



# Fast handovers for PMIPv6

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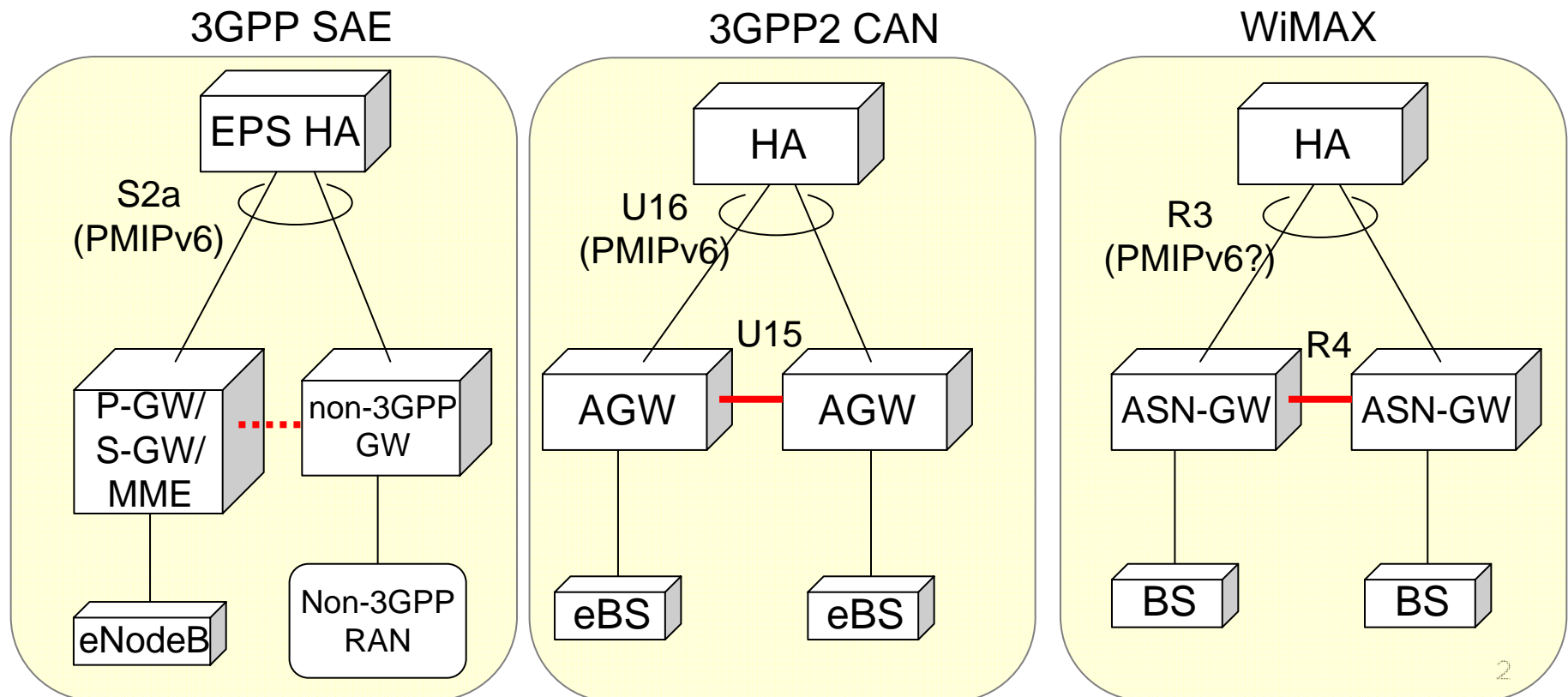
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# Background and motivation

- PMIPv6 is expected to be adopted in multiple SDOs (e.g. 3GPP SAE, 3GPP2 CAN)
- Service continuity during inter access gateway handover is critical for real-time applications





