PMIPv6 multicast handover optimization by the Subscription Information Acquisition through the LMA (SIAL)

<draft-ietf-multimob-handover-optimization-02.txt>

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Proposal Status

- The draft covers the MULTIMOB charter goal of optimizing multicast traffic during a handover
- Draft history:
  - Initial version submitted for 78th IETF meeting in Maastricht
  - Proposal included in re-chartering discussion during 78th IETF
  - Draft presented in Beijing (79th), Quebec (81st), Taipei (82nd), Paris (83rd), Vancouver (84th) and Atlanta (85th) IETF meetings
  - Adopted as WG document on fast handover after Paris meeting
  - Final round of comments/reviews launched after Vancouver meeting
  - Draft re-naming after Atlanta meeting
  - Last set of comments received and processed
    - ➢ Need for WG position about the mandatory/optional use of flag A

Changes from last version and next steps

- WG version submitted after Atlanta meeting:

  <draft-ietf-multimob-handover-optimization-00.txt>

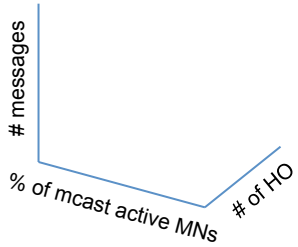
  - ✓ Renaming according to charter objectives
- Comments addressed in -01 version
  - ✓ List of basic requirements for a handover optimization solution
  - ✓ Support of IPv4-based MNs
- Comments addressed in -02 version
  - ✓ General improvement of the text by adding extra clarification statements across the text
- **Next steps**
  - ✓ **WG decision on the mandatory / optional use of the flag A**
  - ✓ **Initiation of WGLC**

Detailed review of the comments received

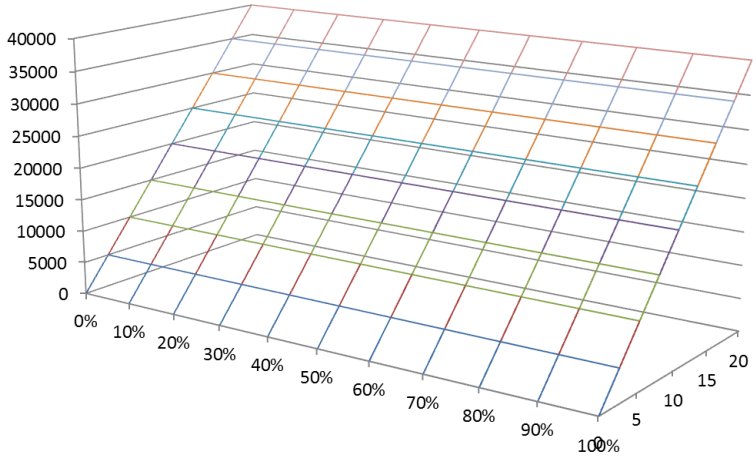
- Comments addressed in -01 version
  - ✓ List of basic requirements for a handover optimization solution (sec. 1.1)
    - Applicability to any kind of MN, integration with PMIPv6 protocols suite, no impact on existing multicast protocols, optimal for proactive and reactive HOs, minimal extensions.
  - ✓ Support of IPv4-based MNs (sec. 6)
    - Support of IGMP by specifying proper option formats, additional rules for handling IPv4/ IPv6 subscription in the framework of RFC5844, and extensions to the binding cache for storing IPv4 information (IGMP context format and associated indicator).
- Comments addressed in -02 version
  - ✓ General improvement of the text by adding extra clarification statements across the text
    - Wording: query instead of interrogation, some other minor corrections.
    - (sec. 1) Sentence to explicitly mention that this draft does not substitute RFC6224, but complements it.
    - (sec. 5.1.2) Proper reference to the multicast channel leaving process in MLDv2 (no more reference to "*MLD Done*", but "*MLD Report message containing an State Change Record for the last subscribed multicast group with a filter change record mode indicating INCLUDE mode and an empty source list*").

Relevance of the flag A

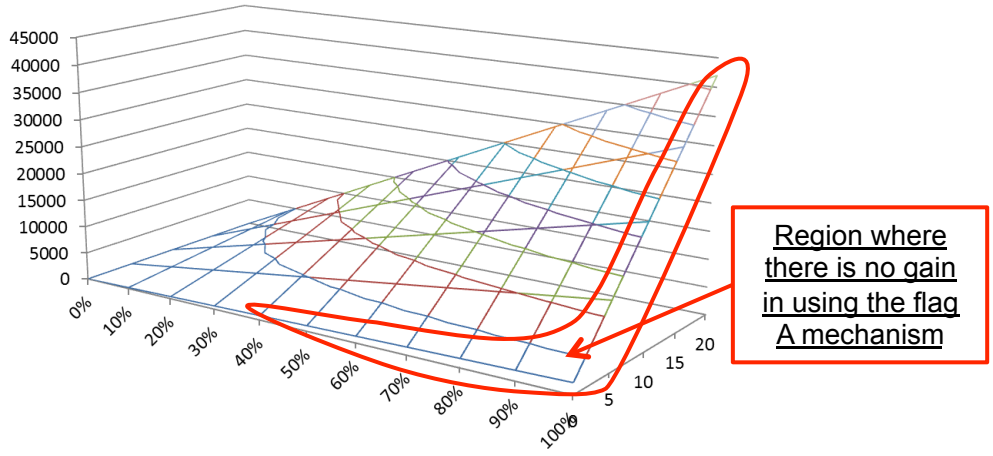
Assumptions
- Total number of MNs = 1000
- Messages per Activity Indication = 2
- Messages for querying pMAG = 2



No flag A mechanism implemented



Flag A mechanism implemented



- Flags A adds complexity by 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 keep the flag A mechanism as part of the draft (at least as optional)

On the usage of the Update Notification instead of Subscription Query message in SIAL during reactive HOs

- The Update Notification describes a mechanism in which the LMA can notify the MAG about changes in the mobility session, triggering PBU/PBA signaling
  - It is being specified in draft-ietf-netext-update-notifications
- This mechanism has been mentioned on the mailing list as a potential replacement of the Subscription Query signaling. However:
  - The update notifications are not meant to be used during handovers
  - If used, significant complexity would be required to avoid inconsistencies with the signaling
- **Proposal**: to keep the Subscription Query messages as the (simplest) way of obtaining multicast subscription context when a reactive handover event occurs