

SA2#124, 27 November – 1 December 2017  
Reno, Nevada, USA

# S2-178887: Study proposal for 5G multicast-broadcast services



# (e)MBMS more suitable for verticals than MBB



MBMS initially developed for video broadcasting and streaming services

- Later updated to support V2X, public safety, CIoT. However, simple devices may not support MBMS protocol stack.

(e)MBMS not yet widely used

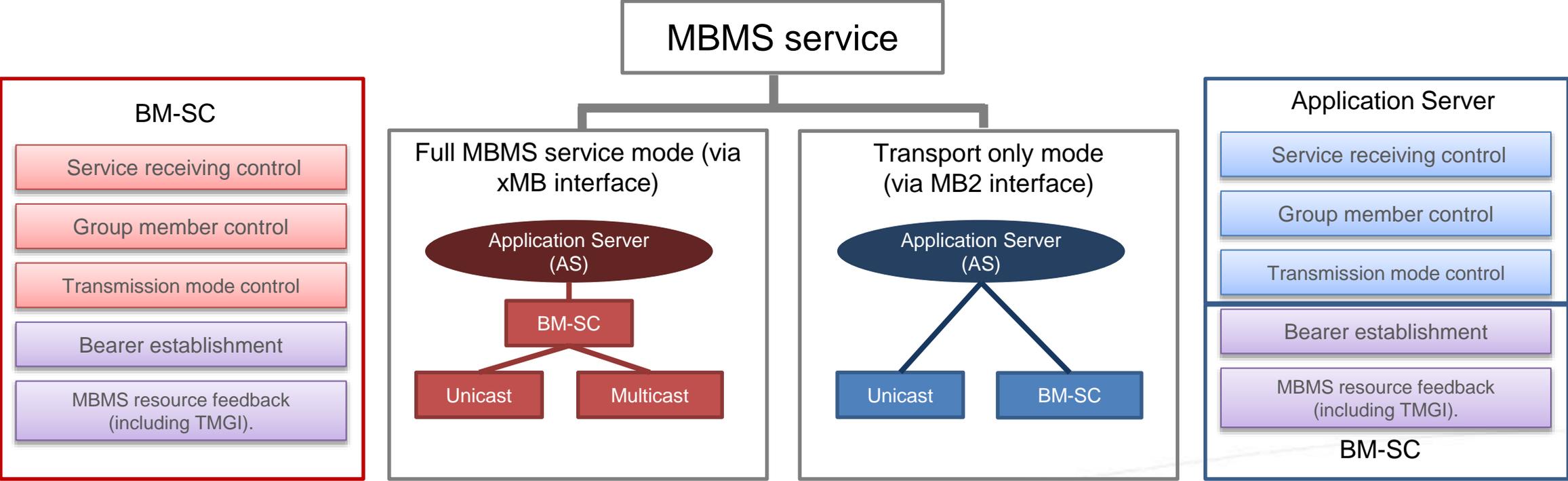
- **Use Cases:** Most of OTTs do not need the use case of many users simultaneously receiving the same content;
- **Business Model:** Most of OTTs do not pay MNOs for data volume and they do not care much about underlying network/spectrum resource efficiency. Normally OTTs do not have business agreements with MNOs.
- **Motivation for MNOs:** hard for them to launch MBMS without cooperation with application provider.

