

HASHEMITE KINGDOM OF JORDAN



Telecommunications Regulatory Commission (TRC)

STATEMENT ON THE IMPLEMENTATION OF VOICE
COMMUNICATION SERVICES DELIVERED USING THE INTERNET
PROTOCOL

TRC Board Decision No.(2-18/2007), dated (23/8/2007)

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1. Introduction

The September 2003 statement of Government policy on the Information and Communications Technology Sectors and Postal Sector, established that the general approach to licensing within the fixed sub-sector should impose no limitation on either the number of licenses to be issued, or the technologies that may be deployed, subject to normal considerations relating to use of scarce resources; security; technical limitations and normal safeguards. In fact the Policy was explicit regarding the exploitation of new technologies and systems that may be used for the provision of multiple services.

On January 1st 2005 the integrated licensing and regulatory regime developed by the TRC became effective. Within this regime the TRC strives to support the deployment of new technologies and to remove or minimise potential barriers to entry thereby assisting in the development of the telecoms market and transferring benefits and choice to the consumer.

During 2003 the TRC issued an initial statement regarding Voice over IP. Subsequently, during 2005, the TRC issued a consultation document entitled "Implementation of Voice Communications Services delivered using the Internet Protocol" in which the TRC sought public comment from interested parties on a number of issues relating to the introduction and operation of IP based voice communications services in Jordan.

Having reviewed and given due consideration to the responses received in relation to that consultation document as well as recent developments in the regulatory treatment of such services internationally this statement is intended to provide clarity on the regulatory approach for Voice over IP in Jordan.

The new statement of Government policy on the information & communications technology & postal sectors adopted in May 2007 states: "Government supports the principle of 'technology neutrality' in regulation, but notes that new technologies nevertheless have regulatory impacts due to the creation of non-traditional services (e.g.

Voice over IP) or by breaking down barriers between traditionally separate 'relevant markets'. The Government requires that the TRC maintain a regular dialogue with the MoICT on new technologies and, in conjunction with the MoICT, to recommend appropriate legal or regulatory changes that will eliminate the barriers to the rapid introduction and use of such new technologies."

In keeping with the above, it is the purpose of this document to establish the general regulatory approach that will be adopted by the TRC with respect to the use of various forms of Internet Protocol (IP) based voice communications services provided by licensed operators within Jordan.

It is intended that in the short-term this document will contain a set of specific guidelines to be used in conjunction with the existing regulatory instructions, however over time guidelines contained within this document will be reflected in the appropriate individual instructions. Therefore this document:

- provides specific guidelines to be applied with respect to the provision of voice services delivered using the Internet Protocol;
- establishes a set of guiding principles related to this subject for which specific regulations are not necessary;.
- shall be periodically reviewed and updated as necessary to ensure that the statements remain current and pertinent to the prevailing market conditions.

By its nature IP is viewed as a disruptive technology and to date has facilitated rapid developments in the market. Should there be further substantial changes within the market then the TRC reserve the right to amend and if necessary replace this document.

2. Background

It is important to bear in mind that IP is seen as a disruptive technology that does and will continue to challenge the traditional circuit switched communications business model. The use of IP is not limited to the carriage of voice, which in reality is a late comer to the

party due to initial problems relating to packet delay leading to poor quality of service levels. However with the advent of meta tagging and tunnelling protocols poor quality of service is becoming less of an issue. From a regulatory perspective the use of IP technology is leading to new challenges that confront the traditional regulatory paradigms. Convergence between telecommunications, media, broadcasting and information technology can be realised through the use of this technology. Consequently forward looking regulatory frameworks are required to deal with this inevitability. Indeed in the 3G mobile world a degree of convergence has already happened as a result of IP technologies being deployed throughout the network.

From a fixed line perspective a number of different network models exist.

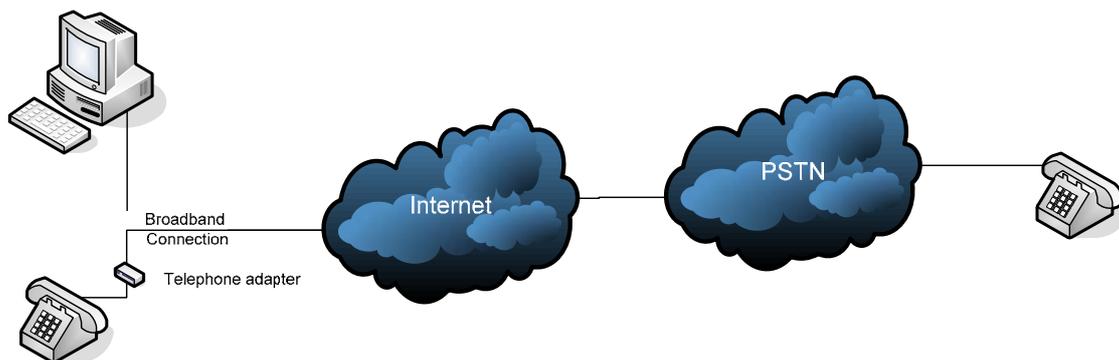


Diagram 1: Voice over Internet Protocol basic service

Diagram 1 provides a simple illustration of a Voice over IP service whereby either a PC or a standard telephone with adapter are able to send &/or receive voice communications via the internet to &/or from an end user connected to the PSTN. To ensure a reasonable level of voice quality this is typically provided using a broadband connection.

