



## **Discussion on MN multicast activity tracking**

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# Rationale

- Generally speaking, a tracking procedure is inherently a proactive mechanism to trigger some event according to the collected information.
- Tracking the MNs multicast activity helps to proactively discriminate which MNs are subscribed to some multicast content and which are not.
  - Through such differentiation, the network can implement tailored signaling flows for optimizing the signaling load in the network.
  - This becomes specially relevant during handover events

# Storage of tracking information

- Tracking information should be kept as simple as possible
  - The target is to reduce overall signaling load, then a lite mechanism has to be designed
- Multicast activity (or “on-going multicast session”) is the minimal relevant information to keep
  - Current multicast subscription in terms of (S,G) pairs can change during the multicast session, then triggering significant tracking update signaling without a practical usage (only relevant during the handover event)
  - Multicast activity can be signaled with just 1 bit (ON/OFF)
- The LMA is a common element interacting with pMAG and nMAG in a handover event
  - The Binding Cache is the best fitted element to keep track of multicast activity
  - Other possible solutions could consists on a direct communication between pMAG and nMAG

# Signaling

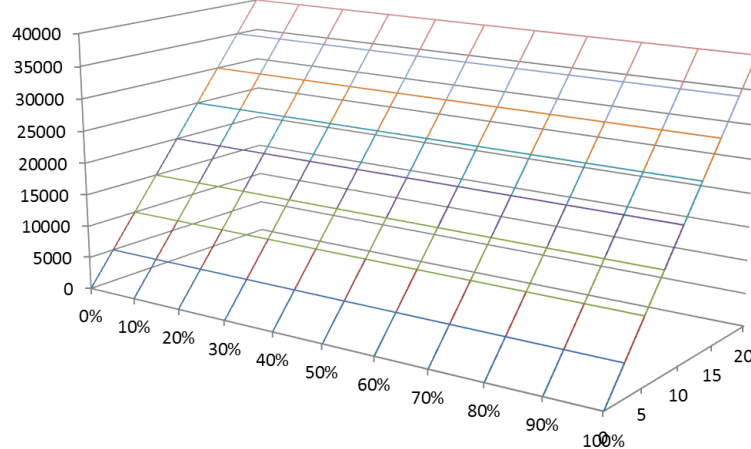
- In a (faster than RFC6224) multicast handover, the nMAG needs to obtain the details of the multicast subscription which the MN had at pMAG
- The pMAG will always be queried about a potential MN subscription because it is not known in advanced if the MN was maintaining a multicast subscription before attaching the nMAG
- This can be avoided with a simple notification of starting and finishing multicast session by the MAG where the MN is connected
  - A notification message of activity status change, with its corresponding Ack message provides the required reliability

# Potential signaling load savings (case study: draft-ietf-handover-optimization)

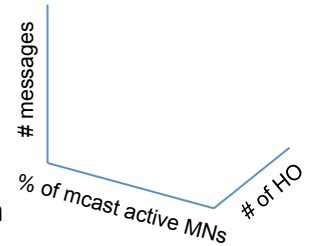
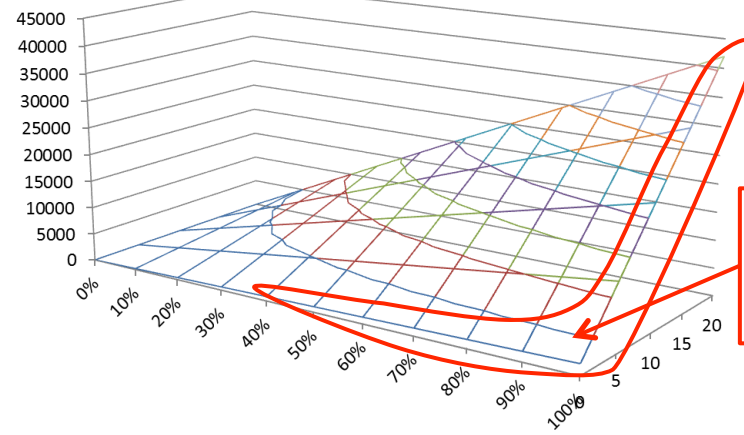
## Assumptions

- Total number of MNs = 1000
- Messages per Activity Indication = 2
- Messages for querying pMAG = 2

Unawareness of multicast activity: every MN is queried from retrieving potential multicast subscription information



Awareness of multicast activity: only MNs with active subscriptions are queried



Region where there is no gain in using the flag  
A mechanism

- MN tracking adds complexity but allows implementing a mechanism for selectively querying the pMAG in the reactive HO case
  - The pMAG is only queried for those MNs with active multicast session during the event of handover
  - No query for not multicast enabled MNs nor those multicast enabled MNs which does not have an active session when the handover occurs
- However, the mechanism allows to save a significant number of signaling messages in the network
  - It only performs worst in static scenarios (no HOs) and in scenarios where all the MNs maintain an active multicast session (the pMAG has to be queried anyway)
- **Proposal:** to study tracking mechanisms (and associated signaling) as a way of optimizing Multimob signaling procedures