Total Conversation, Telecoms Relay Services, End Users and Public Service Access

A response to the OfCom Consultation on Relay Services

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This response is in two parts:

A. Direct responses to the questions asked by OfCom
B. An explanation of Total Conversation and its status and effectiveness in telecommunications for users who have difficulties with voice telephony

It is necessary to understand the second part because it underpins the response to the OfCom questions, and we believe, represents State of the Art technical development, currently being implemented in 5 European Countries and being promoted by the European Commission, as the standard for future telecommunications access for those with difficulty in traditional voice telephony. It also reflects systems being provided to relay service operators in the USA. It appears to have been overlooked in the text of the OfCom consultation.

This is the first part of the REACH112 response to the consultation and focuses on the specific questions set.

1 Background

We believe it is important to set the development of relay services in the context of the users rather than have this driven by relay operators and consider that unless we address the issues of person to person telecommunication more generally, we leave the use of relay services to be driven by perceptions of legacy use.

We also need to be clear on the user groups themselves, their extent and their pattern of daily life and the obstacles to progress.

As a starting point therefore, we wish to suggest that the number of likely users is inflated but the extent of demand for inclusion is underestimated.

Although the UK no longer collects data on Deaf school children as such, the numbers of dedicated Deaf schools and the population therein (less than 2000) gives us a means to project the likely size of the Deaf community, since it is in school that the language and culture evolves. The demand for sign language relay by monolingual users of that language is therefore much less than the quoted figures of people who 'know' sign language. When we examined these figures for the Health Board for Scotland, in 1997, we concluded that there may be a core Deaf community population of 24,000 in the UK – core being defined as sign language users with a Deaf identity and who share Deaf culture. They are also much less likely to be able to use English effectively. Since that time the Deaf school population has shrunk by a third and we can assume that there is a consequent impact on the Deaf community.

It is certainly true that there are many bilinguals and that there also bilinguals who are not able to access spoken language conversations. Nevertheless, the numbers of users in the adult population who are active in employment (and the greatest users of projected relay service) is likely to be considerably less than 50,000 which is used for the calculations.

Although the numbers of people who have a hearing loss is great, the vast majority of these are over the age of 65 years, and their hearing loss may be gradual and may be offset by the use of hearing aids and by the use of hearing tactics for example, in choosing appropriate environments for interaction. We do then need to understand their interaction with telecommunications. Although we can adopt broad statements about the numbers of people who have a hearing loss and who have difficulty with voice phones, we need to know a good deal more about the extent of the problem (when there are aids such as amplified phones, for example) and their typical use of the telephone. Despite such people with a hearing loss being highly literate, for example, it is not necessarily true that they will be happy

to use text to communicate. At the same time, they may be able to function much better if they are able to see the person with whom they are communicating. In effect, for many older hard of hearing people, the possibility to use a video phone, may be sufficient to create effective communication ….. without recourse to relay services of any sort.

Research mentioned in the OfCom review document, under the heading of "equivalence" did not adequately address the issues of the nature of the users and their telecommunications use. 'Equivalence' then is a somewhat awkward concept to bring into the discussion. If older people use the telephone mainly to talk to other older people, then equivalence ought to refer to the similar possibility for older people with a disability. The notion of equivalence has unfortunately become attached to diversity of use, instead of being understood as being equality in use. This means that the questions asked refer not to equality but rather to the range of options people might have for communication. The idea then is that if we can increase the range of options available to people then they will somehow become more equivalent. This is clearly not true. We need to understand what constitutes equality for all end users whether it has Deaf people contacting hearing people or hearing people contacting Deaf people.

However, Section 3.10 of the OfCom documentation does draw out the significant features of telecommunication which might be used to understand the need to alter our approach to relay services. It should be noted that the points listed do not all imply the provision of a relay intermediary but rather improvement of the person to person telecommunications experience.