Vertical providers have more interest

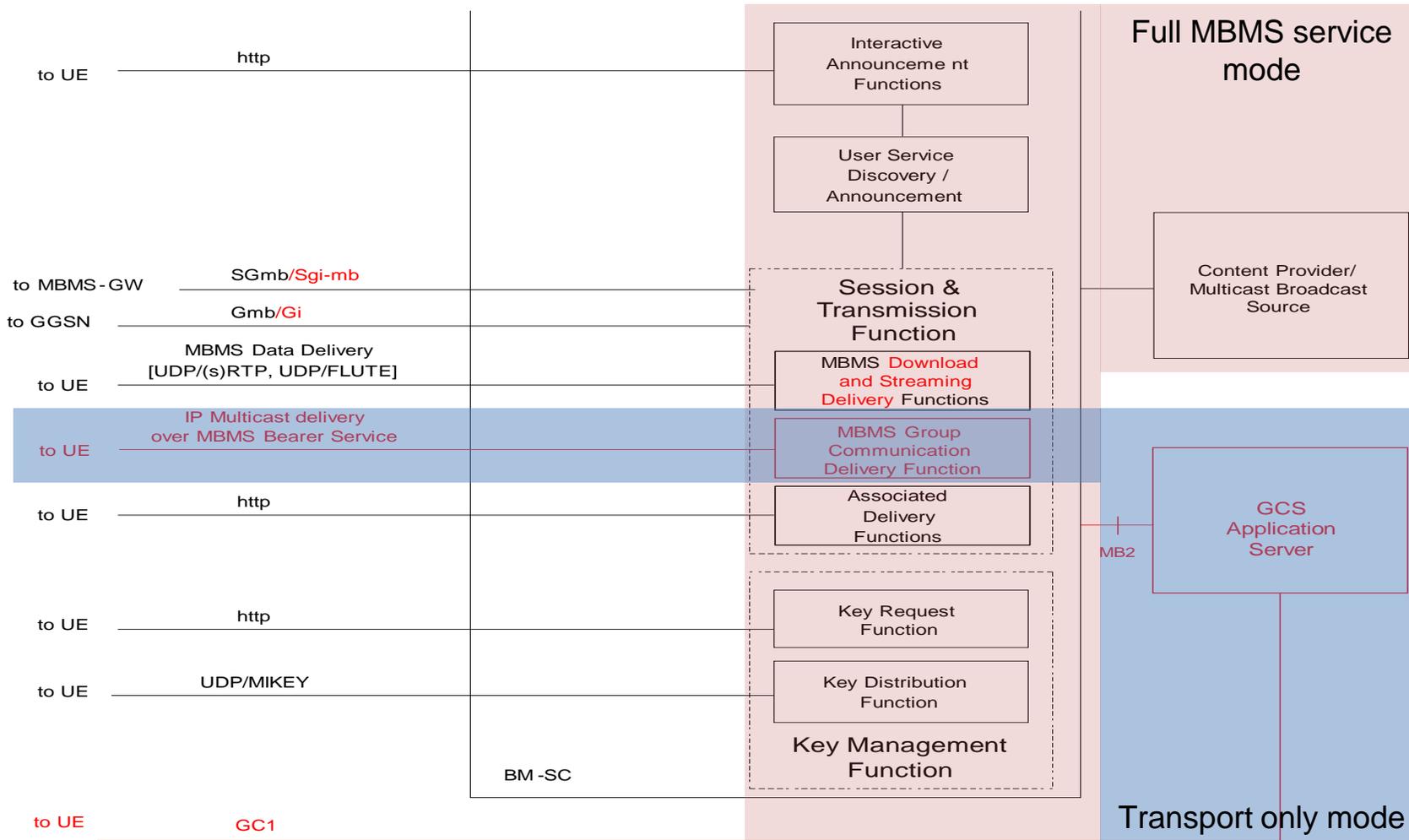
- **Use Cases:** Vertical applications have a lot of group/broadcast scenarios (e.g., IoT Software upgrade, V2X, public safety, ...)
- **Motivations:** Application providers may either deploy dedicated networks themselves or rent it from MNOs. In both cases, they care about saving network resource.

# Different service models for different requirements

Full Service mode vs. Transport Only mode



# Full set of BM-SC functionalities



MBMS system provides full service layer capability.

BM-SC aware of content stream and capable of transforming the content stream into 3GPP compliant stream.

BM-SC can decide whether to switch an MBMS user service between broadcast or unicast service.

