

An assessment of the proportionality of regulation of over the top communications services under Europe's common regulatory framework for electronic communications networks and services.¹

¹ Neil Brown (01137115)

Table of contents

Introduction 3

Over the top communications services: a regulatory hybrid 7

Free competition and consumer protection: the objectives of the communications framework 12

Is it proportionate to apply existing obligations to over the top communications services? 15

Interconnection 17

Numbering availability and portability 21

Availability 21

Portability 23

Directory of subscribers 25

Network integrity 28

Emergency calling 31

Data retention 36

End user contracts 39

Privacy obligations 41

Conclusions on key areas of regulation 44

Jurisdictional challenges to the regulation of over the top communications services 45

Under the over the top services — the impact of over the top communications services on communications networks 48

The end of networks? 49

Market-based solutions 51

Does there need to be regulatory involvement? 55

Conclusions 57

Bibliography 59

Articles 59

Legislation 62

Cases 63

Introduction

The prevalence of Internet access, especially high speed Internet access, has changed the way in which we communicate. In the traditional world, connectivity and communications service provision were tightly interwoven, almost indistinguishable, but the Internet has given rise to a vast range of services which are de-coupled from the provision of connectivity — services which are carried “over the top” of an Internet connection.

For many, voice over IP — VoIP — in the form of Skype, is likely to be the most recognisable face of over the top communications — available on numerous platforms, and offering free of charge voice and video calls to other users of the Skype software, Skype carried 115 billion minutes of calls in the financial quarter ending July 2012.² If this figure was to remain steady for the remainder of the year — a pessimistic assumption, given that Skype reported an increase of over 50% from the previous year³ — Skype would carry 460 billion minutes in one year. To put this in perspective, there were 240 billion voice call minutes in the UK for 2011, both mobile and fixed.⁴

Skype is but one of many over the top communications services offering voice and/or video communications. ChatRoulette.com indicates that between 10,000 and 30,000 users are signed in to its service at any time,⁵ whilst players in the “World of Warcraft” fantasy universe can communicate with each other using the in-game voice chat system.⁶ “Click to call” buttons embedded by website operators in their sites enable an “interactive live voice service that bridges the gap between the Web site and contact center”⁷ — for example, to place an order for a pizza, or to seek

² Microsoft’s earning call transcript for Q4 of FY2012 at page 7, available at http://www.microsoft.com/global/investor/RenderingAssets/Downloads/FY12/Q4/Microsoft_Q4_2012_PreparedRemarks.docx (accessed 23/07/2012)

³ Microsoft’s earning call transcript for Q4 of FY2012, at page 7

⁴ “Communications Market Report 2012” (2012), Ofcom, at page 281

⁵ chatroulette.com: “Around 10,000-30,000 users signed in at the service at any time and are available for conversation.” (accessed 23/07/2012)

⁶ <http://us.battle.net/support/en/article/voice-chat-faq#1> (accessed 23/07/2012)

⁷ “The Total Economic Impact of Click to Call and Click to Chat” (2010), Forrester Consulting, at page 23

technical support. BT's "Broadband Talk"⁸ and Vonage's service⁹ enable customers to connect to PSTN¹⁰/PLMN¹¹ services over an IP connection from their homes.

Not all communications are conducted by voice — Twitter announced 200 million registered accounts in April 2011¹²; as of March 2012, Facebook claimed 901 million monthly active users¹³ and Gmail 425 million users.¹⁴ The WordPress blogging engine has been deployed over 54 million times.¹⁵

Neither is use of over the top services limited to those with fixed line connections — using Internet connectivity available to mobile devices, WhatsApp delivered two billion messages each day in February 2012¹⁶ and announced that it had delivered ten billion messages in one day in August,¹⁷ and RIM claims over 50 million users of its BlackBerry Messenger service, as of May 2011 sending 100 billion messages each month.¹⁸ Apple's iMessage is integrated tightly into around 290 million iOS devices, with Apple claiming that one billion iMessages are sent each day.¹⁹ By way of contrast, Telefonica claims 309 million customers worldwide,²⁰ and

⁸ http://bt.custhelp.com/app/answers/detail/a_id/10793/~/~what-is-bt-broadband-talk%3F (accessed 23/07/2012)

⁹ <http://www.vonage.co.uk/how-vonage-works/equipment/> (accessed 23/07/2012)

¹⁰ Public Switched Telephony Network

¹¹ Public Land Mobile Network

¹² <http://www.guardian.co.uk/media/pda/2011/apr/28/guardian-activate-2011-new-york#block-73> (accessed 23/07/2012)

¹³ <http://newsroom.fb.com/content/default.aspx?NewsAreaId=22> (accessed 23/07/2012)

¹⁴ <http://googleblog.blogspot.co.uk/2012/06/chrome-apps-google-io-your-web.html> (accessed 23/07/2012)

¹⁵ <http://en.wordpress.com/stats/> (accessed 24/07/2012)

¹⁶ <http://www.reuters.com/article/2012/04/05/us-whatsapp-idUSBRE83401120120405> (accessed 23/07/2012)

¹⁷ Tweet from @WhatsApp: "new daily record: 4B inbound, 6B outbound = 10B total messages a day!" <https://twitter.com/WhatsApp/status/238680463139565568> (accessed 25/08/2012)

¹⁸ <https://developer.blackberry.com/devzone/appworld/bbm> (accessed 23/07/2012)

¹⁹ <http://www.tuaw.com/2012/06/11/ios-by-the-numbers/> (accessed 24/07/2012)

²⁰ http://www.telefonica.com/en/about_telefonica/html/magnitudes/magnitudes.shtml (accessed 24/07/2012)

Vodafone 404 million,²¹ whilst it has been predicted that total annual SMS traffic is around 8 trillion messages.²² It would not take many more over the top services carrying one or two billion messages per day for over the top messaging to come close this figure.²³

This array of services and technologies is hugely diverse, enabling very different outcomes and behaviours. Some are broadcast, with a “one to many” outcome, whilst others exist for private or direct messaging. They represent a range of capabilities — some voice, some voice and video, some text only, some making use of location for presence information, or permitting photo sharing. Some allow communication outside their own environment — in particular, permitting calls to fixed or mobile recipients — whilst others are limited to other users of the service, or else to dedicated endpoints (as in the case of “click to call”). Some are simply software, running on a client,²⁴ which enables interactions with other users of the software, whilst others are truly services, requiring interaction with a service provider for each communication.

Indeed, there are only two real commonalities between these services:

Firstly, they enable people to communicate — they enable a user to share information with another, or group of others. It is their use for communications which binds them together — different technologies, different modalities and different functions, but one common effect.

Secondly, they are independent of the network over which they are accessed or available — whilst a connection, generally to the Internet, is required, the provision of the service is independent of the provision of connectivity.

²¹ 2012 Factsheet, available from http://www.vodafone.com/content/index/investors/about_us.html (accessed 24/07/2012)

²² “*Mobile Messaging Futures 2011-2015*” (2011), Portio Research

²³ Empirical research would be needed to understand whether a relatively fixed peak number of messages would simply be sent across a wider range of applications (i.e. greater diversity of messaging clients, each with a smaller usage), or whether an increase in applications would lead to an increase in message volumes

²⁴ “*Application of Communications Legislation to VoIP Services in Finland*” (2007) Memorandum 5.9.2007

These two commonalities form the basis of the definition of “over the top communications service” used throughout this paper: a service (including the provision of software) which is independent of the network over which it is accessed or made available and which enables two or more parties to communicate.

This paper examines whether over the top communications services require regulation and, if so, how this should be achieved. It argues that the current definitions within the regulatory framework — information society services and electronic communications services — are no longer fit for purpose, as over the top communications services, which are currently information society services, need to be subject to the communications regulatory framework. However, whilst over the top communications services should be subject to the framework in principle, it is not proportionate to impose many of the obligations at this point in time; only obligations relating to data retention and privacy should be imposed.

The paper considers the challenges of enforcing regulation on overseas providers, concluding that, fundamentally, there is no workable solution. Although it would not be proportionate to require domestic network operators to block all non-compliant over the top communications services, this might be proportionate in respect of particularly harmful services.

It concludes by examining the role of network operators, and the extent to which regulation should be imposed to help counteract the decline in revenues from traditional services. It argues that, currently, there is no proportionate basis for regulation and that, before any regulatory interference, operators must look to market-centric solutions, such as network sharing and partnering, or even a change of business model to data generation and analytics. It may also be appropriate for network operators to challenge existing thinking on spectrum allocation and licensing.

Over the top communications services: a regulatory hybrid

The European regulatory framework does not contain a definition of “over the top communications service.” Rather, services must fall into one of two categories: information society services and electronic communications services. The challenge is that over the top communications service fit neither definition well, sharing elements of both definitions — they are a hybrid of the existing definitions.

From the early days of European communications regulation, “information services” were distinct from “telecommunications services”²⁵ — a telecommunications service was a means by which a user could access an information service.

In the current framework, the term “information society service” was added as an amendment to the technical standards directive — it is defined as:

“any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services.”²⁶

The term “by electronic means” is itself defined, requiring that:

“the service is sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data, and entirely transmitted, conveyed and received by wire, by radio, by optical means or by other electromagnetic means.”²⁷

Directive 98/34/EC does not give any examples of information society services. Instead, it sets out, in Annex V, services which would seem to fall within the definition but which are not to be treated as information society services — this references, in particular, “voice telephony services,” on the basis that they are “not provided via electronic processing/inventory systems,” and thus do not meet the requirement of being provided “by electronic means.” However, the need to frame the definition by

²⁵ “Green Paper on the development of the common market for telecommunications services and equipment” (1987), European Commission, COM(87) 290 final

²⁶ Article 1(2), directive 98/34/EC, as modified by directive 98/48/EC

²⁷ Article 1(2), directive 98/34/EC, as modified by directive 98/48/EC

exclusion, referring to a non-exhaustive list of services which are not information society services, suggests that even the drafters of the directive considered the definition over-expansive, covering more than was intended.

In contrast, an electronic communications service is:

“a service normally provided for remuneration which consists wholly or mainly in the conveyance of signals on electronic communications networks ... it does not include information society services, as defined in Article 1 of Directive 98/34/EC, which do not consist wholly or mainly in the conveyance of signals on electronic communications networks.”²⁸

The key phrase is “a service ... which consists ... in the conveyance of signals.”

The first point to note is that there is no requirement within the definition that a person providing an electronic communications service must operate an electronic communications network, only that the electronic communications service must provide the conveyance of signals on such a network. The legislation thus embodies a distinction between operating a network and providing services over that network.

Secondly, only services which “consist ... in the conveyance of signals” are considered electronic communications services. The adopted wording differs slightly from the European Commission’s proposed wording, which used instead “transmission and routing of signals”²⁹ from directive 90/388/EEC, but the underlying requirement is clear — the service in question must be one of carriage of data from one point to another.

