

POSITION PAPER

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Position paper on the carriage of Voice calls using the Internet Protocol (IP)

Purpose: This note outlines the position of the TRA on the carriage of voice traffic using the Internet Protocol.

POSITION PAPER

Introduction

Voice over IP (VoIP) or Voice over Internet Protocol to use the full title, is simply a means of making telephone calls over a data network instead of over the traditional analogue public switched telephone network (PSTN). With VoIP, speech is encoded into discrete digital packets and then transferred across an IP-based data network (notably, but not exclusively, the Internet).

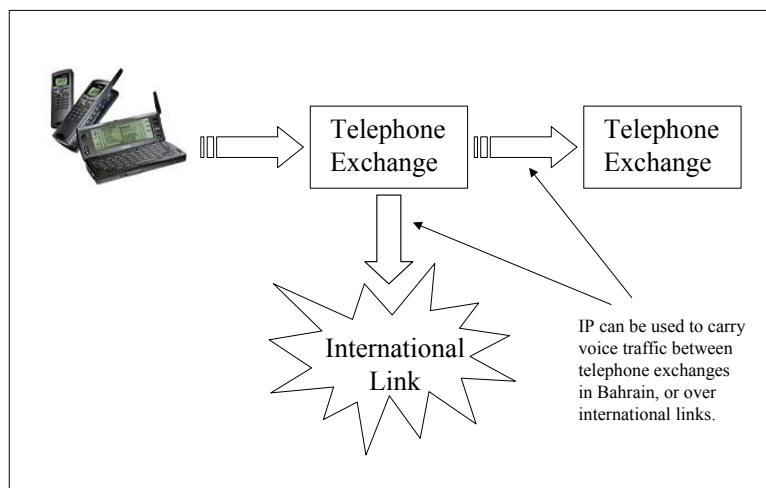
There are many advantages to this method of providing telephony, primarily the cost savings that can be made by avoiding the use of the traditional PSTN. In addition to cost savings, the digital nature of VoIP allows easy administration, the implementation of additional services such as voicemail, and a reduction in the physical cabling required for new installations. However, due to the distributed nature of the Internet and the 'best efforts' delivery approach, quality of service can often suffer.

In the context of this paper, VoIP can be viewed as either a service or as a technology. As a service it enables the use of a single Internet connection for the transport of both voice and data. As a technology it enables operators to convert voice traffic into IP packets and deliver this traffic over data links, which is proving to be a low cost alternative to conventional methods for long distance carriage.

The purpose of this paper is to address the issue of the legitimacy of voice over IP within the licensing regime of Bahrain.

Instances where Voice over IP is legitimate

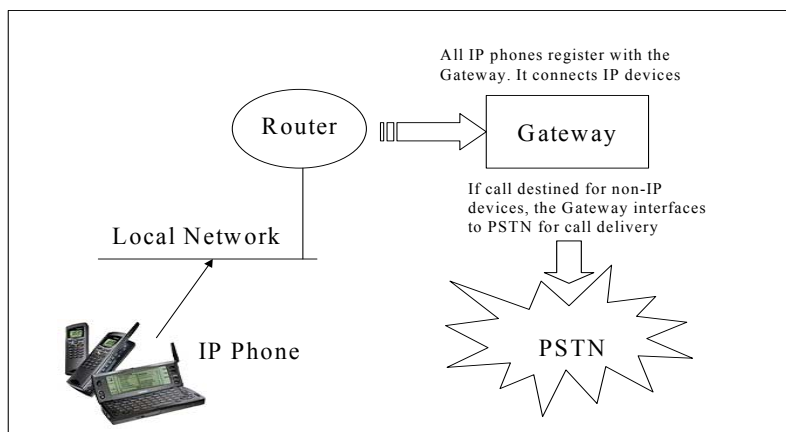
Suitably licenced operators are free to use the most appropriate technology for purpose. If they so choose, they are free to use the Internet Protocol as a means of carrying voice traffic over both national and international links, as illustrated below. In this instance a National Fixed and International Services licences, respectively would be required



