

## **Telecom Italia contributions to the draft “Common Position on VoIP of the ERG High Level Policy Task Force on VoIP”**

### **Executive summary: key points**

#### ***Emergency services***

- Access to emergency service should be defined in EU regulatory framework as an obligation for any public voice service.
- Nomadic services require to define new solutions, to be developed in ETSI standardization body and in collaboration with PSAP.
- Intrinsic characteristics of NGN technology should be reflected by relaxing network integrity and availability requirements for emergency services, for instance regarding power failure issue.
- Precise information to customers, also in subscription contracts, is a key point to make transparent in the market the characteristics of different VoIP services.
- Priority and quality requirements can only be considered for “carrier grade” VoIP services.

#### ***Numbering***

- Public numbering plans should be reconfirmed as “technologically neutral”; geographic numbers are generally associated to geographic fixed services.
- Geographic information (district) included in “geographic” numbering range must always be respected; relevant CEPT/ECC report and recommendation should be carefully considered by ERG. That also to avoid confusion to users and impacts on tariff transparency obligations.
- Nomadic public VoIP service, if provided, should be in principle associated to a new specific non geographic numbering range and nomadic should be at maximum national-wide.
- In the case of geographic number, nomadicity should not be encouraged and at least limited to districts or other territorial areas reflected in the numbering.
- Geographic number rights of use are include in PATS authorization conditions finalized to carrier grade public voice service provision. No modification is needed.

#### ***Number Portability***

- It is an obligation/right for all authorized operators/providers
- It is only applicable inside the same type of service category, independently from technology, and, therefore, inside the same associated numbering range.

#### ***Allocation of consumer rights and service provider obligations and ECS/PATS/PTN definition***

- for consumers’ right protection more clarity and certain must be applied to PATS/PTN and public voice ECS/ECN definitions in EU regulatory framework revision; QoS managed “carried grade” nature of PATS has to be preserved.
- A new public nomadic voice ECS category should be introduced in EU regulatory framework revision to include VoIP services not substitutable with fixed PATS, defining a new authorization category with appropriate obligations and rights.
- Appropriate to better remark the responsibility of each actor (service provider and network provider) in the value chain for service provision and to precise the single role to match any obligations (for instance network integrity, quality, reliability, security, etc.). That point is also relevant to evolve telephone Universal Service provision.

## Preface

Telecom Italia welcomes the opportunity to participate to this public consultation on a draft ERG Common Position on VoIP regulation evolution, also considering issues for European regulatory framework revision.

In the following, also considering various analysis and public consultations on different VoIP related and NGN issues during last years which Telecom Italia contributed to, our comments and proposals are illustrated in relation with VoIP regulation evolution matter, basing on our experience on voice and telephone services provision and related issues in NGN multi-services context.

Telecom Italia document is structured reflecting the original ERG document sections for easier relation and understanding of different aspects pointed out by ERG High Level Policy Task Force on VoIP.

## 1 Introduction (VoIP services classification issue)

VoIP services classification in categories was an essential tools to develop regulatory analysis and interpretations from the beginning of EC activities on VoIP. A valuable starting point remains, in our view, the approach identified in 2004 by Analysys report for EC "IP voice and associated convergent services" (January 2004) and by EC Consultation Document "The treatment of Voice over Internet Protocol (VoIP) under the EU Regulatory Framework" (June 2004); therefore any further regulatory analysis on VoIP should be coherent with the categories classification pointed out in such documents.

VoIP services classification for regulatory purpose needs to consider all aspects of VoIP service, of which consumers' point of view is just one useful component; indeed VoIP services and innovative NGN technological platforms impact on various regulatory aspects related to EU regulatory framework revision, some of them are meaningful for customers and other ones are essential to understand how regulatory principles and obligations have to be applied to develop services and networks innovations.

As a consequence the following VoIP categories as proposed in the ERG document (considering just the two criteria of i) VoIP services relationship with E.164 numbering and ii) reachability of PSTN), seem to Telecom Italia not sufficient to guide and orient regulatory modifications for the EU regulatory framework revisions.

Categories of VoIP services (according to access to/from PSTN & E.164 Numbering)	Details	Outgoing Access to PSTN	Incoming Access from PSTN	E.164 Number provided
1. A service where E.164 numbers are not provided and from which there is no access to or from the PSTN.	This case includes different implementations: from pure <i>peer-to-peer</i> , based simply on a VoIP software which uses users' computers as nodes of the connection to more centralized architectures based on call management servers, data bases and routers provided by the VoIP operator.	*	*	*
2. A service where there is outgoing access to the PSTN only and E.164 numbers are not provided.		√	*	*
3. A service where there is incoming access from the PSTN only and E.164 numbers are provided.		*	√	√
4. A service where there is incoming and outgoing access to the PSTN only and E.164 numbers are provided.		√	√	√

**On the contrary**, Telecom Italia would like to propose to join such "customers' related classification" with the more complete VoIP services classification contained in the EC Consultation document and Analysys report; in that way the following further aspects could be considered in ERG evaluation:

- *the concept of “public services” for ECS and PATS classification (for differentiation respect to private, “community” and peer-to-peer ECS VoIP services),*
- *technological neutrality and substitution principle application to define services belonging to the same category.*

The reason of this proposal is that, as a matter of fact, not all VoIP services can be considered equivalent, also in the users' perceptions, and regulation should reflect that aspect, also avoiding to assimilate any VoIP services to telephony or PATS.

In fact **PATS** implies interoperable service on a global basis in a multi-provider context and reliable services based on so-called “carrier grade” technical solutions, while public voice ECS means services with minimal obligations and, therefore, suited for simpler technical solution, also provided through “best effort” services as typical of Internet-based voice services.

