



Presented by

System Engineering

BROADCAST MULTICAST APPLICATION ENABLEMENT FOR SATELLITE



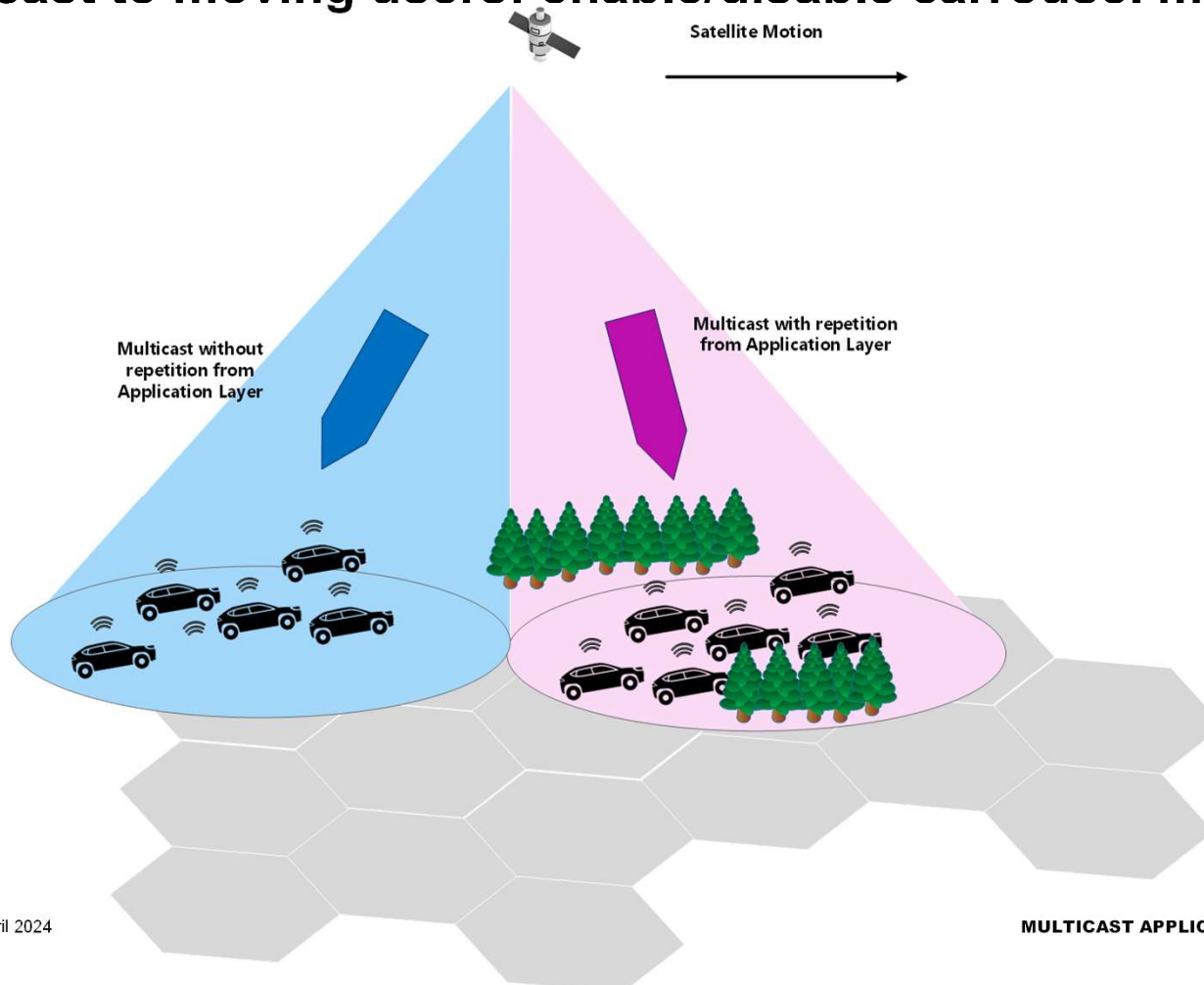


Broadcast Multicast Application Enablement for NGSO

1. Reliable Multicast to moving users (LEO/MEO): enable/disable carousel mode
2. Low-latency Multicast with NGSO (LEO/MEO)



Reliable Multicast to moving users: enable/disable carousel mode



Reliable Multicast to moving users: enable/disable carousel mode

- In this scenario we consider moving users (in the vehicles). This use case addresses a group of vehicles having a multicast connection together to a hub to get control information or content from the central hub (applicable for software/firmware update, sending a critical message to a group of users for public safety...).
- The network can define some reference points in the cell grid where robustness must be enabled for reliability. As an example, in this scenario the users starts their multicast connection with minimum robustness (without repetition) in a region classified by the network as “good radio conditions” and then once they start approaching a reference point classified as “bad radio conditions” they switch to a multicast connection with maximum robustness (where repetition is enabled).
- Due to the fact that with NTN and Multicast, the Air Interface doesn't offer reliability mechanisms, it is worth to consider reliability on the application layer which could be configurable per cell basis or region basis.
- Reliability requirement: 10^{-8} – 10^{-6} of Packet Error Rate

- In this scenario, the repetition is at the application with file carousel.
- The network shall be able to bind an application to a given geographical area and the appropriate configuration (enable/disable file carousel)
- How and whether this will impact the provisioning of the service ?



Low latency Multicast with NGSO

- In this scenario we consider a multicast application requiring low latency delay “Mission Critical delay sensitive signalling”, “Intelligent Transport Systems”... NGSO are the most fitting for these use cases due to the stringent latency requirements, but this imposes to deploy the Multicast Application on-board of the NGSO platform.
- Latency requirement: 30 to 80 ms

- The multicast application shall be deployed fully or partially on-board of the satellite?
- Whether and how this will impact the provisioning of the service ?
- Whether and how this will impact the service continuity procedures ?