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**Source:** 3

**Title:** Order of MBMS UE context establishment and key delivery

**Document for:** Discussion and decision

**Agenda Item:** MBMS

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## 1 Introduction

The successful delivery of an MBMS user service requires both the successful establishment of the MBMS UE context and the successful delivery of the MSK needed for that particular MBMS user service. No decision has yet been taken on the order that these two processes should happen. The final decision on the order could also be affected by the application layer joining that might be specified by SA4 (SA3 sent S3-040200 to ask SA4 about this).

This paper considers some of the pros and cons of establishing the MBMS UE context before delivering the MSK and vice versa. It also draws an initial conclusion on the issue. As stated above, an application layer joining procedure may affect this decision.

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## 2 MBMS UE context establishment before MSK delivery

This has the disadvantage that network resources are committed before it is known that they will be useful, i.e. the UE receives the MSK needed by the UE to enable decryption of the transmitted data. Although it is unlikely that a UE that has been authorised to establish a UE context would not be able to successfully receive the keys. Another cost of having an established MBMS UE context to a UE that does not have the keys is that the network will transmit data towards that UE. The UE will not be able to decrypt the data and hence it is a waste of network resources, which is against the aim of MBMS. A possible way of avoiding this problem is for the BM-SC to remove a UE from an MBMS service, if the UE has not fetched the key in some time window after the bearer after the UE context has been established.

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## 3 MSK delivery before MBMS UE context establishment

This has the disadvantage that once a key has been delivered to a UE, the user will almost certainly be charged but it is possible the UE may not be able to establish the MBMS UE context, e.g. the user may be roaming in a network that does not support MBMS. This means that either a user will be charged for a service that they can not access or an MSK will be delivered without charge. This issue is avoided if the BM-SC knows that the MBMS UE context can be established. This in turn relies on either having already established the context (the above proposal) or the BM-SC having knowledge of the network that is serving the UE.

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## 4 Conclusion

From the above analysis, it seems as though that it is better to establish the MBMS UE context before delivering the MSK. However application layer joining needs to be taken into account before making a final decision