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1. Introduction

During the last SA meeting in Seoul, SA1 proposed a new work item in SP-040307 which proposed to introduce new network selection methods for situations where a mobile did not attach to the right network for GPRS. The work item was not accepted because it focused on the introduction of a new "preferred list" and it was felt that existing mechanisms would be sufficient.

Since the last SA meeting, O2 has done some study on what happens when a mobile roams in an area where there are several networks with which the home network has a roaming agreement.

We have found that the "normal flow" case, where a mobile locates the primary roaming partner with GPRS roaming, should work ok as discussed in the previous SA meeting.

However there are cases where further consideration is needed. For example, what happens if there is a fault on the primary roaming partner's network and GPRS does not work (no GPRS, no PDP context or no data flow through the PDP context)?

This has happened to members of SA personally, and of course they are able to resolve the situation using manual mode, however for the average user the manual mode is rather difficult to use. Specific situations causing such a problem which have occurred are:

- A user from Operator A roams to Operator B, with whom Operator A has GPRS roaming but for reasons of configuration in that particular area, GPRS through Operator B fails to work. In the same area there is coverage from Operator C, with whom Operator A also has GPRS roaming, but Operator C is less preferred than Operator B. Result: roamers are placed on Operator B with no GPRS roaming.
- A user from Operator A roams to a country where there is no preferred network and at random the mobile chooses Operator B with whom Operator A has GPRS roaming or Operator C with whom Operator A has no GPRS roaming. Result: 50% of roamers are placed on Operator C with no GPRS roaming.
- A user from Operator A roams to a country where coverage is very patchy or where there is a strong signal from Operator C, with whom Operator A has no GPRS roaming, and a patchy signal from Operator B, with whom Operator A has GPRS roaming. Result: some roamers are placed on Operator C with no GPRS roaming.

It therefore seems that there are some situations where manual mode is the only option for the user, yet manual mode is highly complex for most users and it would be better if the system could choose the optimal network for the user, if not from the first network selection time then at least by trial and error.

We therefore believe that there is merit in further discussions at SA1, to understand whether it makes sense in error cases for a mobile to select a non-preferred roaming partner in order to obtain working GPRS service, and what kind of approach would be needed (eg. Perform network reselction and camp on 2nd priority network). Following the SA1 discussion there may need to be further analysis of the ramifications at the signalling layer in CN.