In regard to the specific questions set:

Section 4 – Text Relay

Question 1: Do you agree that NGTR would provide greater equivalence than the existing approved TR service? Do you agree that we have considered an appropriate range of improvements?

We are not convinced that the Ofcom paper covers the range of options for users. The paper appears to have examined the existing relay service and considered how to change it, instead of examining mainstream technologies, user needs and the solutions which are currently available.

The diagram on page 16 (OfCom Review document) as illustration of NGTR is somewhat backward looking in terms of technology. The notion that two connections – ie through PSTN and through the Internet – should be used at the same time, seems unwieldy and unnecessary. When there is an incoming call from a hearing person, it seems unreasonable for the person with a hearing loss to have to take the phone to the computer and to start it up, in order to have a conversation.

Now, the use of smartphones and especially those with Android operating systems, removes the need to have two connections and to have a clumsy dual approach. Equally, the computer itself can act as the phone terminal and since it is increasingly

likely to be a laptop, then it is mobile and adaptable. Additionally, softphone software on the computer makes it "ring" and flash when an incoming call is being made.

It would be good also if the baseline research were to consider the extent of smartphone ownership. It may even be cheaper to provide a smartphone free to all registered users than to try to create the expensive 'overlay' solution.

If a hearing caller uses a smartphone, Google Translate (free software) may provide perfectly adequate speech to text functionality for simple exchanges - and remove the need for an intermediary, in those interchanges.

Captioned telephony is easily achieved in a similar way in a smartphone and by use of Total Conversation (see Part B of this response) the person with a hearing loss can also see the other party or relay operator. This is a far more elegant solution and is available now.

Legacy minicoms have significant advantages in being always on and are normally connected to an alert system connected to the house lights. This functionality is of great importance and has to be retained in any new development.

We consider that comments in section 4.33 concerning speech to text software are misleading. Current versions produce high levels of accuracy with very little training and are currently available in REACH112 relay services.

Overall, our view is that we welcome an updating of relay services with advances in technology but creating more complexity (as proposed in NGTR) is not a good idea – there are simpler more elegant solutions available.

Question 2: Do you agree with the proposal to implement NGTR through the amendment to GC15? Do you agree that the criteria we propose satisfactorily embody improvements we suggest for NGTR?

We agree that the development of innovative and forward looking integrated (video, voice and text) solutions should be amended in general conditions. Paragraph 4.115 offers the possibility of more innovative developments than implied by the NGTR description and these criteria combined with KPIs in 4.118 would be useful and can stimulate growth.

However, rather more accurate analysis of costs and usage are needed. We need to know the numbers of existing active users and then the distribution of usage by user characteristics. We suspect, as we have found in previous research, that most active users are in the professional group, possibly, 30 to 40 years old, and that there is a considerable tail in the distribution with a small number of people who are very extensive users. We would also need to know about the IT profile of the users and would probably find that there may be high levels of smartphone ownership and IT knowledge, among those who use the system most.

We remain unconvinced (paragraph 4.96) that there would be increased demand for the proposed *separate* NGTR over the current service, given the existing levels of mobile telecommunications use and Internet use. We urge OfCom not to separate text relay from the requirements for general telecoms relay and in particular, to give more active consideration to the use of Total Conversation.

Question 3: Do you agree that a period of up to 18 months for implementation of NGTR, following an Ofcom statement, is appropriate?

Since existing solutions for Total Conversation already integrate with BT Relay, the evolutionary path is established. An 18 month period of adjustment would seem unnecessary, as the aim ought to be for transition and not replacement.

Section 5 – Video Relay

Question 4: Do you consider that the requirement to ensure equivalent services for disabled end-users would require a mandated VR service in some form for BSL users? Please indicate the basis of your response.