If an over the top service is characterised by virtue of its separation from the underlying carrier network, it cannot be an electronic communications service, as it does not perform any act of conveyance. Instead, based on current definitions, over the top communications services are likely to be information society services. For example, making available for download software enabling peer to peer calling is the provision of a service, at a

²⁸ Article 2(c), directive 2002/21/EC

²⁹ “Proposal of the European Commission for a directive on a common regulatory framework for electronic communications networks and services” (2000), COM(2000) 393 final

distance and on individual request.³⁰ Likewise, neither a look-up service, telling a client where to direct a communication,³¹ nor a location server providing information as to the presence of users of the service, is a “conveyance of signals.”

It is possible that what a user perceives as one service might be treated from a regulatory point of view as multiple services, combining information society and electronic communications services. For example, whilst the provision of Skype software would constitute an information society service, Skype’s operation of SkypeOut, which enables a Skype user to make a call terminating at a PSTN/PLMN endpoint,³² is likely to be treated in the same way as an international calling card service, as a novel means of payment for an electronic communications service.³³

Whilst the initial intention was for a separation of “information services” and “telecommunications services,” and the definition of “information society service” attempts, rather clumsily, to exclude voice telephony services, conflicting legislative provisions indicate confusion as to what should be an information society service, and what should be an electronic communications service — technological evolution means that the two concepts are no longer as discrete as they were originally envisaged. Trying to ascertain which definition applies has been at the centre of debates about the regulation of VoIP for quite some time.³⁴

For example, directive 2000/31/EC provides that information society services include:

“... services consisting of the transmission of information via a communication network [and] in providing access to a communication network ...”

³⁰ *“Application of Communications Legislation to VoIP in Finland”* (2007), at page 5

³¹ See, for example, the 11th November 2005 response of Skype to the Norwegian regulator’s public consultation *“Vurdering av om bredbåndstelefonløsninger som ikke er tilrettelagt for alle-til-alle-kommunikasjon reguleres av ekomloven (7 October 2005)”*

³² <http://www.skype.com/intl/en-us/features/allfeatures/call-phones-and-mobiles/> (accessed 29/08/2012)

³³ Recital 33, directive 2002/58/EC

³⁴ See, for example, the European Regulators’ Group’s *“Common Position on VoIP”* (2007), section 2 at page 7, and Ofcom’s *“Guidance on VoIP,”* at paragraph 10.3

It is entirely unclear what makes “transmission” and “provision of access” an information society service but “conveyance of signals” an electronic communications service.

Conversely, if “conveyance” is a key requirement of an electronic communications service, a service which does not include this must not be an electronic communications service. However, directive 2002/58/EC, which applies to electronic communications service providers, seeks to impose obligations on:

“[s]ervice providers who offer publicly available electronic communications services over the Internet.”³⁵

If a provider is offering a service “over the Internet,” that service does not consist in the conveyance of signals, and instead, on the basis of the definitions, would be an information society service — this was the conclusion reached by the court of appeal in Ghent, Belgium, when trying to determine whether its implementation of data retention rules would cover a webmail service provider.³⁶

Even if the legal position was clear, arguing that an over the top communications service is not a communications service is to argue purely on the grounds of legal interpretation, rather than reality.

Skype, for example, expects its software to be used:

“for doing things together, whenever you’re apart. Skype’s text, voice and video make it simple to share experiences with the people that matter to you, wherever they are.”³⁷

Facebook’s mission statement is:

“to make the world more open and connected. People use Facebook to stay connected with friends and family, to discover what’s going on in the world, and to share and express what matters to them.”³⁸

³⁵ Recital 20, directive 2002/58/EC

³⁶ *Yahoo! Inc.*, C/922/10, DE 20.95.16/08 26 (court of appeal of Ghent dated June 30 2010)

³⁷ <http://about.skype.com/> (accessed 24/08/2012)

³⁸ <http://investor.fb.com/faq.cfm> (accessed 24/08/2012)

According to Apple, FaceTime:

“makes it possible to talk, smile, and laugh with anyone on an iPad 2, iPhone 4, iPod touch, or Mac from your Mac. So you can catch up, hang out, joke around, and stay in touch with just a click. Sure, it’s great to hear a voice. But it’s even better to see the face that goes with it.”³⁹

These services are, in a very real sense, responsible for enabling communications — the reason they exist is to enable people to communicate.

From a policy perspective, over the top communications services are hybrids of the current regulatory model, partly information society service and partly electronic communications service — they are not responsible for transmission, but their function is clearly that of communication. This distinction between the provision of connectivity and the provision of a communications service challenges the definitions in the regulatory framework — they are no longer appropriate for the way in which services are developed and deployed today.

Simply changing the definitions is not enough; the effects and impact of over the top communications services must be analysed according to the principles of the regulatory framework.

³⁹ <http://www.apple.com/mac/facetime/> (accessed 24/08/2012)

Free competition and consumer protection: the objectives of the communications framework

The principle of regulatory parity demands that regulation must treat like things alike⁴⁰ — regulation should not discriminate against certain enterprises, else regulation itself would cause market imbalance. Different standards should be imposed only where objectively justified. As such, where traditional services are subject to regulation because of particular features, over the top communications services should be regulated in a similar manner. Understanding how these hybrid services should be regulated will be a critical component of any future regulatory framework for communications — failing to do so will lead to an anachronistic regime, out of touch of the realities of service provision.

It is arguable, perhaps even likely, that this is already the situation today. The key to determining what regulation is appropriate is an understanding of what the regulatory framework is designed to achieve, and the extent to which it is proportionate to impose obligations to secure any particular objectives on providers of over the top communications services.

Firstly, the framework exists to ensure free and fair competition.⁴¹

This is the traditional role of the communications framework, given that, in the early days of liberalisation, new entrants were competing with established incumbent operators, which had the benefit of existing customer bases and network investment. To enable competition to exist in any meaningful sense, these new entrants needed to be able to participate on a level playing field.⁴² Examples of this first type of regulation include the ability to impose obligations to provide access and interconnection,⁴³ as well as measures to legal barriers to entry such as licences to operate.

Consumers benefit from this aspect of the framework indirectly. Consumers are not expected to engage in competition themselves,

⁴⁰ *“(de)Regulation of VoIP in telecom industry”* (2005), Pinho and Vargens

⁴¹ http://ec.europa.eu/information_society/policy/ecommm/eu-rules/index_en.htm (accessed 03/08/2012)

⁴² *“Regulation — threat or opportunity”* (2011), Nokia Siemens Networks, at page 2

⁴³ Directive 2002/19/EC

but rather benefit from the effects of competition, such as lowered prices and greater innovation.

Secondly, the framework exists to ensure consumer protection.⁴⁴

This takes two separate forms. Firstly, there are measures designed to ensure that communications services achieve socially-desirable outcomes — for example, universal service obligations,⁴⁵ so that the basic benefits of easy communication are available to all citizens. Secondly, there are measures to avoid or mitigate harms which are caused by communications services — for example, obligations to ensure network security and integrity,⁴⁶ and the confidentiality of communications.⁴⁷

Consumers benefit from these regulations directly — the measures exist solely for the purpose of benefitting consumers, by eliminating harms, or achieving beneficial outcomes which competition alone would not provide.

Whilst it is important that like services should be regulated in a like manner, to avoid market distortion, regulation must not be imposed simply because it is capable of achieving a desirable outcome. Although the philosophical construct of regulation is hard to define,⁴⁸ in the case of the communications framework it is the imposition of obligations by the state on private enterprise — it requires private companies to behave in certain ways, or design products and services in accordance with mandatory principles. Because it applies to private individuals, the regulatory impositions must be proportionate⁴⁹ — they must be necessary and reasonable in the light of the harm being corrected.

The following section examines a number of key regulations attracting to electronic communications services, examining the extent to which, in the light of the two objectives of the

⁴⁴ *“Report on VoIP and Consumer Issues”* (2006), European Regulators’ Group, ERG(06)39, at page 7

⁴⁵ Article 3, directive 2002/22/EC

⁴⁶ Article 13a, directive 2002/21/EC

⁴⁷ Article 5, directive 2002/58/EC

⁴⁸ *“Regulation & Regulatory Governance”* (2010), Levi-Faur, Working Paper No. 1 in Jerusalem Papers in Regulation & Governance

⁴⁹ *“Principles for Economic Regulation”* (2011), Department for Business Innovation & Skills

framework and bearing in mind the principles of regulation, it would be proportionate to regulate over the top communications services.

Is it proportionate to apply existing obligations to over the top communications services?

This section examines eight key aspects of the regulatory regime, looking at the extent to which imposing that obligation on the provider of an over the top communications service would be proportionate. A range of regulations has been selected for analysis, spread across the two aspects of regulation: free and fair competition, and consumer protection.

For free and fair competition, the regulations are those of interconnection, numbering, and an obligation to maintain a directory of subscribers.

In terms of consumer protection, it examines regulations aimed at achieving a societal benefit — integrity, emergency calling, and data retention — and regulations aimed at minimising the adverse impact of electronic communications — end user contracts and privacy.

The findings are summarised in Table 1:

Regulation	Conclusion
Interconnection	There is no need to impose interconnection obligations on over the top communications services currently, as there is no dominant over the top provider, and it is easy to maintain multiple accounts, and be connected to multiple services at the same time.
Numbering issues	Numbers from a national numbering plan must be available to over the top communications providers where requirements as to trust are met, and providers which opt to take numbers are subject to (and can benefit from) obligations around porting. Geographic numbers should be available to any end user, irrespective of location.
Directory of subscribers	A requirement of a directory of subscribers to any given over the top communications service is not needed.

Regulation	Conclusion
Integrity	In theory, essential over the top services should be subject to requirements of integrity but, in practice, this is unlikely to work until the market is more mature. Instead, a voluntary kitemarking system is proposed.
Emergency calling	There is no need to impose obligations, but instead look at dedicated over the top channels for contacting emergency services, coupled with notification requirements where there is a risk of confusion as to whether a service supports emergency calling.
Data retention	Over the top communications service providers should be subject to requirements to retain data where it is necessary and proportionate in each situation for such duties to be imposed.
End user contracts	Obligations to put certain information in end user agreements is unlikely to deliver beneficial results, and wider consumer protection and contract law should suffice. If it is considered necessary to continue with sector-specific regulation, the obligation should be a general one of making consumers aware of limitations, rather than specifically putting extra wording in contracts.
Privacy	Over the top communications service providers should be subject to the same requirements as traditional providers, since the harms are the same if not greater, but there is no evidence that vertical regulation is required; horizontal regulation is a more appropriate and proportionate way of tackling privacy harms.

Table 1

Interconnection⁵⁰

One of the key principles of directive 2002/19/EC is interconnection:

“the ... linking of public communications networks used by the same or a different undertaking in order to allow the users of one undertaking to communicate with users of the same or another undertaking, or to access services provided by another undertaking.”⁵¹

It is an anachronism that the definition of “interconnection” covers the linking of networks, rather than the linking of services. Where the provision of a service is tightly integrated with the provision of a network, such that network interconnection has the result of service interconnection — a voice telephony customer of Kingston Communications being able to call a customer of BT, for example — the obligation achieves a desirable result for end users. Where services are provided over the top, independently of the underlying network, the provisions have no effect. Even if an over the top provider were considered to be providing an electronic communications service, it would not be under a duty to negotiate interconnection. Such an outcome would appear to frustrate the intended purpose of interconnection regulation, namely to enable one provider to deliver traffic to a customer of another provider.⁵² However, in looking as to whether interconnection obligations should apply to over the top providers, it is the intent of the obligation, rather than the current phraseology of the implementing measure, which is of significance.