Telecom Italia believes that PATS characteristic as a “carrier grade” services, therefore with quality and availability control by operator, is not compatible, in IP technology context, with “best effort” IP connectivity provided, for example, through Internet. A “best effort” VoIP service can not be considered equivalent to a PATS and that should be considered carefully by ERG, also regarding users' perception and their rights defence.

Besides it is essential to consider VoIP services as a relevant innovative component inside multimedia and convergent services enabled by NGN “IP-based” technology. VoIP regulation evolution should distinguish the cases of:

- new convergent voice and multimedia services offered to the user through a separate Broadband Access i.e. as an addition to the existing PSTN access;
- the scenario of a technological “replacement” of the PSTN with “IP-based” infrastructure;
- the scenario of service providers that provide only VoIP services to the users.

As a consequence, EC Directives substitutability principle should be applied for VoIP classification and regulatory obligations for PATS should evolve and be adapted coherently with the different paradigm of NGN technology.

Telecom Italia believes that it is important to make a clear distinction between the ETSI (and ITU-T) standard Next Generation Network (NGN) and the Internet environment. Whereas Internet network consists of a pure IP transport network without any quality guarantee and service awareness, NGN conversely is an innovative network and service platform -based on IP technology- capable of acknowledging, respecting and guaranteeing defined quality of services parameters. These NGN features enable the offer of “session-based” innovative voice and multimedia services (for instance VoIP, videoconference, messaging, etc.), also converging with ICT services, and transactional services such as for instance downloading, web navigation and e-commerce.

As a consequence NGNs are not just an upgrade of traditional networks. In the short term an overlay scenario could be pursued so that PSTN and NGN will cohabit allowing the offer of innovative NGN based services next to the provision of traditional PSTN services. However, since NGN enables both innovative and traditional (PSTN-like) services, in a longer term NGNs could entirely replace traditional networks. Considering that innovative context, Telecom Italia believes that NGN regulatory issues should be addressed as a part of the review of the EU regulatory framework.

Therefore Telecom Italia considers more applicable and usefull for regulatory purposes and analysis the following type of VoIP classification, aligned with previous EC public consultation on VoIP:

1. **“Self-provided consumer” or “peer-to-peer service”**<sup>1</sup>. VoIP services provided directly by users (with suited software installed in own PC or specific IP terminal connected to a generic data broadband access).

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<sup>1</sup> This category is aligned with “Self-provided consumer (DIY)” category defined in Analysys report for EC “IP voice and associated convergent services” (January 2004) and with “A VoIP offering that comprises provision of a product (eg a software program to be

It is a “community” restricted service, since no interoperability is possible or provided (typically all users must have the same VoIP software). This is not an ECS service and therefore is out of EU regulatory framework and its obligations and rights.

2. **Public VoB, Vol or “IP telephony” electronic communication services<sup>2</sup>**: in this case a VoIP provider is authorized and responsible to provide a public voice service to its own customers; therefore each provider has its own *control and service platform* for voice “session” setup and an *access network*, also totally or partially based on wholesale products bought by incumbent; Internet connectivity can be provided by other operator/ISP. Besides, a VoIP operator has to provide customers with specific “VoIP-enabled” terminal equipments and to assure that the traditional telephone network is reachable through “gateway” and interconnection services provided by the operator itself.

This category is in line with the ERG Report approach (page 6: “this report makes no specific differentiation between two distinct VoIP categories, that is Voice over Broadband (VoB) and Voice over Internet (Vol). Providers that offer VoB provide a VoIP service with a broadband service over their own network. Vol providers, on the other hand, offer a VoIP service only and the consumer has a broadband service from another supplier”).

Following existing EU regulatory framework, these VoIP services are to be considered as either **public voice ECS services** or **PATS**, depending on the operator decision to have/to have not access to PATS related regulatory rights (i.e. PATS specific numbering range, number portability, interconnection, interoperability, etc.), and , accordingly, respecting relevant PATS obligations.

3. **“Network operator internal services” and “carrier internal use”<sup>3</sup>**: correctly out of scope of ERG documents and of EU regulatory framework revision.

Regarding **nomadicity** it is worthwhile to note that it is a service option enabled by NGN technology and not an intrinsic feature of VoIP services: nomadicity can be provided or not through specific characterization inside the service and control NGN platform. Therefore Telecom Italia suggests overcoming a strictly association between VoIP services and nomadicity and, more properly, considering nomadicity an innovative optional feature enabled by NGN “IP-based” platform defined by ETSI and ITU standards.

**In that context, nomadic VoIP service can not be considered inside fixed PATS and, as a matter of fact, it represents a new VoIP ECS category that will be differently perceived, respect to fixed PATS, by customers.** As a consequence, EU framework should recognize such as new regulatory category and define authorization conditions and associated obligations and rights.

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*run on a personal computer), with no ongoing provision of a service” defined in EC Consultation Document “The treatment of Voice over Internet Protocol (VoIP) under the EU Regulatory Framework” (June 2004).*

<sup>2</sup> *This category is aligned with “Independent of Internet access (Vonage)”, “Provided by broadband access service provider (Yahoo! BB)” VoIP services categories defined in Analysys report for EC “IP voice and associated convergent services” (January 2004) and with “Publicly available Voice over IP services” category defined in EC Consultation Document “The treatment of Voice over Internet Protocol (VoIP) under the EU Regulatory Framework” (June 2004).*

<sup>3</sup> *Defined in Analysys report for EC “IP voice and associated convergent services” (January 2004) and aligned with “Corporate private networks, used to provide internal communications within large companies” and “VoIP technologies that are used within a public operators’ core network ” category defined in EC Consultation Document “The treatment of Voice over Internet Protocol (VoIP) under the EU Regulatory Framework” (June 2004).*