Technological advances have meant that telecommunication infrastructure companies have typically started to scale back investment in the traditional switched network and begun to invest in Next Generation Networks (NGNs). This can happen in a number of different ways as illustrated in Diagram 2. Connection to the premises will still typically remain over the existing copper line plant, (in some cases this may become a fibre

connection and in some cases may be replaced by higher bandwidth wireless connections using technologies such as WiMax) and IP is then layered either into the core network only or via the use of broadband connections into the access network also.

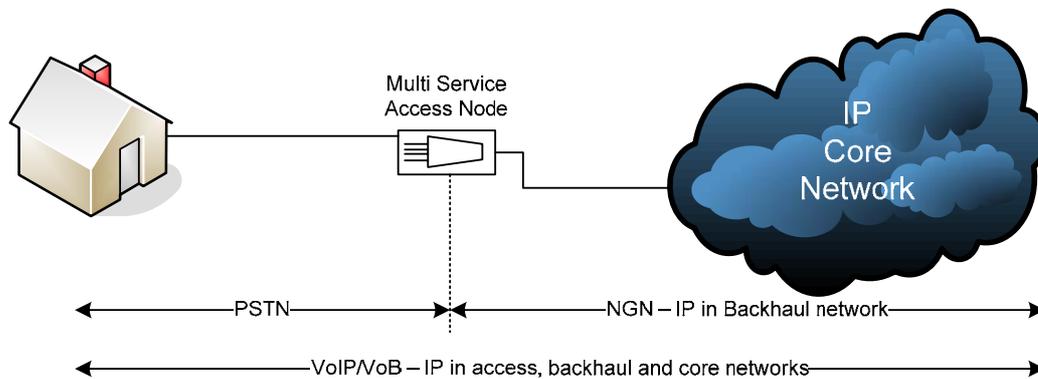


Diagram 2: Next generation networks

It is not the intention of this statement to address the regulatory regime for Next Generation Networks, and the TRC reserves the right to examine this regulatory environment separately.

Throughout the world there are now a significant number of VoIP service propositions available and to examine how, if at all, these kinds of services are or should be classified has been a key question for regulators around the globe, as any rigid classification is unlikely to be stable given the pace of technological and market-driven changes.

The TRC believes that VoIP services can fall under one of the following two options depending on their ability to comply with the commonly accepted definition¹ of a traditional voice communication service that it is;

- a service available to the public;
- for originating & receiving national and international calls;
- access to emergency services; and

¹ The definition of Public Available Telephone Service (PATS) used by European Union in their telecommunications framework

- the use of a number or numbers in a national/international telephone numbering plan

VoIP service offerings delivering all of the features mentioned above are considered as Primary Line Services. On the other hand some IP based voice communication services may not be able to offer the full set of core requirements commonly associated with traditional voice services (listed above) and consequently are considered as Secondary Line Services.

There is no single technology platform that has yet become the front runner in the deployment of these types of services, and with the standardisation for technologies such as WiMax still at least a number of years away it is likely that market diversity will remain. However, as with traditional circuit switched based voices services the core capability to enable voice calls remains a constant between these differing approaches.

The TRC anticipates that many different business models will emerge as a result of the deployment of VoIP technologies thereby creating a vibrant competitive voice market from which the consumer is provided real choice.

In examining an adoption curve it is common to see PC-to-PC as the early leader in the use of VoIP with PC-to-PSTN lagging somewhat behind. The PC-to-PSTN market however crosses the boundary between private and public networks.

With increasing awareness of broadband and a steady reduction in the cost of broadband services to consumers, PC-to-PSTN will become more prevalent. (In some countries this is defined as Voice over Broadband). The pace at which this adoption rate increases depends also on the regulatory regime with respect to the use of numbers and call routing, both of which will be discussed later in this document.

