a single operator be resolved, will this determination then, as now, be open to further challenges by each of the other operators in turn? Stour Marine strongly suggests that this consultation and subsequent regulation address the issue of "serial challenges" for essentially identical disputes.

The whole fixed and mobile "Telecosm" is changing rapidly as is the type and cost of the radio access layer (2G, 3G, 4G, WiFi, WiMAX etc). Furthermore it is likely that the access layer that calls take will vary considerably even on a call by call basis as Femto cells and WiFi offloading gather pace. This will affect all operators irrespective of size or licence condition. What is also changing rapidly is the quantum of usage which customers are using and the cost they are prepared to pay per unit measure for their traffic. Smaller operators are without the scale to achieve significant infrastructure cost reductions or scale reductions at the wholesale level and are experiencing cost increases compared to the larger operations. This process is compounded as the effective cell radius reduces in small operator networks and so the "CAPEX per customer" on the radio layer is also increasing for sub scale networks. It is generally accepted in the industry that small service-foot-print systems have a much higher "cost per customer" than large footprint systems and so this favours the larger operator who has scale to reduce their costs not available to the smaller operator. Thus to blanket relegate these smaller RAN or GERAN operators to the "over the top" category will result in a

commercial disaster for these companies. Stour Marine strongly supports the proposal that small companies operating their own RAN or GERAN should be treated the same as large operators regarding setting the level of minimum termination rates.

However, when considering an OTT operator which also has some form of radio access layer or roaming agreement and so must show the level of traffic carried on which layer will be highly problematic and so would open again the door for the larger operators to dispute rates with all non-category 1 operators. Also, where a small operator is itself a start-up, how will it be able to show that the majority of traffic will be carried on its own RAN or roaming layer and so set a viable termination rate for the critical first 2 years of operation?

Stour Marine strongly supports clear regulation on a fair and reasonable standing where all operators who deploy a RAN/GERAN or who have a national roaming or MVNO agreement are treated the same. Operators who do not provide their own RAN/GERAN and neither have self provided national roaming or MVNO services should be treated as OTT operators and relevant termination rates set accordingly.

1/ Competition landscape and Operator Telecosm.

The UK fixed and mobile telecosm is currently in a high state of flux which is likely to increase as various technologies merge or converge. Network operators themselves either merge or have joint operating deals or operators use substitutional overlay/underlays. Also as mobile services further increase and are compounded by such things as Mobile Number Portability (MNP) so traffic of various types (voice, data, messaging) will be carried on disparate layers and by disparate operators often on a call by call basis. It will be increasing difficult to identify the traffic type or how it is carried simply by analysing the MSISDN or even the IMSI. The UK already has a large number of "large" operators with their own infrastructure overlaid on each other. However, network consolidation is already happening (Vodafone-Orange for 3G plus the merging of the Orange and T-Mobile networks), which will have the effect of lowering the costs still further of these large operators. There are also a larger number of smaller operators all providing dedicated RAN/GERAN layers albeit at a regional or local or campus level. It must be recognised that in order to compete these smaller operators must also have some form of national roaming or MVNO type agreement with the larger operators in order to survive. These national roaming or MVNO agreements are invariable let at full commercial wholesale rates and so this traffic will make a reasonable profit margin for the serving operator as well as the terminating operator. The costs for these roaming or MVNO services are borne by the smaller operators and passed on in turn to their end customers. In this business case the smaller operators have to "add value" to their customers using on-net or value added services as the large operators will always be able to undercut them for national/MVNO traffic.

There are a growing number of small operators who do not have their own RAN/GERAN access layers or which use only very small area direct access in typically office environments. These operators require that the end customer themselves pay all access layer charges directly to their serving mobile operator and then also pay the OTT operator only for connection layer (Skype is a typical example of this operation). A straightforward example of this is the recent campaign by "3 UK" and Skype for unlimited "free" calls worldwide. A customer of "3UK" would pay for the full access charge including normal 3G voice (3GPP recommendation) and data access (UMTS/HSPA). The customer can then download a Skype software client and thus connect to the Skype world-wide system. The end customer would also pay Skype for any calls connected from the Skype connection layer onto any non-Skype network (also world-wide). In this model the cost to Skype for calls carried within its IP end-to-end network will be below what the customers themselves pay for all access layer charges and so it is reasonable that any calls terminating onto the Skype network should attract a low interconnect rate.

