



Internet Telephony Services Providers' Association

VoIP and Mobile Network Operators

December 2011

Executive Summary

- We conducted a large *but not exhaustive* review of UK Mobile Network Operators (MNO) tariffs and terms and conducted a number of "real world" tests on both pre and post paid SIM cards.
- The permissibility of OTT VoIP (Over the top Voice over IP VoIP) varies greatly with differences between MNO's and even within a single MNO's different tariffs.
- The terms and conditions of three of the five MNO's prohibit the use of VoIP and other streaming services in a substantial number of their tariffs.
- Despite the terms and conditions of the various operators we have been able to make successful calls on all UK networks¹ with the exception of T-Mobile.

It seems reasonable that customers buying mobile data bundles should expect to be able to use them for low speed (<100kbps) streaming services unless this is clearly excluded at point of sale. Having reviewed the market we conclude that:

- In most cases MNOs are not transparent about their policies towards VoIP over mobile data. A typical customer of a typical MNO would not be aware, when purchasing a plan via the MNO website, whether VoIP was allowed or blocked. (Vodafone are an exception, providing very clear information.) Some information is wrong or misleading. More generally customers would need to be well informed (for example understanding that they should search 'Traffic Management') in order to discover the policy of most MNOs towards VoIP. Market forces cannot be assumed to work if the market is not properly informed.
- MNOs serving the majority of the market (Vodafone, T-Mobile and Orange) either prohibit VoIP in their terms and conditions and / or charge a premium for using it and / or actively block it. This is likely to discourage innovation and investment in services that use VoIP over mobile data. We believe that there is no technical justification for this prohibition.
- There is an opportunity to use the forthcoming 4G spectrum license process to include a requirement that successful bidders must not block or discriminate against third party VoIP or messaging operators unless strictly necessary to preserve the quality of service of their network. We believe this will rarely if ever be the case for typical VoIP and messaging services.

¹ Using an Ipad prepaid SIM card



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Commercial review

We conducted a review of the terms and conditions for the five UK MNO's by reviewing the terms and conditions of their current and more recent plans and tariffs. While extensive this review cannot be considered exhaustive and did not focus on legacy tariffs.

The commercial landscape for OTT VoIP in the UK, as defined by the terms and conditions of the five mobile network operators, is not uniform across mobile operators and even within each mobile operators' tariffs.

From a commercial perspective, the **permissibility of VoIP** services tends **not to be transparent** and requires a fair amount of research into the small print (with the exception of Vodafone which seems to use VoIP as an up-sell mechanism to more expensive tariffs – however these tariffs generally include very large inclusive voice bundles which makes VoIP suitable only for niche destinations and applications.)

After a more detailed review of the network and tariffs T&C's, **3 out of 5 operators** have wording in their terms and conditions for both pre and post paid phones that either **refer to blocking, discourages or prohibits** users from using Voice over IP application over the 3G interface.

This is consistent with the Ofcom findings published in a recent report² on net neutrality where it specifically addressed the issue of VoIP.

The table below reports the findings of this analysis for each mobile operator.

² Ofcom's approach to net neutrality <http://stakeholders.ofcom.org.uk/binaries/consultations/net-neutrality/statement/statement.pdf>



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Table 1: VoIP permissibility as measured by the five UK mobile network operators.

| Service provider | Pre-paid tariffs | Post-paid tariffs |
|-------------------------|---|---|
| Orange | Not prohibited on prepay however discouraged ³ on prepaid tariffs. Any traffic beyond 100MB will be charged at standard rates. Not to be used on PAYG Mobile internet bundles and capped data bundles at the risk of notice, termination or service degradation ⁴ | Pay monthly tariffs are NOT to be used for VoIP at the risk of notice, termination or service degradation ^{5,6,7} . |
| O2 | VoIP is not specifically prohibited within the latest voice and data packages ⁸ however the service should not be used for other than the use that was intended by O2 (discretionary). For customers failing to comply or exceeding data allowances O2 reserves the right to degrade and serve notice etc. Prohibited on some prepaid tariffs (e.g. O2 Web). | VoIP is not specifically prohibited within the latest voice and data packages ⁹ however the service should not be used for other than the use that was intended by O2 (discretionary). For customers failing to comply or exceeding monthly extra bolts O2 reserves the right to degrade and serve notice etc. In addition certain older tariff ¹⁰ terms prohibit the use of VoIP and other streaming services. |
| Three | Not prohibited on tariffs and historically always available ¹¹ . | Not prohibited on tariffs and historically always available ¹² . |
| T-Mobile | Prohibited on most packages ^{13,14} . | Prohibited on Pay Monthly contracts ¹⁵ . Other streaming is limited to 500MB per month in the Fair Usage Policy – this would be sufficient for many hours of VoIP use. |
| Vodafone | The tariffs details state that VoIP is not available on pay as you go and customers are pointed towards high value Pay Monthly plans. Unrestricted data packages are allowed to make VoIP calls. | Access to VoIP services is not included in the cheaper packages (ie £15/Month) but can be purchased (£15/Month) and is available on the high tier packages (i.e. £40/Month) |