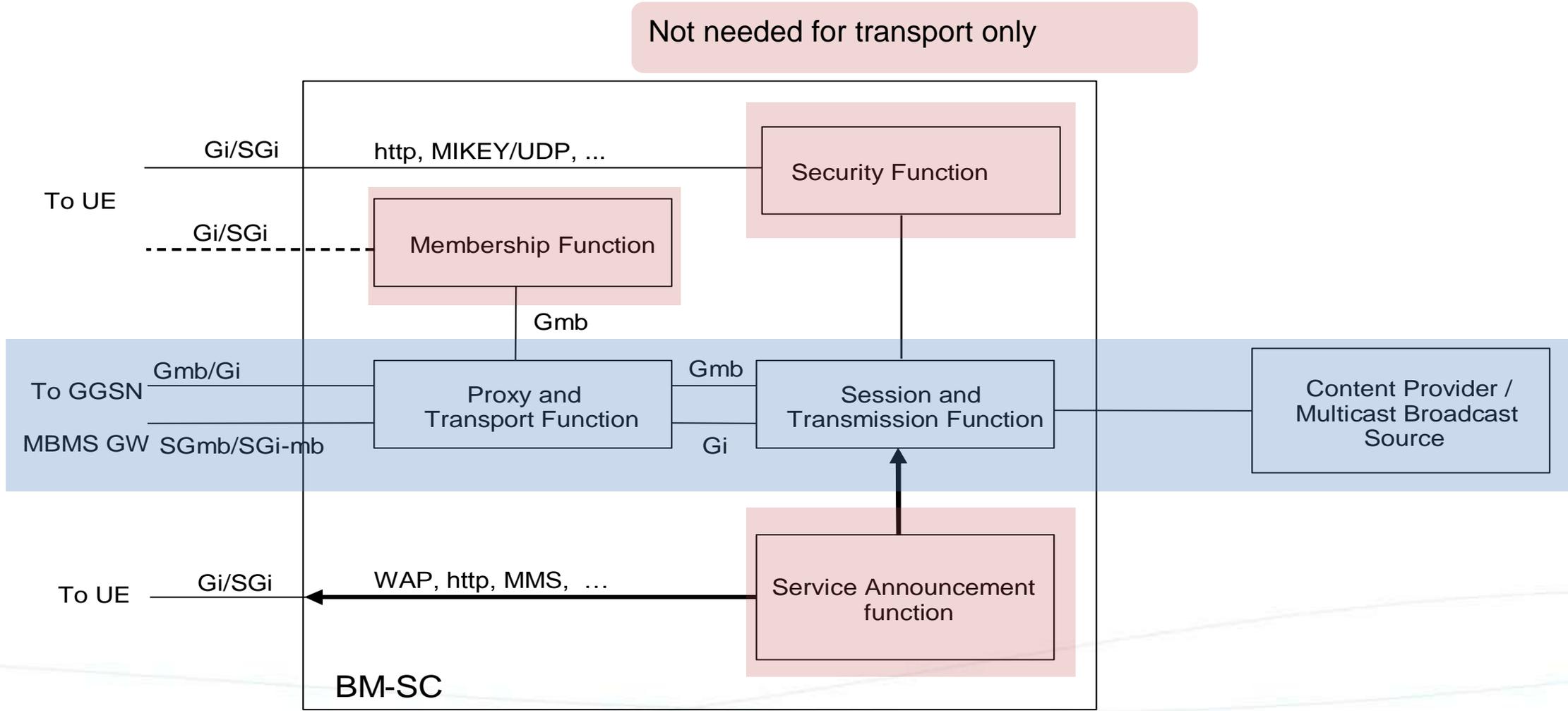
3GPP network provides only transport of data/TV content in a transparent manner.

3rd party content provider's signalling and data transferred via MBMS bearer(s) are transparent to BM-SC and the MBMS bearer service.

All other service aspects, e.g. decision of whether to send data over broadcast or unicast, is not within 3GPP network, and is performed by application server.

For detailed structure and services see TS 23.246

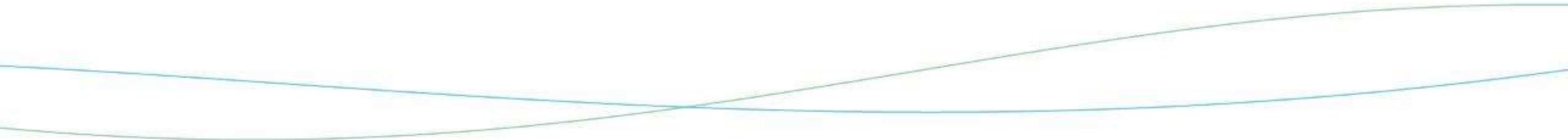
# Not all functionalities needed for transport only mode



# Proposal

Inherit the 5G system architecture and design principles (e.g., functional modularity, decoupling of (R)AN and CN functionalities, CP and UP separation, service based principle) and study 5G multicast/broadcast architectural enhancements to:

1. Support equivalent features to (e)MBMS
  - e.g., session/flow management;
2. Provide different types of services to third party
  - e.g., transport only mode vs. full multicast service mode
  - Decide how to open multicast service to application service
3. Decouple CP and UP functionalities
  - Decouple CP bearer handling and service layer
  - Support local service with low latency/backhaul cost (e.g., for MIoT, public safety, eV2X)
4. Support simple UEs with limited memory and processing capability
5. Unify network architecture for multicast and unicast
  - Simplify the network architecture
  - Enable Quick switch between Unicast & multicast



# Thank You.

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