## Background and motivation (cont'd)

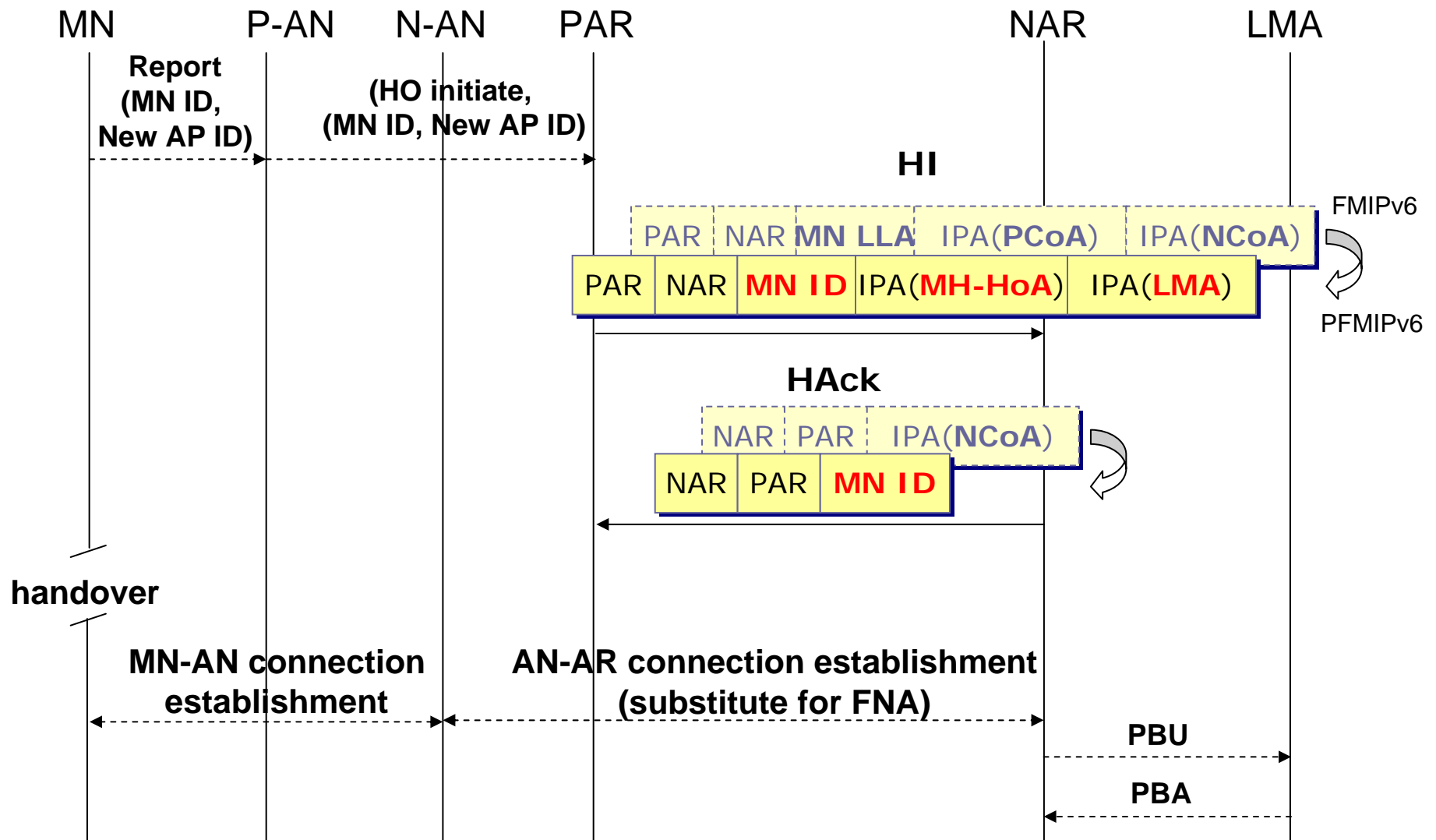
- FMIPv6 can be a common protocol for IP-level fast handover
- FMIPv6 is designed for MIPv6
  - Adaptation to PMIPv6 is needed
- It became clearer that context transfer is as much important as bearer packet forwarding to expedite the mobility management
  - Enhancement of FMIPv6 for context transfer is desired