In a traditional communications environment, the desirability of interconnection is clear: without interconnection, if one party wished to speak with another, either all users would need to be subscribed to one provider, or else all users would need to have multiple lines, one for each service provider. Clearly, from a competition point of view, a system which required all parties to be connected to one provider is undesirable — indeed, to have supported such a system would be to have undermined much of

⁵⁰ This section builds on “*Access, interconnection and over the top services*” (2012), Brown

⁵¹ Article 2(b), directive 2002/19/EC

⁵² Recital 9, directive 2002/19/EC

the rationale for liberalisation, and eliminating such a necessity is a key part of facilitating competition.

In addition to the market benefit of interconnection, there is considerable direct consumer benefit, as requiring a user to have one physical connection per service provider would be unworkable. Not only would it be hugely expensive for each service provider, duplicating infrastructure already in place, it would be prohibitively expensive for individual customers — the more competitors in the market, the more lines a user would need to have connected to their house, or the more mobile phones a user would need to carry around. In short, a system which provides for one physical connection, over which any provider could offer a service, and which carried traffic to a switch, which in turn passed the traffic to the relevant recipient network, seems the only realistic approach.

In the over the top world, the need for interconnection is rather less clear. Provided that there is a suitable underlying connection to the Internet, running multiple communications services in parallel confers little hardship — chatting on Facebook, MSN and AOL, as well as sharing a video call with a friend via Skype, is unlikely to tax most modern computers. In a similar vein, network interconnection is redundant, given the lack of proximity between the network over which a service is accessed, and the service itself.

However, whilst this eliminates the problem of needing separate physical lines, for the most part, services remain discrete; a user on Facebook cannot chat with a user on MSN, for example. Thus, to make use of the capability of running multiple services in parallel, a user must maintain multiple accounts — a Facebook account, an MSN account, a Skype account and so on.

At the moment, it is free to register for an account for most of these services, and even free to use the services for basic communications.⁵³ Similarly, many of the services are platform-agnostic, and can be run on any computer. Whilst multiple registrations are still needed, this is not a particular problem, since requiring a recipient to be a user of a particular network imposes little in the way of financial hardship or practical

⁵³ Skype, for example, only charges for calls which terminate on the PSTN, or for “value added” functionality such as conference calling

difficulty even if a need to switch constantly between services is undesirable from a user experience point of view.

Exceptions exist, of course. At the moment, FaceTime, Apple's over the top communications service, is available for Apple products only, requiring particular hardware. Those who are unable or unwilling to buy Apple's hardware are unable to make or receive FaceTime calls — in this sense, FaceTime service is one of the more exclusive currently available. However, provided that other options exist — that Apple customers have the option to use services other than FaceTime — there is perhaps little in the way of consumer harm in the exclusivity of FaceTime. As long as the user could also install Skype, or chat with friends via MSN, competitive forces should determine whether Apple needs to open FaceTime to other platforms, since users are free to eschew Apple's services in favour of something which enables them to communicate with subscribers without Apple hardware. If Apple, or any other provider with a vertically-integrated service and product model, had significant market power, ensuring that this power did not distort the market for communications services would be of considerable importance.

However, if mandatory interconnection (as opposed to mandatory negotiation) were to be imposed, a key consideration would be the technical feasibility of such an obligation — to what extent would it actually be possible to interconnect two over the top communications services. Whilst this is not the place for a detailed examination of this technical feasibility, one might consider whether an approach centred on software interoperability might be a more appropriate starting point,⁵⁴ considering the publication of interface information, letting providers develop their solutions in a way which was interoperable with the over the top service, albeit coupled with obligations on dominant providers not to modify interfaces without adequate notice.

Overall, given the increase in number and variety of over the top communications services, and the relative ease with which subscribers can switch from one service to another, along with the ability to be a subscriber of numerous services simultaneously with little pain, there is no compelling reason currently to impose obligations to negotiate interconnection on over the top

⁵⁴ Article 6, directive 2009/24/EC

communications service providers. Leaving it to market forces, to determine whether there is a competitive advantage in offering interconnection, should suffice. If an over the top communications service were to achieve dominance, or the ease of switching from one service to another decreased, this must be revisited.

Numbering availability and portability

Availability

Availability and management of numbering is a central tenet of the communications framework, obliging Member States to ensure that adequate numbers and ranges are available to communications providers,⁵⁵ and that providers are given equal treatment in access to these numbers⁵⁶ — access to numbering resources is considered essential for competition.⁵⁷ On the basis that this is a necessary measure to enable unique identification for routing purposes, a regulated provider is unable to use a number from a national plan as an identifier unless allocated to it, or else authorised to adopt it.⁵⁸ The framework only requires numbers to be available to regulated communications providers.

For most over the top communications service providers, the national numbering plan is irrelevant; these providers are managing their own addressing needs quite successfully without regulation. The right to be assigned a unique number from the national numbering plan is only of relevance for providers looking to interconnect with the PSTN — in particular, looking to receive calls from the PSTN.

Over the top service providers looking to interconnect with the PSTN have argued that, in keeping with the principle of equal treatment, they should be entitled to be assigned geographic numbers⁵⁹ and that, by failing to do so, regulators are stifling innovation and competition.⁶⁰ The rationale for this is the perception of a “long established consumer trust in geographic numbers”⁶¹ — that consumers prefer calling geographic numbers over non-geographic numbers, through fear of incurring high

⁵⁵ Article 10(1), directive 2002/21/EC

⁵⁶ Article 10(2), directive 2002/21/EC

⁵⁷ Recital 20, directive 2002/21/EC

⁵⁸ Article 5(2), directive 2002/20/EC

⁵⁹ “Draft ERG Work Programme 2010: Comments from Skype” (2009), Skype

⁶⁰ “The Regulation of VoIP in Europe” (2008), WIK-Consult, at page 3

⁶¹ “ERG Common Position on VoIP” (2007), ERG (07) 56rev2

charges.⁶² As such, a company presenting a geographic number to customers is seen as more desirable than one which only has a non-geographic number. Since geographic numbers are not currently available to over the top communications service providers, companies using over the top communications services suffer a competitive disadvantage.

Where a particular number range carries a particular meaning, that range may be considered an essential facility,⁶³ and, provided that the over the top provider is subject to the same requirements as a traditional provider in respect of the areas in which consumers are looking for certainty — in particular, pricing — the principle of technical neutrality would require numbers made available to regulated providers to be available to any service provider. In practice, only providers seeking to interconnect with the PSTN are likely to request such numbers.

Whilst the existence of at least some level of joined-up numbering plan is key to the functioning of an interconnected or interconnectable communications system,⁶⁴ the continuation of other aspects of the current numbering regime is more questionable. In particular, limitations on the availability of geographic numbers to endpoints outside the geographic vicinity to which that number traditionally applies are unlikely to be necessary from either a competition or consumer protection standpoint. Although some providers may still have slightly increased costs for calling calls over long distances,⁶⁵ there is no compelling technical or economic justification for geographic telephone zones.⁶⁶ On mobile networks, numbers relate already to individuals, rather than regional location.

⁶² *“Comments by Cisco Systems, Inc. on ComReg Consultation Paper 04/72 Numbering for VoIP Services”* (2004), Cisco

⁶³ *“Yahoo! Europe response to the call for input on the forthcoming review of the EU regulatory framework for electronic communications and services”* (2006), Yahoo!

⁶⁴ For example, the management of IP addresses and domain names on the Internet

⁶⁵ For example, fixed line networks which have not switch to IP transit, which may need to amplify the signal

⁶⁶ *“Comments by Cisco Systems, Inc. on ComReg Consultation Paper 04/72 Numbering for VoIP Services”* (2004), Cisco

One of the benefits of over the top services is that using them is an inherently geographically non-specific activity⁶⁷ — it is arguable there is no relevance in the link between telephone number and geographic location now.⁶⁸ De-coupling location from number allocation would support the overarching goal of a single market for communications, without any obvious harm.

Portability

If over the top providers should, subject to constraints, be able to access numbers from a national numbering plan, how should the requirement of number portability be treated?

Portability is the mechanism by which a user can change their service provider whilst retaining their telephone number, and is considered “a key facilitator of consumer choice and effective competition.”⁶⁹ The long-standing argument for this is that an absence of portability is a major barrier to customers changing operator, and thus prevents effective competition.⁷⁰ Member States are thus obliged to ensure that portability is available to all subscribers.⁷¹

To the extent that the requirement of portability remains appropriate, there is no compelling reason why over the top providers capable of handling numbers from a national numbering plan should not be subject to the requirements of portability, both in terms of being able to bring in numbers allocated to other providers, and also obliged to port out numbers when a subscriber wishes to leave. These obligations and benefits would seem intrinsically linked with use of numbers from a national numbering plan.

⁶⁷ “ERG Common Position on VoIP” (2007), ERG (07) 56rev2

⁶⁸ “Voice over IP: law challenged by technology” (undated), Stevens, Valcke and Lievens

⁶⁹ Recital 40, directive 2002/22/EC

⁷⁰ See, for example, the explanatory statement from the director general of telecommunications in the United Kingdom made in 1995 on the inquiry by the monopolies and mergers commission into telephone number portability, a year after portability was introduced to the United Kingdom:

http://www.ofcom.org.uk/static/archive/oftel/publications/1995_98/numbering/mmc95.htm (accessed 12/08/2012)

⁷¹ Article 30, directive 2002/22/EC

More investigation is needed to understand whether portability remains a requirement for competition in traditional communications markets, and, secondly, whether it is required in respect of over the top communications services. On the one hand, it would seem that users are switching between services in respect of which there is no portability — taking on a new email address or changing from one social networking site to another, for example. On the other, it is unclear how many users retain previous identities, gradually increasing the number of email addresses which they use, rather than replacing an old address with a new one — empirical, consumer centred research is needed to determine whether a non-traditional address mechanism is as “sticky” as a traditional phone number is considered to be.