The narrow view on video relay here is somewhat counter productive. Video telecommunications is a service for all. It is already freely available, in one form or another, through IP and is used in closed micro networks of friends and family. It is not the domain of sign language users alone. Total Conversation services have been chosen as the way forward by the European Commission and standards bodies, as they emphasize the mainstream nature of such provision and allow the choice of modality by individual users. By mandating video in IP, users are able to ensure conversations in text, speech and sign language can take place and in any combination of these.

Video relay services are therefore just as significant for hard of hearing users, elderly people, those with learning disabilities and those who have speech problem. As indicated in Part B of our response, the focussing of VR on Deaf sign language users places an enormous burden of cost on a small number of users and misses the point, in not creating a design for all, inclusive solution for the whole of society. It can be argued that if these Deaf users are the only beneficiaries then such a development is not proportionate. Total Conversation solutions for relay, incorporate all end users and provide benefits in interaction, to all.

There would appear to be a complication in the discussion of options in paragraph 5.18 onwards. Current solutions for video telecommunications are almost completely confined to Internet Protocol. Despite the number of video conferencing and even video communications software available, the control which the CP has, is limited in regard to the implementation. Video communication is dependent on end user hardware, on routers/firewalls and most significantly on the ISP and the packages which are marketed and sold. Requirement to provide access to VR could lead to empty promises on the part of the CP, since realistically they have no control over the user's connectivity. Almost certainly, they would resist any attempts to make them responsible for the user's connection.

The calculations on usage starting in paragraph 5.32 also seem somewhat problematic. As indicated in Part B, the numbers of monolingual sign language users in the UK is much less than the figures OfCom has used. At the same time the numbers of hard of hearing people and other non-disabled people who could be users of Total Conversation relay, needs to be taken into account. Current costs for *individual interpreters* in a relay service are no more than £1 per minute but a complex calculation is needed in order to find the correct staffing levels needed to match peak demands without creating huge over-capacity when demand falls; in addition, there are clearly management, training and monitoring functions which need to be costed into the service provision. That is, there could be times when the cost is higher but other times when it is much lower than the OfCom figure. By the end of the REACH112 project in June 2012, we will be able to provide much more accurate figures on this, having provided free access to the user base, for Total Conversation relay.

Question 5: Do you agree that a restricted service would be more proportionate in providing equivalence for BSL users than an unrestricted service?

It would seem very odd that there should be an unrestricted ***text*** relay service but a restricted ***video*** relay service. We would imagine that this would almost certainly be challenged in law.

However, there is no requirement that Central Government should be sole funder for such services or that all service so specified should be channelled through a single operator or location. It ought to be obvious that users can have unrestricted services (as they do in any telecoms application) whenever they pay the costs. At the same time, it is reasonable for Government to be responsible for all communication into and out of their political work and responsibilities and the same might be applied to other public services. Commercial organization also provide free access and help lines and it is reasonable that such free to the public services should also allow the same unrestricted access that non-disabled people enjoy.

The answer to this question is that there ought to be unrestricted access to public services which offer that access to non-disabled people; where non-disabled people are not entitled to free service, such as in ordering a pizza, then cost sharing may be negotiated. However, it is also acknowledged that there can be many grey areas of 'reasonable adjustment' brought forward by commercial entities in this regard. Since we are only beginning to analyse the range of options, it is premature for us to provide a complete business model for this service.

Uncertainties such as expressed in paragraph 5.73, need to be removed by integrating text and video relay services in Total Conversation and implementing a unified service for all.

Question 6: Please provide your views on Methods 1 – 5 for a restricted VR service discussed above. Are there any other methods that are not mentioned that we should consider? In making your response, please provide any information on implementation costs for these solutions which you believe is relevant.

We cannot see the validity of an argument to support the view that text users should have an unrestricted service and video users should have a restricted service. In practice, both are part of the same telecoms relay and are already encapsulated in the provision of Total Conversation.

We do not believe that it is legal to provide a lesser service allocation to a group who are in greater need.

