

# MBS in Rel-19

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Agenda Item 5

Source: Nokia, Nokia Shanghai Bell

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# MBS in NR: Background

- The MBS foundation in NR was laid in Rel-17 and followed by Rel-18 targeting scalability of multicast and further optimizations such as MOCN for broadcast:
  - Focused primarily on the needs of public safety and mission-critical communications rather than linear broadcast;
  - Learning lessons from the lack of commercial success of MBMS in 3G and 4G, UE implementation impact was minimized, with architecture based on single-cell PTM;
  - Several issues leftover, such as Multicast MOCN and additional CFRs, that were discussed but deprioritized to future release.
- The principles of Rel-17/18 MBS should be retained:
  - The needs of public safety and mission-critical communications should remain the focus.
  - Any changes with non-negligible device impact should be avoided, as they are not likely to gain traction in the market.

# Potential considerations for MBS enhancements for PS in Rel-19

**If further MBS enhancements were to be done in Rel-19, the following might be considered:**  
(in decreasing order of priority, and in line with the principles outlined on the previous slide)

1. Multicast over Multi-Operator Core Networks (MOCN)
  - Broadcast over MOCN is supported in SA2/RAN3 in Rel-18, but multicast, which is of particular importance to Public Safety, was deprioritized and postponed to Rel-19.
  - Multicast over MOCN should enable multicast services provided by different sharing partners. This would lead to both power savings in the network and better spectral efficiency over the air when providing the same service in sharing partners' networks. Work in SA2 and RAN3 is required.
2. Further lower layer enhancements to increase reliability/spectral efficiency for public safety communications.
3. Mobility enhancements for multicast, including flow-to-MRB mapping among inter-vendor gNBs, and conditional handover.
4. Roaming to satisfy Stage-1 requirements including support of local of break-out, enabling an inbound roaming UE to receive multicast services from the visited PLMN.
  - This could be useful to facilitate non-local emergency services to receive communications from a local incident coordinator.

By contrast, we consider aspects such as non-transparent SFN operation (including extended cyclic prefix) to be unjustified, due to the UE implementation impact which makes commercial deployment unlikely. Further, public safety incidents with large numbers of personnel are typically confined to one or a small number of cells, and independent multicast operation can be used in the affected cells. From LTE, it is known that SFN MBS synchronization in a large area is nearly infeasible and requires buffer zones where the interference is high due to SFN.

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