However, traffic entering into any mobile network (and thus incurring a termination charge) will be routed depending on where the mobile customer is at that instant in time. This routing is not under the direct control of the operator and customers are also encouraged to "roam" onto other networks where their home network does not have coverage, or where there is an access layer which could be

at lower cost to the customer. An example of this is the increasing practice of "off loading" traffic from a GSM/3GPP network onto a "Femto" cell located in the customers home or campus/office network. In this case the traffic will not be carried on the normal radio access layer but on the Femto layer which has been provided at no cost to the operator. The backhaul connection for these Femto cells is also provided by the customer's regular broad-band connection also at no cost to the operator. As the penetration of these Femto cells increase, particularly in SME office environments it is conceivable that the larger operators could carry a significant proportion of their terminating traffic over this layer and yet still be classed as a category 1 operator. **In this traffic case the mobile operator has themselves become an "over the top" operator but will still receive the full mobile termination charges.**

This situation is further complicated by the increasing practice of large mobile operators with 3GPP access layers also "off loading" data and potentially voice traffic onto public/private WiFi (IEEE 802.n) networks in offices, shops and high people density urban areas. These WiFi networks support handover and packetised speech and do not require the simple VOIP client to run (as in Skype). In this case also the network operator will be receiving a full call termination charge but will not be incurring the cost of the normal 3GPP access layer.

Customers can themselves change the routing direction in the form of elected re-direction or re-direction under certain status types (e.g. do not disturb). In this case off-net calls terminating on the mobile operators network will be routed away from their access layers onto other networks (roaming), call handling systems (voice mail), call redirect systems (corporate IP-PBX) etc. Generally these non-radio access layers are at no/low cost to the serving operator yet they still get the full call termination charge.

Taken together the above traffic termination types could easily reduce the radio access layer loads of large operators terminating traffic to above 40 % of all terminating traffic and so make them an effective OTT operator and yet still receiving full termination charge. While at the same time these same large operators will be insisting that the smaller operator's fully justify terminating traffic not being carried on their access layers. The net effect will be to reduce the costs of the large operators allowing them to have an unfair advantage over the smaller operators.

Stour Marine is concerned that having mobile call termination rate based on a "sliding" scale depending on the type of access layer is open to abuse and delay by large operators. Any regulation should be plain and easy to interpret which is difficult to achieve where the end-to-end call access layer is now not dependent on the MSISDN.

Invariably all companies will seek to protect their markets and will use all means available to delay a competitor entering the market if they perceive they need time to develop a responding product. In this respect the upper hand is always with the larger network operators and to suggest that any distortion in the call termination

rate of an operator with less than 0.5% market share will cause significant harm to a large operator with 30% market share is difficult to understand. Such distortions are always of short duration as the other operators respond with competing products. Also to suggest that such a small operator will be able to grow market share based totally on the short term distortion to the call termination rate is grossly overstating the mathematical case when taking into account the quantum of the terminating traffic being carried by the larger networks. What is an issue is the “bundling” of call minutes at discount call rates which the larger operators have deployed for many years. This bundling generally affects the more valuable “post-pay” customers and the larger operators rely on these valuable customers not using all their bundled minutes in a given month to generate additional margin. Typical figures from industry reports suggest that this unused bundle minutes (or breakage) are between 30% and 40% of total bundled minutes in Europe. As this market deepens and other operators appear, so this valuable customers segment will use their bundles more closely to their monthly limits which large operators see as a threat to their profit margin rather than a simple re-balancing of an attractive bundle package. Increasingly Large operators are taking destination number ranges out of their “bundles” where they see a traffic disparity. In this way they are using the call termination rate to subsidise their “bundle” business always to the detriment of the smaller operators who generally cannot produce reciprocity of traffic in the short term. Were this not the case and the whole minute package were profitable then why would the larger operators not allow their customers to use the whole bundle to any UK non-premium destination without requiring a balance of traffic with corresponding operators? This reciprocity of traffic requirement is tantamount to a cartel of bundle costs by the larger operators.