However, the debate is probably in the wrong context. We consider that the discussion should be placed within the vision of future telecoms for all. The provision of Total Conversation is a means of social inclusion for all – providing seamless connectivity according to choice (and need). Telecoms provision is only viable when scaled. Twenty thousand users is simply not enough to support the services being discussed. Only when Total Conversation is seen as a means for all people to interact does the inclusion of sign language users, hard of hearing people and all other groups become an uncontested reality.

Also we should point out that the pattern of service provision is likely to be limited not by any of the considerations in methods 1 to 5, but by the actual availability of interpreters and relay agents. If we consider interpreting services and compare the availability of qualified sign language interpreters in the UK, compared to Sweden and to the USA (and scale according to population), these countries have nearly eight times the number of interpreters that the UK has. The reality is that most interpreters in the UK are already in full-time demand and have established work patterns, which they may not be inclined to change for the new relay services. To train the number of interpreters needed to staff the service effectively would require an enormous training programme and would take several years. It is likely that a staged incremental programme will be needed.

We predict that demand for relay services (as soon as they are offered) will very swiftly reach high levels in the UK but will be held back almost certainly by limitations in end-user equipment, by limitations in the UK's Broadband network, by the enormously high costs of using mobile data (on 3G networks) and most significantly by an inability to staff the services to the demand levels.

Relay services will continue to be commercial agencies who may choose to share capacity (and the technology is readily available to do so). They will be responsible to map supply and demand and to cost it accordingly. Financial stimulus from Central Government while aspired to by various campaigning groups, may be insufficient (hence the presentation of five methods to limit costs) and will lead to frustration and resentment among the groups to be served. We do not believe that these methods are appropriate and are probably not in the control of Government in the marketplace.

However, regulated standards of service and codes of practice clearly ***are*** required and these are more likely to be better means of limiting costs (for Government) and a better method for driving up quality.

Question 7: Do you agree that a monthly allocation of minutes combined with a weekday/business hours service would be the most appropriate means to restricting the service?

Despite the simplicity of such a scheme it is likely to be unworkable. The notion that one minute per day (30 minutes per month) would be sufficient, is unlikely to satisfy users at all.

Significantly, if 30 minutes *were* offered to10,000 users each month, this would equate to 5,000 hours of on-time. Allowing for negotiation of calls, fail to connect and other non-attributable minutes and allowing also for interpreter stand-down time – in total, 20% more time – we need interpreters for 6,000 hours per month. Given that, of the 500 UK interpreters, the vast majority are as yet untrained in relay and already have "day jobs', the estimated number of hours currently available for an interpreter to give to a relay service might be 5 hours per week or 20 hours per month, then we would need to employ 60% of all available interpreters – and this might work as long as all calls came in one after the other and not at the same time. Since many interpreters are already committed to existing organizations and since the peak in need is likely to be during the day, when they are already employed, the suggestion of staffing such a national service purely on the basis of limitation in costs, in the way proposed, is problematic.

We consider that new market models will be required; that services will need to be driven by users in specific areas of application; that access to public services bodies might be available directly in voice carry over and simple video interaction (ie without relay); and that a significant programme of training will need to be implemented. Such training would be targeted on creating a body of Total Conversation operators able to work flexibly in video, voice and text.

PART B
Current Implementation of Total Conversation in person to person calling and relay

2 Summary

Total Conversation is a set of European telecoms standards which are implemented in a large scale (8.8 million euros) pilot programme (REACH112) by the European Commission ICT programme (2009-2012). Total Conversation mandates video, voice and text simultaneously or in any combination, in live telecommunications conversations. It is implemented in software and hardware devices, in tablets and smartphones and is provided free to anyone who wishes to register. In the UK, there are over 2,000 registered users, generating 50,000 calls in the last year on the Broadband Internet, wifi and 3G mobile telecoms networks. Total Conversation provides an integrated solution for all disabled and non-disabled end users.