In synthesis, the proposed classification would be the following:

Categories of VoIP services	Explanation	Mapping with ERG VoIP categories	ECS/PATS
“Self-provided consumer” or “peer-to-peer service”.	VoIP services provided directly by users (with suited software installed in its own PC or specific IP terminal connected to a generic data broadband access). It is a “community” restricted service, since no interoperability is possible or provided (typically all users must have the same VoIP software).	This category can include ERG first category: “A service where E.164 numbers are not provided and from which there is no access to or from the PSTN.” if the service provider do not control and manage service provision.	This is not an ECS service and therefore is out of EU regulatory framework and its obligations and rights.
Public VoB, Vol or “IP telephony” electronic communication services	<p>Voice over Broadband (VoB): VoIP services provided by an operator through its own broadband connection.</p> <p>Voice over Internet (Vol): VoIP services provided by a service provider through a broadband connection of another supplier.</p>	<p>The ERG Report makes no specific differentiation between two distinct VoIP categories, that are Voice over Broadband (VoB) and Voice over Internet (Vol).</p> <p>This category includes the following ERG categories:</p> <ol style="list-style-type: none"> <li>1. A service where there is outgoing access to the PSTN only and E.164 numbers are not provided;</li> <li>2. A service where there is incoming access from the PSTN only and E.164 numbers are provided;</li> <li>3. A service where there is incoming and outgoing access to the PSTN and E.164 numbers are provided.</li> </ol>	These VoIP services are to be considered as either public <b>voice ECS services</b> or <b>PATS</b> , depending on the operator decision to have or to have not access to PATS related regulatory rights (i.e. PATS specific numbering range, number portability, interconnection, interoperability, etc.) and, accordingly, respecting relevant PATS obligations.
“Network operator internal services” and “carrier internal use”	Services offered through corporate private networks, used to provide internal communications within large companies and VoIP technologies used within a public operators’ core network.	Out of scope of ERG documents and of EU regulatory framework revision.	They are not public communication retail services.

## 2 Where and why an harmonized approach to VoIP regulation is necessary

Telecom Italia in principle agrees with ERG purpose to harmonize regulation in EU about VoIP services, since that can provide clarity in EU, also to support investments in new business.

It is important to consider harmonization process inside VoIP service regulation principles discussed in previous section, to correctly evaluate possible minimal modifications of EU regulatory framework.

Regarding **numbering** aspects, Telecom Italia highlights that national numbering plans are generally already based on technological neutrality and, therefore, they define types of numbers related to service characteristics and not to specific technological requirements.

For instance in the Italian numbering plan the numbering space associated with PATS (national E.164 numbers with first digit "0") is not related to PSTN but to geographic services, independently if circuit switched or packet switched technology is used; in principle the nature of a geographic service must not be changed by a specific technology, since a different choice would impact on customers perception of the service (prices, service characteristics, quality, availability, etc.) and relevant new complexity should be managed (tariff transparency, users' location, emergency access, etc.).

A geographic number identifies always the specific location of the user and it is not a specific PSTN requirement, but it is a characterization of associated geographic service.

If a geographic number remains linked to NTP (Network Termination Point), no impacts are created to emergency services user's location features, since calling line identity enable correct identification of the user and call back. Otherwise complex solutions has to be developed. We therefore believe that nomadic use of geographic numbers will create complex problems and should be avoided.

Telecom Italia considers more viable the definition of new specific numbering space for nomadic services, since that allows the user to recognize it correctly; in the case of mobile service the same approach has been followed, defining specific numbering space. However , if nomadic use of geographic numbers is allowed, then it should be limited to the district area or inside equivalent area with the same tariff determination.

We remark that **quality and availability aspects of VoIP services** seems lack in ERG analysis for regulation evolution, while this is a central issue; therefore Telecom Italia proposes to consider also the different characteristics, in terms of quality ad availability, of PATS and ECS voice services.

Regarding the conclusions, we agree in principle on the need for an harmonization of the regulatory framework for VoIP services, starting with a clear indication about EU regulatory framework application **guidelines** on PATS and ECS differentiation; numbering, number portability and access to emergency services would be a consequence of such guidelines.

Finally Telecom Italia considers cross border issue a very critical one, above all when it is not provided by transparent agreement among involved operators/providers localized in the different EU and/or extra-EU countries.

### 3 Access to emergency services

Regarding proposed assumptions for emergency services provision, Telecom Italia highlights that:

- access to emergency services obligations should be clearly stated that it is an imposition for any **public** voice services; in that sense, the ERG proposed VoIP service classification, based on E.164 number and PSTN interconnection/access availability, does not make evident the requirements on operators/providers and the need of assuring a specific technical solution;
- also PSAP (and related ECC/ERO entities) technical evolution in NGN context should be considered in medium/long term to be compatible with VoIP networks and platforms; therefore the connection with PSTN should not be the only target solution for "all IP" networks delivering public voice services ;
- EU harmonized ITU-T E.164 Recommendation number for emergency services (i.e. 112), and other national emergency numbers, are technologically neutral, as the use of E.164 number in NGN context (refers to relevant ITU-T Study Group 2 and ETSI TISPAN WG4 on the numbering evolution); as a consequence, NGN does not introduce any new requirements on that, since SIP-URI is just a new technical way to transport public identifiers inside NGN signalling protocol and does not define by itself a new numbering scheme. Of course call/session handling towards PSAP could be different when PSAP will be upgraded to support directly NGN technology.

