Draft Determination to resolve a dispute between Hay Systems Ltd and T-Mobile UK about SS7-based network access for SMS termination

Consultation

Publication date: 2 October 2006

Closing Date for Responses: 16 October 2006

Contents

DRAFT DETERMINATION UNDER SECTIONS 188 AND 190 OF THE COMMUNICATIONS ACT 2003 FOR RESOLVING A DISPUTE BETWEEN HSL AND T-MOBILE UK ABOUT SS7-BASED DIRECT INTERCONNECT FOR THE PURPOSES OF SMS TERMINATION

WHEREAS:

A. Section 188(2) of the Communications Act 2003 (the "Act") provides that where there is a dispute between different communications providers, and Ofcom has decided pursuant to section 186(2) of the Act that it is appropriate for it to handle the dispute, Ofcom must consider the dispute and make a determination for resolving it. The determination that Ofcom makes for resolving the dispute must be notified to the parties in accordance with section 188(7) of the Act, together with a full statement of the reasons on which the determination is based.

B. Section 190 of the Act sets out the scope of Ofcom's powers on resolving a dispute which may include, in accordance with section 190(2) of the Act;

    1) making a declaration setting out the rights and obligations of the parties to the dispute;

    2) giving a direction fixing the terms or conditions of transactions between the parties to the dispute;

    3) giving a direction imposing an obligation, enforceable by the parties to the dispute, to enter into a transaction between themselves on the terms and conditions fixed by Ofcom; and

    4) for the purpose of giving effect to a determination by Ofcom of the proper amount of a charge in respect of which amounts have been paid by one of the parties to the dispute to the other, giving a direction, enforceable by the party to whom sums are to be paid, requiring the payment of sums by way of adjustment of an underpayment or overpayment.

C. When the new EU communications regime was implemented in the UK on 25 July 2003, individual licences granted under the Telecommunications Act 1984 were replaced by the regime under which all persons are generally authorised to provide electronic communications networks or services in the UK.

D. However, this general authorisation is subject to the General Conditions of Entitlement set pursuant to section 45 of the Act, as initially set out in a notification issued under section 48(1) of the Act on 22 July 2002 and as subsequently amended ("General Conditions"). The General Conditions apply to all persons providing electronic communications networks and services.

E. Individual providers may be subject to additional conditions, such as SMP conditions (imposed as a result of a finding of Significant Market Power), access-related conditions or conditions imposed as a consequence of a provider being designated as a universal service provider.

F. Details of the General Conditions relevant to this dispute are:

i) General Condition 1.1 ("GC 1.1"), which states:
"The Communications Provider shall, to the extent requested by another Communications Provider in any part of the European Community, negotiate with that Communications Provider with a view to concluding an agreement (or an amendment to an existing agreement) for Interconnection within a reasonable period."

ii) General Condition 2.1 ("GC 2.1"), which states:
"The Communications Provider shall comply with any relevant compulsory standards and/or specifications as are listed in the Official Journal of the European Communities for the provision of services, technical interfaces and/or network functions pursuant to Article 17 of the Framework Directive. Where no compulsory standards or specifications have been so published, the Communications Provider shall take full account of any relevant voluntary standards and/or specifications so published, and any relevant standards and/or specifications adopted by the European Standards Organisations."

G. In resolving disputes under the Act, Ofcom is required to act in accordance with the six European Community requirements (which give effect, amongst other things, to the requirements of Article 8 of the Framework Directive):

1) To promote competition.

2) To secure that Ofcom's activities contribute to the development of the European internal market.

3) To promote the interests of all persons who are citizens of the European Union.

4) To take account of the desirability of Ofcom's carrying out their functions in a manner which, so far as practicable, does not favour –

(a) One form of electronic communications network, electronic communications service or associated facility; or

(b) One means of providing or making available such a network, service or facility.

5) To encourage the provision of network access and service interoperability, to such extent as Ofcom consider appropriate for the purpose of securing efficiency, sustainable competition and maximum benefit for end-users of communications services.

6) To encourage such compliance with the standards or specifications mentioned in section 4 (10) of the Communications Act 2003[1] as is necessary for -

[1] Those standards are -
(a) standards or specifications from time to time drawn up and published in accordance with Article 17 of the Framework Directive;
(b) the standards and specifications from time to time adopted by -
(i) the European Committee for Standardisation;
(ii) the European Committee for Electrotechnical Standardisation; or
(iii) the European Telecommunications Standards Institute; and
(c) the international standards and recommendations from time to time adopted by -
(i) the International Telecommunication Union;
(ii) the International Organisation for Standardisation; or
(iii) the International Electrotechnical Committee.

(a) facilitating service interoperability; and
(b) securing freedom of choice for the customers of communications providers.

H. On 17 October 2003 HSL submitted a written request to T-Mobile for direct interconnect via Signalling System 7 ("SS7") for the purpose of SMS termination, but no negotiations took place between the parties.

I. HSL pursued the request in March 2005 and began a dialogue with T-Mobile for direct interconnect, before T-Mobile suggested that an IP-based wholesale bulk SMS product may be more suitable.

J. Further correspondence passed between the two parties without resolution until June 2006.

K. On 16 June 2006, HSL requested that Ofcom resolve a dispute between it and T-Mobile relating to SS7-based interconnection for the purpose of SMS termination.

L. On 7 July 2006, Ofcom decided pursuant to section 186(2) of the Act that it was appropriate for it to handle the dispute and informed the parties of its decision.

M. A fuller explanation of the background to the dispute and Ofcom's reasons for making this determination is set out in the explanatory statement accompanying this determination.

N. This draft determination is published on 2 October 2006, for which responses are invited by 16 October 2006.

NOW, THEREFORE, PURSUANT TO SECTION 186 AND 190 OF THE ACT OFCOM MAKE THE FOLLOWING [DRAFT] DETERMINATION:

1. T-Mobile is required to negotiate with HSL in good faith with a view to concluding an agreement for interconnection in accordance with its obligations under General Condition 1.1.

2. T-Mobile's offer of interconnection via an internet protocol (IP) interface, for the purposes of SMS termination, satisfies its obligations to negotiate interconnection in good faith under General Condition 1.1

3. T-Mobile is required to take full account of voluntary standards such as the SS7 standard when negotiating interconnection with HSL in accordance with its obligations under General Condition 2.1.

4. Taking full account of a voluntary standard does not amount to a mandatory requirement to comply with such a standard. T-Mobile's consideration and rejection of interconnection via SS7 and its subsequent offer of interconnection via IP consequently satisfies T-Mobile's obligations with regard to General Conditions 1.1 and 2.1.

5. The final Determination shall take effect on x November 2006.

6. For the purpose of interpreting this Determination, the Interpretation Act 1978 shall apply as if this Determination were an Act of Parliament.

David Stewart
Director of Investigations

A person authorised under paragraph 18 of the Schedule to the Office of Communications Act 2002

2 October 2006

Section 1

Summary

1.1 On 16 June 2006, HSL submitted a request that Ofcom resolve a dispute between HSL and T-Mobile over HSL's request for interconnection to T-Mobile's network for SMS termination via Signalling System 7 ("SS7").

1.2 HSL is an SMS aggregator, whose sole business activity is the provision of short messaging services ("SMS"). HSL's dispute with T-Mobile concerned a request for direct interconnection to T-Mobile's network for the purposes of terminating SMS originated by HSL's customers.

1.3 HSL requested interconnect to T-Mobile's network via SS7 interconnection. T-Mobile offered to negotiate a form of interconnect to its network via an internet protocol ("IP") interface (connecting to T-Mobile's SMS Centres ("SMSCs")), instead of HSL's preferred method of SS7 interconnection (which would connect to HSL's own SMSCs).

1.4 In referring this dispute to Ofcom, HSL stated that T-Mobile is in breach of the following General Conditions:

- General Condition 1.1 ("GC1.1"), which requires Communications Providers to negotiate with other Communications Providers, to the extent requested by those Communications Providers, with a view to concluding an agreement for Interconnection within a reasonable period.