Furthermore, IP may be used to deliver calls within a private network (for example, on an IP-enabled private branch exchange, or PBX). If a call is

POSITION PAPER

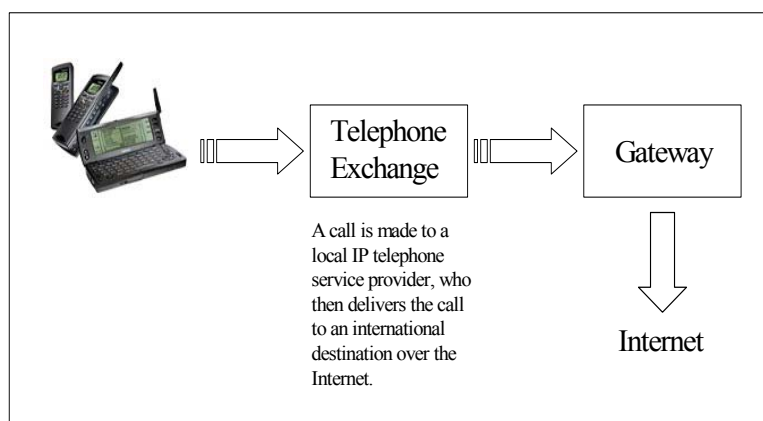
destined for a user outside the private network, it must be passed to a licenced operator for delivery. This is illustrated below.



Instances where Voice of IP is not legitimate

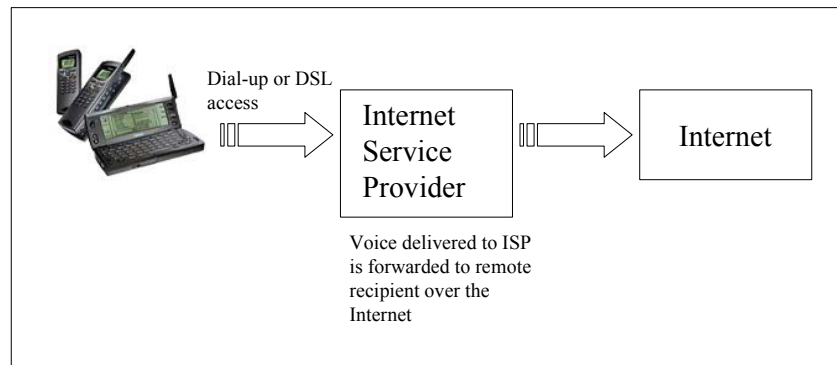
Only operators licenced to carry voice traffic may do so (that is, by means of a National Fixed and, possibly, International Services Licence, both of which are available from 1st July, 2004). The holder of any other licence may not use IP to carry voice – the Internet Service Provider and Value Added Service licences explicitly exclude the offering of public voice services.

The provision of a dial-up gateway that allows consumers to make a local call and thereby access (using voice over the Internet) an international call is not allowed. Such a service, as illustrated below would undermine licenced international service providers in Bahrain.



In the picture below, an Internet Service Provider (ISP) is shown as supporting the connection of voice calls (and, optionally, providing value added features to the consumer for this).

POSITION PAPER



Such an arrangement is not acceptable for a licenced Internet Service Provider who does not also hold a National Fixed or International Services licence, as appropriate, to offer voice over the Internet as this too undermines licenced operators.

Summary of the TRA position on Voice over IP

The TRA is neutral with respect to the technology used by a licenced operator. Hence the Internet Protocol is perfectly acceptable as means of carrying voice traffic.

The key point in this position paper is that the previous sentence only applies to operators with an appropriate licence. This means that, irrespective of technology used, voice services may be delivered only by holders of either (or both of) a national fixed services licence, or an international services licence.

The Internet Protocol cannot be used as a means of bypass. Hence the delivery of telephone calls by licencees other than those stated in the previous paragraph is not permitted. Specifically, this means that voice calls must not be made available by an Internet Service Provider unless such licencee also holds either of the appropriate licences.