About legal and normative basis proposed in ERG documents, Telecom Italia considers a requirement to clarify the regulatory definitions of voice public services, the recognized different categories and its specific obligations. It is out of doubt that access to emergency service is a right of citizens, but just a **public voice**

**service provider** have the capability to provide a reliable access to emergency service with necessary localization information.

VoIP “community” services or private voice services can not handle directly a call/session towards emergency services, unless they provide a connection to a normal access of a public (tele)communication network. E.164 number for single user identification is the base for localization information and for call back by PSAP and just a public authorized operator/provider is able to assure localization information with suited technical solutions.

Telecom Italia proposes to clearly define in EU regulatory framework revision the notion of **public voice service** and associated authorization needs, together with related obligations for any operator/provider of a recognized public service. Only PATS definition in existing EU regulatory framework includes public service notions and its requirements (numbers of a public national/international numbering plan and to make and receive calls, etc.); other public voice services may be defined in regulation, also belonging to specific ECS category (for instance voice nomadic services, etc.), with clear authorization need and obligations.

Specific obligations, for instances access to emergency service, should not be included in PATS and public ECSs definition, but they should be part of particular article of revised Universal Service Directive.

PATS and public ECS voice service, if based on NGN “IP-based” technology, could provide access to emergency service in different way, respect to traditional telephone network (this is particularly true in this phase, in which NGN technology is just emerging and ETSI and ITU-T standards on emergency service have still to evolve).

About **routing aspects**, it is essential at regulatory level to correctly manage possible nomadic feature of public VoIP services, since routing for fixed services and networks is based on geographical knowledge of the NTP through E.164 geographic numbers. In NGN “IP-based” network similar approach can basically be applied, developing specific technical solution to correlate user to NTP; some limitations to the routing precision towards the correct PSAP can exist, but it should be managed with PSAP organizations.

Since nomadism is a feature enabled and controlled by NGN “IP-based” technology, therefore an operator can decide to provide it or not, Telecom Italia considers appropriate to define in EU regulatory framework nomadic public service category and related requirements, both for authorization characteristics and associated obligations.

Besides nomadism, based on national numbering, should be limited to national-wide, since there is no possibility to assign and use national numbering plan in other EU or extra-EU countries, respecting service requirements provided to the users (service control, privacy, security, etc.).

For access to emergency service, suited solutions have to be developed for voice nomadic service, mainly encouraging standardization activity by ETSI (and ITU).

Regarding for calling party number and location information provision to PSAPs, this is another requirement to be applied to any voice public service, since in principle for fixed services calling party number is the basic information to derive, through off-line database access, user’s identification and his geographical localization. Calling Party number is necessary validated and provided by operator/provider which user has a subscription with; therefore, approaching regulation for VoIP on the public voice service notion, there is no need for a new “*not trusted subscriber’s address*” indication, since operator always knows own users’ identity. As regards localization specific technical solutions have to be developed in ETSI standardization body and in collaboration with PSAPs, as in past it is happened in the case of mobile services. When localization information are not available it is already known to PSAPs, since it does not receive all the necessary information: as a consequence further information are not needed.

Telecom Italia suggests ERG and NRAs support appropriate activities proposal also in ETSI body (and ITU).

Regarding mentioned cross border access to emergency service, it is important to state that in general emergency service is provided at national level and it is impossible, as stated before, to support subscribers associated to national E.164 numbers in other countries, unless there are transparent agreement between

involved operators. Within such as operators' agreement also emergency service call/session handling could be defined, similarly to the existing case of mobile services.

Finally, the QoS issue is very important and critical generally for VoIP services and, in particular, for emergency services. Telecom Italia believes that quality of service issue is to be analysed in general view, above all if interoperability requirements and solutions have been considering; in principle this is not an issEU manageable only for emergency service but it is a NGN "IP-based" network issEU to be solved in ETSI standardization body. In ongoing ETSI/3GPP standardization activities, interoperability and interconnections matter has been faced, producing, by end of 2007, a second release of ETSI NGN standards with some steps on also about such issues.

We consider a risk to approach technical aspects inside regulatory framework, since if there are not available ETSI standard solutions, "priority" or "interoperable" concepts, limited to emergency service, have not practical utility to develop practicable solutions.

It is more appropriate to reconsider network integrity requirements for applicability coherence with intrinsic new paradigm of NGN and, in such as context, to identify technical neutral obligations, limiting them to the real technical feasibility. Telecom Italia agrees to recognize in EU regulatory framework revision that power failure typically blocks VoIP service provision, also for access to emergency services; generally the same condition impacts also fixed traditional telephony, considering the large use of cordless terminals with local powered wireless base station.

Regarding conclusions, Telecom Italia suggests considering also the following aspects:

- access to emergency service should be an obligation for any public voice services offered by authorized operators/providers with an appropriate definition, inside EU regulatory framework, of public service notion, applied to PATS and other public voice ECS;
- a clear distinction for voice nomadic services should be defined in EU regulation and, in the case of national-wide nomadic service, suited non geographic numbering space should be defined by NRAs, also to make visible to PSAP the nomadic nature of VoIP services; in possible case of geographic numbering associated to nomadic voice service, Telecom Italia believes nomadicty should be avoided or limited to assignment district area: for localization appropriate technical solutions to update user's location should be developed in ETSI standardization body and in collaboration with PSAP;
- network integrity and availability obligations should be re-considered to recognize in EU regulatory framework revision that power failure typically blocks VoIP service provision, also for access to emergency services.

## 4 Numbering

Telecom Italia supports in principle the ERG position on numbering to get available for VoIP any type of E.164 number belonging to the national numbering plan. CEPT/ECC developed a study<sup>4</sup> and a Recommendation<sup>5</sup> for VoIP numbering and related advantages and disadvantages for geographic and non geographic numbers; summing up CEPT/ECC discourages the nomadic use of geographic number for the effect on user perception and on numbering plan scarcity, advising Administrations about the advantage to define a new number range for services with nomadic features, also in parallel with specific geographic range.

