

Verizon Business

Response to

Ofcom Regulation of VoIP Services Consultation

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Verizon Business Response to Ofcom Regulation of VoIP Services Consultation

Introduction

As an acknowledged world leader in communications, networking solutions and services, Verizon Business welcomes the opportunity to participate in the public consultation on appropriate regulation of VoIP services. As a company providing network infrastructure, services and technology to enterprise (business institutions of all types) and services providers (resellers and other carriers) in more than 150 countries, Verizon Business draws on our vast technology expertise and experienced leadership in PSTN, Next Generation and Internet Protocol (IP) technologies in responding to this consultation. Similarly, Verizon Business has participated in other consultations carried out, and currently under consideration by, the European Commission, the FCC and other National Regulatory Authorities (NRAs).

Verizon Business believes that Voice over Internet Protocol (VoIP) is an optimal way of delivering voice in the context of Next Generation network architectures. Carriers are already deploying IP architectures along with business enterprises, and driving demand by choosing to invest in forward looking technological developments. Given these trends, Verizon Business foresees a shift towards 'all IP' networking, at least at the core of carrier networks, within the next three to five years.

Traditional regulation of Publicly Available Telephone Service (PATS) has spawned regulatory requirements (differing depending on NRA interpretations in Europe), such as mandated access to emergency services and full number portability. It is Verizon Business' view that providers should have the flexibility traditionally associated with PATS-like functionality such as access to emergency service numbers on a best efforts basis, without automatically triggering full PATS regulation. Relevant markets one to six need specific mention. VoIP is shifting traffic flows off these newly classified, yet traditional six markets, and is modifying the methods under which regulators now need to review markets, as well as how consumers use and perceive services and how networks operate in general e.g. requirements to opt-in for emergency services, or mobility options.

Verizon Business believes that viable business cases for new and enhanced voice services will emerge in an environment of innovation, competition, and technology neutrality complemented by minimalist regulatory interventions.

Regulatory approach to VoIP services

Question 1: *Given recent developments, do you agree that Ofcom's focus should be on the following three objectives in developing our policy for VoIP services, namely (in so far as is possible):*

- (i) enabling innovation in a technological neutral way,*
- (ii) ensuring consumers are well informed; and*
- (iii) ensuring maximum availability of 999 services?*

Answer: With one clarification, Verizon Business agrees with Ofcom in the development of the three policy objectives as outlined. Verizon Business specifically notes that a balance needs to be struck between ensuring consumers are informed properly and creating regulatory conditions that foster innovative new services, (while also recognizing that such conditions may not always meet traditional norms for service quality).

With regard to Ofcom's objective to encourage provision of 999 access, Verizon Business agrees with Ofcom's description of its goals, but believes that the objective, as formulated, does not precisely capture that description. As explained by Ofcom in the text of the consultation, its goal should be the "optimal" availability of 999 access on a society-wide basis, which is subtly, but notably, different than the "maximum" availability of 999 services. For example, the "maximum" availability of 999 services could be defined as availability from every communications service and device, even those used as supplements to primary lines, which might not be "optimal." Thus, Verizon Business would restate Ofcom's objective to be "ensuring optimal availability of 999 services."

Application of the general conditions

- **Approach for network providers who carry third-party PATS services**

Question 2: *Do respondents agree with this approach for the interaction between network providers and PATS providers?*

Answer: Verizon Business agrees with Ofcom's approach regarding the interaction between network providers and PATS providers.

- **Evolution of regulation of nomadic services**

Question 3: *Do you agree that the limitation of GC 3 obligation to providers of service at a 'fixed location' is not sustainable in the long term? What views do you have on how this may be addressed?*

Answer: Verizon Business agrees that the limitation of General Condition (GC) 3, “Proper and effective functioning of the network” will not be sustainable in the longer term.

Addressing this will require detailed analysis of global standards development and recognition that whilst some new voice services may appear very similar to traditional voice services regulated under PATS, others may offer different levels of quality, new features and costs. Mobility is a key feature that can be offered by new voice services. IP telephones/devices providing non-PATS Public Electronic Communications Services (PECS) will be easily portable, offering the consumer flexibility and mobility. This shift towards mobility may result in a growing substitution between fixed and wireless networks, including not only 2.5G GSM and 3G, but also unlicensed radio spectrum frequencies. In revising GC 3, Ofcom should take steps to foster further competition by fostering light touch approaches to emerging technologies.