Directory of subscribers

Currently, subscribers to publicly available telephony services have a right to an entry in a “comprehensive” directory of subscribers’ contact details⁷² — this is considered an “essential access tool”⁷³ for the uptake of communications, and must be updated at least once a year.⁷⁴

Although considered “essential”, there is a countervailing recognition of the requirement of privacy; not every communications subscriber may wish to have their personal details published in such a widely distributed and public manner.⁷⁵ Providers are thus required to notify subscribers before including their details in a directory of the purpose of the directory, and to enable a subscriber to withdraw details.⁷⁶

There are two key factors to note here. Firstly, the obligation applies to the specific regulatory category of publicly available telephony services (PATS) and not the more general electronic communications services — it is not considered essential for all forms of communications. Secondly, even for those services considered essential, there appears to be an increasing recognition of the anachronism of requiring subscriber details to be present in a directory, with the European Commission noting that:

“[t]oday, fax numbers, mobile numbers and e-mail addresses are not generally included in public directories by default. Indeed, most people do not want their mobile phone numbers or e-mail addresses to be freely disclosed.”⁷⁷

In a report for the European Commission in 2002 — even before directive 2002/58/EC’s specific obligations on privacy and subscriber directories, consulting firm Analysys wrote:

“... most countries have an opt-out policy for fixed subscribers – meaning that subscribers will

⁷² Article 25(1), directive 2002/22/EC

⁷³ Recital 11, directive 2002/22/EC

⁷⁴ Article 5(1), directive 2002/22/EC

⁷⁵ Recital 38, directive 2002/58/EC

⁷⁶ Article 12, directive 2002/58/EC

⁷⁷ http://ec.europa.eu/information_society/policy/ecommm/current/consumer_rights/phone_numbers/index_en.htm (accessed 03/08/2012)

automatically be included in the universal directory services unless they indicate otherwise. Mobile subscribers on the other hand are more likely to have to opt-in – though very few do so.”⁷⁸

The report comments in particular on prepaid mobile subscribers, stating that:

“... in most cases no prepaid numbers can be obtained through directory services as the mobile operators often know very little about them – not even their names and addresses. This reduces the completeness of the directory database ...”

In the UK, it has been claimed that less than 0.1% of mobile numbers are included in the central directory,⁷⁹ whilst mobile phone directory service “118 800” was “deluged with people trying to remove their details from the system.”⁸⁰ The demands for inclusion of mobile subscribers in response to Ofcom’s consultation on directory services in 2008⁸¹ came not from frustrated mobile subscribers, unable to get in touch with their friends, but from commercial organisations seeking to run directory services.

Despite the European Commission’s statement, and the actions of consumers in the UK, not all markets appear to be against a directory of mobile subscribers — Analysys reported that, in 2002, 95% of Finland’s mobile subscribers were included in the national directory database. It has not, however, been possible to verify whether this figure remains the case today, ten years on; BEREC made no comment on the situation regarding mobile phone numbers, or VoIP identifiers, in its 2010 report on universal service.⁸²

Further, it is likely that a particular group of subscribers would wish to have their details spread as widely as possible — those

⁷⁸ *“Regulatory framework and market developments concerning directory services in EU and EEA Member States”* (2002), Analysys for the European Commission, at page 42

⁷⁹ Response of The Number UK Ltd to Ofcom’s consultation “Mostly Mobile” (2009)

⁸⁰ *“Mobile phone directory suspended”* (2009), reported in *The Guardian*: <http://www.guardian.co.uk/money/2009/jul/13/mobile-phone-directory-suspended>

⁸¹ See the responses to Ofcom’s *“Telephone Directory Information Obligations and Regulations”* (2008) at <http://stakeholders.ofcom.org.uk/consultations/dirinfo/>

⁸² *“BEREC Report on Universal Service – reflections for the future”* (2010) BEREC, BoR (10)

who wish to advertise their services. In the UK, the sale of classified advertising plays a key role in keeping BT's "Phone Book" profitable; in effect, the directory is a list of advertisers, with subscribers numbers included too.⁸³ Whilst Ofcom notes that it is the inclusion of the subscriber information which forms the attractive force encouraging businesses to advertise in the Phone Book, and that, without the inclusion of subscriber information, BT would not choose to publish and distribute the book, this is not a matter of consumer wellbeing justifying regulatory intervention, as the focus is the maintenance of an advertising business.

As the existing obligation relates only to PATS, it is unlikely that many over the top services would be affected currently in any case. For those over the top services which do provide PATS functionality, it is questionable whether the obligations in the regulation should be enforced if a directory is not provided. Given the Commission's apparent policy direction on the default exclusion of mobile numbers and email addresses in a subscriber directory, and the considerable uptake of over the top services notwithstanding the absence of a directory, it is no longer tenable to argue that a subscriber directory is essential for the uptake of communications services. Without this, there is no clear consumer benefit justification for imposing requirements to maintain directories on over the top communications services.

⁸³ *"Telephone Directory Information Obligations and Regulations"* (2008), Ofcom, at paragraph 3.31

Network integrity

The revisions to directive 2002/21/EC introduced a modernised obligation of network integrity, establishing that public communications network providers must take all appropriate steps to guarantee the integrity of their networks, and thus ensure the continuity of supply of services provided over those networks.⁸⁴ (Whilst the provisions are generally discussed within the context of security, at least one Member State has interpreted the real requirement is one of service availability, or certainty of supply.⁸⁵)

As the provision relates only to network providers, providers of over the top services have no specific regulatory obligation to ensure service integrity. However, this legislative stance is somewhat perplexing.

The European Commission explained the justification for the new requirement as a means “to reinforce the trust and confidence of business and individual users in electronic communications,”⁸⁶ and, as is clear from the legislation itself, the legislation exists to “ensure the continuity of supply of services.”

The Staff Working Document, which sets out further thinking behind the changes to the framework, comments that:

"the critical contribution that the ICT sector makes to the economy justifies further legal measures. The overall benefit for the sector generated by a higher level of trust, as well as the de facto dependence on ICTs within industry in general, should justify the individual costs for the companies concerned."⁸⁷

Clearly, solid and reliable underlying network connections are fundamental if over the top communications are to be trusted — imposing this obligation on network providers seems imminently in the interests of service users.

⁸⁴ Article 13a(2), directive 2002/21/EC

⁸⁵ *“Implementing the Revised EU Electronic Communications Framework”* (2010), Department for Business Innovation & Skills

⁸⁶ *“Communication from the Commission on the Review of the EU Regulatory Framework for Electronic Communications Networks and Services”* (2006), COM(2006) 334 final, at section 5.5

⁸⁷ *“Commission Staff Working Document on COM(2006) 334 final”* (2006), SEC(2006) 816

On the surface, it is unclear why the obligation does not extend to service providers as well, whether over the top or otherwise — if the harm justifying the existence of the requirement of integrity is that user trust would not be engendered if services were unreliable or inaccessible, services in themselves must be sufficiently robust. However, whilst this might seem sensible in principle, in practice, imposing an obligation of network integrity on services is likely to be challenging if it is to be proportionate.

Whilst the integrity of public networks is critical, reflecting their role in the carriage of communications, not all services are essential. Not being able to chat in an online game might be frustrating, but causes minimal harm in any material sense — if anything, it is a matter for consumer protection law, in determining whether the service is fit for purpose. Conversely, an inability for a business to reach its suppliers or customers, or customers to reach a business, has potentially significant economic harm, whilst an outage of a service relied on by a user to provide access to emergency services could have serious consequences.

The answer, in theory, is easy enough: impose obligations on essential over the top communications services, and leave non-essential services to treat availability as a matter of commercial differentiation. In practice, however, making this distinction is complicated: what is essential to one person may be entirely unnecessary to another. Similarly, one service may be used in different ways, essential to some and not essential to others; the service provider may not even appreciate that some of its users consider the service anything more than something fun.

Until the market in over the top communications services has matured, it may not be possible to understand what, on the whole, is considered to be essential, and thus in need of obligations of integrity — a principle based on a legislative definition is not workable for the time being.

However, recognising the underlying principle is one of ensuring trust, the establishment of a common standard for availability, relevant to the particular type of over the top service, coupled with an official kitemarking scheme, may provide sufficient incentive for providers to engage on a voluntary basis — an official seal that a service is reliable. A service displaying such a seal would be informing customers that the service is considered

reliable according to objective parameters, and thus worthy of trust. In essence, this means that integrity is a matter of commercial differentiation, rather than necessity but, until such time as it is possible to identify which over the top communications services should be subject to obligations to ensure integrity, this may pose a route for further exploration.

Emergency calling

In 1927, the UK public was advised for the first time to use telephones to contact the emergency services.⁸⁸ 85 years later, operators reported 37 million emergency calls in one year, although fifty percent of these were unintentional or prank calls.⁸⁹ Notwithstanding the high percentage of non-emergency calls, and taking into consideration that one urgent situation might be the subject of many calls, the public interest in ensuring easy and reliable access to emergency services is clear.

Currently, undertakings providing end users with an electronic communications service for originating national calls to a number in a national telephone numbering plan are required to provide access to emergency services.⁹⁰ These calls must be free of charge, and providers must support both the European “112” emergency number, and any national emergency number.⁹¹

Much of the debate around over the top communications services and emergency access has focussed on the extent to which various descriptions of services based on VoIP should be required to implement emergency access.⁹² Whilst VoIP-based services which provide equivalent functionality to a traditional service are (rightly) obliged to provide emergency services access, over the top communications services are not obliged to provide this facility.

Since the introduction of the “999” as the first emergency number in 1937, a practical approach has been the deciding factor in the development of emergency access. “999” was introduced as an alternative for the then-current practice of dialling “0” to reach the operator, to ask to be put through to the emergency services, to alert the exchange operator that the call was an urgent one. The decision in 1991 to introduce a Europe-wide emergency number reflected the increase in travel within the Community which, absent harmonisation, would require travellers to know the national emergency numbers of each visited Member State.

⁸⁸ <http://content.met.police.uk/News/MPS-mark-75th-anniversary-of-999-call/1400009627695/1257246745756> (accessed 03/08/2012)

⁸⁹ <http://www.bbc.co.uk/news/magazine-18520121> (accessed 03/08/2012)

⁹⁰ Article 26(2), directive 2002/22/EC

⁹¹ Article 26(1), directive 2002/22/EC

⁹² For example, Ofcom’s “*Regulation of VoIP Services: Access to Emergency Services*” (2007)

Similarly, the decision to introduce a common number, as opposed to any other form of communication, was because “the telephone is the best means of access to emergency services of all kinds.”⁹³

A practical approach remains the most suitable way of ensuring that this key public need is met.

From the point of view of consumer harm, provided that traditional services which do support emergency calling are available in parallel with these over the top communications services, there is no compelling case for over the top services to provide access to emergency services, although, where a consumer might expect an over the top service to provide such a facility, there should be a clear warning if this is not the case. Similarly, there must be notification where functions currently within the scope of emergency calling are not available — for example, where an over the top service provides only outbound connectivity with the PSTN, it will not be possible for the emergency services to ring the caller back in the event of a dropped call.⁹⁴

There remains a possibility that some users might choose to communicate only via over the top communications services, and not maintain a subscription to a service which permits emergency service calling. Provided that the user appreciates that this is the case, this should not, of itself, necessitate obligations on over the top service providers. In such a situation, the user is choosing to decline services with emergency calling facility, and is no different to a user today who declines to subscribe to a mobile phone or landline — whilst these services are available, there is no requirement that all individuals subscribe to them.

This position is only maintainable whilst over the top communications services exist in parallel with traditional services — it likely has a limited lifespan. Whilst this may be a shorter or longer period, finding a solution for emergency calling in an environment where the majority of communications are over the top remains a necessary policy objective.