3. Regulatory Approach

It is intended that the TRC will adopt a light handed approach to regulation of both Primary and Secondary Lines public voice communications services delivered using Internet Protocol so that it is best able to minimise regulatory barriers to innovation and the use of new technologies. As such, this approach should maximise the speed at which the benefits associated with the deployment of disruptive technologies such as IP can be transferred to the consumer. These benefits should include:

- reduced network costs and therefore the potential for lower retail prices being offered to consumers;
- exploitation of platform technologies thereby providing a more feature rich service offering; and
- increased competition for the provision of voice services as a result of alternative service providers such as ISP also being able to add voice to the service portfolio.

The unified licensing regime supports this concept of technology neutrality and therefore it is the intention of the TRC to remove regulatory barriers to entry, if any, thereby allowing such benefits as described above to be realised by the consumer. However in so doing the TRC must be mindful of the existing regulatory environment and ensure that regulatory asymmetry is not inadvertently created. Consequently the TRC intends to revisit previous regulatory statements, instructions and guidelines to ensure that a level playing field for existing and new market entrants is created; and no special treatment is afforded to specific technologies or services.

In the 2003 “Formal Statement Regarding VOIP” the TRC stated as follows:

“The TRC views voice services provided using VoIP technology as the functional equivalent of voice services provided using circuit switched technology.”

Thereby establishing the basic regulatory parameters by which the use of this technology should be regulated with respect to the provision of voice services. Furthermore the Jordan Telecom license definition for “Public Switched Voice Services” states:

“Public Switched Voice Services means the provision of fixed voice telephone services to the public regardless of the technology used”.

The Jordan Telecom license went on further to define “Services” to include Public Switched Voice Services which fall within:

“telecommunications services, other than Enhanced Services, that transport intelligence (including data, video and multimedia) in electronic form between Network Termination Points, including services that utilise such applications as frame relay, packet switching asynchronous transfer mode (ATM) switching and ISDN and transmission services to or over the Internet”

These statements attest to the fact that there is a separation between technology and service. In this case the service provided is Voice Services and the technology used is based on the use of Internet Protocol. As such the terms and conditions that apply to the provision of voice services using circuit switched technologies should be the same as those using packet switched technologies, of which IP is one. However whilst VoIP has been considered an equivalent service to traditional circuit switched voice services some of the characteristics of the service are different as a result of the use of IP technology. Consequently there needs to be some consideration given to the treatment of these differences.

As such it is not the intention of the TRC, at present, to create a separate set of instructions pertinent to the use of IP Technology but rather to address each of the pertinent issues through existing instructions such as the: Interconnection Instructions; Numbering Instructions; and Quality of Service Instructions.

As stated in the Introduction of this document it is the intention of this document to provide specific guidance and where necessary provide instructions relating to specific aspect of the provision of Voice Service delivered using Internet Protocol. It should be noted that this is not limited to the use of IP in the provision of voice services only and

may over time be extended to include the treatment of converged services provided over IP based communications networks.

3.1 Licensing

The unified licensing regime implemented by the TRC establishing two license forms: class and individual licenses. The differentiation between the two essentially centres on the use of scarce resources (Numbering, Spectrum and Rights of Way). Within this regime it is clearly stated that all companies/individuals wishing to offer public telecommunications services within the Kingdom of Jordan are required to be licensed by the TRC prior to the commencement of services. Licenses are technology neutral and therefore the type of license required is dependent upon the business plan of the prospective licensee and the use of scarce resources, as such is not constrained by the type of technology that the prospective licensee is intending to deploy. Therefore there is no change or further clarification required with respect to the existing licensing framework. For the avoidance of doubt providers of public voice communications services delivered using Internet Protocol are required to be appropriately licensed by the TRC prior to commencement of service. Therefore service providers will be bound by the terms and conditions of the integrated licensing and regulatory regime.

3.2 Interconnection

The interconnection instructions are explicit in their reference to the provision of Interconnection services, article 57 states with respect to call termination services:

“All Licensees shall be required to provide Traffic termination service to all other Licensees”.

The instructions also go on to state in article 87:

"Other forms of Interconnection including Interconnection arrangements for packet switching Traffic and between different platforms and technologies that requires supplementary technical aspects shall be included in the RIOs of Designated Licensees."

It is therefore required that all designated licensees shall update their Reference Interconnection Offers (RIO) to reflect any changes necessary to accommodate the use of IP based technologies.

3.3 Numbering

The use of numbering in association with IP based communications services has been the cause of significant debate throughout the world. The cause for debate centres on the traditional view that a number when allocated to a fixed line has a defined geographic location. This is important when viewed in conjunction with the requirements for emergency services. The approach adopted elsewhere (particularly the UK) has been the use of both geographic and non geographic number ranges when associated with Voice over Broadband. This essentially builds on the existing numbering relationship between the existing copper line plant and provision of the DSL service.