In this way is can be seen that large mobile operators are already using the call termination rate as a means to subsidise their other business packages but are seeking to deny a commercially viable call termination rate to smaller operators or multi-standard operators.

A more simple method might be for OfCom to consider some form of operator categorisation indicator as part of the license process rather than leave this to negotiations between operators who are in competition and where the larger companies have a vested interest in delaying small companies who might have a competitive “edge” for a small segment of the market. A straightforward approach might be that where a mobile operator has national coverage and is offering national roaming and/or MVNO services then they are automatically “Category 1”. Where an operator has a regional or “campus based RAN/GERAN” or where they have national roaming or MVNO networks then they are automatically “Category 2”. Where an operator has neither a RAN/GERAN nor has national roaming/MVNO on the access layer then they are automatically “Category 3”.

2/ Traffic directionality and On-net versus Off-net Traffic and it's affects on operator commercial viability

From the outset of the cellular networks in the early 1980s various study groups have monitored the directionality of traffic (on-net versus off-net) and the changes in pattern as competing operators came into service. This study and review reached a higher level of precision when it became obvious that the number of mobile customers would exceed the number of fixed lines by a considerable margin. From the wealth of data available it is confirmed that common logic holds good in that the larger the service-footprint of an operator and the larger the market share so the larger the amount of on-net traffic. As on-net traffic does not attract any costs outside of the direct control of the operator then these tariff packages can be very easily controlled and hence the profitability of the larger operator is ensured. This on-net traffic is also a main driver in larger operators being able to offer "bundle minutes" at attractive prices.

The converse is also true of the smaller operators in that the proportion of on-net traffic will be proportionally less and so their ability to offer competitive price packages will be reduced for off-net traffic. Bundling is also possible but due to the reciprocity of traffic being unequal these packages are always uneconomic for small footprint networks.

The impact of this disparity in call direction between large and small operators has a direct bearing on the effects of the call termination rate on commercial viability for small operators.

From network traffic models developed by Stour Marine comparing operators with different market shares and on-net/off–net traffic we estimate that an operator with 40% market share will have circa 13% of it's traffic affected by call termination charges (an in payment to the 40% operator for calls originating off-net) while a smaller operator of 20% market share will have over 35% of its traffic subject to call termination charges (in payment by the 20% operator for calls originating off-net). In both cases the termination charge in question is incoming traffic to the operator and so the termination charge will appear as call revenue. It is not intended to offer up a definitive traffic model at this time but what is beyond doubt is that operators with large market shares are much less affected by low incoming termination rates than small operators. This situation is exacerbated by the emergence of recreational or "campus" based operators where due to their customer's behaviour the inward-to-outward call patterns will be biased to receive more calls than they make particularly at weekends and holiday periods.

It is not intended to discuss the various merits of LRIC versus LRIC plus at this point as this is the subject of another OfCom consultation document [Mobile Call Termination: the relationship between mobile call termination rates, market share and competition] . However where a small operator is a net-receiver of traffic and the call termination charge does not cover costs then obviously this is not commercially viable. Larger operators can accept this situation more easily than small operators as larger percentages of high revenue earning traffic which can be

used as a “bundle offset”. Therefore if this effect is not fully taken into account, the larger operators can stifle the growth or commercial viability of the smaller operators simply by forcing a low call termination rate. It is suggested that this is one of the key drivers in the high number of call termination disputes which have arisen over the past 3 years since OfCom elected to licence a larger number of smaller operators. Typically larger operators insist that smaller operators accept a call termination rate of less than 0.5ppm while requiring the full 4.4ppm for traffic in terminating on their network, a clear disparity which is neither fair nor reasonable.