REACH112 as well as encouraging person to person calls between all end users, provides telecoms relay service – ie sign language relay, speech/lip-reading relay, speech to text captioning – and also access to 999 services. REACH112 services are fully integrated with legacy systems of text and video communication and interface directly with existing text relay operated by BT. The system also allows roaming in other countries and inter-operates with Total Conversation in other pilot countries. The pilot programme is charged with implementing this range of service and evaluating it by mid 2012, thereby providing an evidence base for all of the questions posed by OfCom and including the cost utility analysis of such a development. In effect, REACH112 provides the test outcomes which are needed to inform any Governmental, commercial or public service response.

We consider the analysis presented in the OfCom documentation has missed an opportunity in not setting out the potential solutions to the problems of access to telecommunications. Specifically, we consider there to be no need to separate text relay from video relay (conceptually or technically) since both are implemented using the same software and hardware, the same broadband and telecoms infrastructures and can be implemented by the same operators. We do not support the notion of 'next generation' services as (a) such services are already in existence and (b) they are integrated into the existing BT services and will inter-operate happily with all other services in the UK and (c) technical change is seldom next-generational (in the sense of replacement of existing) but is rather evolutionary and requires maintenance of legacy infrastructure and user devices.

We consider that the numbers used in calculations are problematic, representing over-estimates of the numbers of monolingual BSL users, for example, but significantly underestimating the demand for relay from public services, from commercial enterprises and from end users (both disabled and non-disabled).

We suggest that financial viability for relay services can only be examined in relation to

(a) the extent of penetration of the software/hardware solutions to end users, their consequent extent of person to person calls (on broadband, wifi and 3G mobile networks) and their perception of value of such service;
(b) an understanding of the change in communication needs of users who may use Total Conversation, and who thereby become more independent and are able to talk directly to mainstream users, since they can for the first time *see* the person, with whom they are talking and also type directly to them (thereby reducing the need to invoke relay)
(c) the effectiveness of easy connection to 999 services where OfCom has already analysed data on the value of saved lives (see OfCom consultation and response to the European Directives on Access, earlier this year)
(d) the range of public services with a duty to users and the likely cost savings for them in regard to fulfilling their public duty of care in say, assisted living contexts
(e) the potential for creation of user-led contact centres which allow for example, Deaf people to talk directly to Deaf operators and to provide solutions, which can invoke interpreting services if needed, but are more likely to create a self-help facility and interface to the information and social practices

We recommend that Total Conversation as an integrating telecommunications implementation, is mandated and that a fully integrated voice, video and text relay system be properly installed *within* a fully functioning telecommunications network.

3 What is Total Conversation?

Total Conversation is a specification for telecommunication which mandates video, T140 text and speech, simultaneously and in real time, between parties in the interaction. It is defined by ITU-T in the standard F.703 Multimedia Conversational Services Description as

"An audiovisual conversation service providing bidirectional symmetric real-time transfer of motion video, text and voice between users in two or more locations".

There is a difference between the T140 text medium and most other services including text, in that the text flows as it is typed. The effect is that the users are in continuous contact and do not experience the long delays between messages that make other text systems frustrating. At the very heart of these standards, are those identified already in the COCOM 04-08 report:

"The ultimate aim is full Total Conversation interoperability (to be achieved in IP terminal, 3G devices and networks, and IP networks) and based on one set of standards." Section 4 in the report INCOM 07-06.

The overall goal of the REACH112 European Pilot project in this field is to "validate extensions of the telephone concept to make it accessible for people with disabilities". That includes P2P communication and 112/999 Emergency Services. The solution is to add video and real-time text to the calls (forming Total Conversation TC in a standardised consistent way) so that voice telephony interoperability between service providers is maintained. The benefit of adding video is that sign language, lip-reading and general face recognition can be used. The benefit of adding real-time text is that a rapid text conversation can be performed when one or both users have limited use of voice or video for communication. The relevance of having voice in the calls is that many people with disabilities have some use of voice.

