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LS to 3GPP on 2G/3G subscriber distinction and roaming restriction

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High Level Document Summary:

This document is an LS to 3GPP requesting the specification of 2G/3G roaming restriction capabilities. It is proposed to send the LS to 3GPP SA plenary (next meeting 15-18 Dec 2003), which will then transfer to the concerned working groups –probably SA1 (next meeting 12-16 Jan 2004), CN4 (next meeting 16-20 February 2004)

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To: 3GPP SA
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From: GSMA/IREG
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Introduction

The GSMA through its IREG/Packet WP is currently working on GSM/UMTS roaming in order to provide to mobile operators analysis and when possible guidelines on 2G/3G and 3G/3G roaming implementation. This work is reflected in IR.50 "2G/2,5G/3G Roaming guidelines".

This analysis has shown that currently in 3GPP specifications:

- There is no mechanism enabling distinction of the subscriber type (2G or 3G) in the HLR, VLR, SGSN
- There is no mechanism enabling the HPLMN to know whether his subscriber is roaming under 2G or 3G coverage for a network using one common PLMN code for both coverage's.
- The reject cause #15 "No suitable cell in this LA" was specified to enable a VPLMN to reject a registration request and trigger a search of an LA of the same PLMN. However, 3GPP specifications do not specify how the decision to send this cause is taken, e.g. depending on IMSI, LA, etc.- this is implementation dependent.

Discussion

The above mentioned lacks in the 3GPP standards will raise 2G/3G and 3G/3G roaming implementation problems especially when the home and/or visited network decide to use the same PLMN code for their GSM and UMTS coverage. IREG recognizes that some vendors may offer some of the above mentioned features; however they are based on different mechanisms, and therefore do not ensure a global interworking solution.

IREG/Packet is aware that originally, 3GPP specifications have been designed considering that on one hand there is no requirement to be able to distinguish 2G and 3G subscribers, and to be able to restrict roaming on this criteria; and on the other hand that there is no requirement to be able to restrict roaming depending on the Radio Access Technology used.

However, now that mobile operators are approaching 3G services launch, and are analyzing the different 2G/3G and 3G/3G roaming scenarios, the need of such features appears clearly.

For example:

- It should be possible for a visited network, to be able to prevent access of 2G subscribers with a 3G handset to its 3G coverage, whether the home network uses one or two PLMN codes for his 2G and 3G networks/subscribers.
- It should be possible for a visited network to reject a registration request on his 3G coverage, without preventing access to his 2G coverage, and this even in case of combined 2G/3G network elements.
- It should be possible for a VPLMN to specify different roaming authorisations for his 2G and 3G coverages, even in case of combined 2G/3G network elements.

Actions

The GSMA/IREG kindly requests the 3GPP to define and include in its specifications the following features at its earliest convenience:

- Ability for a visited network (MSC and SGSN), to distinguish 2G and 3G subscribers and to apply roaming restriction depending on this; i.e. be able to prevent access of 2G subscribers with a 3G handset to its 3G coverage, whether the home network uses one or two PLMN codes for his 2G and 3G networks/subscribers. This solution shall also be extensible to other access technologies, e.g. WLAN
- Ability for a visited network to reject a registration request on his 3G coverage with the cause #15 depending on the accessed Location Area, the IMSI of the subscriber and his subscription type (2G or 3G).

Those solutions should have minimum impact on previous Releases.