- General Condition 2.1 ("GC2.1"), which states that "The Communications Provider shall comply with any relevant compulsory standards and/or specifications as are listed in the Official Journal of the European Communities for the provision of services, technical interfaces and/or network functions pursuant to Article 17 of the Framework Directive. Where no compulsory standards or specifications have been so published, the Communications Provider shall take full account of any relevant voluntary standards and/or specifications adopted by the European Standards Organisations."

1.5 On 7 July 2006 Ofcom published details of the dispute that it intended to resolve on its website. Specifically, Ofcom stated that it would determine whether T-Mobile is required, under GC2.1, to offer network access to HSL using SS7-based interconnection for the purpose of SMS termination.

1.6 Ofcom does not consider that the wording in GC2.1 imposes an implicit obligation on Communications Providers to offer a particular means of interconnection. There is a clear distinction between the treatment of compulsory and voluntary standards and no obligation on communications providers to comply with the latter (although they must take full account of any which do exist).

1.7 Reading GC1.1 and GC2.1 together in the context of this dispute, Ofcom considers T-Mobile to be under an obligation to negotiate with HSL (under GC1.1) and to take account of the SS7 interface when so negotiating in good faith (under GC2.1). Ofcom does not consider that GC2.1 requires T-Mobile to offer interconnection via any particular method under a voluntary standard, although nor does GC2.1 exclude that possibility.

1.8 Furthermore, Ofcom notes that T-Mobile has considered HSL's request for SS7 interconnection, but has proposed to offer interconnection on the basis of internet protocol (IP), which Ofcom considers in this case to be a viable alternative form of interconnection. The decisive feature of IP-based interconnection in meeting T-Mobile's obligations is that it meets in all respects the specified requirements of HSL.

1.9 Ofcom therefore considers that offering interconnection via IP satisfies T-Mobile's obligations to negotiate interconnection in good faith under Conditions 1.1 and 2.1.

Section 2

Background of the dispute and submissions

HSL's Business Activities

2.1 Hay Systems Ltd ("HSL") is an SMS aggregator, whose sole business activity is the provision of short messaging services ("SMS"). Its network infrastructure allows messages generated from a PC, software application or mobile device to be routed to another mobile device, using third party mobile networks to carry the data. HSL offers services to clients ranging from end-users to other SMS aggregators.

2.2 SMS aggregators specialise in providing high-volume SMS services and may have direct or indirect interconnection agreements with UK MNOs and large numbers of non-UK MNOs. Typically they provide services to companies or organisations that wish to send bulk SMS to a large group of customers/clients/employees, at prices that are lower than the retail rate for individual customers sending SMS and without the need for those companies or organisations to organise direct interconnection agreements with all the MNOs.

2.3 Thus, by using an SMS aggregator, a company or organisation can reduce the complexity and cost of sending bulk SMS.

2.4 HSL provides a transmission system for the conveyance of SMS. Its network comprises SS7 links allowing GSM operability with UK mobile networks, IP links interconnecting HSL's sites, and IP links allowing national and international customers' access to HSL's network.

HSL is a provider of an ECN and a PECN

2.5 A Communications Provider is defined in the General Conditions to mean "*a person who provides an Electronic Communications Network or provides an Electronic Communications Service.*"

2.6 HSL operates an Electronic Communications Network ("ECN") and is a Communications Provider for the purposes of GC 1.1 and GC 2.1.

2.7 An ECN is defined in the General Conditions to mean:

> a) a transmission system for the conveyance, by the use of electrical, magnetic or electro-magnetic energy, of Signals of any description; and
> b) such of the following as are used, by the person providing the system and in association with it, for the conveyance of the Signals -
> (i) apparatus comprised in the system;
> (ii) apparatus used for the switching or routing of the Signals; and
> (iii) software and stored data."

2.8 HSL also has a Home Location Register ("HLR"), switching capacity and an authentication centre, and operates a Public Electronic Communications Network ("PECN"), an ECN provided wholly or mainly for the purposes of making an Electronic Communications Service ("ECS") available to members of the public.

2.9 An ECS is defined as any services consisting in, or having as its principal feature, the conveyance by means of an ECN of Signals, except in so far as it is a Content Service. For the avoidance of doubt, SMS is included in the definition of Signals.

2.10 HSL's services include the following applications:

2.10.1 the ability to provide a two-way alert system between a controller and team members (e.g. emergency team members involved in search and rescue).

2.10.2 the ability to provide other aggregators, MVNOs, financial services companies or other organisations with a dedicated short message service centre ("SMSC") for their own use.

2.10.3 providing services that provide interoperability between e-mail and SMS.

2.10.4 providing a web-based SMS solution that allows the sending of SMS messages through a normal web browser.

2.11 Currently HSL uses an indirect SS7-based interconnection to connect with the UK MNOs, where the majority of SMS messages sent by HSL on behalf of its customers are terminated. This indirect interconnection allows HSL access to all the UK MNOs but requires it to use a third party network operator, introducing additional cost.

2.12 HSL submits that in recent years it has invested heavily in its own network infrastructure, including its own SMSCs, in order to provide greater control over the services it is able to offer to its customers. HSL wishes to use its own network equipment and eliminate the need to use a third party network when terminating SMS messages on UK networks, for which reason it is seeking direct SS7-based interconnection with the UK MNOs.

T-Mobile is a UK MNO

2.13 T-Mobile UK ("T-Mobile") is the UK subsidiary of T-Mobile International AG, owned by the Deutsche Telekom Group. T-Mobile has been granted licences under the Wireless Telegraphy Act 1949 in respect of its cellular networks.

2.14 T-Mobile operates a mobile network in the UK, and its principal activities are listed as:

> "the design, development, construction, installation, ownership, operation, running maintenance and marketing of a mobile telecommunications network, the provision of services by means of the network and the marketing of such activities throughout the UK."[2]

2.15 T-Mobile is a Communications Provider and operates an ECN and a PECN as defined in the General Conditions.

History of Negotiations

2.16 In October 2003 HSL first contacted T-Mobile to request interconnection. This initial approach did not lead to further negotiations at that time.

[2] Source: T-Mobile Directors Report for the financial year ended 31 December 2005.

2.17 HSL subsequently followed up on its initial request in March 2005, following which T-Mobile offered to discuss HSL's requirements and indicated that a standard form interconnection agreement was negotiable.

2.18 On 22 March 2005 a copy of T-Mobile's standard interconnection agreement for voice termination was provided to HSL, with the proviso that it would need to be tailored to SMS delivery, and T-Mobile suggested that the parties should get together to discuss the progression of a network plan after HSL had reviewed the agreement.

2.19 On 19 April 2005 HSL submitted its comments on the draft interconnection contract to T-Mobile.

2.20 On 23 May 2005 T-Mobile's interconnect manager telephoned HSL to indicate that the regulatory part of the business had queried the request to interconnect and suggested that T-Mobile's wholesale SMS product may be more suitable for HSL's needs. Nonetheless T-Mobile agreed to provide a revised contract, which it did on 27 May 2005.

2.21 On 7 June 2005 HSL provided comments on the revised draft interconnection agreement, proposing that a timetable of 6 weeks be agreed for concluding the agreement.

2.22 On 15 June 2005 T-Mobile e-mailed HSL indicating that it could not provide the foreseen interconnection as this would give HSL access to T-Mobile's HLRs. T-Mobile stated that:

> "T-Mobile's policy is to not grant such access to a non-mobile licensed operator under any circumstances, which policy we believe is justified because of the risks involved in providing such access to our HLR."

2.23 T-Mobile also indicated that it considered that its regulatory obligations were being met in offering "*fixed user access via standard APIs* (Application Programming Interfaces) *or via another mobile operator SMSC*[3]" in relation to all non-mobile networks.

2.24 After this e-mail, HSL called T-Mobile indicating that it believed T-Mobile's position to be incorrect, and then sent an e-mail indicating its interpretation of the nature of the obligation set out in the General Conditions.

