Source:	T-Mobile
Title:	**Clarification on Iu flex**
Document for:	**Discussion**
Agenda Item:	**7.2.1**

Status quo

TS 23.236 version 1.0.0 *Intra Domain Connection of RAN Nodes to Multiple CN Nodes*, distributed as SP-010338 at the Stockholm plenary for information, contains two sections where RAN connectivity to multiple *core networks* rather than RAN connectivity to multiple *core network nodes* is addressed:

- **section 4.1 Iu flex technical requirements**

    ...

    5. The solution should not preclude the support of multiple core networks (from different PLMNs/operators) connected to a single RNS or BSS.

- **section 4.5 Pool identification**

    Network configuration example 2

    In this example one RAN serves two core networks. ... The example corresponds to an overlay of two core networks each without Iu flex as per core network only one CN element serves a pool area. ...

In addition to that, TS 23.236 version 1.2.0 contains a further section 4.9 *Multiple Core Networks connected to a single BSS or RNS*.

Although RAN connectivity to more than one core network may be a valid issue such kind of consideration is not covered by the corresponding WID for Iu flex (SP-000619) which clearly puts the WI focus on MM signaling reduction and efficient HW utilization. In addition to that, when approving the WID at SA#10 it was explicitly pointed out that the WI would read "... to multiple CN nodes ..." rather than "... to multiple CNs ...".

The common element of both the RAN connectivity to multiple CN nodes and the RAN connectivity to multiple CNs is some routing function in the RNC or in the BSC which of course could be used to also address different CNs. However, connecting a RAN to more than one CN comes along with some other issues which makes it no longer an architectural item only to be handled by SA2 but also an SA1 and SA5 item, mainly for billing and accounting reasons. For instance, it would be necessary to study potential criteria for determining the routing to CNs of different operators: is it IMSI based or according to preselection information or to dial information or is it time dependant etc. Furthermore, it might become necessary to record the CN connections in the RAN, for the purpose of inter-operator accounting.

Proposal

T-Mobile would like to propose two possible ways forward in order to resolve the mismatch between the current WID and TS 23.236:

1. Delete all sections in TS 23.236 dealing with multiple core networks connectivity from the RAN

and to progress the work for matching the original goals of Iu flexibility as documented in the WID.

2. Extend the scope of the current Work Item Description at TSG SA#13 to include the connection to multiple CNs. This will imply the involvement in the work of other TSGs with the risk of missing the Rel5 deadline for the completion of the work on Iu flexibility; however, this solution has the advantages of not losing the work already done in this area by SA2 and produce a more future-proof and complete technical specification.