- **Ofcom’s forthcoming review of the General Conditions**

Question 4: *In light of the other measures proposed in this document, are there particular issues in relation to VOIP services that should be addressed in this review?*

Answer: Verizon Business believes that the General Conditions mentioned in the Ofcom consultation are prime candidates for reform and have come under levels of strain as the market for VoIP has developed. The rollout of next generation networks in the UK will necessitate a review of whether the current General Conditions will map consistently into the core network and deliver levels of service equivalent to those that are currently available. Verizon Business draws Ofcom’s attention to the fact that the EU Framework seeks to enable ease of market entry across the EU’s 25 member states. Country-specific regulatory variants will only increase cost and hold back the benefits of emerging future networks. Ofcom, therefore, should focus on developing and coordinating strategic regulatory policy with other National Regulatory Authorities (NRAs). This collaborative approach will foster a common EU market and permit consumers to reap the benefits of pan-European networks operating under regulatory certainty.

- **Ofcom’s input on the Commission’s review of the Directives**

Question 5: *Are there particular issues in relation to VoIP services that should be addressed in this review?*

Answer: Verizon Business believes that it is important to review the Directives to determine the extent to which the Commission has the tools to ensure consistent regulation of VoIP on an EU-wide basis. Although one of the key goals of the European Union is the creation of a single European market, the ability of pan-European operators to develop and offer pan-European VOIP services is currently undermined by the lack of harmonized implementation of VOIP regulation across the Member States. Notwithstanding the need for harmonization, Verizon Business recognizes and applauds Ofcom’s philosophy of encouraging innovation in VoIP

markets, and we therefore would encourage Ofcom to advocate with the Commission for harmonization in line with Ofcom's positions.

Verizon Business also would encourage a comprehensive review by the Commission of the approach to, and goals of, universal service. The Universal Service Directive requires that every EU citizen be able to subscribe to PATS, and that PATS be regulated in line with national standards and consumer expectations. Given the dynamism of communications markets and technologies, and consumers' changing modes of communications, the Commission should re-visit the goals universal service obligations are intended to achieve, and the best means of achieving those goals.

Number portability issues

Question 6: *Do you have any comments on Ofcom's proposed modification to the PATS definition in GC 18?*

Answer: Verizon Business support Ofcom's proposed modification to the PATS definition in GC 18. Further clarification from Ofcom is necessary on the current proposals vis-a-vis the Universal Service Directive (USD). The final proposals should consider the appropriate consumer protection measures to ensure successful migrations and avoid consumer confusion. According to the USD, number portability is a "right" of PATS users; this is not in any way a prohibition on non-PATS users or Service Providers to voluntarily provide or agree with other telecommunications industry members to provide Number Portability to their customers (via agreed processes).

Consumer protection – consultation on draft code

Question 7: *Do you agree with the proposed application of the code?*

Answer: Verizon Business generally agrees with the application of the code. The code is not appropriate for large business users and should remain directed only at consumers and small-to-medium enterprises. In addition, Verizon Business believes that the requirement for in-line power stems from a PSTN environment and that thinking is no longer appropriate.

Question 8: *Do you agree with the proposed approach for informing consumers that services may cease to function if the broadband connection fails or there is a power cut or failure?*

Question 9: *Do you agree with the proposed approach for informing customers where access to emergency calls is not available?*

Question 10: *Do you agree with the proposed approach for informing consumers that access to emergency calls may cease to function if the Data Network fails or there is a power cut/failure?*

Answer: We agree with Ofcom's approaches to ensuring adequate consumer information including specific warnings outlining possible limitations on the availability of power, the availability of data networks, and access to emergency services that would appear in the user guide and within terms and conditions of customer contracts. However, Verizon Business believes that mandating in-line powering for VoIP or other terminals appears to ignore technological developments and the widespread acceptance of the use of batteries in terminals and equipment.

Question 11: *Should the code be extended to point of signature acknowledgement in respect of reliability of access to emergency calls?*

Answer: Verizon Business believes that this is an appropriate measure, but should be limited only to the consumer market.

Question 12: *Do you agree with the proposed approach to location information providers where the service does provide access to emergency calls? In particular, do you believe that subscribers should be required to register their main location prior to activation of the service?*

Answer: Verizon Business generally agrees with this proposed approach to location information; however, we note that the regulation of location data on a per transaction or a per use basis may detract from the attractiveness of specific VoIP products. Verizon Business notes that many users will use peer-to-peer VoIP and could use IP soft clients or telephones in remote or international locations regardless of where the user is purported to be located. This is a useful feature of VoIP that nonetheless presents a challenge for identifying caller location. Emergency calling agencies and agents therein should be made aware of potential location mobility and portability when receiving emergency calls. A good current analogy is that of the mobile networks currently in operation today.