3/ Fair and Reasonable

Stour Marine fully supports the drive and objective of the consultation that any termination agreement and the setting of call termination charges should be fair and reasonable to all parties (OfCom section 1.2).

In applying this principle great care must be taken to ensure that no ambiguity is inserted into the guidance which would allow the current situation where larger operators can continually challenge termination agreements with small operators and even determinations by OfCom. Particularly where these challenges can occur in a serial fashion and so delay a fair and reasonable rate by years rather than months.

Using directionality of traffic as a metric to define a sliding scale of termination rate will not in itself identify the cost of actually carrying the traffic as all access operators will become OTT operators for certain traffic conditions (Femto, WiFi off-load, corporate PBX, etc) . Also MVNO’s and large operators using national roaming services will also attract the normal termination rate for all calls while significant traffic will not be carried on the high cost radio access layer (voice-mail, international roaming etc.) The consultation paper accepts that all operators who have their own RAN or who provide radio access layers to their customers using MVNO or national roaming services will attract the normal call termination rate (OfCom section 2.2.2 and 2.7) and so Stour Marine strongly supports this is the only metric for categorising small operators.

The only difference which is clear and unequivocal is where an operator does not provide a RAN/GERAN or MVNO/national-roaming services then this traffic is not actually terminating on a mobile network and so should not attract the mobile call termination charge mechanism (Ofcom section 2.2.3).

Stour Marine do not consider that smaller operator have any cost advantage in building out their networks as any technology advantage is more than off-set by the sub-scale of the network (compared to larger operators) and the inherent disparity of on-net/off-net traffic (Ofcom section 2.3.3). In this we feel that all operators identified by OfCom as having either their own RAN or provide MVNO/national-roaming services should enjoy the same call termination rates as the larger

operators. Equality of treatment for all mobile operators is essential for competition to grow and is fully supported by the EU (OfCom section 2.4).

For OTT operators whose traffic is generally carried over a radio access layer which is not to their cost (OfCom section 2.19.2) then a lower voice call termination charge is both fair and reasonable. However to suggest that these operators could wield such market power that a distortion of this terminating rate would allow them to aggressively win market share over the larger operators is overstating the metrics of this type of call traffic and it's affect on other mobile operators. Already most if not all of the large GSM/3GPP operators have withdrawn the so called "all you can eat" unlimited data packages. It is these unlimited data packages which allow OTT operators to connect voice calls without the end customer paying an access charge. In fact it is the presence of the unlimited data packages which allowed the emergence of the OTT operators firstly in the fixed networks (ADSL) and most recently in the wireless networks HSPA and HSPA+ and caused the distortion to the market. Stour Marine recently conducted a cost analysis of carrying a simple voice call using data connection from a large mobile operator where the data connection was charged per Mbyte. In this case we calculated a true cost of over 3.3ppm to the customer of making an OTT call using a Skype client on their smart-phone. Obviously the large wireless operators have realised too late that their customers will abuse unlimited data packages which is why they have started to withdrawn the same. Without an unlimited data packages it is unclear if OTT operators can make a serious impact to a wireless network operators business (OfCom section 2.24).

Without very clear identification of how an operator should be categorised independently of the perceived access layer the traffic might be carried upon is unlikely to reduce the number of termination disputes. As referenced in OfCom sections 2.7, 2.19.1 and 2.39 certain operators are already objecting to all small operators receiving the minimum call termination rate. Where there is any perceived doubt on the part of the large network operator into which category any small operator may be then they will always assume category 3 (OTT) and then it will be up to the small operator to dislodge this decision to an operator they are competing with. At best this will be time consuming, at worst it will be to the serious commercial detriment to the small operator and competition will be diminished and will increase the disputes referred to OfCom.

Stour Marine strongly supports regulation based on OfCom determining an operator's status rather than on some form of predictive or retrospective analysis of voice traffic.