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Introduction

This document addresses the issue of inter operator handover in relation to the requirements of the UE's Network Selection Mode.

In UMTS 22.01 the requirements regarding network selection procedures were identified, where a manual option is one of the mandated modes, whereas the requirements for inter operator handover are basically raised in UMTS 22.129.

Inter network handover is obviously an attractive feature within UMTS, however it should be under user control, especially in manual network selection mode. Currently, UMTS 22.129 does not consider network selection together with inter operator handover.

Inter Operator Handover and Network Selection Mode

UMTS 22.01 defines two mandatory types of network selection modes, an automatic one and a manual network selection mode. For UE's in automatic network selection mode there is no restriction on the network to choose. Any available network can be chosen independent of whether the UE is in idle mode or an active call is to be handed over. On the other side, when the UE is in manual network selection mode, the user limits the UE's access to a list of selected networks. The intention is to explicitly prefer or exclude special networks and/or operators for/from accessing.

UMTS 22.129, however, considers to support seamless inter-operator handover. Consequently, one possibility is that a UE in manual network selection mode is being handed over between different operators. In a special case this UE's manual network selection mode may explicitly exclude the target operator's network from accessing. Nevertheless, up to date there is no requirement to automatically prohibit the inter-network HO. Instead, the UE receives a notification of the inter-operator HO to be performed and - depending on the UE's implementation - the user probably has the possibility to drop the call.

However, in a first stage the user *explicitly* excluded the network in question from accessing by choosing the manual network selection mode. It would hence be desirable to *automatically* prohibit the UE from being handed over to other networks than those selected manually.

A special case occurs when the user lives e.g. at the border line of two countries. In order not to pay the additional costs for roaming he may choose the manual network selection mode and exclude the neighbouring operator from being accessed. Probably he would prefer to automatically prohibit any handover attempts to the neighbouring network instead of each time being prompted for a decision.

Proposal

In order to guarantee user-friendly operation it is vital to remove this inconsistency between the network selection mode and the inter-operator handover requirements from the specifications. An additional item should be added to the minimum inter operator handover requirements, stating that the UE's network selection mode should be taken into account before such a handover is initiated.

It is proposed to add the following requirement to UMTS 22.129 in section 4.2.2, under the minimum requirements for inter operator handover:-

- the ability to check whether the UE's network selection mode allows handover to the target network