⁹³ Council Decision 91/396/EEC

⁹⁴ “*ERG Common Position on VoIP*” (2007), ERG (07) 56rev2

The main challenges expressed as limitations of over the top services are the lack of control of the end to end experience, such that there can be no guarantee of reliability of emergency calls,⁹⁵ and that the over the top provider may not have accurate information as to the user's location, both in terms of directing the call to the most relevant public safety answering point (a "PSAP"), or else providing the information to guide emergency response vehicles.⁹⁶ It is unlikely that, in an over the top environment, access to emergency services could be guaranteed. However, whilst examples such as the inline powering of PSTN terminals are cited as demonstrating the resilience of traditional services in enabling emergency calling,⁹⁷ traditional services do not, in fact, guarantee emergency calling — as it stands, if a user's landline is severed in storm, or, perhaps more commonplace, a user's mobile phone battery has died, emergency access from those terminals is not possible. Minimising the risk of failure, to maximise the chances of a user being able to contact emergency services, is appropriate, but, whilst a guaranteed service would be ideal, it would go further than emergency calling today, and is unlikely to represent a viable policy objective.

As above, practicality remains the key to the solution. Whilst considerable work has already been done in the IETF⁹⁸ in the development of ECRIT,⁹⁹ to handle the challenges of determining location and routing to the most relevant PSAP, policy makers should consider whether an approach of using numbers in a national numbering plan as the address for emergency services remains suitable — whether calling "112" is the best answer.

For example, rather than mandating that over the top service providers support calls to "112", perhaps a centralised emergency services over the top service might be a suitable approach — available either over the web (for example, a "click to call" button on a specific website, or else proposing changes to DNS standards to support someone entering "112" into a browser to be directed

⁹⁵ "ERG Common Position on VoIP" (2007), ERG (07) 56rev2

⁹⁶ See, for example, Skype's response to Ofcom's consultation on "Regulation of VoIP services: Access to the Emergency Services" dated 20th September 2007, at page 2

⁹⁷ "The Treatment of VoIP under the EU Regulatory Framework" (2004), European Commission

⁹⁸ Internet Engineering Task Force

⁹⁹ <http://datatracker.ietf.org/wg/ecrit/charter/> (accessed 03/08/2012)

to the relevant site) or as a dedicated application capable of being installed on common platforms, offering users the ability to communicate with the most relevant PSAP, potentially harnessing device location capability, such as GPS,¹⁰⁰ or Wi-Fi hotspot or cell site location, to assist with routing. An application-based approach would also allow a user to select easily between an emergency situation, and a non-emergency situation which still requires reporting — in effect, replicating a “non-emergency service” number, such as “101” in the UK, alleviating demands on emergency organisations.¹⁰¹

Similarly, whilst the telephone might have been the most practical solution in 1991, the notion that it remains the best solution today should be challenged, to ensure that, if it is a requirement, it is a requirement for an appropriate, rather than merely legacy, reason. In particular, note should be taken of services which permit emergency access otherwise than by voice — not all European citizens are able to use voice services, and a multi-modal solution may provide better access to a wider range of citizens. For example, emergencySMS in the UK permits access to the emergency services by text from registered devices¹⁰² and reach112 has explored options including proprietary chat systems, fax, SMS and other non-voice forms of communication.¹⁰³

As such, imposing obligations on service providers to support emergency calling may not be the most appropriate way of securing the public benefit of emergency services access — limiting discussion to ways of ensuring that “112” can be routed is more likely to hinder solutions than help develop them.

Where there is a risk of consumer confusion, over the top communications services must provide in their marketing information — not just in their terms and conditions — that they do not support emergency calling.¹⁰⁴ For the purposes of

¹⁰⁰ Global Positioning System

¹⁰¹ “National Single Non-Emergency Number” (2006), Ofcom, at paragraph 3.2

¹⁰² <http://www.emergencysms.org.uk/> (accessed 03/08/2012)

¹⁰³ http://www.reach112.eu/resource/static/files/2010_03_23_112accessibility_nobrand.pdf (accessed 03/08/2012)

¹⁰⁴ “Outline of the regulation of VoIP in Norway” (2006), Norwegian Post and Telecommunications Authority

consumer protection, even a low likelihood of confusion as to whether emergency calling is possible must be treated as material, to avoid consumer harm. However, in many situations, even this low standard is unlikely to be met — for example, in in-game voice functionality, or on a platform such as ChatRoulette.com.

Data retention

Currently, Member States are able to impose obligations on a provider of public electronic communications services to retain communications data which it generates in the course of its business.¹⁰⁵ The effect of this is that, in respect of each communication made by a subscriber — including unsuccessful communications, but not unconnected communications¹⁰⁶ — all relevant communications data¹⁰⁷ which are generated in respect of that communication are retained for a period of up to 24 months.¹⁰⁸

The rationale for the existence of the requirement is expressed in powerful terms — data retention “has proved to be ... a necessary and effective investigative tool for law enforcement in several Member States, and in particular concerning serious matters such as organised crime and terrorism,”¹⁰⁹ with an emphasis on “the importance of traffic and location data for the investigation, detection, and prosecution of criminal offences, as demonstrated by research and the practical experience of several Member States.”¹¹⁰

If the retention of data relating to public electronic communications services is of such a benefit to law enforcement, it would seem likely that a failure to include over the top communications services within this requirement would be detrimental — not mandating data retention for certain services would likely lead to those wishing to use communications services for nefarious purposes to move to those services where this is no retention obligation. Indeed, the government of the United Kingdom has already introduced draft legislation, which aims to ensure that law enforcement can continue to access communications data relating to over the top communications services.¹¹¹

¹⁰⁵ Article 3, directive 2006/24/EC

¹⁰⁶ Article 3(2), directive 2006/24/EC

¹⁰⁷ Article 5, directive 2006/24/EC

¹⁰⁸ Article 6, directive 2006/24/EC

¹⁰⁹ Recital 9, directive 2006/24/EC

¹¹⁰ Recital 11, directive 2006/24/EC

¹¹¹ “Foreword of the Home Secretary” to the draft Communications Data Bill (June 2012)

Data retention has not been without its problems, and any proposal to extend the reach of the directive is “bound to engage concerns.”¹¹² In particular, Romanian¹¹³ and German¹¹⁴ constitutional courts have found the national legislation implementing the requirements of directive 2006/24/EC unconstitutional, although the European Commission has argued that the ruling applies only to the particular implementing legislation, and not the principles of the directive itself, requiring each country to introduce legislation which achieves the directive’s aim in a constitutionally-acceptable manner.¹¹⁵

Additionally, it is recognised that the requirement of data retention is a derogation from the principle of communications secrecy — whilst data protection and communications privacy law continues to apply to retained data, there is an inherent conflict between privacy and data retention, solved only by recognising privacy as a qualified right.¹¹⁶ Given the number of over the top communications which takes place, any requirement to retain data would amount to a substantial obligation on a service provider, requiring the storage of significant volumes of data. Whilst obligations under directive 95/46/EC on maintenance of appropriate security measures apply to retained data as to any other personal data,¹¹⁷ the creation of even greater databases of personal information inherently increases the risk to privacy.

As such, whilst there appears to be an obvious case for the extension of the requirement of data retention to over the top providers, there must be a solid evidential basis that extending

¹¹² “Information Commissioner’s statement on the Communications Data Bill” (2009), Information Commissioner’s Office

¹¹³ Decision number 1258 of the Romanian Constitutional Court, 8th October 2009, published in the Romanian Official Monitor number 789 of 23 November 2009. There is an unofficial translation at http://legi-internet.ro/fileadmin/editor_folder/pdf/decision-constitutional-court-romania-data-retention.pdf (accessed 03/08/2012)

¹¹⁴ BVerfG, 1 BvR 256/08 vom 2.3.2010, Absatz-Nr. (1 - 345)

¹¹⁵ See, for example, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1248> (accessed 03/08/2012)

¹¹⁶ Recital 4, directive 2006/24/EC

¹¹⁷ Article 17(1), directive 95/46/EC

the obligation is necessary, appropriate and proportionate, given the risks involved.¹¹⁸

¹¹⁸ Similar challenges, and a similar need for evidence, exist in the case of extension of lawful interception obligations. Because lawful interception is currently handled by national, rather than Community, legislation, it is not considered further in this paper

End user contracts

Consumers (and other end users) who are subscribers to a public electronic communications service or network have a right to a contract with their provider.¹¹⁹ The contract must include, at a minimum, both legal information, such as contract duration and conditions for termination, and core service information, such as whether emergency services are accessible.¹²⁰ Although it is acknowledged that most service providers will conclude contracts for commercial reasons, the rationale for the requirement is that contracts are considered an important tool to ensure transparency and legal security.¹²¹

The fundamental purpose of the requirement — to make sure that consumers are aware of key limitations and features of the service to which they are subscribing — remains desirable irrespective of the modality of the service in question. It remains desirable, perhaps even more so, where the user does not enter into a financial commitment for the service provision but instead agrees to let the service provider analyse, and potentially sell, the subscriber's data. Ensuring that the consumer understands the bargain he is making is key.

It is unlikely that placing key information in contractual documentation is a good way of bringing information to a user's attention, though — no customer noticed a clause in terms relating to an online game purchase stating that the retailer claimed ownership of each purchaser's soul unless he opted out,¹²² and one software company

"included a clause in one of its own EULAs that promised anyone who read it, a "consideration" including money if they sent a note to an email address listed in the EULA. After four months and more than 3,000 downloads, one person finally wrote in."¹²³

¹¹⁹ Article 20(1), directive 2002/22/EC

¹²⁰ Article 20(1)(a) to (h), directive 2002/22/EC

¹²¹ Recital 30, directive 2002/22/EC

¹²² The original wording is no longer available in the website's terms, but a report of the issue is available at <http://www.gamerlaw.co.uk/2010/04/gamestation-shows-no-one-reads-games-t.html> (accessed 03/08/2012)

¹²³ <http://www.pcpitstop.com/spycheck/eula.asp>

Similarly, even if a consumer was inclined to read the relevant agreement, he is unlikely to be incentivised to do so. In researching this paper, I set out to read the terms of service relating to various popular services. After considerable searching, I found a set of terms relating to use of iMessage and FaceTime on my Apple computer,¹²⁴ contained in a 313 page document — although, only just over 7,000 words in that document were in English. Skype’s terms of use¹²⁵ run to just under 11,000 words, BT’s “Residential Standard Terms”¹²⁶ just under 4,000 words and Twitter’s terms of service¹²⁷ just under 3,500.

Even if contracts were a good mechanism for bringing information to a consumer’s attention, transparency and security are fundamental requirements of many consumer relationships, and it is unclear why contracts for communications services require such specific vertical treatment. Indeed, even where transparency is a particular requirement — for example, under data protection legislation¹²⁸ — the method by which the service provider must make the requisite information available is not codified, leaving it to the provider’s discretion. Since directive 93/13/EC requires contracts to be in plain, intelligible language¹²⁹ and recognises that contractual terms which cause a significant imbalance in rights in a manner detrimental to the consumer are unfair,¹³⁰ it is unlikely that specific vertical regulation is required, whether relating to traditional services or over the top communications services.