2.25 On 20 June 2005 T-Mobile's legal department e-mailed HSL advising that it was not prepared to debate the interpretation of the General Conditions, and confirmed that T-Mobile was only prepared to negotiate IP-based SMS interconnection.

2.26 HSL and T-Mobile exchanged correspondence from June 2005 to March 2006, at which point HSL requested permission from T-Mobile to disclose information relating to the negotiations with Ofcom.

2.27 T-Mobile considers that it has fully complied with its obligations under GC1.1 to negotiate interconnection by offering HSL direct access via an IP interface.

2.28 T-Mobile has written that:

> "The means of access offered by T-Mobile are a form of interconnection in that they constitute the direct linking of T-Mobile's network to that of HSL for

[3] This is a way of describing IP interconnection.

the purposes of enabling users of HSL's network to communicate with those on the T-Mobile network, which is ultimately what is being sought by HSL."

T-Mobile's Reasons for Declining to offer SS7 Interconnect

2.29 T-Mobile has set out its reasons for not offering SS7 interconnect to HSL as follows:

2.29.1 T-Mobile has security concerns:

"providing HSL with SS7 interconnection for the purpose of terminating calls on its network would involve giving HSL access to T-Mobile's home location register ("HLR"). This register in many ways lies at the heart of the T-Mobile network since it contains highly sensitive information on the location of users….All MNOs share a common interest in not abusing access to the HLRs of other operators and are sensitive to the operational issues and difficulties that could arise from misuse. The same is not true of companies such as HSL, for whom the access sought is one-sided."

2.29.2 T-Mobile considers that the request relates to provision of interconnection for origination:

"HSL's correspondence with T-mobile…reveals what appears to be the true motivation for HSL's request for SS7 interconnection…This is that it is required for the purposes of offering what HSL describes as "unbundled" SMS services….T-Mobile submits that it is not appropriate to use a request for the provision of SMS termination as a cloak or a stepping stone for seeking SMS origination, when it would not otherwise be able to gain the latter."

2.30 T-Mobile does not consider it has a requirement to offer SS7 interconnect. It also disputes HSL's claim that SS7 provides a technically superior platform for HSL.

2.31 T-Mobile contends that the means of interconnection offered to HSL is based on a robust platform which is used by all parties seeking to terminate SMS on T-Mobile's network that are not mobile operators (including BT and other SMS aggregators).

HSL requested dispute resolution on 16 June 2006

2.32 On 16 June 2006, Ofcom received a submission from HSL requesting resolution of a dispute between itself and T-Mobile.

2.33 On 19 June 2006 Ofcom informed T-Mobile that it had received a request for resolution of a dispute involving T-Mobile and forwarded a non-confidential copy of the submission to them.

2.34 On 26 June 2006, T-Mobile submitted an initial response to HSL's submission, to which HSL was given access, and to which HSL responded on 5 July 2006.

Competition Bulletin

2.35 On 7 July 2006 Ofcom accepted the request for dispute resolution from HSL, and opened an investigation, publishing a Competition Bulletin with the following text:

"HSL is an SMS aggregator, whose sole business activity is the provision of short messaging services (SMS). HSL has submitted a request to T-Mobile for direct interconnection to T-Mobile's network for the purposes of

terminating SMS originated by HSL's customers. HSL has requested interconnect via SS7, rather than its current indirect interconnection arrangement.

T-Mobile has offered to negotiate a form of interconnect to its network via an internet protocol ("IP") interface that would connect to T-Mobile's SMS Centres ("SMSCs"), instead of HSL's preferred method of SS7 interconnection, which would connect to HSL's SMSCs. HSL has declined to negotiate on this offer.

HSL believes that T-Mobile is in breach of Condition 1.1 and Condition 2.1 of the General Conditions of Entitlement.

Condition 1.1 requires Communications Providers to negotiate with other Communications Providers, to the extent requested by those Communications Providers, with a view to concluding an agreement for Interconnection within a reasonable period.

Condition 2.1 states that "The Communications Provider shall comply with any relevant compulsory standards and/or specifications as are listed in the Official Journal of the European Communities for the provision of services, technical interfaces and/or network functions pursuant to Article 17 of the Framework Directive. Where no compulsory standards or specifications have been so published, the Communications Provider shall take full account of any relevant voluntary standards and/or specifications adopted by the European Standards Organisations."

Ofcom recognises that on the face of the referral, there appears to be a dispute between the parties that commercial negotiations have failed to resolve. Ofcom considers that the dispute relates to an interpretation of General Condition 2.1.

Scope of the dispute:

The scope of the dispute is to determine whether T-Mobile is required, under General Condition 2.1 of the General Conditions of Entitlement, to offer network access to HSL using SS7-based interconnection for the purpose of SMS termination."

Submissions of the Parties

2.36 As part of the investigation procedure, Ofcom made formal information requests to HSL, T-Mobile, and Orange UK. Ofcom also spoke with Vodafone and another UK-based SMS aggregator for further background information from market participants. The responses to these requests are summarised below.

HSL

2.37 HSL's initial request for dispute resolution was submitted on 16 June 2006, and contained information on the issues in dispute, the background to negotiations, and further information on the nature of HSL business.

2.38 HSL's submission in response to Ofcom's information request on 11 August 2006 contained evidence of HSL's expected improvements in performance and cost of using SS7-based interconnection for the purposes of SMS termination rather than

HSL's current indirect SS7-based interconnection agreements. Ofcom's response to this point is given in Section 4.

T-Mobile

2.39 T-Mobile responded to HSL's submission on 26 June 2006.

2.40 T-Mobile contended that HSL's request was about access, not about SMS termination, saying that:

> "HSL may want to terminate SMS messages on the T-Mobile network, but the dispute is in essence one about access to the T-Mobile network, to enable HSL to provide SMS services to T-Mobile customers in such a way that they cease to be T-Mobile customers."

2.41 In addition, T-Mobile agreed with HSL's summary of the facts, but disagreed with HSL's interpretation of the General Conditions. T-Mobile felt it had complied with its obligations:

> "as it has offered to negotiate a form of interconnect with HSL which would enable customers of T-Mobile to send SMS messages to customers of HSL, and for customers of HSL to send SMS messages to customers of T-Mobile. This form of interconnection supports a large number of wholesale service providers…"

2.42 T-Mobile also noted that HSL had rejected T-Mobile's wholesale bulk SMS product (which uses IP interconnect) a number of times. T-Mobile contended that its bulk SMS product is a reliable service that is used by 15-20 companies in the UK to send millions of messages per month.

Orange

2.43 Ofcom understands that Orange Personal Communications Ltd is the only UK MNO that has to date agreed to provide HSL with direct SS7 interconnect for the purposes of SMS termination.

2.44 Orange considered that a direct interconnect (such as via SS7) may give rise to the possibility of unsolicited or nuisance SMS being sent. However, Orange proceeded to offer an SS7-based interconnection for the purposes of SMS termination to HSL as Orange believed it could address that risk through its contract terms.

2.45 Ofcom submits that the commercial decision of one UK MNO to offer interconnection using SS7 technology imposes no additional requirement on the other UK MNOs to follow suit. Its position is that Orange, like T-Mobile, must meet its obligations under the General Conditions to negotiate in good faith with a view to concluding an interconnection agreement and to take full account of any appropriate voluntary standards.

Vodafone UK

2.46 Vodafone UK stated that it had similar concerns to T-Mobile with regards to providing SS7 interconnection to HSL. Vodafone also outlined its view that providing access to its HLR to an SMS aggregator would introduce unmitigated security risks, which it stated would be costly to rectify.

2.47 Vodafone stated that is, however, open to the idea of providing direct SS7 interconnection, but would seek to recover the costs of safeguarding its network from SMS aggregators that required SS7-based termination.

An SMS Aggregator

2.48 Ofcom received representations from another UK SMS aggregator, which has direct interconnection agreements with all the UK MNOs, although not via SS7.

2.49 This aggregator would also like to have SS7-based interconnection if it were possible, and believes that the UK MNOs should be required to introduce safeguards onto their networks so that the security concerns that they have about providing access to their HLRs to aggregators would no longer be an issue.