Relay services are provided in this framework to bridge communication gaps between different users. These services convert messages from sign language to voice and from text and voice. This is vital in emergency dialogue, but also applies in everyday calls. When TC is established for everyday communication, its capabilities will be used on the day when it becomes necessary to make an emergency call.

The TC solution is based on agreed standards allowing users in one provider group to call those in other groups and to be able to reach Emergency Services.

The European ICT Industry has issued a vision including Total Conversation deployment:
http://ec.europa.eu/information_society/activities/einclusion/docs/limassol/eicta.pdf
It describes how the call control protocol SIP, is the basis for both terminal access and interface between providers. Even providers who deploy other protocols, use SIP as the interchange protocol.

The TC implementation envisages user devices interacting across countries and across IP networks and providing intuitive video telephony. This will allow disabled users to communicate more easily with each other and with mainstream users and services.

4 What is REACH112?

REACH112 is pilot project of the EC ICT PSP working in five countries. The partners in the project include Siemens, Nokia and Orange, as well as Deaf and hearing organisations in five countries. The emergency services are also partners. The work is to be analysed and reported on as a pilot which is of strategic importance to European policy preparing for future emergency service arrangements throughout Europe. The project is valued at €8.8m.

The overall goal of the REACH112 project is to make 'telephones' accessible for all people. This applies to the range of services from person to person communication right through to 999/112 Emergency Services. The solution is to add video and real-time text to the calls (forming Total Conversation TC - a European telecommunications standard) so that integration with voice telephony is achieved.

The concept is presented simply in the illustration below. Users are able to see each other when they call, are able to use interpreter relay services and are able to reach 999 services directly and through video or text relay. They are able to use standard telephone numbers and can communicate directly with existing textphone users and by hearing people who are automatically routed to the interpreting service.

At the present time, REACH112 has

- 2,100 registered users of TC & RTT in the UK
- supported over 50,000 calls in the last 12 months
- set up a TC relay service and the national infrastructure to support TC calls
- provided an online framework for registration, download and support service to users
- Set up the back-office management and validation system to support users and suppliers
- offered installations of TC in contact centres for direct routing of user queries
- provided an interface to textphones and BT text relay and to 999
- put into practice a proven testing framework for all user devices, with all media and tested on the full range of telecoms and broadband systems

By mid 2012, there will be

- collection of user data, analysis and reporting in order to inform EC, National Government and service providers
- creation of a business model and sustainability framework which does not rely on Central Government support