³<http://www1.orange.co.uk/mobileterms/pdfs/PAYG-Animal-Packages-20110701.pdf>

⁴<http://www1.orange.co.uk/entertainment/OrangeWorld/terms.php>

⁵<http://www1.orange.co.uk/mobileterms/pdfs/PAYM-Animal-Excluding-Panther-Extra-Package-Terms-and-Conditions-20111018.pdf>

⁶http://shop.orange.co.uk/mobile-phones/terms#paym_animal_new

⁷<http://www1.orange.co.uk/entertainment/OrangeWorld/terms.php>

⁸http://www.o2.co.uk/assets2/pdf/2120%20CPM_TandCs_Booklet_LR_ONLINE.pdf

⁹http://www.o2.co.uk/assets2/pdf/Pay_Monthly_Tariff_Terms_Q12011.pdf

¹⁰<http://www.o2.co.uk/termsandconditions/tariffsandboltons> (see Feb 2010)

¹¹http://www.three.co.uk/standalone/Link_Document?content_aid=1220457052786

¹²<http://www.three.co.uk/ThreePortal/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobnocache=false&blobtable=MungoBlobs&blobwhere=1223571045939&ssbinary=true>

¹³<http://www.t-mobile.co.uk/shop/terms-and-conditions/pay-as-you-go/>

¹⁴<http://www.t-mobile.co.uk/shop/terms-and-conditions/pay-as-you-go-deals/>

¹⁵<http://www.t-mobile.co.uk/shop/terms-and-conditions/pay-monthly-deals/>



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We also looked at the transparency of the MNOs policy towards VoIP. In particular would a reasonably careful customer purchasing a smartphone and a typical tariff be aware that VoIP would or would not work over their chosen bundle without detailed examination of the terms and conditions. We assessed this by going through a purchase journey on each MNO website, and also by typing the keywords 'VoIP / Is VoIP Allowed', 'KFI', 'Traffic Management' and 'SKYPE' into the search box on each site. A tick indicates that either the policy was easily accessible or the relevant search term produced a clear statement of policy.

| | Transparency | Search terms and results | | | |
|----------|------------------------------|--------------------------|--------------------------------------|--------------------------------------|------------------------------------|
| | VoIP Policy Obvious at POS ? | 'VoIP / Is VoIP Allowed' | 'KFI' | 'Traffic Management' | 'Skype' |
| Vodafone | ✓ | ✓ | × | ✓ | × (inaccurate) |
| O2 | × | × | × | × | × |
| T-Mobile | × | × | × | × | × |
| Orange | × | × | ✓ (says VoIP not blocked or managed) | ✓ (says VoIP not blocked or managed) | × (says Skype over 3G not allowed) |
| Three | × | × | × | ✓ | ✓ (but about Skype on 3) |

Technical review

We conducted a number of basic tests using an open source SIP client on I pads (for prepay) and Smartphones (for postpaid) to check if the MNO's would let the client register and terminate traffic onto the PSTN. We did not attempt to receive inbounds calls from the PSTN.

Our tests were not exhaustive of all the tariffs currently available in the UK, nor of all the possible call scenarios or the applicability of time of day / local congestion rules.

With the exception of T-Mobile all operators allowed the VoIP client to register and terminate calls despite that which was stated in the terms and conditions (we have not been able to test a low end Vodafone subscription).

The test results on T-Mobile were inconsistent, most of the time it would not allow the client to register but occasionally it did leaving us to speculate the kind of network controls they may/not be deploying. Interestingly Skype worked on T-Mobile every time we tried.

The table below outlines our findings.



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Table 2: VoIP Blocking

| Service provider | Prepaid tariffs¹⁶ | Postpaid tariffs |
|-------------------------|---|---|
| Orange | Registers, terminates calls. | Not tested |
| O2 | Registers, terminates calls. | Registers, terminates calls. |
| Three | Registers, terminates calls. | Registers, terminates calls. |
| T-Mobile | Does not register ¹⁷ hence it could not terminate calls. | Does not register ¹⁸ hence it could not terminate calls. |
| Vodafone | Registers, terminates calls. | Register, terminates calls. |

We do not in general believe that VoIP and messaging services generate sufficient traffic to warrant any form of traffic management intervention (whilst also accepting that MNOs cannot guarantee service.)

Disclaimer

Whilst reasonable care has been used in collating and verifying these results it is possible that this report contains errors or that terms and conditions and web site content has changed or that transient issues impacted the results of testing or that conclusion reached in respect of individual MNOs do not apply to all their tariffs. Anyone relying on this report to take specific decisions is strongly advised to verify that the information in this report is and remains correct and is applicable to their particular circumstances. However ITSPA is confident that conclusions of this report are sound and represent the general situation with respect to VoIP over mobile network operators as of December 2011.

¹⁶ Based on IPAD prepaid SIM's

¹⁷ We actually managed to have the same sub which did not register for most of the time to register eventually – albeit briefly.

¹⁸ We had one instance of successful registration