2.50 This aggregator believes that the historical development of the SS7 interface has resulted in very little inherent security being built into the network architecture, resulting in an inherently insecure system.

Section 3

Technical Background

History of SS7 Interconnection

3.1 SS7 was developed in the 1970s and standardised by the International Telecommunications Union ('ITU'). The ITU is an international organization within the United Nations System where governments and the private sector coordinate global telecom networks and services.[4]

3.2 SS7 was developed in order to supply a robust means of sending control information between network elements and provide call set-up and clear-down between switches. SS7 also supports intelligent networks in fixed networks using centralised database functionality such as freephone and number translation services.

3.3 Mobile operators use SS7 to provide connectivity between their networks and fixed network operators. In the UK a mobile operator's radio telecommunications network is designed around the Global System for Mobile Communications ("GSM").

3.4 SS7 is used within a mobile operator's network for MNO network elements including the mobile switching centre ("MSC"), home location register ("HLR"), visitor location register ("VLR"), and short message service centre ("SMSC"). This is set out in Figure 1, below.

3.5 GSM systems also use the Mobile Application Part ("MAP") with the SS7 protocol and constituent layers of SS7 to provide advanced mobility services such as roaming and for making requests from the SMSC to the HLR for routeing and forwarding of short messages.

Requirements for SS7 Interconnection

3.6 Direct SS7 interconnection is a common feature in interconnection of voice services between MNOs, it is usually bi-lateral and would be subject to an interconnection agreement including technical and commercial considerations.

3.7 Direct SS7 interconnection for SMS termination would require the provision of one or more signalling links of 64Kbps between an MNO SMSC and a 3rd party provider SMSC ("3PSMSC").

3.8 Once directly connected the SMSC would appear (functionally) as a network element of the MNO. As such the 3PSMSC would be able to send SMS paging requests direct to the HLR, and the HLR would return the necessary routing information in order for the SMS to be forwarded and correctly terminated.

3.9 A directly-connected 3PSMSC would be able to act as an MNO's own SMSC, this may include the following functionality:

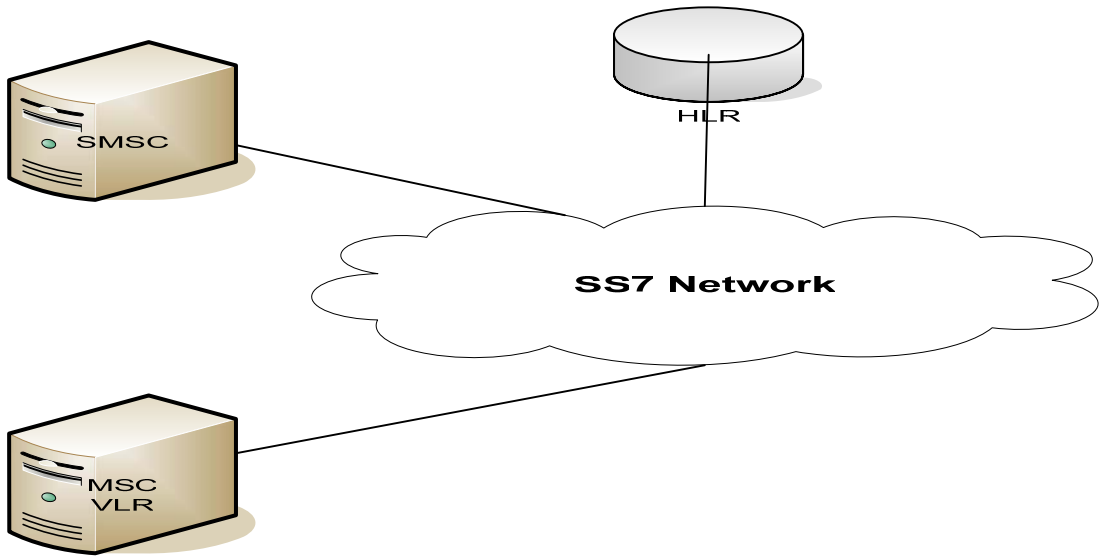
- Make requests for routing information and obtain subscriber information;
- Set and request re-tries and error handling of SMSs;

[4] http://www.itu.int/home/index.html

- Determine content control parameters including WAP push and reverse billed SMS;
- Sign agreements with other aggregators; and
- Override obligations which a MNO has, which are consistent with publicly available telephony services ("PATS").

3.10 A MNO offering SS7 interconnection for SMSCs would have to take steps to mitigate the security concerns that arise from providing direct access to its network. Such steps would include precautionary measures such as providing SS7 policing and filters, firewalls and protection against denial of service attacks on both network and radio resources.

Figure 1: Simplified MNO SS7 Network



Source: Ofcom

The development of IP Interconnection

3.11 Historically the costs of interconnection via SS7 were high due to the customised nature of SS7 interconnection hardware and the high overhead costs of maintaining dedicated interconnection links.

3.12 The advent of IP networking and methods of translating signalling into IP have lowered the costs of interconnection. IP networking uses techniques such as those proposed by the Internet Engineering Task Force (IETF) signalling transport (SIGTRAN) working group, which provide a specification for reliable SS7 protocol transmission over IP networks.

Short Messaging Service (SMS) Overview

3.13 SMS is a service available on most mobile phones which permits the sending of text messages. SMS uses a store and forward technique and as such is subject to delays in delivery including scheduling, availability of radio resources and the recipient of an SMS being available to receive it.

3.14 SMS was originally an unexpected by-product of mobile networks. However, since its introduction SMS growth has been strong, and in the UK alone, over 30 billion SMS were sent last year, with nearly 20% of UK mobile subscribers' total mobile expenditure being accounted for by SMS.

3.15 SMS services are provided by all the UK MNOs as well as a number of independent providers, including SMS aggregators. All use the same mobile networks owned by the UK MNOs.

The delivery of an SMS between communications networks

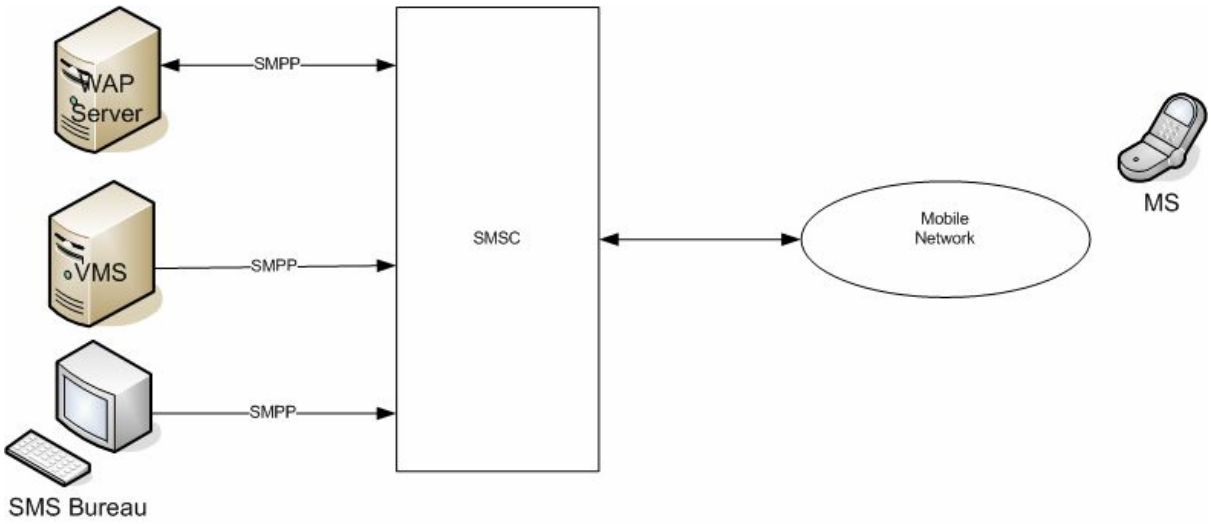
3.16 SMS provides mobile users with the ability to transmit 160 character messages over mobile (and fixed) networks to and from a mobile handset. An SMSC is the enabling network element for SMS and acts as a store and forward platform. The SMSC accepts SMS messages sent to it and will forward these to individual mobiles, when the mobiles are able to receive them.

