Multicast Fast Handover: Context Transfer for Mobility Protocol Standards

draft-schmidt-multimob-fmipv6-pfmipv6-multicast-05

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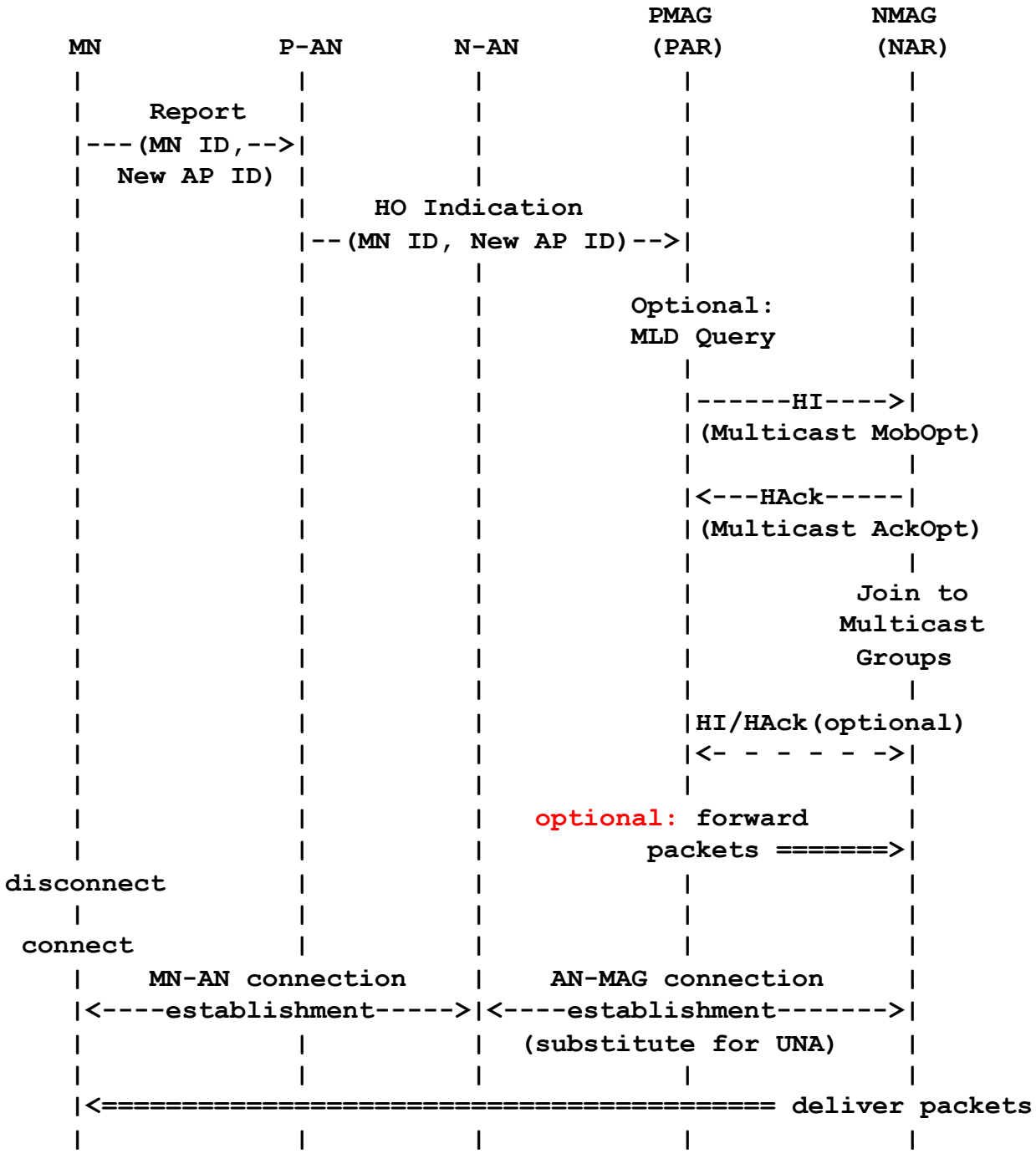