Telecom Italia considers that, before any decision on that matter, such studies should be considered to deepen evaluate the effects and critical issues, above all, for geographic numbers if used for nomadic services.

Besides Telecom Italia does not agree with ERG document proposal to consider geographic number definition depending on specific requirements of traditional or innovative technology: *numbering plan defines numbering range associate to services and not to specific network technology and geographic number are always associated with "geographic services"*, that means services in which the location identification is

<sup>4</sup> Report 59 "Numbering for VoIP services".

<sup>5</sup> ECC/REC/(05)03 "Numbering for nomadic "Voice over IP" services".

important for caller and called parties, for instance for commercial local interests, lower tariffs recognition, etc. It is also to be considered that numbering plans of various Member States are very different in structure, depending mainly by local requirements.

In addition non geographic numbers (for mobile services, green numbers, personal numbers, etc.) had been introduced in public national numbering plan to manage services not associated to a specific location. Nomadic feature is in principle a non geographic service characterization and, in Telecom Italia opinion, a new non geographic numbering range should be correctly allocated to VoIP nomadic services, also to allow an appropriate recognition by customers (tariff transparency, etc.). For international nomadic services ITU-T Study Group 2 is evaluating possible need for a non geographic numbering which would be globally recognized as associated to nomadic services.

Regarding geographic numbering, at least its association with assignment district areas has to be maintained and, therefore, nomadicity could be allowed just inside original district area; refers also to CEPT/ECC documents for a neutral evaluation of critical issues if geographic number were used in nomadic way. Also nomadic use inside a single district area determines complex impacts on routing to nearest PSAP for emergency services provision, law interception, etc..

Summing up, Telecom Italia suggests avoiding any complexity regarding nomadic use of geographic numbers and encourages ERG and NRAs to operate to support the introduction of specific numbering range for VoIP nomadic or personal numbering services (as already happened in most EU and not EU countries).

Regarding availability of numbers to service providers, Telecom Italia highlights that numbering right is associated to authorization and, as pointed out also in ERG document, numbering plan has to be technologically neutral but not service neutral: generally each numbering range in numbering plan is associated to a specific service category (for instance geographic services, mobile services, premium services, etc.). The authorization required by operators/providers makes available specific numbering rights associated with specific service categories.

Besides effects on law interception can not be under evaluated, since technically interception facilities for nomadic services are not available; the possibility to recognize, inside network and application, through numbering the service category associated (geographic service, mobile service, nomadic service, etc.) is an essential feature to be guaranteed.

Regarding conclusions, Telecom Italia suggests reconsidering geographic matter evaluation basing on the following point:

- Nomadism is a optional feature of VoIP services and, at least if national-wide, it changes the nature of geographic services. Following CEPT/ECC study and Recommendation, geographic numbering should be complemented by a new specific non geographic numbering range for nomadic services;
- Numbering plan are technologically neutral but not service neutral and nomadic services are to be considered new service category for all operators and providers;
- Geographic numbering has to maintain its nature and, if present in existing national numbering plan, its association to assignment district areas.

## **5 Number portability**

Regarding number portability indications, Telecom Italia in principle agrees with ERG documents evaluations and proposals. It is essential that numbering portability issue is considered inside numbering requirements pointed out in previous section.

Telecom Italia points out that number portability is possible inside the same range of numbering and, therefore, between equivalent services, in principle independently from technology; we consider national-wide nomadic public voice services to belong to a different service category, with different numbering range, respect to geographic telephone services.

## 6 Cross border issues

Telecom Italia believes cross border issues as very critical, when it is provided without any transparent agreement between involved operator in different countries (similar to roaming feature provided in mobile service context). In principle cross border use of VoIP services should not be allowed, since NRAs generally have not tools to guarantee respect of regulatory impositions, for instance, in case of extra-EU countries.

Possible use of mere Internet IP connectivity to reach, by other country, national VoIP service providers and then setup or receive VoIP communications, if allowed, does not permit to respect public voice service regulation associated with national authorization: it is to be considered a “best effort” voice service without any guarantee of QoS, network integrity, access to emergency service (of country in which the user is currently located), lawful interception, etc..

Telecom Italia agrees with ERG document indications and suggests not allowing in principle cross border use of public VoIP services, without a transparent agreement between involved operators/providers in each country.

## 7 VoIP issues related to ECS, ECN, PATS and PTN definitions

Telecom Italia agrees with ERG document indication that it is appropriate to update existing definitions contained in EU regulatory framework to be adherent with innovative electronic communications services. In principle ECS/ECN and PATS/PTN definitions should be more coherent with technological neutrality application and remark more precisely public services/networks notions for PATS, PTN and, above all, for ECS, ECN: that is an essential basis for subsequent more clear authorization regime and obligations imposition.

Basically public voice services definitions should be generalized for PATS category and for public voice ECS, introducing a more precise classification of those innovative voice services that, due to their specific characteristics (nomadicty, best effort quality, etc.) can not match PATS definitions and obligations (network integrity, availability, etc.). Telecom Italia considers essential to preserve PATS definitions and associated “carrier grade” characterization, but it is appropriate to update obligations for intrinsic coherence with new technology NGN “IP-based” paradigm and related limitations.