3.17 The SMSC receives (and then terminates) two different types of messages:

- Mobile originated (MO) and destined for another mobile user; and
- Over an IP network, such as the internet from a PC user (Host) and forwarded using IP to the SMSC for delivery to a mobile.

3.18 In the first case SS7 is used for access to the SMSC, in the second, use is made of an IP protocol such as Short Message Peer to Peer Protocol ("SMPP"). SMPP is an open industry standard messaging protocol and is widely deployed in GSM networks and supported by all SMSCs. Hosts including PCs and other applications requiring SMS service would connect to the SMSC either via leased line, or a secure (IPSec) tunnel over the public internet.

Figure 2: IP Connection to SMSC



Source: Ofcom

3.19 MNOs deploying SMSCs offer SMPP access to their SMSC to third party SMS aggregators for terminating SMSs. SMS service providers can also have a direct connection to the SMSC if SMS traffic levels justify.

3.20 A mobile-originated SMS has three main stages:

- Mobile station forwards an SMS to the SMSC,
- The SMSC requests the current and correct routing from the HLR, including which MSC/VLR is required to forward the SMS,
- SMSC forwards the SMS via a MSC/VLR to the required mobile station.

3.21 Connection to a MNOs SMSC via IP/SMPP allows the message to bypass the mobile-originated SMS stage, where a SMS is formatted by a Mobile station prior to sending to the SMSC.

3.22 An MNO can allow interconnection via SS7 or through an IP interface using SMPP for terminating SMS on its own, other MNOs' or other roaming partners' networks.

3.23 IP interconnection for termination of SMSs requires that the MNO provide a suitable (IP) interface to support third party access to its own SMSC. A commercial agreement is required and the technical interface specified to support the service requested.

3.24 A commercial agreement for the service may include:

- Number of re-tries in a given period, error handling (usually operator default setting);
- Maintaining MNO content control polices;
- Limit ability to resale; and/or
- Not override MNO PATS obligations such as transparency, privacy and tariffing obligations.

3.25 Due to the open nature of the interface, IP interconnection requires the MNO to provide security capability ('firewall') and rate-limiting in accordance with default parameters or any SLA negotiated as part of any commercial agreement.

SS7 versus IP-based interconnection

3.26 As set out above, an IP interface provided by a standard SMSC supporting SMPP is able to provide a similar set of functions as provided by an MNO's own SMSC.

3.27 The only exceptions may be on retry options and message validity, although an aggregator using an IP-based bulk SMS product would be able to stipulate parameters over retries and message validity in its SLA with the MNO.

3.28 An IP-based bulk SMS product operates in a different way to SS7-based interconnect but provides functionally comparable end-to-end connectivity for the purposes of SMS termination.

Section 4

Ofcom's analysis and reasoning

Current Regulatory Framework – EU Directives implemented by the Communications Act 2003

4.1 A new regulatory framework for electronic communications networks and services entered into force on 25 July 2003. The framework is designed to create harmonised regulation across Europe, aimed at reducing entry barriers and fostering prospects for effective competition to the benefit of consumers.

4.2 The bases for the new regulatory framework are the five EU Communications Directives, principally implemented in the UK by the Communications Act 2003 (the "Act").[5] The Act also replaced the previous regime, which for electronic communications and telecommunications matters was largely contained in the Telecommunications Act 1984 (the "1984 Act").

4.3 The new regime had the effect of abolishing the previous licensing regime under the 1984 Act, replacing it with a system of general authorisation. In other words, everyone is now generally authorised to provide electronic communications networks and services in the UK, provided they comply with obligations imposed by general conditions of entitlement, which apply to all parties.[6]

4.4 Oftel consulted on its initial proposals for a set of general conditions to apply to Communications Providers in May 2002. This was followed by a further joint consultation (with the DTI) in March 2003, setting out two alternative proposals.

4.5 The reason for this subsequent consultation was that the UK was under an EU obligation to implement the new framework from 25 July 2003, but there was some doubt as to whether the Act would gain Royal assent and enter into force in time. Consequently, an alternative proposal was drawn up as a contingency, which involved the implementation of the new regime by statutory instrument (in the event this contingency proved unnecessary and the Act was given Royal assent on 17 July 2003).

General Conditions of Entitlement

4.6 On 9 July 2003, Oftel published its Final Statement on the new General Conditions of Entitlement (the "Final Statement"), which were made on 22 July by the Director General of Telecommunications by way of Notification under section 48(1) of the Act, setting out the Director's proposals to set General Conditions under section 45 of the Act.

4.7 As set out above, the current dispute centres around an interpretation of the obligations imposed on Communications Providers by two of the General Conditions of Entitlement, in particular General Condition 1 and General Condition 2. These

[5] Directive 2002/21/EC (the "Framework Directive"), Directive 2002/19/EC (the "Access Directive"), Directive 2002/20/EC (the "Authorisation Directive"), Directive 2002/22/EC (the "Universal Services Directive") and Directive 2002/58/EC (the "Privacy Directive).

[6] There may be additional requirements imposed on individual parties, for example SMP Conditions imposed on a party found to have a position of 'SMP' (significant market power) or universal service conditions, but these are not relevant to the issues at play here.

Conditions relate to access and interconnection obligations and the standardisation of specified interfaces.

GC1.1 – CPs are obliged to negotiate interconnection

4.8 GC1.1 states that:

> ”The Communications Provider shall, to the extent requested by another Communications Provider in any part of the European Community, negotiate with that Communications Provider with a view to concluding an agreement (or an amendment to an existing agreement) for Interconnection within a reasonable period”

4.9 GC1.4 defines a Communications Provider for the purposes of GC1.1 as “*a person who provides a Public Electronic Communications Network*”. Otherwise, a Communications Provider is defined as “*a person who provides an Electronic Communications Network or provides an Electronic Communications Service*”. A Public Electronic Communications Network is an ECN provided wholly or mainly for the purpose of making an ECS available for use by members of the public.

4.10 As set out in section 2 above, both HSL and T-Mobile operate ECNs and PECNs for the purposes of the General Conditions.

4.11 It is clear from GC1.1 that T-Mobile, as a Communications Provider, must negotiate interconnection with HSL, as another Communications Provider, with a view to concluding an agreement. However, the Condition is silent as to the particular technical means of interconnection.

4.12 ‘Interconnection’ is defined in the General Conditions as:

> “the linking (whether directly or indirectly by physical or logical means) of one Public Electronic Communications Network to another for the purpose of enabling the persons using one of them to be able: (a) to communicate with users of the other one; or (b) to make use of services provided by means of the other one (whether by the provider of that network or by another person)”.

4.13 HSL acknowledged in its submission that GC1.1 does not make any reference to negotiating a particular form of interconnection (i.e. via SS7). However, HSL asserts that its interpretation of GC2.1 (see further below) means that T-Mobile is unable to satisfy its obligation to negotiate under GC1.1 unless T-Mobile is prepared to negotiate access via SS7.

4.14 T-Mobile considers that it has fully complied with its obligations under GC1.1 to negotiate interconnection by offering HSL direct access via an internet-protocol interface. However, T-Mobile has made clear that it is not willing to negotiate with a view to concluding an agreement for access via SS7.

4.15 In the Final Statement, Oftel stated that the words “*with a view to concluding an agreement*” put an emphasis on the conclusion of negotiations, requiring that negotiations are undertaken in good faith.

The nature of the obligation imposed by GC1.1

4.16 The obligation imposed on providers of electronic communications networks and electronic communications services to negotiate interconnection is an important

responsibility that lies at the heart of the European framework of regulation. For example, Article 4 of the Authorisation Directive frames the general authorisation in the following terms:

"*1. Undertakings … shall have the right to:*

(a) provide electronic communications networks and services;

(b) have their applications for the necessary rights to install facilities considered in accordance with [the Framework Directive].

