

To: TIPHON project at ETSI
For: Discussion in the 2nd TIPHON meeting
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Subject: TIPHON architecture

Title:

NETWORK SCENARIOS FOR IP VOICE – PSTN/ISDN/GSM INTERWORKING IN THE TIPHON ARCHITECTURE

Assumptions

The IP networking functions in the scenarios are

1. The *IP voice server* which is responsible for the IP voice service
2. The *IP voice Gateway* which is responsible for voice stream translations and other related functions.
3. The *IP voice terminals* which are the end user devices.

All the above networking functions may be privately owned e.g. by a corporation. Alternatively, functions (1) and (2) may belong to an Internet Service Provider providing a public IP voice service to its subscribers.

The relationship between a IP voice server function (object) and the gateways is one to many. The relationship between IP voice terminals and servers is many to many. The relationship between IP voice terminals and gateways is many to many.

The network functions in a PSTN/ISDN include

1. Local exchange
2. NAP - network access point
3. SSP - service switching point
4. SCP - service control point.

Initial implications

It follows from the personal mobility requirement that be an IP voice terminal connected to one or another private or public server and using any gateway or be the user using a PSTN/ISDN phone or a mobile phone, the user can always be identified with a unique E.164 number.

Overview scenario

Figure 1 depicts an overview networking scenario for IP voice.

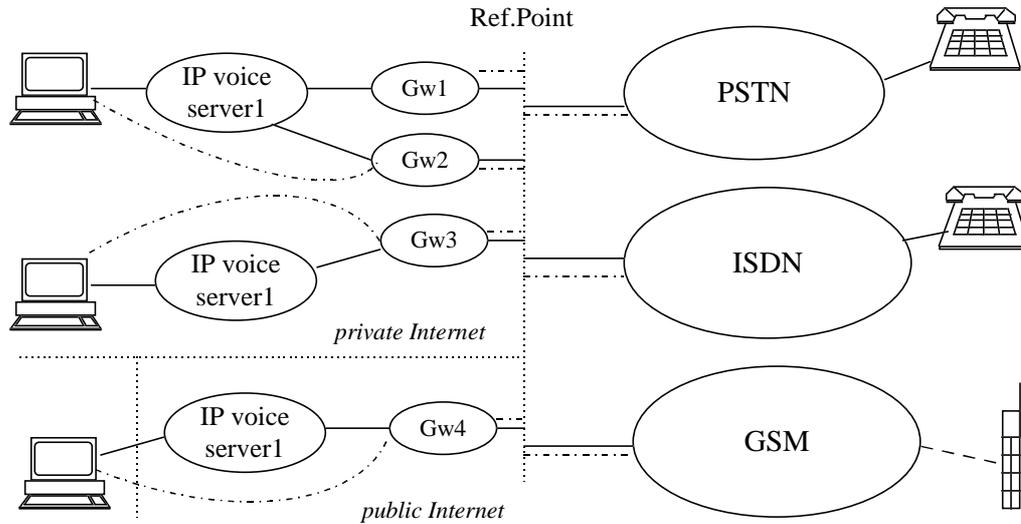


Figure 1: Overview scenario for IP voice.

On the next level of detail, the overview scenario can be broken down into the following network scenarios:

1. IP voice servers and gateways in a private network
2. IP voice servers and gateways in an ISP network
3. IP voice servers and gateways in PSTN/ISDN/GSM network

IP voice servers and gateways in a private network

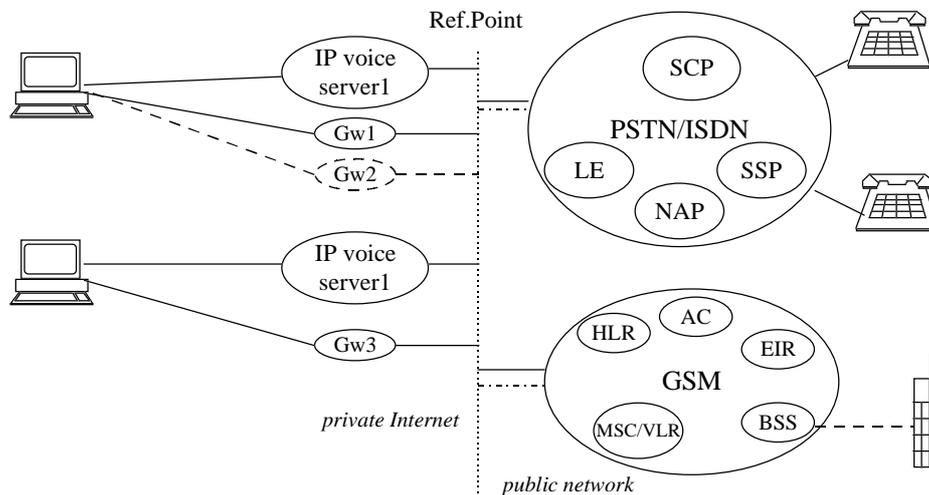


Figure 2: Scenario1 - IP voice servers and gateways in a private network.

