Status Report for WI to TSG

Work Item Name: Introduction of Multimedia Broadcast/Multicast Service (MBMS) in RAN

SOURCE: Rapporteur, Nokia, Juho Pirskanen   **TSG:** RAN   **WG:** 2

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Ref. to WI sheet: RAN_Work_Items.doc

Progress Report since the last TSG (for all involved WGs):

RAN1
After the RAN#23, the MBMS discussion RAN1 took place in RAN1#37 in Montreal Canada. The discussion topics in RAN1 has been following:

- Minimum UE capability supported by all MBMS capable UEs
- Soft combining
- MICH False alarm probability in MBMS notification
  - Are modifications required compared rel99 PICH structure
  - Possible MICH enhancement solutions

Regarding minimum UE capability supported, it was agreed that the MBMS UE capability is defined as a set of combinations of (Bit rate, Number of radio links, TTI length) expressed in terms of memory (buffer) requirement similar to the definition of HS-DSCH capability.

However, no decisions were found on MICH and soft combining issues during RAN1#37.

RAN2
Since RAN#23, MBMS discussions in RAN2 took place in RAN2 MBMS Ad-Hoc meeting in Budapest Hungary. Agreements found during this meeting are summarized as.

- Handling of URA_PCH UEs in counting
  - URA_PCH UEs can be notified to send a cell update for
  - After counting they can be sent to any RRC state
  - Iur linking per URA will be supported (Details to be clarified by RAN3)
  - The probability factor may be different for URA_PCH and idle mode

- MBMS scheduling message
  - Indicating the beginning and duration for a possible MBMS service transmission
  - Allows to scheduling information to cover different periods for different MBMS services
  - Predetermined scheduling of scheduling information i.e. synchronous approach

- Clarifications to existing definitions in TS25.346

In RAN2#42 meeting in Montreal Canada, the MBMS discussions were limited due to time constrains. The discussion concentrated to the general Stage-2 CR (CR#1) proposed by the rapporteur based on agreements found in MBMS Ad-Hoc meeting and CR agreed by RAN3 during discussions in RAN3#42.

RAN3
Since RAN#23, MBMS discussions in RAN3 took place in RAN3 release 6 Ad-Hoc and in RAN3#42, where following agreements were found

- Agreed that UE in URA_PCH state has to be linked via Iur interface at least for the notification purposes. Counting of URA_PCH UEs open issue, because the accuracy of calculation and benefit was questioned.
- MBMS Service area concept related open issues are clarified in coordination with SA2
- Remaining SGSN filtering open issues clarified

These RAN3 agreements are captured in Stage-2 CR#2.

List of Completed elements (for complex work items):
TSG SA1: Stage-1 (TS-22.146) has been completed.
TSG SA1: Stage-1 (TS-22.246) has been completed.
TSG SA2: Stage-2 (TS 23.246) has been completed.

List of open issues:

In RAN1
- Whether soft combining should be mandatory or optional
- MICH enhancements
- UE capability - Memory requirement and the set of combinations of (Bit rate, Number of radio links, TTI length)

In RAN2
- The delivery method of the scheduling information
- Neighbouring cell information to accelerate the reception of MTCH after cell reselection when selective combining is not available
- Usage of multiple MBMS transport bearers for delivering one MBMS user service to the UE. A reply LS from SA2 has been received but was not yet treated in RAN#42 due to time constrains.

In RAN3
- SRNS relocation and its effects to MBMS.
- How RAN knows whether one MBMS Bearer service is for the multicast or for the broadcast mode. (Will be solved in coordination with SA2)
- The required information to calculate the probability factor in CRNC
- Channel Type Indication over Iur

Estimates of the level of completion (when possible):
It can be concluded that the level of completion of WI is 80%. Even though some open were closed some are still remaining. On another hand to stage-3 work has only slowly started in RAN2, and RAN3.

WI completion date review resulting from the discussion at the working group:
It is estimated that WI completion date is TSG RAN #25, September 2004. However the time schedule is extremely challenging.

References to WG's internal documentation and/or TRs:

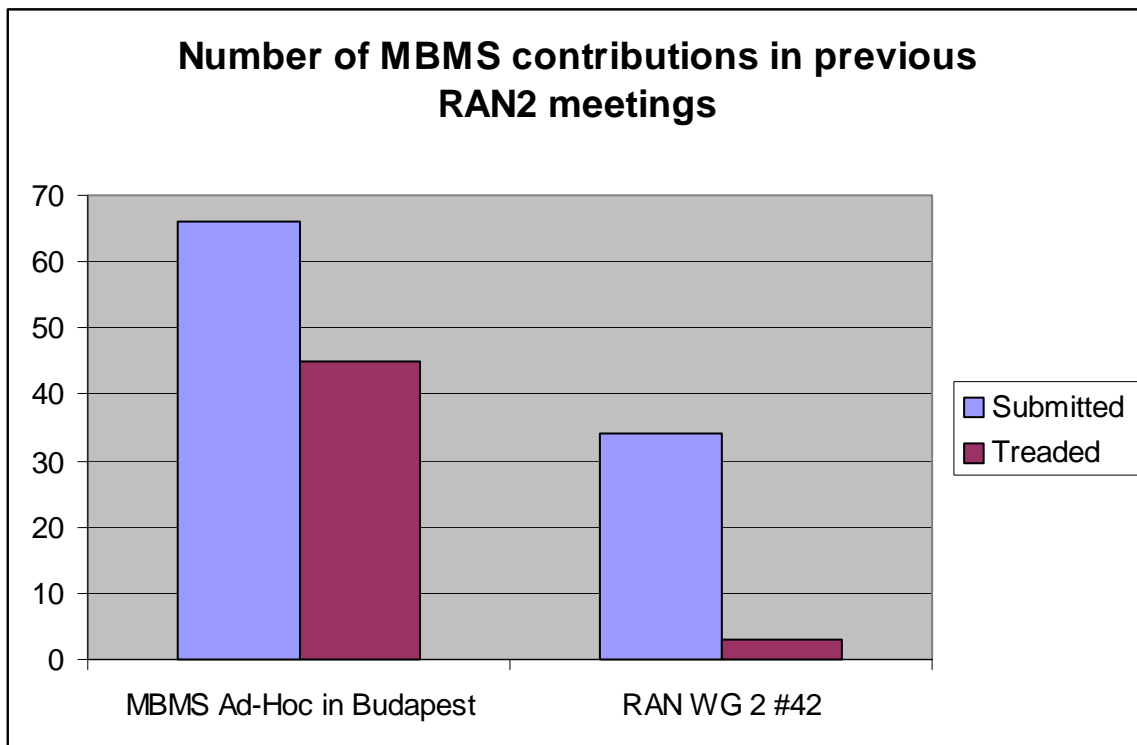**Annex:** Number of submitted and treaded MBMS contributions in RAN2

Figure 1: Number of MBMS contributions in RAN2 MBMS Ad-Hoc and RAN WG2 #42