¹²⁴ “Software license agreement for OS X Mountain Lion,” <http://images.apple.com/legal/sla/docs/OSX108.pdf> (accessed 12/08/2012)

¹²⁵ <http://www.skype.com/intl/en-gb/legal/terms/tou/>

¹²⁶ http://www.productsandservices.bt.com/consumerProducts/dynamicmodules/pagecontentfooter/pageContentFooterPopup.jsp?pagecontentfooter_popupid=13408

¹²⁷ <https://twitter.com/tos/> (accessed 12/08/2012)

¹²⁸ Article 6, directive 95/46/EC

¹²⁹ Article 5, directive 93/13/EC

¹³⁰ Article 3, directive 93/13/EC

Privacy obligations

In addition to general, horizontal, legislation on data protection — directive 95/46/EC — communications providers are subject to additional privacy regulation, in the form of directive 2002/58/EC, on privacy in the electronic communications sector.

The key principle of the directive¹³¹ is the recognition of the fundamental rights of private and family life, and the right to protection of personal data.¹³² This principle is embodied in obligations to ensure the confidentiality of communications,¹³³ and the security of processing¹³⁴ of information in the provision of communications services, as well as specific obligations such as the handling of location data other than traffic data.¹³⁵ A more recent amendment¹³⁶ to the directive imposed a compulsory breach reporting obligation on communications providers, both in terms of reporting to the relevant national regulator, and also, under certain conditions, letting subscribers know of breaches affecting them.¹³⁷

The legislation reflects the imbalance of power held by communications providers, as opposed to that of their users. Where a provider is responsible for the routing / switching of communications, the provider may be able to see the content of the communication — to see what any user is saying at any point. Outside content, a provider may be capable of building up considerable logs of meta data, indicating who called whom and when, or which websites a user visited. In recognising the potentially significant privacy harms if these sorts of activities were unchecked, the directive stresses the need for communications secrecy — in effect, protecting the user from adverse behaviours on the part of the communications provider — and on security — protecting the user from external threats.

¹³¹ Recital 2, directive 2002/58/EC

¹³² Articles 7 and 8 of the Charter of Fundamental Rights of the European Union (2000/C 364/01) respectively

¹³³ Article 5, directive 2002/58/EC

¹³⁴ Article 4, directive 2002/58/EC

¹³⁵ Article 9, directive 2002/58/EC

¹³⁶ Article 2, directive 2009/136/EC

¹³⁷ Article 4(3), directive 2002/58/EC

It is clear that people are using over the top services to communicate — they are exchanging information with one another via these services. As with their traditional counterparts, those in control of over the top communications services are likely to have considerable insight in the use of the service, and the ability to see content of communications. Similarly, the volumes of data stored by some over the top providers are likely to pose attractive targets for hackers. As such, there is no good reason why obligations as to privacy and security should not apply as they do to traditional services; the potential for harm is the same. Indeed, given that over the top communications services are not tied to any one underlying connectivity provider, there is the potential for harm to a greater number of people.

However, since many of the obligations relating to communications privacy are simply examples of general privacy risks, caught under horizontal data protection law — obligations around processing of traffic or location data, inclusion of subscriber details in directories, and ensuring appropriate security for processing, for example — particular regulation of communications services is unnecessary.

Taking location data as an example, communications providers may only use location data for secondary purposes where they have customer consent, or else where the data are anonymised, whereas non-anonymised location data may be processed by any other party on the basis of any of the conditions in Article 7 of directive 95/46/EC. In the days before it was common to include GPS chipsets in mobile devices, location was something unique to network operators, which knew where each end user was on their network. Now, the prevalence of GPS means that information about a user's location is available to anyone capable of running software on the device, or querying the device.

Arguably a poster child for technology agnostic legislation, there is no good reason not to treat all possible processors of location data — in any case, just another type of personal data — in the same manner; sector-specific restatement of horizontal requirements seems unnecessary, and disproportionate where it imposes stricter controls. If the proposed data protection regulation¹³⁸ were to replace both the existing directive and directive 2002/58/EC, this problem would be resolved by

¹³⁸ COM(2012) 11 final

establishing one body of regulation on privacy, applicable to all processors of personal data.

The basic principle is that the same rules should apply to both traditional and over the top communications services; privacy should be consistent and service agnostic. Whether these rules are horizontal or else a better-defined sector-specific of requirements, delineating one type of communications service from another is unsuitable in terms of privacy protection.

Conclusions on key areas of regulation

On the basis of this analysis, it is not currently proportionate to impose existing regulatory obligations on over the top communications services, other than in terms of data retention and privacy.

As a general principle, imposing equivalent obligations is appropriate in terms of data retention — this must be assessed for proportionality and necessity on a per-service basis. It is also appropriate to ensure that over the top communications services protect the privacy of service users, although horizontal privacy regulation would be a better overall approach.

Over the top providers should be entitled to use numbers from a national numbering plan, and, where a provider does so, it must support both in- and out-bound porting. Geographic limitations on the use of numbers should be abolished.

Alternative strategies are the proposed way forward for emergency calling and service integrity. In the case of emergency calling, to overcome the risk which would arise in the absence of mandated emergency calling support, approaches in the form of dedicated emergency over the top services should be further investigated, and a kitemarking based approach is recommended in terms of service integrity, recognising that an over the top service cannot, by definition, be responsible for the connectivity over which it is carried.

As the market in over the top communications services continues to develop, and, in particular, decline in use of traditional services continues, this analysis will need to be reviewed — obligations which are not proportionate today may well become proportionate.

However, in respect of those areas in which it is, or may become, proportionate to impose obligations, there is a fundamental challenge: the providers of these services are often based outside Europe.

Jurisdictional challenges to the regulation of over the top communications services

One of the inherent benefits of an over the top communications service is that it can be accessed and used over an IP connection. The barriers to launch are low, with no need to invest in infrastructure in each country the service is to be made available. The provider can develop and deploy the solution in one country, and benefit from almost immediate global reach. From a business point of view, this is highly advantageous. From a regulatory point of view, however, this poses a considerable challenge — how can European regulatory principles be enforced on providers based in another country?¹³⁹

This is not a new challenge, and there is much written as to whether the Internet demands specific “cyberlaw” or whether real-world geography remains determinative.¹⁴⁰ Whilst one global cyberlaw may be an attractive concept, it is not the reality of today — European communications regulation forms part of each Member State’s national law.

In the United Kingdom, it would be open to Ofcom to argue that, since it has power to impose conditions on “every person” providing a relevant service,¹⁴¹ that person’s domicile is irrelevant and that, as such, Ofcom can take action against a provider anywhere in the world for failing to comply with conditions of authorisation. In theory, at least, the service need not even be “directed”¹⁴² to the United Kingdom, since the legislation is drafted so broadly.

Whilst Ofcom may have a legal argument supporting its position, it is unlikely that even a threat of a criminal offence¹⁴³ or being fined up to 10% of turnover¹⁴⁴ would convince an overseas

¹³⁹ Indeed, a fully decentralised communications system, which operated without reliance on a central server, would pose as an ever greater challenge, as there is no obvious actor on which regulation could be enforced

¹⁴⁰ For example, *Law and Borders—The Rise of Law in Cyberspace* (1996), Johnson and Post, 48 Stanford Law Review

¹⁴¹ s45, Communications Act 2003

¹⁴² Per Article 15, regulation 44/2001

¹⁴³ s103, Communications Act 2003

¹⁴⁴ s97, Communications Act 2003

provider to comply with UK regulation without some evidence that Ofcom could successfully enforce any decision before the provider's domestic courts. Where an overseas provider had a commercial need to maintain a good relationship with the Member State — wishing to take out advertising or connect to the PSTN, for example — compliance might be more forthcoming.

Given that the outcome of this paper is that one of the main obligations which should attract to over the top communications service providers is that of appropriate respect for privacy, a second approach would be to award services which comply with the regulation a trust mark or accreditation, which the service could use to indicate to European customers that they are being afforded an appropriate level of protection. Similar to the way in which data protection is handled within Europe, providers outside Europe could be awarded the right to display the trust mark where their local regimes offered an equivalent standard of protection. If European users were to look for a trust mark as a pre-requisite for using a service, compliance with European regulation would become akin to a marketing cost.

The fundamental challenge with this approach is that it requires users to care whether a service is awarded a trust mark or not — this is unlikely.¹⁴⁵ If a service is sufficiently desirable to a user, they are likely to use that service irrespective of whether it possesses a trust mark. Certainly, if the trust mark certified compliance with obligations of data retention, it would likely have the opposite of the intended effect, driving users towards services which did not make communications data available to law enforcement.

It may be tempting to look for other sticks to wield, in an attempt to force compliance. One approach, currently favoured by the copyright industries,¹⁴⁶ would be to mandate Internet access providers to (attempt to) stop customers from accessing services which refused to comply with the conditions of authorisation.

However, any attempt to block all non-compliant over the top communications services would be highly likely to fail, both on the grounds of technology — constantly needing to provide access providers updated information to add to their filters, or

¹⁴⁵ "Trustmark Schemes Struggle to Protect Privacy" (2008), Connolly for Galexia

¹⁴⁶ For example, *Twentieth Century Fox v. BT Plc* [2011] EWHC 2714 (Ch)

descriptions of traffic patterns where address-based blocking alone would not work — and on grounds of law — such an approach would be of questionable proportionality given the obvious impact on freedom to communicate¹⁴⁷ and impart information and ideas.¹⁴⁸ Blocking may be proportionate and practical for particularly egregious breaches which give rise to actual consumer harm, but as a mainstream solution, it is distinctly unattractive.

It is unlikely that there will be a successful mechanism of forcing compliance on overseas providers. Whilst a trust mark scheme might encourage compliance, it is predicated on users valuing their privacy more than they value using the service in question, and existing work towards trust marks for privacy has had minimal impact. Blocking may provide a realistic solution for particularly problematic services, but, even then, would likely cause considerable outcry. It is not a practical solution on a wider basis, for both technical and legal reasons.

Where every provider in a market could be the subject of enforcement action, there is no competitive disadvantage to regulation, since it affects everyone equally — this is the traditional approach of communications regulation, where providers had strong national ties. Further investigation is needed to determine the extent to which even the limited obligations of data retention and privacy proposed here would place service providers based in Europe at a competitive disadvantage when compared with non-European over the top providers. If the disadvantage was significant, such that it hampered innovation, a decision would need to be taken whether there was any benefit in imposing such obligations, although this, in turn, may have knock-on implications on competitive advantage as against domestic providers of traditional communications services.

The challenge of enforcing national laws online is certainly not specific to communications regulation. Whilst the passage of time may bring with it an increasing need to regulate, as countries become increasingly used to dealing with issues of sovereignty and jurisdiction in cyberspace, so may time also bring more suitable solutions.

¹⁴⁷ Article 7, Charter of Fundamental Rights of the European Union (2000/C 364/01)

¹⁴⁸ Article 11, Charter of Fundamental Rights of the European Union (2000/C 364/01)

Under the over the top services — the impact of over the top communications services on communications networks

This paper has focussed on over the top communications services, and, through an analysis of the core components of the regulatory framework, the extent to which it is proportionate to regulate such services. Over the top communications services cannot exist in a vacuum — they are dependent on underlying connectivity. Without someone carrying their traffic, there is no over the top service. This last section examines the impact of over the top communications services on providers of communications networks: does the need for underlying connectivity demand a particular regulatory direction?

The critical issue is that there is a far greater barrier to entry for the provision of connectivity than there is for the provision of an over the top communications service.