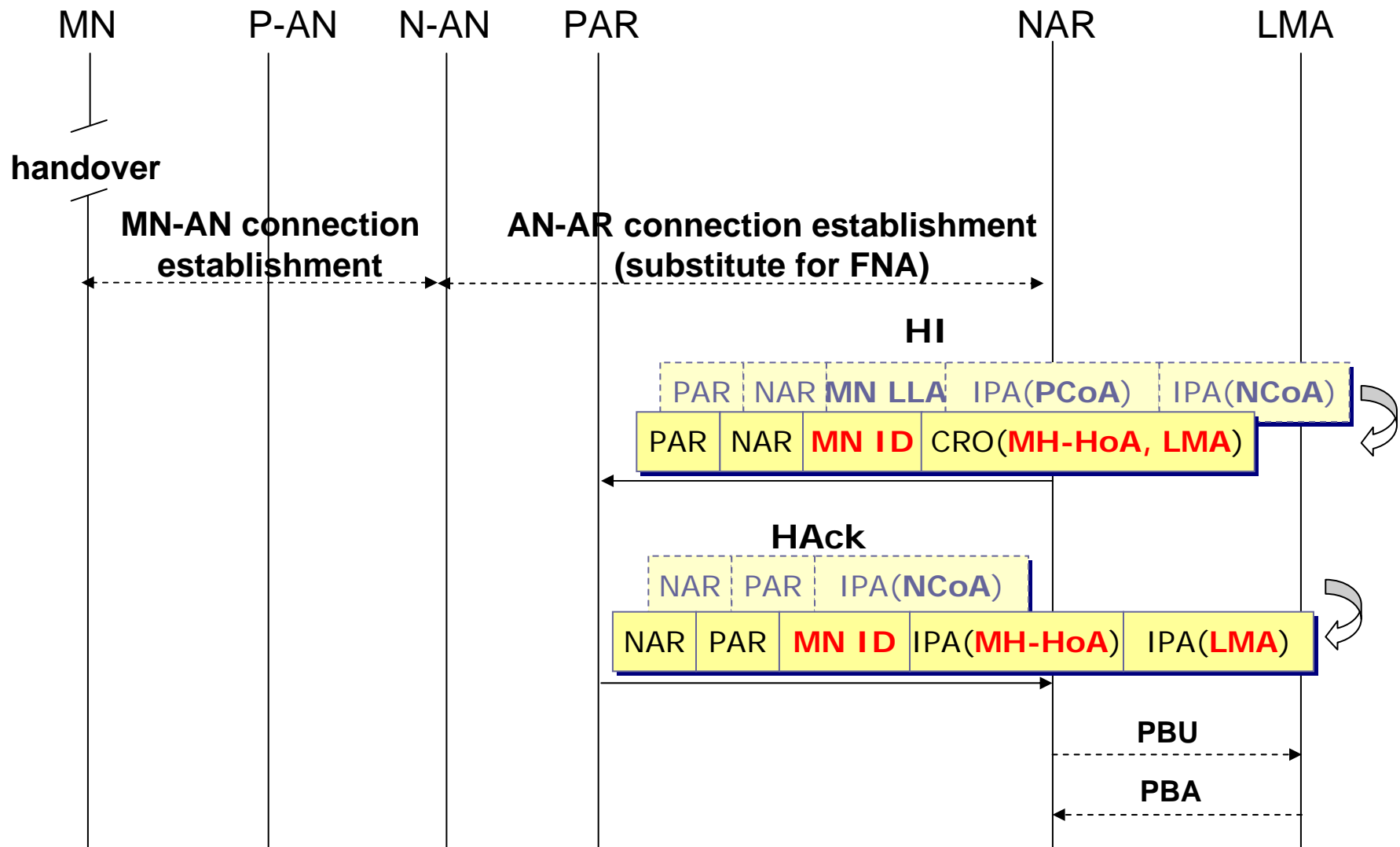
# Design principles

- Reuse FMIPv6 as much as possible
  - Minimum amendments for PMIPv6
- MN is not involved with FMIP signaling
  - RtSolPr, PrRtAdv, FBU, FBACk and FNA are not used or replaced by lower layer signaling
- Context transfer is realized by FMIP signaling
  - Context is transferred by HI/Hack message exchange
  - Context information independent of access technologies are defined (e.g. NAI, MN-HoA...)
  - Context information dependent on access technologies are defined as Vendor-specific option