The range of services on offer are shown in Figure 1

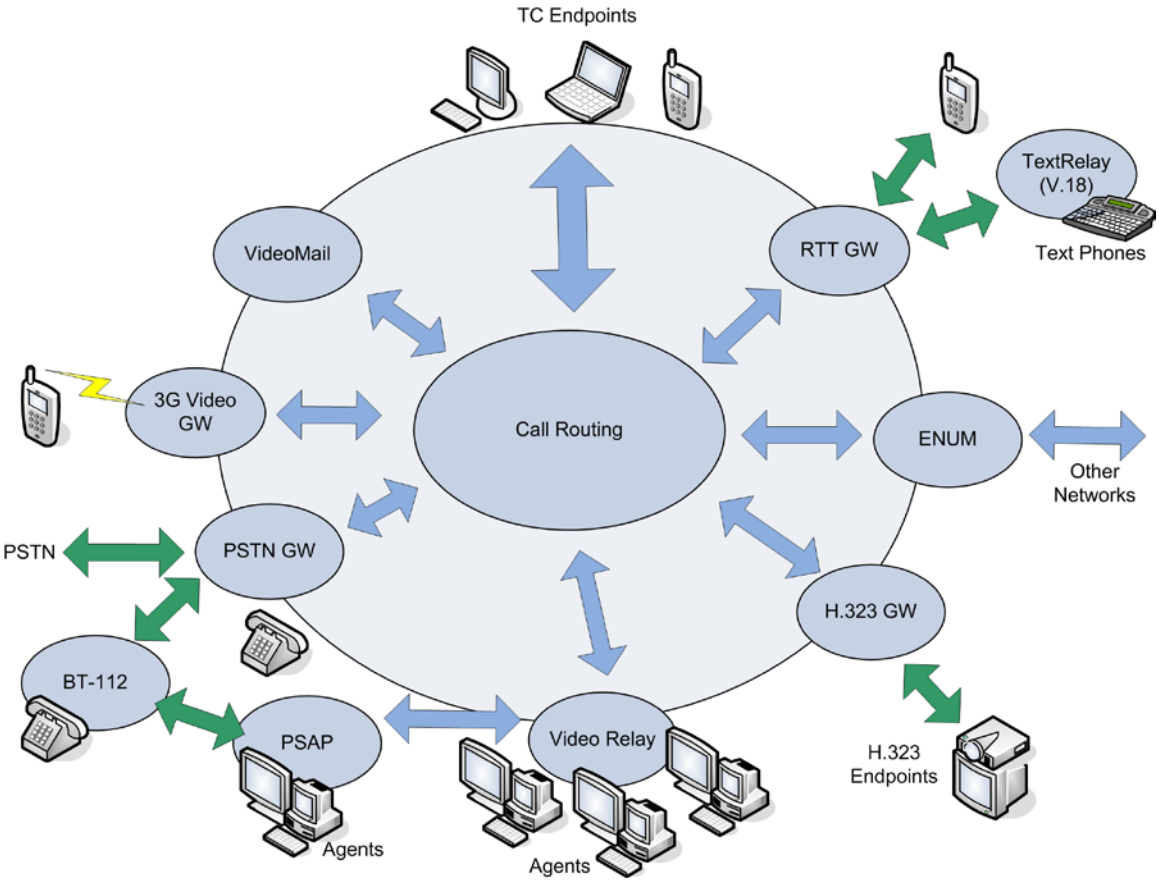

Figure 1: REACH112 telecoms infrastructure in place 2011

It is important to emphasise that this infrastructure is in place and in use, now. We have also created the structures for access to emergency services and in doing so have had to satisfy police security arrangements for recording all TC emergency calls. Since telecoms relay services are to be made available to all from November 2011 because of the requirements of European funding, we have provided a direct interface to BT text relay and an automatic re-direct to emergency text relay for the situation when a TC relay operator is not available. In situations of poor reception, when on the move, the registered end user defaults to text communication, allowing a ubiquitous connection to the mobile networks as long as there is a minimum GSM (standard voice) signal. As a result, REACH112 is offering a 24 hours service for all users of the software and recommended hardware. In turn, REACH112 has to provide a 24 hour contact for the telecoms providers (ie BT) in case of mis-use of the system or other issues.

TC calls are made via myFriend PC software and myFriend mobile software for smartphones using Android, applications

developed by Aupix. The software is available free for registration, download and use. It works effectively for video, voice and text calling on Broadband services with an uplink of at least 256k, on WIFI in public locations, in offices and at home, and on mobile phone networks where 3G or HSPA is available. Users report ease of communication in sign language. Where lower throughput services are on offer, the software still allows text conversation.

In order to utilise relay services, end-users simply 'dial' the number of the mainstream voice phone, and are automatically connected to the relay services. No prefixes or special numbers are required. The relay call taker (in speech or in text or speech to text or in lip-reading mode – this depends on user preference, and can be set by the user at registration) sees and confirms the onward voice phone number and makes the connection. The three-part conversation then follows. Options are available for all parties to be visible to each other.

In order to ensure that this provision is embedded in good practice, the police have taken the lead in developing training for the relay operators and we are shortly to provide extensive online self-teaching for prospective relay operators and emergency call takers. At the same time we have prepared a guide for operators which encompasses a code of practice, a code of ethics for relay personnel and the terms and conditions for end-users and for relay staff. We have worked with the Interpreters' Associations in the UK with a view to their taking ownership of the quality standards needed for such services.