### ***ECS definition***

First of all it is appropriate to clearly update public ECS and ECN definitions, in the way to include PATS specific category but also to open the possibility to identify new public voice ECS category with more innovative characteristics (nomadicty, best effort quality, etc.). Using that approach no doubt can remain regarding VoIP services belonging to public voice ECS category: assigned specific numbering range of public international and national numbering plan and set up and receive voice communications on a global basis (that means interoperability and interconnection between operators/providers). As a consequence VoIP “community” (for instance PC-to-PC) or private services are clearly incoherent (and not substitutable) with public voice ECS category.

National-wide nomadic and/or “best effort” VoIP services can be classified as a new public voice services category, also in the users’ perception.

Analogously ECN, that is the infrastructural component of ECS, can follow the same approach, explicitly considering the case of provision by different operators. It is important to clarify that ECN has to provide transport or connectivity services suited to the specific ECS requirements, also in NGN context; therefore the innovative separation between transport and control/service levels provided from NGN model includes functionality between levels to allocate coherent transport resource for “carrier grade” or “best effort” communication services provision.

### ***PATS definition***

Telecom Italia agrees to remove from existing definition the reference to access to emergency service; emergency service issue has to be included in a dedicate article related to the generality of public voice services, PATS and ECS.

For other aspects Telecom Italia considers coherent existing PATS definition and just a more technologically neutral wording could be sufficient for regulatory applicability; we would like to point out that PATS is “carrier grade” public voice service and that condition should be maintained in the revision, avoiding to include any possible VoIP service.

Network integrity, availability and quality obligations should be adapted to be applicable to NGN “IP-based” technology and to its intrinsic limitations to manage, for instance, power failure and congestion control. Also quality requirements should be defined considering that quality paradigm for NGN is different respect to traditional telephone network, in the sense that PATS voice quality can be offered with different codecs and some network and terminal equipment performances parameters influence voice final quality.

As a consequence any obligation on network integrity, availability and quality impacts all involved value chain and, therefore, on each operator/provider for the part related to its network and/or its control, service, management and commercial platforms. That aspect should be reflect in EU regulatory framework revision.

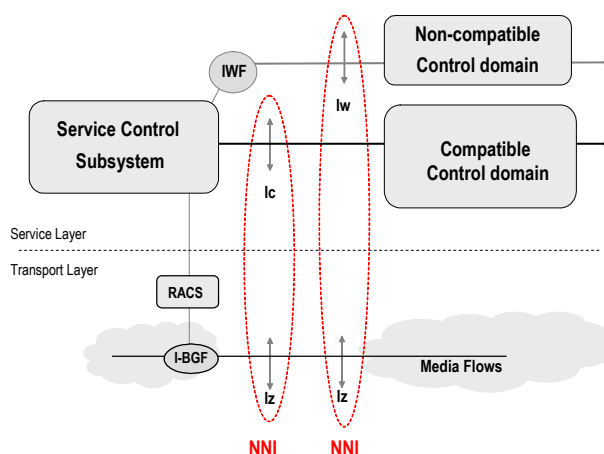
Regarding ERG document conclusion on consumer rights and service provider obligations, in principle Telecom Italia agrees with ERG proposal; however on the number portability issue, we would like to precise that number portability shall be possible only between equivalent voice services, that is services belonging to the same regulatory category (between services belonging to PATS category or between services belonging to new public voice ECS category). That derives from the definitions of service provider portability and we consider it is to be maintained, also for customers’ protection.

### **PTN and ECN definitions**

Regarding NGN separation between transport and control/service levels, Telecom Italia considers that concept is in principle correct but more precise standardization activity has been developed by ETSI body, in particular for NGN “IP-based” architecture. For instance, as pointed out by Telecom Italia in our response to previous ERG consultation on IP interconnection, provision of “carrier grade” NGN services requires to define so-called “service interconnection”, which enable QoS control and transport resources allocation of each single sessions associated with voice service. Only such technical solutions assure voice service provision potentially equivalent to existing PATS.

Therefore ETSI and ITU standardization is defining NGN solutions that, based on IP and SIP technology, are able to provided QoS managed session-based services; differently Internet-based solutions would provide just “best effort” session-based services.

As a contribution to update NGN architecture illustrated in Figure 2 of ERG document, in the following we have included actual NGN architecture defined by ETSI TISPAN for QoS managed “carrier grade” NGN services provision:



I-BGF: Interconnection Border Gateway Function  
 IWF: InterWorking Function  
 RACS: Resource and Admission Control Subsystem

### **NGN architecture defined by ETSI for Release 2 (standard ETSI ES 282 001)**

In such as ETSI architecture it is indicated, within the conceptual NGN separation between service and transport layers, required relations and exchanges of information between service control and transport resources allocation functions to assure QoS managed “carrier grade” services to the users.

## 8 Conclusions

Regarding conclusions that are proposed at the end of ERG document, Telecom Italia has identified the following contributions and proposals for EU regulatory framework revisions.

### Emergency services

Telecom Italia agrees generally approach emerging from the proposals included in ERG document, but some issues should be aligned and integrated with following points:

<b>EMERGENCY SERVICES ISSUES</b>	
<b>ERG conclusions</b>	<b>Telecom Italia comments</b>
<ul style="list-style-type: none"> <li>All <b>telephony service</b> providers should be obliged to provide access to emergency services.</li> </ul>	<p>In the Report the term <b>Telephony Service</b> refers in general “to all services which allow the users to establish a call session for a real-time bidirectional voice communication (that may be combined with video and data) based on either circuit switched or packet switched technology, without any reference to the regulatory classification.”[pag 6].</p> <p>TI Comments:</p> <ol style="list-style-type: none"> <li>this definition is too large, because include any type of VoIP service, e.g. “<b>Self-provided consumer</b>” or “<b>peer-to-peer service</b>”;</li> <li>Therefore the statement should be changed as follows:  <b>“All providers of public voice services, (PATS or public ECS) should be obliged to provide access to emergency services.”</b></li> </ol> <p>In other words access to emergency service should be defined in EU regulatory framework as an obligation for any <u>public voice service</u>, independently if it is PATS or public ECS. It is therefore necessary to reflect in advance (in the EU regulatory framework) a clearer and more applicable definition of public electronic communication service, above all for voice services.</p>
<ul style="list-style-type: none"> <li>The ability to provide access to the emergency services should be removed as a factor in the definition of PATS in the Universal Service Directive</li> </ul>	<b>OK</b>
<ul style="list-style-type: none"> <li>Information about the caller’s location should be provided to the extent allowed by the technology.</li> <li>Routing should be provided to the locally responsible PSAP to the extent allowed by the technology.</li> </ul>	<p>Routing and localization requirements should be applied, in principle, in an equivalent way for voice services belonging to the same regulatory category (fixed PATS or public voice ECS); for PATS, intrinsic characteristics of NGN technology should be reflected relaxing network integrity and availability requirements for emergency services, for instance regarding power failure issue.</p>
<ul style="list-style-type: none"> <li>Telephony service providers should be obliged to provide the emergency service centre with the information on whether the call originates from a fixed or potentially a nomadic user.</li> </ul>	<p><b>Nomadic VoIP services</b> should be managed inside EU regulatory framework as a new regulatory category, since those services can not be considered equivalent to fixed PATS, also in the users’ perception. Access to emergency services can be imposed as an obligation, but nomadic service requires different solutions to be developed in ETSI standardization body and in collaboration with PSAP. The way in which PSAP will manage access and localization of this new service category should be defined in future activities among operators and PSAP, as happened in the past for mobile services. For instance if nomadic voice services would use a new and exclusive numbering range, this will give clarity also to PSAP. As a consequence, Telecom Italia does not agree to introduce in regulation a specific new obligation to provide PSAP with information regarding originating fixed or nomadic voice services.</p>

<ul style="list-style-type: none"> <li>• Telephony service providers should be obliged to clearly inform subscribers about limitations in the services (e.g regarding localization and routing of emergency calls).</li> </ul>	<p>Precise information to customers, also in subscription contracts, is a key point to make transparent in the market the characteristics of different public VoIP services.</p> <p>Therefore TI believes that the proposed statement should include also the obligation to inform subscribers about:</p> <ul style="list-style-type: none"> <li>▪ the type of Service, clarifying if it a PATS or a different public voice communication service (nomadic, best effort, etc.);</li> <li>▪ the levels of Network Integrity and Quality.</li> </ul>
<ul style="list-style-type: none"> <li>• The information should be provided in comparable way in different MS, e.g. in the terms and conditions of contract, by means of a sticker on device or clearly visible information in bills.</li> </ul>	<p>Telecom Italia agrees on a harmonized approach on emergency information transparency</p>
<ul style="list-style-type: none"> <li>• Emergency calls should be setup with priority to the extent allowed by the technology.</li> <li>• Emergency calls should be setup with the best quality available to both the originator and the recipient.</li> </ul>	<p>Priority and quality in emergency calls setup should be only considered part of network integrity and availability requirements <b>of PATS</b>, since priority and quality obligation have not sense outside of a “carrier grade” NGN VoIP service.</p> <p>Telecom Italia, as for generic requirements for nomadic services, does not agree with a generic imposition for priority and quality before having clarified in EU regulatory framework the different regulatory categories definition and to which of them such requirements are referred (for instance a not carrier-grade VoIP service would not be able in practise to provide priority and network integrity, quality, etc.).</p>

## Numbering

Telecom Italia considers numbering one of most critical points for VoIP services and, above all, regarding possible nomadic feature effects on users' perception of numbering plan. In principle Telecom Italia does not agree with a generalized overcome of different numbering ranges characteristics defined in public numbering plans, above all in the case of geographic number. Telecom Italia proposes some issues that should be aligned and integrated:

<b>Numbering</b>	
<b>ERG conclusions</b>	<b>Telecom Italia Comments</b>
<ul style="list-style-type: none"> <li>• All providers of fixed Telephony services should be authorised to permit nomadic use by their subscribers. Geographic numbers should be available for this purpose.</li> </ul>	<p>TI Comments:</p> <ol style="list-style-type: none"> <li>a) this definition is too large(*), because include any type of VoIP service, e.g. “<b>Self-provided consumer</b>” or “<b>peer-to-peer service</b>”;</li> <li>b) <b>Geographic number</b> rights of use should be included only in PATS authorization conditions, which are finalized to assure a carrier grade public voice service, provided through an appropriate technology. Telecom Italia believes that no modifications is needed for the point.</li> <li>c) Therefore the statement should be changed as follows:  <i>“All providers of fixed public voice services, (PATS and public ECS) should be authorised to permit nomadic use by their subscribers.”.</i></li> </ol> <p>Nomadic public VoIP service, if provided, should be in principle associated to a new specific <b>non geographic numbering range</b> and nomadism should be at maximum national-wide.</p> <p>(*).In the Report the term <b>Telephony Service</b> refers in general “to all services which allow the users to establish a call session for a real-time bidirectional voice communication (that may be combined with video and data) based on either circuit switched or packet switched technology, without any reference to the regulatory classification.”[pag 6].</p>
<ul style="list-style-type: none"> <li>• Numbering plans should be technologically neutral, based on the service descriptions and the same number ranges should be available within those service description. This means that, geographical numbers for traditional telephony services and geographical numbers for VoIP services</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public numbering plans should be reconfirmed as “technologically neutral” and, as a consequence, <b>the associations between types of services and types of numbering ranges should not be modified; geographic numbers are generally associated to geographic fixed services and no new technology should modify such as service characterization.</b> That is fundamental to avoid impacts on customers' service perception and on numbering plan structure.</li> <li>▪ Geographic information included in “geographic” numbering range must be in principle maintained; the relevant CEPT/ECC report and recommendation should be carefully</li> </ul>