Whilst this numbering relationship is evident with copper line plan and DSL services where the customer connection is provisioned using wireless technology this relationship is not evident. In some countries this issue has been solved by defining specific number ranges for use with IP based voice services. However, once again this only provides the relevant location information when assigned to services that have no mobility i.e. fixed line replacement services. When there is an element of mobility, either nomadicity or portability, there is no certainty from the use of the number alone where the call is originating or terminating.

At present the TRC has determined against the use of foreign exchange numbers and virtual numbers for both Primary and Secondary lines IP based voice services. For the avoidance of doubt, foreign exchange numbers are numbers assigned to a subscriber but do not form part of the National Numbering Plan, allowing subscribers in one exchange to receive telephone calls dialed as local calls in another exchange that they have selected (for example; national operators use international numbers to allow users to make and receive calls from Jordan to / from different countries as local calls). This TRC decision comes in accordance with the Telecommunication law No. 13, specifically paragraph 12.a.14 which states: "The Board shall exercise all the necessary powers to carry out the

duties entrusted to the Commission by virtue of this Law, including the following: To approve a national numbering plan for Public Telecommunications Services, to assign numbers for these services, and offer them on the basis of objectivity, transparency, and impartiality."

In addition term 15 in the "REGULATIONS FOR ALLOCATION AND RESERVATION OF NUMBER CAPACITY" approved by the TRC and published on its website, includes the following paragraph: "An Operator shall not use numbers, number blocks or codes other than those allocated by the TRC".

It is the intention of the TRC to update the National Numbering Plan to reflect the use of numbers for IP based voice services by specifying either geographic or non geographic number ranges or nomadic or any other alternatives.

3.4 Consumer Protection

The TRC believes that the use of IP technology will result in the development and deployment of innovative service. However, it is also mindful of the fact that whilst the service offering may be innovative there is no certainty that all of the features consumers have come to expect from a publicly available telephone service (PATS) may be present in IP based voice services. This is particularly true with respect to: access to emergency services and quality of service. The TRC considers these to be important issues that require clarification within this document as to how the individual instructions and general regulatory regime applies to public voice communications services delivered using the Internet Protocol. As such the following sections explain how the regulatory regime is to be applied in these areas.

3.4.1 Code of practise

Consumers need to be informed clearly whether a service is suitable for use as a replacement for their existing traditional phone line or only as a secondary line, based on the set of features that it offers.

Therefore, where such deficiencies are present in a licensee's service offering it is essential that such limitations are stated explicitly by the service provider and well understood by the subscribers as well as the users of the service.

3.4.2 Emergency Services

Many countries around the world are now questioning the value of access to emergency services and whilst this is a service which consumers take for granted, it is difficult for them to assess the potential impact of losing this service. In the US the FCC has mandated access to emergency services and the UK is currently questioning this within its VoIP consultation.

Access to Emergency services is a significant benefit that the majority of consumers take for granted without ever having any consideration about the means by which the service is offered. Emergency services needs to be viewed as three distinct elements: access to emergency services i.e. the ability to connect to emergency services; availability of emergency services i.e. the extent to which the service is always accessible; and location information.

Access is to a degree the easiest of the elements that is the ability to dial an emergency services number such as 191 or 192 for police and 199 for civil defence and be connected directly to the service. At present this is an interconnection service provided by Jordan Telecom and therefore should not be a cause of significant problem or additional cost burden to the licensee

In the European Union access to emergency services is an essential elements of the definition of publicly available telephone services (PATS). Such a definition is not in use in Jordan. However within the Jordan Telecom license there is a definition for “Public Switched Voice Services” that states:

“Public Switched Voice Services means the provision of fixed voice telephone services to the public regardless of the technology used”

Since the TRC has already stated that VoIP is an equivalent service delivered using an alternative technology the TRC is of the opinion that the existing conditions that apply to

publicly available telephone services shall apply to voice services provided using IP based technologies, where appropriate.

3.4.3 Quality of Service

It should be recognised that whilst Jordan Telecom remains with a de-facto monopoly over the physical provision of local loops some regulatory oversight is required to ensure that quality of service is not compromised due to the lack of end-to-end control by the DSL service provider.

The previous statement by the TRC in which Voice services provided using IP technology is determined to be an equivalent service as circuit switched voice services pre-determines that the existing quality of service measures also apply to packet switched voice.

On the 14th of Feb. 2006; the TRC issued a framework to regulate the QoS for telecom services this framework is deemed by the TRC to be as the first step in the QoS regulation; where main telecom services in the market are included at this stage of the framework.

However, and in spite of the importance of regulating and monitoring the QoS for such a service in the market, the TRC shared the view of many respondents to its consultation paper that suggested putting off VoIP QoS regulations to the next step of this QoS framework, this delay was agreed on for two main reasons: First, to give VoIP services more time to get mature in the Jordanian market. Second, to give the industry enough time to develop its experience in providing such services.

END OF STATMENT