2. When such undertakings provide electronic communications networks or services to the public the general authorisation shall also give them the right to:

(a) negotiate interconnection with and where applicable obtain access to or interconnection from other providers of publicly available communications networks and services covered by a general authorisation anywhere in the Community …"

4.17 Article 5 of the Access Directive sets out the powers and responsibilities of the national regulatory authorities with regards to access and interconnection: "*National regulatory authorities shall, acting in pursuit of the objectives set out in Article 8 of Directive 2002/21/EC (Framework Directive), encourage and where appropriate ensure, in accordance with the provisions of this Directive, adequate access and interconnection, and interoperability of services, exercising their responsibility in a way that promotes efficiency, sustainable competition, and gives the maximum benefit to end-users.*" In competitive markets, the obligation plays an important role in facilitating interoperability of networks and services.

4.18 Ofcom therefore approaches the question of T-Mobile's obligations under GC1.1 with this context in mind, and with a view to ensuring that it exercises its responsibility to encourage and where appropriate ensure interconnection in a way that promotes efficiency, sustainable competition, and gives the maximum benefit to end-users.

No evidence that negotiations were not in good faith

4.19 Ofcom consequently considers that a Communications Provider is required, as a result of GC1.1 to negotiate interconnection in good faith with a view to concluding an agreement.

4.20 HSL has submitted that T-Mobile's initial provision of a draft SS7 interconnection agreement followed by the agreement's withdrawal (as set out above in paragraphs 2.17-2.20) was *"an artificial exercise"* and did not constitute negotiations in good faith. T-Mobile has contended that the initial provision of the agreement was a mistake and that once T-Mobile's regulatory function became aware of the substance of the interconnection request, it was withdrawn.

4.21 In Ofcom's view, there is no compelling evidence that suggests that negotiations were other than in good faith. T-Mobile has made clear its willingness to conclude an interconnection agreement with HSL via an IP interface. The difference of opinion concerns the question of whether the requirement to negotiate with respect to the terms on which T-Mobile might offer a particular technical means of interconnection is implicit in the General Condition itself.

4.22 HSL consider that T-Mobile's failure to negotiate access via SS7 means that T-Mobile cannot satisfy its obligation under GC1.1. T-Mobile considers that its willingness to offer interconnection via IP is evidence that it has fully complied with this obligation.

4.23 Ofcom addresses the considerations of the parties with regard to GC 2.1 below. However, Ofcom has concluded that on the face of GC1.1, there is no requirement to negotiate according to a particular technical means of providing interconnection.

4.24 Subject to Condition 2.1, T-Mobile's offer of interconnection via IP consequently amounts to evidence of good faith negotiations between the parties in accordance with the obligations under Condition 1.1.

General Condition 2.1

4.25 GC2.1 states that:

> "The Communications Provider shall comply with any relevant compulsory standards and/or specifications as are listed in the Official Journal of the European Communities for the provision of services, technical interfaces and/or network functions pursuant to Article 17 of the Framework Directive. Where no compulsory standards or specifications have been so published, the Communications Provider shall take full account of any relevant voluntary standards and/or specifications so published, and any relevant standards and/or specifications adopted by the European Standards Organisations"

4.26 HSL has acknowledged that no compulsory standards for the provision of services, technical interfaces and/or network functions have been listed in the Official Journal. However, SS7 has been identified as a voluntary standard for access and interconnection in a published European Commission list.

4.27 HSL claims that the requirement on T-Mobile "*to take full account*" of such voluntary standards imposes an obligation on T-Mobile to take account of an SS7 interface when negotiating interconnection under GC1.1.

4.28 HSL further asserts that if interconnection is currently provided to other mobile network operators via an SS7 interface, a combination of the obligations under GC1.1 and GC2.1 mean that T-Mobile is under an obligation to provide HSL with SS7 interconnection.

4.29 Granting HSL a different form of access, would, according to HSL, result in T-Mobile taking only 'partial account' of the relevant EU standards and would place T-Mobile in contravention of its requirements under GC1.1.

4.30 T-Mobile considers that it has taken full account of the SS7 interface, but has decided not to offer interconnection on that basis for a number of reasons, as outlined above in paragraph 2.29. T-Mobile accepts that it must have regard to the SS7 interface standard, but that the precise means of providing interconnection to conform to a given specification is ultimately a matter entirely within T-Mobile's discretion, subject to both parties negotiating in good faith.

4.31 T-Mobile considers that it has *bona fide* legitimate commercial reasons for deciding not to offer HSL and other SMS aggregators interconnection via SS7, that it does not need to justify its ultimate decision, and that it has in any event offered

interconnection via an alternative means which it believes is "*a robust and more than adequate method for the purpose of achieving end-to-end connectivity*".

4.32 As noted in Section 3, the form of IP interconnection offered by T-Mobile offers a functionally viable means of achieving end-to-end connectivity for the purposes of SMS termination.

Oftel's Final Statement

4.33 Oftel considered the extent of the obligation imposed in GC2.1 in the Final Statement when it stated that it considered an obligation 'to take account' of voluntary standards to be adequate and proportionate. Oftel went on to confirm that the precise method of interconnection fell within the discretion of the Communications Provider concerned:

> "In particular, Oftel does not intend that this condition should prevent an organisation from providing any services or technical interfaces it chooses, as long as the relevant standards are taken into account".

4.34 In addition, the Final Statement proposed a change from the wording in the second consultation (in March 2003) on the General Conditions, explicitly narrowing the obligation from "*any standards and/or specifications as are listed in the Official Journal*" to only "*relevant compulsory*".

4.35 While Oftel remained of the view that uniform standards should be encouraged across the industry, Oftel did not wish to impose an obligation on all communications providers to limit the technical means of service or interface provision.

4.36 It is clear not only from the wording of GC2.1 itself, but also from the Final Statement and Oftel's comments on this Condition, that the only obligation with regard to voluntary standards is an obligation to take "full account" of them.

4.37 In the light of this, Ofcom does not consider that GC2.1 imposes an implicit obligation on communications providers to offer a particular means of interface, where a number of alternative options exist that will enable the required interconnection to be provided equally adequately. There is a clear distinction between the treatment of compulsory and voluntary standards, and no obligation on communications providers to comply with the latter.

T-Mobile has satisfied its obligations under GC1.1 and 2.1

4.38 Reading GC1.1 and 2.1 together in the context of the present dispute, Ofcom considers T-Mobile to be under an obligation to take account of the SS7 interface when negotiating interconnection in good faith with HSL.

4.39 As set out above, Ofcom considers that T-Mobile has considered the SS7 interface, but has decided for commercial reasons to offer interconnection on the basis of alternative technology. Ofcom considers that, given the facts of this case, the offering of interconnection via an IP interface satisfies T-Mobile's obligations under Conditions 1.1 and 2.1.

An IP-based solution is a viable alternative for SS7

4.40 T-Mobile has declined to offer SS7 interconnection to HSL and has instead offered the standard IP interconnect service as a viable product that meets the requirements of HSL's request for an SMS termination service.

4.41 An IP interface provided by a standard SMSC supporting SMPP is able to provide a similar set of functions as provided by an MNO's own SMSC, with the only exceptions being over retry parameters and message validity.

4.42 HSL could separately contract with T-Mobile through the interconnection agreement, should it not wish to accept the default service offered by T-Mobile.

4.43 HSL has provided a comparison of costs and performance for the use of a third party network to provide indirect SS7 interconnection against direct SS7 interconnection to MNOs. Ofcom requested an analysis comparing IP interconnection against SS7 direct connection, which has been provided for all the UK MNOs bar T-Mobile.

4.44 It is for HSL to agree an interconnection agreement that reflects its performance requirements via an SLA, which would drive the networking solution and resilience of any IP interconnection solution offered by T-Mobile.

Timeliness of SMS delivery

4.45 It is worth reiterating that SMS is a store and forward technique and should not solely be relied upon where real-time delivery is the essence of any required application.

4.46 HSL indicate in their response that timeliness is important; if this is the case an alternative mobile network service such as Unstructured Supplementary Services Data (USSD) could be considered.