<p>should share the same number range, that is, come from a common “number pool”.</p>	<p>considered by ERG. Since in Europe is prevalent a geographic numbering structure with strong subdivision in districts or other territorial meaningful areas, regulation must introduce a requirement that, independently from technological and service evolution, the geographic number association with territorial districts has to be respected. That also to avoid confusion to users and impacts on tariff transparency obligations.</p>
<ul style="list-style-type: none"> <li>Nomadism is an essential feature of VoIP services which should not be restricted. Nomadism does not preclude member states from maintaining the geographical meaning of geographical numbers if wished; this can be achieved by allocating such a number only to subscribers with a main location (address) in the corresponding geographical zone as defined in the national numbering plan.</li> </ul>	<p>In the case of geographic numbers, nomadicity should not be encouraged and at least limited to districts or other territorial areas reflected in the numbering. Call forwarding or extended users' reachability VASs can be always offered as network-controlled features without modifying geographic number structure and meaning and with clear information to the calling and called users.</p>

### Number portability

ERG conclusions	Telecom Italia Comments
<ul style="list-style-type: none"> <li>Number portability is important from a user and competition point of view.</li> </ul>	<ul style="list-style-type: none"> <li>Telecom Italia agrees in principle with ERG document conclusion on Number Portability, as an important feature for customers. It is essential to remark that it is an obligation/right for all authorized operators/providers for fixed PATS and that seems to Telecom Italia appropriate also for the EU regulatory framework revision.</li> </ul>
<ul style="list-style-type: none"> <li>There should be an obligation to port numbers to any service provider which satisfies the conditions of use of the appropriate number ranges.</li> </ul>	<ul style="list-style-type: none"> <li>Service provider Number Portability is only applicable inside the same type of service category (between PATSs or between public voice ECSs), independently from technology;</li> <li>For instance, inside the same numbering range, Number Portability is likely to be applied also between new public nomadic ECS voice services.</li> </ul>

### ***Allocation of consumer rights and service provider obligations and ECS/ECN/PATS/PTN definitions***

Telecom Italia considers that, even if consumers' right protection is an agreeable principle, more clarity and certainty must be applied to PATS/PTN and public voice ECS/ECN definitions revision in EU regulatory framework. **Telecom Italia believes that QoS managed carried grade nature of PATS has to be preserved**, reflecting intrinsic NGN paradigm in the obligations application, for real consumers' rights defence. **ERG should refrain to extend PATS category to all possible VoIP services with different characteristics (nomadicity, best effort quality and network integrity, etc.).**

**Telecom Italia believes that a new public nomadic voice ECS category should be introduced in EU regulatory framework revision to include VoIP services not substitutable with fixed PATS, defining a new authorization category with appropriate obligations and rights (for instance it should state the access right only to a new specific non geographic numbering range).**

In Telecom Italia view this is the only possibility to assure clarity in the market and customers' rights defence.

Allocation of consumer rights and service provider obligations and ECS/PATS/PTN definition	
ERG conclusions	Telecom Italia Comments
The following is a set of rights and obligations relating to telephony services which provide access to or from the PSTN (categories 2,3 4 listed in section 1) should apply equally to traditional PSTN services and to VoIP services, irrespective of whether they fulfil the USD definition of PATS:	<b>ERG should refrain to extend PATS category to all possible VoIP services with different characteristics (nomadicity, best effort quality and network integrity, etc.).</b> Telecom Italia proposes to clearly define in EU regulatory framework revision the notion of <b>public voice service</b> and associated authorization needs, together with related obligations for any operator/provider of a recognized public service. Public voice services different from PATS may be defined in regulation, also belonging to specific ECS category (for instance voice nomadic services, etc.), with clear authorization need and obligations. Regarding obligations, intrinsic characteristics of NGN technology should be reflected in regulatory requirements.
<ul style="list-style-type: none"> <li>Subscribers should have rights in respect of contracts consistent with Art 20 USD;</li> </ul>	Contracts obligations should be maintained for PATS and ECS services.
<ul style="list-style-type: none"> <li>Subscribers should have rights to tariff transparency consistent with Art 21 USD;</li> </ul>	Tariff transparency should be maintained for PATS and ECS services.
<ul style="list-style-type: none"> <li>Subscribers with numbers should have the right of directory listing consistent with Art 23 USD;</li> </ul>	OK
<ul style="list-style-type: none"> <li>Subscribers should have the right to port their numbers to or from any other such services;</li> </ul>	Service provider Number Portability is only applicable inside the same type of service category , independently from technology.
<ul style="list-style-type: none"> <li>Subscribers should have the right to call emergency services.</li> </ul>	Access to emergency service should be defined in EU regulatory framework as an obligation for any public voice service, independently if it is PATS or public ECS.

Regarding differentiation between service provider and network provider, Telecom Italia considers that in existing EU regulatory framework there is already a differentiation between service provider (PATS or ECS) and network operator (PTN and ECN). Therefore we see a necessity to remark better the responsibility of each actor in the valEU chain for service provision and to precise the single role to match any obligations (for instance network integrity, quality, reliability, security, etc.). That point is also relevant to evolve telephone Universal Service provision.

Finally importance of SLA commercial negotiation with network operators should be remarked and investment in appropriate ETSI standards infrastructures and service platforms should be encouraged by ERG and NRAs, since that enables service provider to control pertinent service components towards own customers and to assure interoperability.