For mobile networks, there is a need to obtain a licence to use the necessary spectrum, to purchase and deploy infrastructure nationwide, and to pay on an ongoing basis to operate and maintain that infrastructure. For those deploying alternative wireless systems, such as Wi-Fi, there is the same need to purchase and deploy infrastructure, even if the 802.11 band is not subject to the same licensing obligations. The provider also needs suitable infrastructure for backhaul, carrying data from the access points to the provider's core network, or else to pay for a third party — which itself has had to install infrastructure — to provide this.

In contrast, over the top providers need to develop or licence the software forming their platform or client, potentially invest in server hardware to host a platform — although this is more easily scalable than the rollout of a mobile network, which needs strong coverage to attract any users at all — and to pay a service provider for access to the Internet.

Notwithstanding that over the top providers pay their connecting Internet access provider for the bandwidth they consume, the comments of CEOs of network operators suggest that the transition from traditional services to over the top communications services heralds the end of communications networks. France Telecom's CEO has commented that over the

top services are “flooding networks,” whilst over the top services are, according to Telefonica’s CEO, “a tragedy” for mobile operators. The CEO of Telecom Italia has announced that over the top communications services are “set to compromise the economic sustainability of the current business model for telecom companies.”¹⁴⁹

The end of networks?

It is true that network operators are under increasing demands to satisfy customers with improved data connectivity. For example, in the UK, Vodafone has announced that it is “investing around £6 billion a year to deliver a high quality mobile data experience,”¹⁵⁰ spending around £1.5 million per day.¹⁵¹ It is unlikely that much of this expenditure is due to over the top communications services, though — it is more likely that this stems from content services, such as online video delivery.

Similarly, there does appear to be evidence that traditional service revenues are indeed under threat. In its 2012 Communications Market Report, Ofcom noted a decline in voice revenues, by around 5% for fixed, but less than 1% for mobile,¹⁵² and Vodafone reported a 4% fall in voice revenue in its 2012 annual report. Vodafone’s annual report also cites an analyst claiming that, between 2011 and 2016, there will be a worldwide \$27 billion decline in voice revenue,¹⁵³ whilst a second analyst has “conservatively estimated a \$54bn decrease in SMS revenues by 2016, due solely to the entrance of social messaging players.”¹⁵⁴

It is also likely that networks will be under pressure from customers to reduce bills, based on a perception of decreased service. Where a customer has been promised a new phone, [x] minutes, [y] messages and [z] data for a set monthly price, and no longer needs the voice or messaging element, it would be

¹⁴⁹ <http://www.bloomberg.com/news/2010-12-07/apple-google-asked-to-pay-up-as-european-operators-inundated-by-data.html> (accessed 26/08/2012)

¹⁵⁰ Vodafone Group Plc’s annual report for 2012, at page 22

¹⁵¹ <http://www.techradar.com/news/phone-and-communications/mobile-phones/the-olympic-task-of-keeping-your-signal-up-and-running-during-the-games-1091349>

¹⁵² “*Communications Market Report 2012*” (2012), Ofcom, at page 14

¹⁵³ Vodafone Group Plc’s annual report for 2012, at page 22

¹⁵⁴ “*Counteracting the Social Messaging Threat*” (2012), Ovum

unsurprising if the customer were to demand a lower price. This is predominantly down to the way in which operators have traditionally sold their services, with a focus on the latest mobile device, and the voice/messages which come with it, rather than placing emphasis on the costs of running the network which underpins these services. It will be a challenge for operators to persuade customers of the value of the networks to which they are connecting once the perception of value in the services provided by the network has decreased.

Lastly, revenues are likely to drop further and/or faster if reliance on E.164 numbers — the “phone number” — decreases. Whilst some over the top communications providers, such as Skype, have asserted the value of access to E.164 numbers, it is perhaps questionable how many people know their friends’ mobile phone numbers, rather than just storing them in a digital address book, tapping on their friend’s name or photograph to initiate a call. In this way, phone numbers may be becoming like IP addresses — essential for the routing of a communication, but unknown to the user, who only knows them by their alias.

Overall, the picture seems rather bleak. But is this the beginning of the end of the mobile operator? Probably not.

The analyst which predicted the \$27 billion decline in voice revenues also predicted that data revenue will grow by \$142 billion between 2011 and 2016 — a growth five times greater than the loss.¹⁵⁵ Ofcom reported that, in their reporting year for 2011/2012, mobile messaging and handset data retail revenues increased by 5.5% to £4.6 billion, and fixed data revenues by 6.8% in 2011 to £3.4 billion.¹⁵⁶ Vodafone reported a 22.2% rise in data revenue over financial year 2011/2012, and Telefonica reported that “[m]obile data revenues continued to show strong dynamism, rising by 15.7% year-on-year to account for 34% of consolidated mobile service revenues.”¹⁵⁷

A network operator’s business model may be shifting from voice and messaging services to the provision of Internet access, over

¹⁵⁵ Strategy Insights, in Vodafone Group Plc’s annual report for 2012, at page 22

¹⁵⁶ “*Communications Market Report 2012*” (2012) Ofcom, at page 14

¹⁵⁷ From Telefonica’s “Results” page: http://www.telefonica.com/en/about_telefonica/html/magnitudes/resultados.shtml (accessed 26/08/2012)

the top of which other providers' services are carried, but the picture is perhaps not as bleak as operators' CEOs have stated.

However, even if it were that bad, regulation should not be the first step to a solution, with an emphasis instead on market-based solutions.

Market-based solutions

There are a number of commercial solutions which operators should explore before interventionist regulation is imposed. This section does not pretend to cover all options, but rather presents a flavour of what could be explored.

Firstly, there are approaches to reduce cost or congestion.

Operators have already recognised the duplication inherent in running multiple radio access networks, with schemes starting to share infrastructure between operators. For example, in the UK, Vodafone and O2 have agreed to "pooling the basic parts of their network infrastructure to create one national grid running each operator's independent spectrum,"¹⁵⁸ whilst Orange and T-Mobile merged to form Everything Everywhere, "opening up its two mobile networks to customers of both brands."¹⁵⁹ By merging, or at least sharing, networks, operators can reduce the number of duplicated base stations, and grow networks jointly — albeit subject to competition law constraints — reducing both operational and capital expenditure. A further, but drastic, step in this direction would be to establish a common radio access network, to which any operator was able to connect its own core network.

As well as minimising unnecessary costs of operating cellular networks, providers may look to alternative sources of connectivity. For example, to ease congestion on cellular networks, operators might deploy, or partner with existing providers of, Wi-Fi networks to offload traffic. Although not

¹⁵⁸ Press release "Telefonica UK and Vodafone UK to strengthen their network collaboration" (7th June 2012), <http://www.vodafone.co.uk/consumer/groups/public/documents/webcontent/vftst162773.pdf> (accessed 26/08/2012)

¹⁵⁹ Press release "UK's biggest mobile coverage boost enables 30 million people to use phones in more places than ever before" (6th September 2010), <http://t-mobilenewscentre.co.uk/uk%E2%80%99s-biggest-mobile-coverage-boost-enables-30-million-people-to-use-phones-in-more-places-than-ever-before/> (accessed 26/08/2012)

desirable for people on the move, since Wi-Fi currently lacks the ability to hand-off between access points, resulting in a dropped connection as a device moves from one access point to another, Wi-Fi may provide an attractive solution for locations with high volumes of users but low movement — for example, providing coverage in a football stadium or at a concert. Estonia has pushed Wi-Fi connectivity further than most other countries, with Wi-Fi access “almost everywhere and almost always free,”¹⁶⁰ with the almost 1200¹⁶¹ enterprises hosting the access points — cafes, petrol stations and so on — paying the service provider for the backhaul connection.

Secondly, operators may seek alternative revenue streams from their existing assets. For example, by using the network as a mechanism for generating data, operators may, subject to privacy laws, provide services based on the analysis of these data. Whilst the obvious example is the provision of targeted messaging, particularly advertising, services which do not involve direct contact with customers may also prove popular — for example, analysing customer movement patterns as a source of footfall data for shopping centres and high streets, helping retailers identify the most desirable premises in a given town.

If over the top communications services replace traditional services, this approach is unlikely to result in long term success — if an operator is not responsible for a user’s communications, it generates far less data than where the operator’s own service is used. Where the operator provides the Internet access service, it might be able to tell which over the top communications service a subscriber was using, and the subscriber’s location, but is unlikely to see much information about the subscriber’s user of the over the top communications service, such as the identity of the other party to the conversation, particularly if over the top providers adopt encryption. As such, there is still an incentive for an operator to develop its own services, with the driver being the generation of a richer source of data for analytics activities — if coupled with mobile payment systems, for example, operators would have a rich view of their users’ shopping activities.

¹⁶⁰ <http://www.visitestonia.com/en/about-estonia/maps-of-estonia/wireless-internet-map> (accessed 26/08/2012)

¹⁶¹ <http://www.wifi.ee/?p=area&lang=neg> (accessed 26/08/2012)

Thirdly, there are approaches to retain relevance by partnering with providers of vertically-integrated environments — providers which have control over the end-to-end user experience, including handset, operating system and over the top services.

One potential model would be to switch from being a consumer-facing brand to a wholesale supplier of connectivity. In this model, an operator would supply services on a wholesale basis to, say, Apple, which would embed a SIM in its device, and retail the device to the consumer — the customer's sole point of contact would be Apple. This would entail a fundamental shift in the network provider's business, moving from a brand name to a utility. In such a situation, the consumer may have no idea, nor any need to know, the identity of the underlying provider; like Amazon's Kindle's "Whispernet",¹⁶² the user's purchase price for the device includes connectivity. In a similar vein, operators are likely to increase their business in other areas, as connectivity suppliers for smart meters and automotive applications such as eCall.¹⁶³

Fourthly, operators may seek to require additional payments, either from users or from over the top service providers, in exchange for enabling a user to access or use that third party service or site.

It is this approach which has garnered the most publicity, particularly in America, under the title of "net neutrality." Rather than carrying all traffic, it would see network operators preventing their users from accessing or making use of certain over the top communications services, unless paid specifically to do so. This could take the form of requiring a user to be on a particular tariff to use VoIP services, for example, or else requiring a payment from the over the top communications service provider.

The vociferous debates over net neutrality reflect the difference between the way in which the traditional telephony environment has operated and the approach of online services. In the telephony world, interconnection is predominantly a commercial

¹⁶² <http://www.amazon.co.uk/Kindle-Wireless-Reader-3G-Wifi-Graphite/dp/B002LVUWFE#kindle-features-wireless> (accessed 26/08/2012)

¹⁶³ http://ec.europa.eu/information_society/activities/esafety/ecall/index_en.htm (accessed 26/08/2012)

matter, hence accusations that over the top providers are “using ... networks for free.”¹⁶⁴ Conversely, in the online environment, provided that both the sending party and the intended recipient have paid their service provider for access to the Internet, there is no additional cost for connecting those two parties.

