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

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

Luis M. Contreras
Telefónica I+D

Carlos J. Bernardos
Ignacio Soto
Universidad Carlos III de Madrid (UC3M)

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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

- 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)

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