Management tools and back-office client management systems allow different agencies to operate within a 'grid' of services allowing a sharing of scarce sign language interpreting relay, meaning that users may reach an interpreter outside of their normal provider, if their normal provider is overloaded or unavailable for some reason.

5 The system in use

The main report on this work, evaluating all components of the implementation and presenting the financial analysis and business case is not due until June 2012. But some preliminary data can be offered to make the discussion more concrete.

There has been a steady increase in use of the service since it was offered to users (Figure 2).

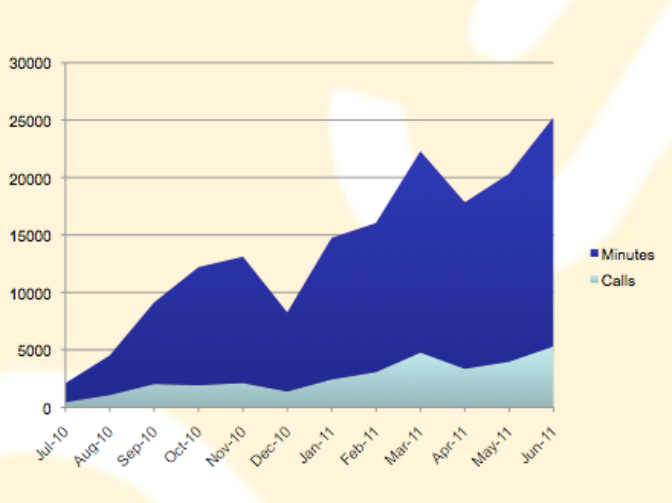

Figure 2: Increase in person to person calls over a 12 month period

There were over 25,000 minutes of Total Conversation calls in the UK REACH112 network in July 2011, from over 5,000 calls. In July 2011, when relay operation was monitored, there were over 1,200 calls which used speech or sign language relay.

In a set of structured and closely monitored calls, between May and July 2011, we examined 80 person to person calls and over 100 relay calls. We also examined 27 (mock) emergency calls to police (through speech and sign language relay. A range of devices were in operation and fixed line, wifi and mobile phone networks were used. User interaction was effective and sign language conversations easy. End users reported:

> "Great to have this facility that does not need a special set number before the actual phone number. Myfriend has now become my friend! Type talk? No more- I hope."
>
> "My mother said this is much better, more straight forward to have a conversation instead of Type talk. She prefers to use this from now on"
>
> "The clear background used by the interpreter makes communication lovely."
>
> "Wow! The picture is crisp clear. I am excited about this becoming a permanent service."
>
> "Beautiful communication – So lovely!"

We continue to monitor user and to examine the performance of the software and the infrastructure.

6 Conclusions

We consider it important for OfCom in its consultation, to take into account the operation of this service in the UK. It is part funded by the European Commission and is set to report into the policies for telecommunications in future, across the European Union.

Much of the questioning by OfCom and certainly the assumptions in regard to traffic and use, will be answered by REACH112 by June 2012.

The main conclusion at the present time is that Total Conversation is an evolutionary development which is fully integrated with existing text relay, and offers a wide ranging partnership with end users, Deaf organizations, interpreting associations and relay service providers, as well as mainstream telecoms operators.

It is not necessary to separate text relay from video relay, but more importantly it is important to understand the need of end users as being much more than the provision of one minute a day of relay time. Rather what we need to embrace is a ubiquitous, 24 hour service which connects all users in all telecoms settings. By providing universal access to Total Conversation and by ensuring that this is a mainstream provision (ie used by non—disabled users) it is possible to put into practice the inclusion policies and equality policies to which Government, Public Authorities,

commercial companies and other agencies, have already signed up. When such mainstreaming occurs the costs drop and pathway to appropriate and proportionate telecoms provision becomes clear.