In this scenario, depicted in Figure 2, two use cases can be seen

- a) a group of IP voice users are subscribed to a public network service (IP voice network is like a PBX or a PBX network) or
- b) each individual IP voice subscriber is a subscriber in a public network.

In case (a) direct dialing in or dialing through the corporate switch board can be used.

IP voice servers and gateways in an ISP network

The scenario is depicted in Figure 3:

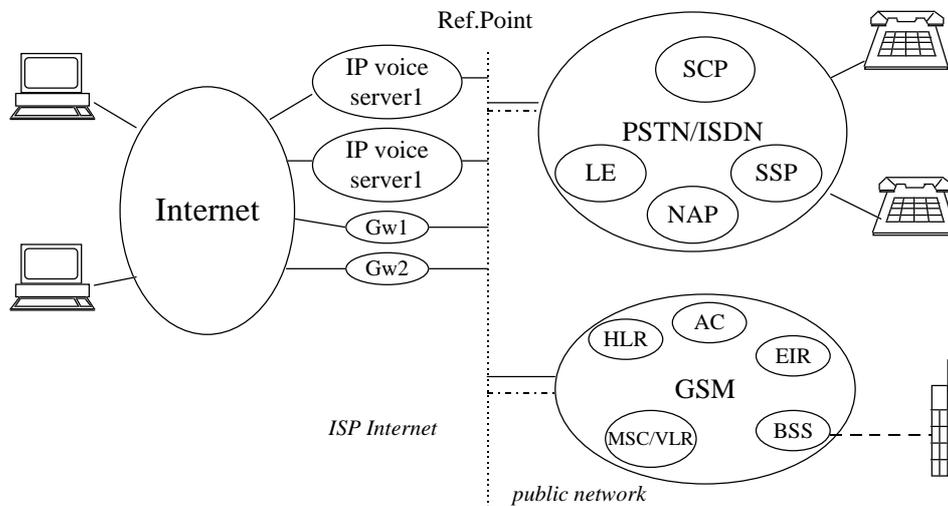


Figure 3: Scenario 2 - IP voice servers and gateways in an ISP network.

In this scenario in respect to the voice service, the ISP network and the PSTN/ISDN/GSM network are peers. Hence a likely candidate for the reference point signaling is CCS7 and its appropriate user parts.

IP voice servers and gateways in PSTN/ISDN/GSM network

This scenario is depicted in Figure 4.

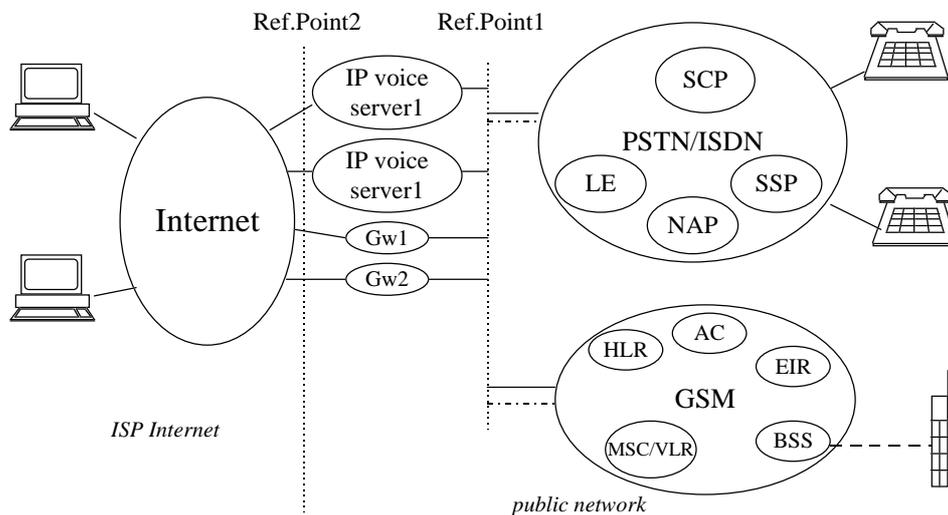


Figure 4: Scenario 3 - IP voice servers and gateways in a PSTN/ISDN/GSM.

In this scenario the Internet is an extension of a subscriber line. All IP voice subscribers are subscribers of a PSTN, an ISDN or a GSM network. Likely candidates for Reference point 1 signaling are V5.x for PSTN/ISDN and the A-interface for GSM.

Conclusion and proposal

This contribution suggests that scenarios 1, 2 and 3 should be considered as candidates for high level network scenarios for Tiphon. Based on discussion they should be prioritized and worked on in the most appropriate order for the European operators.