Question 13: *Do you agree with the proposed approach to informing consumers where services do not provide emergency location information?*

Question 14: *Do you agree with the proposed approach to informing customers where services do not provide number portability?*

Question 15: *Do you agree with the proposed approach to informing consumers about the types of facilities that might not be available, but which they have come to expect from a telephone service?*

Answer: Verizon Business agrees with all of the above approaches with respect to emergency access, location data and service determinants.

Consumer protection – legal framework for implementation of the code (GC 14)

Question 16: *Do you agree with Ofcom's view that all aspects of the code of practice should be mandatory?*

Answer: The code of practice should not be mandatory. In this instance, Verizon Business would prefer a self or co-regulatory approach to an agreed code of conduct,

with GC 14 “Codes of Practice and Dispute Resolution”, forming the backdrop for infringements within a co-regulatory environment. There could be some perceived problems where operators do not provide an aspect of the new voice services’ suite of services (e.g. portability from a donor PATS network to existing non-PATS network). It may be elective to provide consumer portability as a selling point, but in the proposed new voice service environment, stimulation of PATS arrangements for non-PATS operators or PECS could prove challenging.

Enforcement, monitoring and review

Question 17: *Do you consider that the overall programme of activities is appropriate?*

Answer: Verizon Business considers that the overall programme of activities is appropriate.

- **Consumer education**

Question 18: *In light of Ofcom’s Consumer Policy Review, are there other consumer education measures that Ofcom should consider?*

Answer: Ofcom has proposed sufficient consumer education measures.

- **Proactive enforcement**

Question 19: *Do you have comments on this proposed enforcement approach?*

Answer: Verizon Business has no specific issues with these enforcement proposals. We are concerned, however, that the proposals may deter innovators in the early phases of product rollout and deployment. The majority of carriers and larger IP companies in the UK market are conscious of the requirements to comply with all forms of regulation. The mandatory approach to the consumer code and enforcement could be less effective than other regulatory approaches that involve all the major industry players.

- **Research to assess consumer understanding and attitudes**

Question 20: *Are there other areas of research activity that Ofcom should consider to ensure it understands market developments?*

Answer: To ascertain market norms in the wider EU business environment, Verizon Business believes that Ofcom should consider reports by the European Regulators Group/International Regulators Group, implementation reports from the EU Commission, as well as reports and decisions issued by other NRAs in the EU.

The adoption and availability of service in the EU region, both within and outside the UK, may have a significant effect on the development of the general market for VoIP or new voice services. Interoperability with the US and Australasian markets also is of key importance in the development of the UK market.

- **Ensuring high level of availability of 999 access**

Question 21: *In relation to ensuring high availability of 999 access, are there other measures that Ofcom could consider?*

Answer: Ofcom should also consider highlighting 112 number access as a more formally acknowledged aspect of this review, in line with the expectations set out in the New Regulatory Framework, and specifically the Universal Service Obligation or USO directive. Additional measures might include a co-regulatory system of reporting access from fixed, wireless and IP networks in line with the quarterly quality or statistical reports already submitted to Ofcom.

Other issues

- **Naked DSL**

Question 22: *Do you agree with Ofcom's approach to naked DSL?*

Answer: Verizon Business agrees with Ofcom's approach at this time.

- **Routing and termination**

Question 23: *Do you agree a cross industry meeting would be a useful approach to move this issue forward? What other steps could be taken to provide support for 056 numbers?*

Answer: Verizon Business agrees that an industry wide meeting to facilitate a termination regime for 056 numbers may be useful, especially if this meeting is backed by Ofcom. We have found that this type of regulator backed approach has been beneficial in other territories in the EU, (e.g., Germany (032 range) and Ireland (076 range)).

In organizing an industry meeting Ofcom should consider several complex issues, including network symmetry, attempts to price calls below economic or efficient return thresholds, (e.g., a sub-local call tariff), charging schemes and consumer perceptions regarding access to VoIP services (i.e., consumers will be slow to utilise expensive service types).

- **Malicious and nuisance calls**

Question 24: *How can a VoIP call be traced for detection and prevention of malicious and nuisance calls? How could a suitable call screening service work in a VoIP network?*

Answer: Verizon Business participates in the Emergency Context Resolution with Internet Technologies (ECRIT) work programmes within the Internet Engineering Task Force (IETF). This group seeks to facilitate solutions for identification on converged and pure IP networks. Verizon Business encourages Ofcom to engage fully in this discussion group in order to ascertain information about the various mechanisms available to identify users and user profiles.