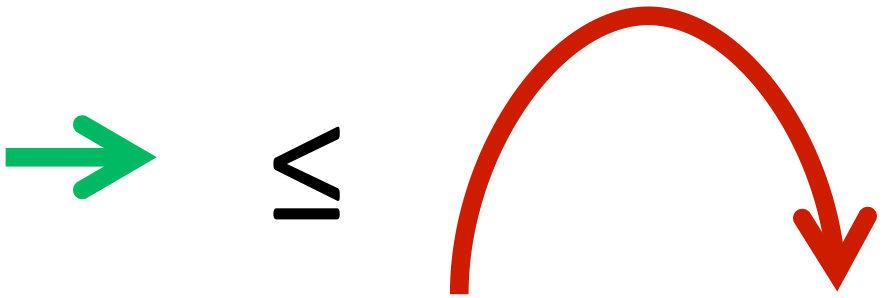
PFMIPv6 Predictive Handover

Design Objectives

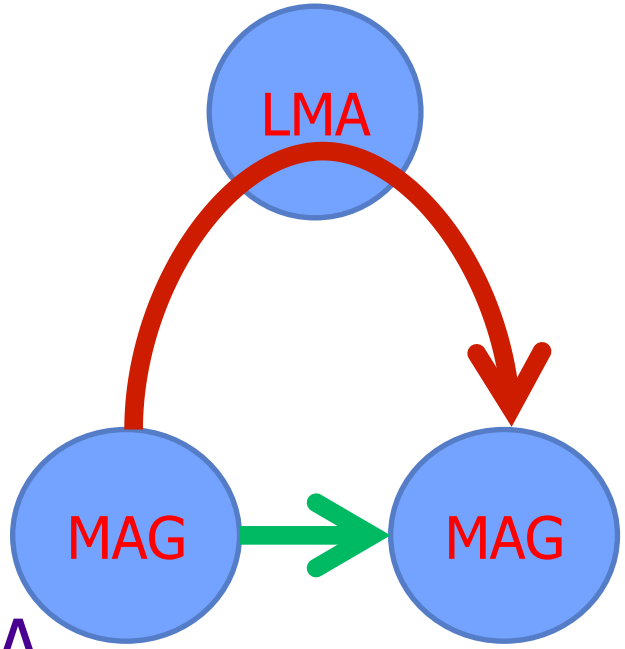
1. Optimize for seamless handover
   - Synchronize multicast with fastest unicast operations
2. Generic approach: works for PMIP + MIP
   - Generic messaging: Mobility options + MLD
3. Align with mobility protocols
   - Transparently plug in multicast of all flavors
4. Abstract from multicast routing
   - Remain independent of routing solution
5. Simplify protocol extensions
   - Use existing message structures

Why Context Transfer Between ARs / MAGs?

- Because this is the fastest possible approach:



- does not work well with direct routing and puts additional burden to LMA



Why Use Unicast Protocol(s) (P)FMIP?

- Seamless multicast handover requires synchronization with Unicast
  - No service without unicast connectivity
  - Misalignment may lead traffic into the wild
  - Different issue: vertical mcast access
- (P)FMIP are *the* unicast protocols for inter-AR signaling
  - We are not chartered to invent new unicast handover management

Isn't (P)FMIP too Heavy-Weight?

o (P)FMIP provides two functions:

1. Context transfer between ARs
   (minimal operation of control plane)
2. Fast forwarding / buffering at the data plane
   (now optional for multicast)

What is worse: Packet re-ordering or loss?

- Fast handover introduces re-routing / fast forwarding and thus may re-order packets
  - In the presence of buffering at ARs/MAGs, packet loss is prevented
- Base Solution and LMA-based redirection cause packet loss
  - Packets arriving too late at pAR/pMAG go bust
  - Buffering at LMA is a severe scaling issue

Questions/Comments?