4.47 The timeliness of SMS termination is a function of the SMSC and speed of connection. If the SMS delivery protocol used by HSL is susceptible to delays in the delivery of SMS, HSL could negotiate agreed delivery targets for SMS termination within a service level agreement ("SLA") with MNOs.

4.48 HSL's argument that SS7 interconnection would allow it more control over error handling, retries and other characteristics of SMS termination fails to take into account the negotiability and variability of these parameters in an IP interconnection agreement.

4.49 Any supplementary requirements that HSL has with regard to SMS termination, can be discussed with the MNO as part of a technical and commercial interconnect agreement. There is no evidence that this has occurred so far.

Ofcom's Response to HSL's Detailed Analysis

4.50 As already set out, Ofcom has a duty to fulfil its Community obligations (see paragraph H of the above Determination). These obligations include requirements to promote and facilitate efficient and sustainable competition, encourage network access, and facilitate service interoperability and freedom of choice for consumers.

4.51 Therefore, Ofcom has also considered whether there are compelling arguments for imposing the SS7 standard on T-Mobile based on the Community objectives and by

exercising its responsibility to encourage interconnection in a way that promotes efficiency, sustainable competition and gives the maximum benefit to end-users.

4.52 HSL's initial submission contained a number of detailed points that indicate the increased efficiency and competitive benefits that it perceives from the SS7 standard. Ofcom has considered each of these points in turn and has provided its responses below.

Service quality is not necessarily compromised by IP-based interconnection

4.53 HSL:

> "To ensure consistency in the quality of service provided by HSL, including numbering portability support, HSL wishes to be able to terminate all SMS via a direct SS7 interconnection (and therefore its own SMSC) and not only those SMS destined for Orange subscribers. In order to provide a consistent quality of service for SMS delivered across all networks HSL requires to implement SS7 interconnection to the networks of each UK mobile operator, including T-Mobile. Currently HSL can only expect to provide an improved quality of service and more cost effective service to those customers wishing to send SMS to subscribers of Orange."

4.54 Ofcom's analysis suggests that an IP-based bulk SMS product can offer similar levels of service quality as an SS7-based product. In addition, HSL has provided no compelling evidence to suggest that the IP-based wholesale bulk SMS product offered by T-Mobile will not offer similar levels of service quality to an SS7-based product, and therefore does not accept the above statement.

4.55 HSL:

> "Interconnection via SS7 would afford HSL the same form of network access provided to mobile network operators, allowing it to compete more effectively with such operators. SS7 interconnection would allow HSL to market its services more cost effectively and compete with mobile network operators for customers who traditionally use the services of a mobile network operator in preference to those of an SMS aggregator such as HSL. Certain customers requiring SMS messaging services specify SS7 interconnection as a pre-requisite when tendering for SMS messaging services. HSL cannot compete for these customers unless it obtains direct interconnection."

4.56 HSL has also provided further evidence to Ofcom of customers who require a direct SS7 interconnect, as well as evidence of customers who prefer a direct connection rather than an indirect one. HSL says in its information request response:

> "A company named xx……. approached us in late 2005 regarding a requirement to send approximately 300,000 SMS within 5 minutes (1,000 SMS per second) to UK mobiles…..[The company] told us that they had previously discussed their requirements with [a UK MNO] and that they were advised they would need SS7 access to achieve this high rate of message sending. When [the company] contacted us we confirmed this to be the case and that at present we did not have the necessary interconnection."

4.57 While Ofcom accepts that, all other things being equal, a direct interconnection arrangement is preferable to an indirect one, Ofcom has not received compelling evidence that a direct SS7 interconnection provides materially more functionality

than a direct IP-based interconnection, and therefore believes that the vast majority of customers can be provided with ample service without a direct SS7 interconnection.

4.58 Ofcom would also reiterate the point that SMS is a store and forward technology, and in most cases scheduling of the message, availability of radio resources, and availability of the mobile terminal receiving the message determine the timeliness of delivery, rather than the speed of input to the SMSC.

Ofcom does not consider SS7 to be technically superior for SMS termination

4.59 HSL:

> "SS7 is technically superior to the alternative form of interconnect offered by T-Mobile. SS7 interconnection allows greater control over the delivery of SMS messages as HSL utilises its own SMSC in the delivery process. It also provides a more resilient service for customers who wish to send large volumes of SMS contemporaneously. SMS volume capabilities are more significant where SS7 interconnection is present."

4.60 As set out in Section 3, Ofcom's analysis does not suggest that SS7 is technically superior for the purposes of SMS termination. While SS7 interconnect may give HSL greater control over such elements as retry attempts, these elements are available for negotiation on the IP-based bulk SMS product offered by T-Mobile.

Orange's decision should not be taken as the benchmark

4.61 HSL:

> "HSL has already concluded an SS7 interconnection agreement with another significant UK mobile network operator (Orange Personal Communications Limited). This operator has accepted that it is obliged to provide this form of interconnection pursuant to the Conditions and has not refused to grant SS7 interconnection on any commercial grounds. If this operator is prepared to provide SS7 interconnection HSL does not understand why others, such as T-Mobile, can, legitimately, refuse to do so."

4.62 Ofcom recognises that Orange is, in some important respects, in a similar position to T-Mobile. HSL has argued that Orange's agreement to provide SS7 interconnection to HSL serves as evidence that there is no reason why T-Mobile should refuse to provide it. However, the commercial decision of one MNO has no bearing on commercial decisions of other MNOs in the absence of regulatory requirements. Furthermore, decisions of one MNO cannot create obligations on other MNOs where none previously existed.

4.63 The critical question is whether, in the context of the negotiations between T-Mobile and HSL, T-Mobile has offered a form of interconnection which meets the specified requirements under negotiation. The fact that another operator may have chosen to meet this requirement in another way does not, by implication, limit the ways in which T-Mobile may elect to offer interconnection of a given standard.

Direct interconnection is more efficient than indirect interconnection

4.64 HSL:

> "HSL expects to be able to reduce its SMS delivery costs by establishing direct SS7 interconnection. The indirect SS7 interconnection currently in place involves making an extra payment to the intermediate mobile network operator in addition to the termination charge levied by the operator of a destination mobile network in an SS7 interconnect relationship."

4.65 Ofcom considers that the true nature of the dispute relates to the question of direct SS7 versus direct IP-based interconnection. The point made by HSL is that direct interconnection would be cheaper than indirect interconnection, but this misses the fact that T-Mobile is offering a direct interconnection solution.

4.66 Ofcom notes that HSL's later submission in response to Ofcom's information request on 11 August 2006 also contained evidence of HSL's expected improvements in performance and cost of using SS7-based interconnection for the purposes of SMS termination rather than HSL's current indirect SS7-based interconnection agreements.

4.67 Ofcom accepts that a direct interconnect arrangement may well be cheaper and more efficient than the current indirect arrangement (although Ofcom notes that this is not an absolute conclusion; at low volumes, for example, indirect interconnection via a single party to multiple networks may be more efficient than a number of direct interconnections each of which carries relatively high initial fixed costs). However, no compelling evidence was provided as to how an SS7 direct interconnection is materially better or cheaper than an IP-based direct interconnection.

4.68 Indeed, HSL did not demonstrate how costs would be reduced by using SS7 (instead of IP) other than the fact that T-Mobile has an IP product relationship management team whose costs would be borne in the costs of the product.

4.69 In Ofcom's view, the costs of relationship management are an issue that should be covered in contractual negotiations. Furthermore, there would also be relationship management costs associated with an SS7 interconnect agreement.

SMS Origination – beyond the scope of this dispute

4.70 HSL:

> "HSL has recently been granted a mobile network code and mobile numbering by Ofcom. In light of this HSL has recently submitted requests to each of the UK mobile network operators, including T-Mobile, for SS7 interconnection for the purposes of SMS origination. HSL's intention is to offer consumers an unbundled SMS service and such a service requires to be supported by an SS7 interconnection – no other form of interconnection is capable of supporting this. Provision of SS7 interconnection both for the purposes of SMS termination and SMS origination would create internal efficiencies in HSL's service delivery which would be passed through to customers in HSL's pricing policy. These internal efficiencies would not be available in circumstances where different forms of interconnection required to be supported by HSL's business."