ECRIT has publications that deal with Uniform Resource Names (URNs), Uniform Resource Identifiers (URIs), Session Initiation Protocol Location Conveyance (SIP LCs) and many other aspects of the converging standards developments. While ECRIT cannot cater for aspects of unique services and platforms, it, in conjunction with IETF and the Network Interoperability Consultative Committee (NICC), can provide some answers to the question posed by Ofcom.

Similar to past operating environments, operators cannot be held liable for malfeasance propagated by users; we can however work with the relevant law enforcement agencies to mitigate such misfeasance.

Question 25: *Do you agree that SPIT (SPAM over Internet Telephony) could be a potential problem and what techniques can be used to minimise the impact of SPIT on consumers of VoIP services.*

Answer: Verizon Business agrees that SPIT is a problem that may eventually surface, though to date such problems have not been prevalent. The infrastructure needed for SPIT is very similar to the infrastructure needed for spam. The cost is very low, and, at least for now, there are no 'Do-not-call' registries on the Internet. It is difficult to detect a valid IP address of source when compared to an originating phone number, though users may have additional control elements for screening as standards develop, e.g., trusted networks or originating parties. The Internet offers those who generate SPIT greater anonymity and lower costs. SPIT should not be a significant problem for 'walled-garden' networks, but it could be a bigger problem for peer to peer networks operating without rules of engagement.

Verizon Business is working with the IETF to solidify applicable security standards within the IETF to identify and target possible privacy issues within the Session Initiation Protocol (SIP) Telephone Number Mapping (ENUM) and H.323 standards working groups.

Question 26: *Have there been any instances of a VoIP service being compromised or used to deliver malware or a DoS attack?*

Answer: In a DoS attack, a flood of information requests is sent to a web server, thereby overloading the server and making it difficult, if not impossible, to access. These attacks often involve multiple hacked computers, known as "zombies" that have been networked in some fashion. These networks are, in turn, often referred to as "botnets." Botnets are typically controlled by an attacker via Internet Relay Chat (IRC). Zombies listen for instructions from their masters on IRC channels.

Network Administrators and DoS mitigation software can monitor those channels to help catch cyber criminals. ISPs also can block traffic to the IRC servers used by zombies in order to thwart attacks. Malware transfers can also be propagated or undertaken more effectively with closed standards software applications or environments supporting similar. These would generally be peer to peer communications providers who may also utilise Network Address Translation (NAT) traversal techniques to penetrate networks.

Verizon Business routinely provides mitigation software with its VoIP products, and uses more reliable open standards groups to remain at the forefront of security and network defence developments.

Question 27: *Are there any other considerations that need to be taken into account when a provider does not have a UK entity?*

Answer: Verizon Business believes that the main considerations have been adequately captured by the Ofcom consultation in 2004, and now in this 2006 consultation.

Question 28: *Is it reasonable to ask VoIP service providers to participate in schemes designed for e-commerce?*

Answer: Verizon Business believes that it is reasonable to ask VoIP service providers to participate in schemes designed for e-commerce. Verizon Business observes with great interest Ofcom's disengagement in the UK Telephone Number Mapping (ENUM) steering and working groups. Since Ofcom is the regulatory authority with remit for the natural resource of telephone numbering, the creation of ENUM address in the Internet space with national telephone numbers would seem like a logical place for Ofcom's engagement and involvement. While ENUM is not VoIP, it is an enabling VoIP standard.

Verizon Business looks forward to Ofcom facilitating further schemes designed for e-commerce in the UK.

Question 29: *Do you have any other comments on the proposed approach to investigating the application of the GCs applicable to providers of PATS in the context of VoIP?*

Answer: Verizon Business supports the proposed approach.

Question 30: *Do you have any comments on Ofcom's views on the meaning of above mentioned terms and legal concepts?*

Answer: Ofcom appears to have accurately and succinctly identified the main corollaries of the regulatory framework directives and the UK Telecommunications Act with respect to the regulation of VoIP services. Verizon Business believes that the current regulatory framework will not permit Ofcom to easily facilitate competition and simultaneously provide adequate consumer protection. Some reform may be in order as the current framework has limitations that will prevent its application to emerging voice services, such as VoIP.

Question 31: *Are there any other steps that a VoIP service provider could consider in respect of the IP network layer and service application layers to ensure network integrity?*

Question 32: *Are there any other steps that a VoIP service provider could consider in respect of parts of the underlying network that they do not control?*

Answer: Verizon Business currently invests in and utilises the newest and most robust equipment in rolling out and maintaining secure networks. Verizon Business does encourage the utilisation of similar robust equipment though it is inappropriate to manage or dictate to carriers, users or consumers the types of network connection to use or the types of terminal equipment to select.