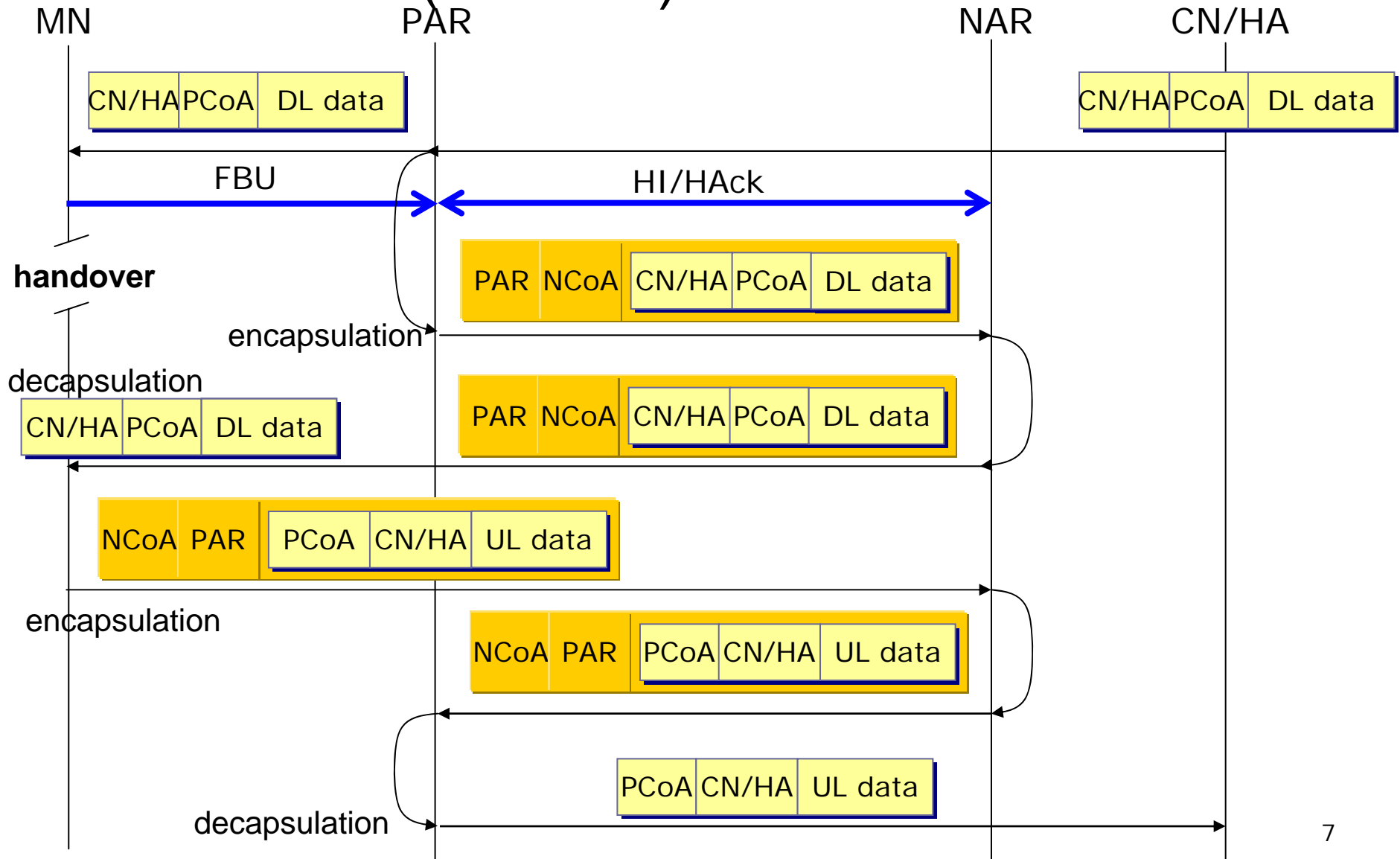
# Predictive fast handover (PAR initiated)