4.71 The question of SMS origination is beyond the scope of this dispute. However, Ofcom notes that in HSL's information request response, it says that "*From a technical perspective it should be possible to construct an SMSC system whereby SMS origination takes place over SS7 and SMS termination takes place over IP-*

based interconnection." It is therefore clear that, of itself, SS7 interconnect is not necessary for the purposes of SMS termination.

Network Security

4.72 HSL:

> "SS7 interconnection is the form of interconnection provided by T-Mobile to other mobile network operators. The Conditions do not distinguish between mobile network operators and non-mobile network operators but confer rights on Communications Providers of which HSL is one. HSL considers it discriminatory for T-Mobile to distinguish requests for SS7 interconnect on the basis of non-mobile network operator status."

4.73 T-Mobile has a right to consider the security of its network integrity, subject to compliance with the access requirements of the General Conditions. Ofcom agrees that the General Conditions confers rights and obligations to CPs, but believes that T-Mobile has complied with its obligations by offering a viable alternative to SS7 interconnect.

Conclusion

4.74 HSL's submission has not provided Ofcom with sufficient evidence to change the conclusions given above.

4.75 Ofcom has concluded that on the face of GC1.1, there is no requirement to negotiate according to a particular technical means of providing interconnection.

4.76 Specifically Ofcom believes that T-Mobile has considered the SS7 interface, but has decided for commercial reasons to offer interconnection on the basis of alternative technology.

4.77 Ofcom considers that, given the facts of this case, the offering of interconnection via an IP interface satisfies T-Mobile's obligations under Conditions 1.1 and 2.1.

Annex 1

Responding to this consultation

How to respond

A1.1 Ofcom invites written views and comments on the issues raised in this document, to be made by **5pm on 16 October 2006.**

A1.2 Ofcom strongly prefers to receive responses as e-mail attachments, in Microsoft Word format, as this helps us to process the responses quickly and efficiently. We would also be grateful if you could assist us by completing a response cover sheet (see Annex 4), among other things to indicate whether or not there are confidentiality issues. The cover sheet can be downloaded from the 'Consultations' section of our website.

A1.3 Please can you send your response to first nick.morris@ofcom.org.uk.

A1.4 Responses may alternatively be posted or faxed to the address below, marked with the title of the consultation.

Nick Morris
Competition Group
4th Floor
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Fax: 020 7783 4109

A1.5 Note that we do not need a hard copy in addition to an electronic version. Also note that Ofcom will not routinely acknowledge receipt of responses.

Further information

A1.6 If you want to discuss the issues and questions raised in this consultation, or need advice on the appropriate form of response, please contact Nick Morris on 020 7783 4332.

Confidentiality

A1.7 Ofcom thinks it is important for everyone interested in an issue to see the views expressed by consultation respondents. We will therefore usually publish all responses on our website, www.ofcom.org.uk, ideally on receipt (when respondents confirm on their response cover sheer that this is acceptable).

A1.8 All comments will be treated as non-confidential unless respondents specify that part or all of the response is confidential and should not be disclosed. Please place any confidential parts of a response in a separate annex, so that non-confidential parts may be published along with the respondent's identity. Ofcom would request that any claims to confidentiality are supported by an explanation of why you consider the information to be confidential.

A1.9 Ofcom reserves its power to disclose any information it receives where this is required to carry out its legal requirements. Ofcom will exercise due regard to the confidentiality of information supplied.

A1.10 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use, to meet its legal requirements. Ofcom's approach on intellectual property rights is explained further on its website, at www.ofcom.org.uk/about_ofcom/gov_accountability/disclaimer.

Next steps

A1.11 Following the end of the consultation period, Ofcom intends to publish a statement by 3 November 2006.

A1.12 Please note that you can register to get automatic notifications of when Ofcom documents are published, at http://www.ofcom.org.uk/static/subscribe/select_list.htm.

Ofcom's consultation processes

A1.13 Ofcom is keen to make responding to consultations easy, and has published some consultation principles (see Annex 3) which it seeks to follow, including the length of consultations.

A1.14 If you have any comments or suggestions on how Ofcom conducts its consultations, please call our consultation helpdesk on 020 7981 3003 or e-mail us at consult@ofcom.org.uk. We would particularly welcome thoughts on how Ofcom could more effectively seek the views of those groups or individuals, such as small businesses or particular types of residential consumers, whose views are less likely to be obtained in a formal consultation.

A1.15 If you would like to discuss these issues, or Ofcom's consultation processes more generally, you can alternatively contact Vicki Nash, Director, Scotland, who is Ofcom's consultation champion:

Vicki Nash
Ofcom (Scotland)
Sutherland House
149 St. Vincent Street
Glasgow G2 5NW
Tel: 0141 229 7401
Fax: 0141 229 7433
E-mail: vicki.nash@ofcom.org.uk

Annex 2

Ofcom's consultation principles

A2.1 Ofcom has published the following seven principles that it will follow for each public written consultation:

Before the consultation

A2.2 Where possible, we will hold informal talks with people and organisations before announcing a big consultation to find out whether we are thinking in the right direction. If we do not have enough time to do this, we will hold an open meeting to explain our proposals shortly after announcing the consultation.

During the consultation

A2.3 We will be clear about who we are consulting, why, on what questions and for how long.

A2.4 We will make the consultation document as short and simple as possible with a summary of no more than two pages. We will try to make it as easy as possible to give us a written response. If the consultation is complicated, we may provide a shortened version for smaller organisations or individuals who would otherwise not be able to spare the time to share their views.

A2.5 We will normally allow ten weeks for responses to consultations on issues of general interest.

A2.6 There will be a person within Ofcom who will be in charge of making sure we follow our own guidelines and reach out to the largest number of people and organisations interested in the outcome of our decisions. This individual (who we call the consultation champion) will also be the main person to contact with views on the way we run our consultations.

A2.7 If we are not able to follow one of these principles, we will explain why. This may be because a particular issue is urgent. If we need to reduce the amount of time we have set aside for a consultation, we will let those concerned know beforehand that this is a 'red flag consultation' which needs their urgent attention.

After the consultation

A2.8 We will look at each response carefully and with an open mind. We will give reasons for our decisions and will give an account of how the views of those concerned helped shape those decisions.

Annex 3

Consultation response cover sheet

A3.1 In the interests of transparency, we will publish all consultation responses in full on our website, www.ofcom.org.uk, unless a respondent specifies that all or part of their response is confidential. We will also refer to the contents of a response when explaining our decision, without disclosing the specific information that you wish to remain confidential.

A3.2 We have produced a cover sheet for responses (see below) and would be very grateful if you could send one with your response. This will speed up our processing of responses, and help to maintain confidentiality by allowing you to state very clearly what you don't want to be published. We will keep your completed cover sheets confidential.

A3.3 The quality of consultation can be enhanced by publishing responses before the consultation period closes. In particular, this can help those individuals and organisations with limited resources or familiarity with the issues to respond in a more informed way. Therefore Ofcom would encourage respondents to complete their cover sheet in a way that allows Ofcom to publish their responses upon receipt, rather than waiting until the consultation period has ended.

A3.4 We strongly prefer to receive responses in the form of a Microsoft Word attachment to an email. Our website therefore includes an electronic copy of this cover sheet, which you can download from the 'Consultations' section of our website.

A3.5 Please put any confidential parts of your response in a separate annex to your response, so that they are clearly identified. This can include information such as your personal background and experience. If you want your name, address, other contact details, or job title to remain confidential, please provide them in your cover sheet only so that we don't have to edit your response.

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing	☐	Name/contact details/job title	☐
Whole response	☐	Organisation	☐
Part of the response	☐	If there is no separate annex, which parts?	

If you want part of your response, your name or your organisation to be confidential, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

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Name Signed (if hard copy)