It is understandable why network operators would consider such an approach; it is equally as understandable why over the top providers are likely to object.¹⁶⁵ Any attempt to move from general Internet access to access only to specific services and websites would likely be met with the attention of regulators and competition authorities. Perhaps more importantly for network operators, there would likely be a considerable customer backlash, as users find they are no longer able to access their favourite services and sites; a network operator which implements such a scheme ahead of the operators in a market would likely see significant customer churn, whilst collaborative behaviour on the part of all operators in a market would likely amount to prohibited collusion.

Lastly, operators may challenge government-imposed costs of operation, in the form of payments, both upfront and ongoing, for the right to use restricted spectrum.

The rationale for spectrum licensing is management of a scarce resource — that, to avoid a “tragedy of the commons” situation in which everyone broadcasts using the same frequencies with the resulting mess of interference, the government should manage the asset of spectrum. It seems that such an approach may be anachronistic, and that the rationale for management was really limited computational power. Yochai Benkler argues:

“The limitation, or the real economic scarcity, is computation and the (battery) power to run calculations [to figure out who is saying what to whom]. ... Exclusive licensing was a way to use regulation to limit the number of transmitters in a band, so as to make it possible for very stupid devices to understand who was saying what. The

¹⁶⁴ Telefonica’s CEO, quoted at <http://www.bloomberg.com/news/2010-12-07/apple-google-asked-to-pay-up-as-european-operators-inundated-by-data.html> (accessed 26/08/2012)

¹⁶⁵ See, for example, “*Skype comments on the EC’s consultation on the open Internet and net neutrality in Europe*” (2010), Skype

economic models on which auctions are based were developed in the 1950s and 1960s, when computation was still prohibitively expensive. Practically, thinking about “spectrum” as a scarce commodity still made sense in that era.

As computation becomes dirt cheap, the assumption that spectrum is a stable, scarce resource is no longer the most useful way of looking at optimizing wireless communications systems.”¹⁶⁶

As a matter of technology, there may be no valid reason to continue spectrum licensing, and thus the potential to reduce network operators’ costs significantly.

There are two potentially substantial stumbling blocks to this approach. Firstly, because the government receives considerable revenue from monetising something inherently ethereal, there is little state incentive to revisit the issue of spectrum allocation, unless there is an alternative which would lead to greater income for the government. Secondly, possession of the right to use spectrum is a powerful tool for the exclusion of competition, and perhaps one which network operators would be unwilling to give up — if, by reducing their costs, they were subject to greater competition, the net benefit might be low.

On the positive side, additional competition in the provision of connectivity may lead to greater innovation and consumer choice — compelling outcomes for the market.

Does there need to be regulatory involvement?

Although network operators have made strong statements about the impact of over the top communications services on their business models, there is no clear empirical evidence that, at the moment, operators are suffering such harm that they are unable to continue to operate. In any case, there appear to be a number of market-centric opportunities, which should be explored before regulation is considered.

It is, however, right to remove regulation where its existence is no longer proportionate. Whilst this paper currently proposes that only obligations of privacy and data retention should be imposed

¹⁶⁶ A working draft of an article entitled “*Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption*” (undated), Benkler

on over the top communications providers, as more services become “over the top,” it is necessary to revisit this, potentially imposing greater obligations on over the top services. Whilst this would ensure a fair competitive environment, it is unlikely to solve the problems of network operators, since the main costs of network operation are not regulation, but the costs of developing, deploying and operating infrastructure. Reducing fees payable to the government for spectrum usage may be a more worthwhile approach to cost reduction.

Internet access is fundamental for the existence of over the top communications services, and, as such, may need to be treated as an essential facility. If free enterprise and market forces alone proved insufficient for the economic operation of networks, some form of regulatory intervention would be necessary. This intervention must be wider than securing the existence of a particular business model, or guaranteeing profit for a private company, but rather seeking out the best solution for ensuring continued high speed connectivity, to ensure carriage of over the top services.

Conclusions

Over the top communications services need to be brought within the scope of the regulatory framework — it is not appropriate for them to be excluded entirely. However, imposition of obligations should be based firmly on proportionality. Finding a form of wording as a revised definition of “electronic communications service” is likely to be challenging, but would be the first step towards bringing about the changes proposed in this paper.

Initially, obligations should be limited to those of data retention and privacy, although, in terms of privacy, a horizontal approach to regulation, rather than communications-specific regulation, would be more appropriate. As the market for over the top communications services continues to evolve, there must be an ongoing assessment of proportionality, to ensure that core consumer interests are protected.

The lowered barriers to entry of over the top communications services mean that enforcing consumer benefit through regulation is not necessarily the most appropriate mechanism — in particular, in terms of communication with emergency services, development of emergency service specific over the top communications mechanisms is likely to result in better access to emergency services in an over the top environment.

There remain significant challenges around the enforcement of regulatory obligations on providers of over the top services based overseas. Whilst it might be possible to use technical measures to block access to problematic over the top services in extreme situations, this approach would be unworkable on a more general basis. This is not a problem specific to regulation of communications services, but rather part of the bigger picture of challenges of law enforcement in an online environment; there is no easy answer. Until there is, national regulators must be mindful of the potential adverse effect on competition of enforcing regulation on domestic providers.

Although network operators may feel a financial pinch, as consumers switch from traditional services to over the top services, there is currently no proportionate basis for assisting network operators. Instead, operators should explore market-centric opportunities, including network sharing and partnering with providers. If a point should be reached where it is

impossible for networks to operate, or be able to provide sufficient bandwidth to handle the demands of over the top communications services, the imposition of regulation is more likely to be proportionate, but this should be for the purpose of securing public benefit, rather than private profit.

Bibliography

Articles

"(de)Regulation of VoIP in telecom industry" (2005), Pinho and Vargens

"An assessment of IP-interconnection in the context of Net Neutrality" (2012), BEREC BoR(12)33

"Application of Communications Legislation to VoIP Services in Finland" (2007) Memorandum 5.9.2007

"BEREC Report on Universal Service – reflections for the future" (2010) BEREC, BoR (10) 35

"Changing the numbers: UL directory enquiries deregulation and the failure of choice" (2009), Pollock

"Comments by Cisco Systems, Inc. on ComReg Consultation Paper 04/72 Numbering for VoIP Services" (2004), Cisco

"Commission Staff Working Document on COM(2006) 334 final" (2006), SEC(2006) 816

"Communication from the Commission on the Review of the EU Regulatory Framework for Electronic Communications Networks and Services" (2006), COM(2006) 334 final

"Communications Liberalisation in the UK" (2001), Department of Trade & Industry

"Communications Market Report 2012" (2012), Ofcom

"Counteracting the Social Messaging Threat" (2012), Ovum

"Draft ERG Work Programme 2010: Comments from Skype" (2009) Skype

"Electronic Communications Marketing Indicators" (2012), European Commission

"ERG Common Position on VoIP" (2007), ERG (07) 56rev2

"EuroISPA's response to the ERG VoIP Consultation" (2007), EuroISPA

"Foreword of the Home Secretary" to the draft Communications Data Bill (June 2012)

"Green Paper on the development of the common market for telecommunications services and equipment" (1987), European Commission, (COM(87) 290

"GSR 2009 Discussion Paper on VoIP" (2009), Biggs for the ITU

"Implementing the Revised EU Electronic Communications Framework" (2010), Department for Business Innovation & Skills"

"Information Commissioner's statement on the Communications Data Bill" (2009), Information Commissioner's Office

"Law and Borders – The Rise of Law in Cyberspace" (1996), Johnson and Post, 48 Stanford Law Review.

"Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption" (undated), Benkler

"Outline of the regulation of VoIP in Norway" (2006), Norwegian Post and Telecommunications Authority

"Principles for Economic Regulation" (2011), Department for Business Innovation & Skills

"Privacy in Electronic Communications: The Regulation of VoIP in the EU and the United States" (2009), Garrie and Wong [2009] C.T.L.R. 139"

"Proposal of the European Commission for a directive on a common regulatory framework for electronic communications networks and services" (2000), COM(2000) 393 final

"Regulation – threat or opportunity" (2011), Nokia Siemens Networks,

"Regulation & Regulatory Governance" (2010), Levi-Faur, Working Paper No. 1 in Jerusalem Papers in Regulation & Governance

"Regulation of VoIP Services: Access to Emergency Services" (2007), Ofcom

"Regulatory framework and market developments concerning directory services in EU and EEA Member States" (2002), Analysys for the European Commission

"Report on VoIP and Consumer Issues" (2006) European Regulators' Group, ERG(06)39

"Response of Skype to Ofcom's consultation document 'Regulation of VoIP services: Access to the Emergency Services'" (2007), Skype

"Response of Skype to Ofcom's consultation document on assessment of future mobile competition and proposals for the award of 800MHz and 2.6Ghz spectrum" (2011), Skype

"Response of Skype to the ERG's consultation document ERG (07) 56 Rev1" (2007), Skype

"Romanian Electronic Communications Market Status and Regulatory Proceedings" (2006), National Regulatory Authority for Communications, Romania

"Skype comments on the EC's consultation on the open Internet and net neutrality in Europe" (2010), Skype

"Technologies and Business vs. Law – Cloud computing, transborder access and data retention: a legal perspective from the State when is conducting an investigation" (2012), Cajani for High Tech Crime Unit, Milan

"Telecommunication Market and Regulatory Developments" (2011), European Commission

"Telephone Directory Information Obligations and Regulations" (2008), Ofcom

"The Regulation of VoIP in Europe" (2008) WIK-Consult,

"The Regulatory Challenges and Opportunities of IP Telephony: Perspective on Malaysia" (2011), Khaled-Shukran, International Journal of Computer Science Issues, Vol. 8, Issue 5, No. 3, September 2011

"The Total Economic Impact of Click to Call and Click to Chat" (2010), Forrester Consulting

"The Treatment of VoIP under the EU Regulatory Framework" (2004), European Commission

"Trustmark Schemes Struggle to Protect Privacy" (2008) Connolly for Galexia

"Voice over IP: law challenged by technology" (undated), Stevens, Valcke and Lievens

"VoIP in Belgium" (2006), Blondeel for T-REGS

"Webmail and web-based messaging" (2009), Experts' Group on Data Retention DATRET/EXPGRP (2009) 2 Final

"Yahoo! Europe response to the call for input on the forthcoming review of the EU regulatory framework for electronic communications and services" (2006), Yahoo!

Legislation

84/549/EEC

90/387/EEC

91/396/EEC

93/13/EC

95/46/EC

98/34/EC

98/48/EC

2000/31/EC

2002/19/EC

2002/20/EC

2002/21/EC

2002/22/EC

2002/58/EC

2006/24/EC

2009/136/EC

2009/140/EC

2009/24/EC

21/955

Charter of Fundamental Rights of the European Union (2000/C
362/01)

Communications Act 2003

Data Protection Act 1998

Draft communications data bill

Draft data protection regulation (COM (2012) 11 final)

Cases

Yahoo! Inc., C/922/10, DE 20.95.16/08 26

Decision number 1258 of the Romanian Constitutional Court, 8th
October 2009, published in the Romanian Official Monitor
number 789 of 23 November 2009

BVerfG, 1 BvR 256/08 vom 2.3.2010, Absatz-Nr. (1 - 345)

Twentieth Century Fox v. BT Plc [2011] EWHC 2714 (Ch)