There are many possible variables in the provision of VoIP services, including protocol selection, equipment selection and network provision. In many cases, Verizon Business endeavours to advise network users on best practices, however, we can be limited in reach particularly where component networks may be interconnected in relationship (e.g., a pure packet swap) or simply out of our control.

Question 33: *What additional steps could a VoIP service provider take to support nomadic users with regard to maintaining network integrity?*

Answer: Verizon Business has experience in the provision of nomadic service in some EU territories, including Ireland. Nomadic numbering is attractive not only to PATS providers, but also to ECS providers because it imposes minimal obligations on both providers and their customers. The elimination of geographic restrictions should make nomadic numbers especially attractive to VoIP operators. Many regulators foresee that the rapid update of these new ranges will go a long way to avoid exhausting the limited supply of geographic numbers, thereby avoiding the risk of forced number changes.

Network integrity can be maintained in almost all cases where the PSTN remains a component of a given call. Regulatory rules on CLI presentation also may facilitate network integrity. For example, CLI should be set to "unavailable" by the operator handling that traffic at its entrance/exit nodes to the Internet unless the CLI presentation can be guaranteed. Per the Ofcom consultation document, we agree that the use of unlicensed spectrum bands can cause problems when trying either to ensure network integrity, or to locate an individual user at a given time.

Question 34: *Do respondents consider whether other options to ensure continuity in the case of a power outage are appropriate?*

Answer: Verizon Business believes that concerns about the continuity of line powering and terminal powering stem from a PSTN-based environment and thinking which is generally regarded as out of date. Given many recent technological enhancements in batteries for consumer products, mandating continuity of power for VoIP terminals would appear to ignore technological developments and the widespread acceptance of the use of batteries in terminals. With the further deployment of fibre networks in access, power and continuity of line powering would cease to be practical.

Question 35: *What other steps could be taken to provide reliable location to assist the emergency services in their work?*

Question 36: *What other steps could be taken to provide reliable location to assist the emergency services in their work in the case of nomadic users?*

Answer: Verizon Business believes that in an emergency scenario the critical factor in providing emergency response, whether from fixed unidentified, mobile unidentified or nomadic user groups, is the ability of the emergency response agency to identify calls as they occur. Fixed and IP networks can be identified but none of the three mechanisms (fixed unidentified, mobile unidentified and nomadic) are currently capable or fast enough to trace a user in distress on a real time basis.

TCP/IP (Transfer Control Protocol/Internet Protocol) was first developed in the 1970's in order to provide a high grade, robust and secure communication mechanism for the US military with an expandable core network with multiple edge facets or uses once connected to the IP address space of public/private network. Verizon Business has expertise in dealing with severe emergency situations where IP networks have operated in a more robust fashion than cellular or fixed networks, which both have a high degree of linear or fixed location reliance. However, reliance on the exact location of the user in both fixed and nomadic scenarios, and the real time deployment of emergency assist resources may have to be based on person-to-agent communication. Operators may have certain options open to them in the Domain Name Security hierarchies that may help with identification, but these options may be limited by bad addressing policies or equipment that cannot be adapted for use on certain networks or with certain features.

Question 37: *In addition to participating in the NICC working group on providing location in IP networks and the 112 expert groups, what other steps should Ofcom take?*

Answer: Verizon Business believes that Ofcom's policies to date in approaching this matter have been prudent and in the public interest. Verizon Business would like to see Ofcom actively encourage stakeholder participation in the initial phases of research into both proposed emergency location working groups, and in so doing, ensure that the UK does not diverge too greatly from the international standards being developed at the IETF, CEPT and other standards institutions.

Concluding remarks

Internet and next generation networks will prove critical to the success of the knowledge driven economy in the UK. Robust investment in Internet and next generation network innovation will only happen where a predictable and appropriately tailored regulatory environment exists. It is crucial that the attributes of PATS and PECS are properly defined and can operate within the intended boundaries of the EU Framework. Irrespective of whether they are PATS or non-PATS/PECS, operators should not be prevented from offering PATS-like services for example, such as emergency services, nomadicity and number portability. For new services to be generally successful it is necessary to foster a level of harmonious interpretation of regulations in order that all EU citizens can inter-work and communicate more easily. This in turn will benefit economies of scale and foster a robust innovation supply chain for the UK. Verizon Business looks forward to further consultation with Ofcom on these subjects over the coming months and seeks a regulatory environment for new voice services (VoIP) characterized by pro-competitive, flexible, and predictable policies.

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