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Agenda item:	MBMS
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1 Introduction

This comment contribution highlights the necessity of separate procedures at User Service Level to join/leave (register /deregister) to an MBMS User Service. By not specifiying these procedures, the key management overhead is increased. Also the complexity of MSK key deletion at the UE might be increased. It is also shown that a procedure is needed that triggers the BM-SC to stop the MSK push procedure (TS 33.246 section 6.3.2.3.1).

2 Discussion

The MBMS client can currently initiate the following HTTP procedures towards the BM-SC:

- MSK request procedures (this can have several triggers, e.g. service announcement, missed key update, BM-SC solicited pull)

- Associated delivery procedures (as defined in SA4 TS 26.346)

S3-050090 (CR51: Alignment to SA4 terminology) removes 'user service joining (and leaving)' from Section 5.1 of the TS 33.246. It is shown below that this adds additional complexity to the UE in case the user wants to leave the service (de-register). But first it is highlighted that in addition to a Key Request procedure, there is a need for a 'Key Leave procedure'.

There is a need for a 'Key Leave procedure' to optimize MSK key delivery. TS 33.246 specifies an MSK push procedure. A procedure is needed for the UE to tell the BM-SC that the UE is no longer interested in receiving the MBMS user service, to avoid that the BM-SC would keep on pushing MSK updates to the UE. The alternative solution to correlate the MBMS Multicast Service deactivation (TS 23.246) towards key management is not a good idea as it violates with one of the design rules to keep the MBMS key management independent from the MBMS bearer Service level.

Now consider following configuration:

MBMS User Service 1: MSK: key group A and key group B

MBMS User Service 2: MSK: key group A and key group C

Suppose there are no separate MBMS User Service procedures to join/leave (register/deregister): When the UE wants to receive MBMS User Service 1 and 2, then the UE needs to perfom one or more http key request for MSK key group A, B and C (dependent whether the need to join/register was at the same time). If the UE wants to leave only MBMS user Service 2, then the UE has to take care that Key Group A is shared with User Service 1 to only trigger an http key leave procedure for Key group C. Within the MSK MIKEY messages that are sent to the MGV-F (UICC or ME), there is no relationship towards the MBMS User ServiceId i.e. only a stored service announcement at the ME can be used.

An alternative way to initiate/stop key management is to specify a separate join/leave (register/deregister) procedure at MBMS User Service level. **This removes potential key management overhead which might be introduced by a UE (e.g. an MSK leave too much, a forgotten MSK leave) by moving the intelligence for this decision to the BM-SC**. Hence, for the configuration as described above, following procedure would be needed

- If the UE wants to leave only MBMS User Service 2, then only a simple leave (deregister) procedure is initiated for Service 2 (no Key Group Ids are specified).

- When the UE wants to receive MBMS User Service 1 and 2, then the UE needs to initiate two MBMS User Service joins (register) in all circumstances (the UE need not check if the MSK keys of the indicated Key group ids) are already available. The BM-SC checks which MSK's are needed depending on the status of the joined/registered services. The initiation of separate MSK request procedures is similar in complexity as MBMS user service requests. If an MBMS user service leave is specified, then the specification of the counterpart procedure 'MBMS user service join' would be natural.

- For missed key updates, still an http MSK request procedure needs to be initated.

The MBMS User Service Join (register) could be realized in the following way (similar to the MSK key request as proposed in S3-050081, Annex F.2)

- the Request-URI shall contain an URI parameter "requesttype" that shall be set to "register" or "deregister", depending on the UE's desired request type (e.g. Request-URI may take the form of " /bmsc.home1.net/keymanagement?requesttype=register").

- In case of "register' or "deregister", the parameter User ServiceId (taken from the Service Announcement) shall be used instead of the requested Key group Ids.

Within the response of a 'deregister' type of procedure, the BM-SC shall indicate the MSK Group Id's that need deletion in the UE.

3 Conclusion & Proposal

This comment contribution has highlighted the necessity of separate procedures at User Service Level to join/leave (register /deregister) an MBMS User Service. By not specifiying these procedures, the key management overhead is increased. Also the complexity of MSK key deletion at the UE might be increased. It is also shown that a procedure is needed that triggers the BM-SC to stop the MSK push procedure (TS 33.246 section 6.3.2.3.1).