PMIPv6 multicast handover optimization by the
Request of Active Multicast Subscription (RAMS)

<draft-contreras-multimob-rams-04.txt>

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Proposal Status

• The draft covers the MULTIMOB charter goal of optimizing multicast traffic during a handover
• Initial draft version submitted for 78th IETF meeting in Maastricht
• Proposal included in re-chartering discussion during 78th IETF
• Draft presented in Beijing (79th), Quebec (81st) and Taipei (82nd) IETF meetings
• Updated version submitted for 83rd IETF:
Proposal characteristics

• **Generic**
  - It is a generic procedure, not dependent on layer-2 trigger capacities at the MN nor on the capabilities of the radio technology in use (deterministic performance for any scenario)

• **Simple**
  - It keeps simple the management, control and data plane functions at the MAG and the LMA
  - No additional requirements/features needed on the MNs (follows RFC5213 approach)

• **Robust**
  - It is based on the fast transfer of subscription information internally to the network by using homogeneous, high-bandwidth, error-free wired links among carrier-class devices

• **Precise**
  - It is based on the information provided by the previous MAG which definitely ensures the correctness about the subscription information

• **Light extension to PMIPv6**
  - 2 flags for governing the procedure
  - 4 extra messages to support the extension (2 of them only required in reactive HO case)

• **Minimal development and deployment impact**
  - It only extends the base PMIPv6 protocol (RFC 5213)
Proactive handover case

MN1
pMAG
nMAG
LMA
Mcast source

MN detached
MN Detached Event
Extended DeReg PBU
Multicast info storage in Binding Cache

MN attached
MN Attached Event
PBA
LMA decision (A=1) Subscr Info in Cache
Extended PBA
Multicast group join

(S1,G1)
Mcast Data
Reactive handover case

- MN1
- pMAG
- nMAG
- LMA
- Mcast source

MN Attached Event

PBU

LMA decision (A=1)  
Subscr Info in pMAG

Subscription Info Query

Subscription Info Response

Extended PBA

Multicast group join

(S1,G1)
Changes from last version and next steps

• Comments from the reviews have been addressed
  ✓ Additional constructive reviews are expected to improve and complete the proposal

• Flag handling has been updated for smooth backward compatibility

• Draft text has been re-structured to improve clarity

• Dirk von Hugo added as contributor
  • His input and comments have been integrated during the last update

• Next step: adoption as WG document for a basic multicast handover optimization mechanism in PMIPv6
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Backup slides

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LMA decision algorithm

PBU from nMAG for MN1

Checking of Multicast Activity Indication flag “A” for MN1

Flag A=1

Flag A=0

Multicast subscription information stored in BC (predictive HO)

Send conventional PBA message to nMAG

Send “Subscription Query” message to pMAG

YES

NO

Complete registration sending an extended PBA message to nMAG including mcast subscription info

On reception of “Subscription Response” message from pMAG, send extended PBA message to nMAG including mcast subscription info
Multicast Activity Indication

- The Multicast Activity flag is ON if there is an on-going active subscription, and OFF otherwise.