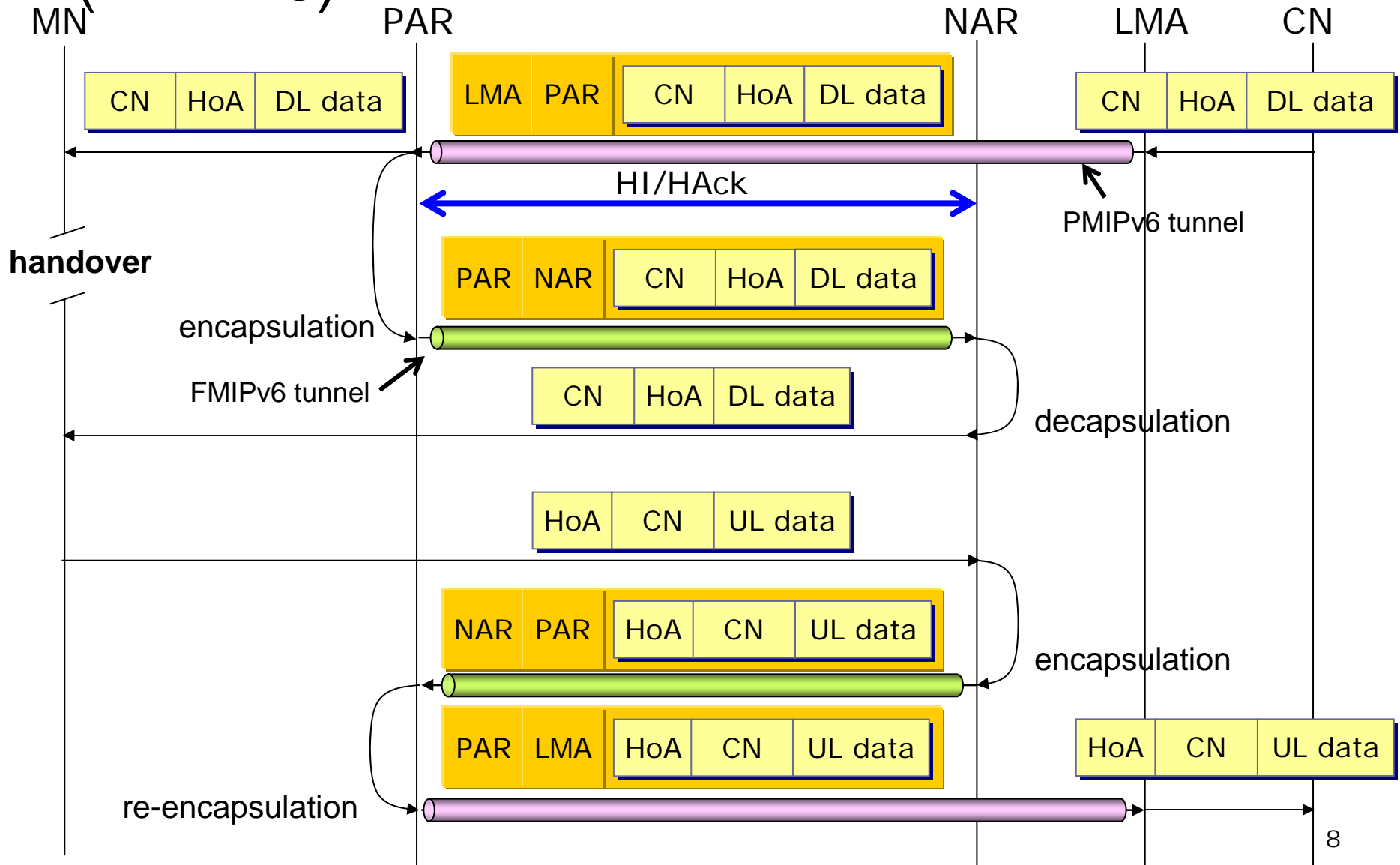
# Reactive fast handover (NAR initiated)



# [Reference] Packet transfer between MN and CN/HA (FMIPv6)



# Packet transfer between MN and CN (PFMIv6)







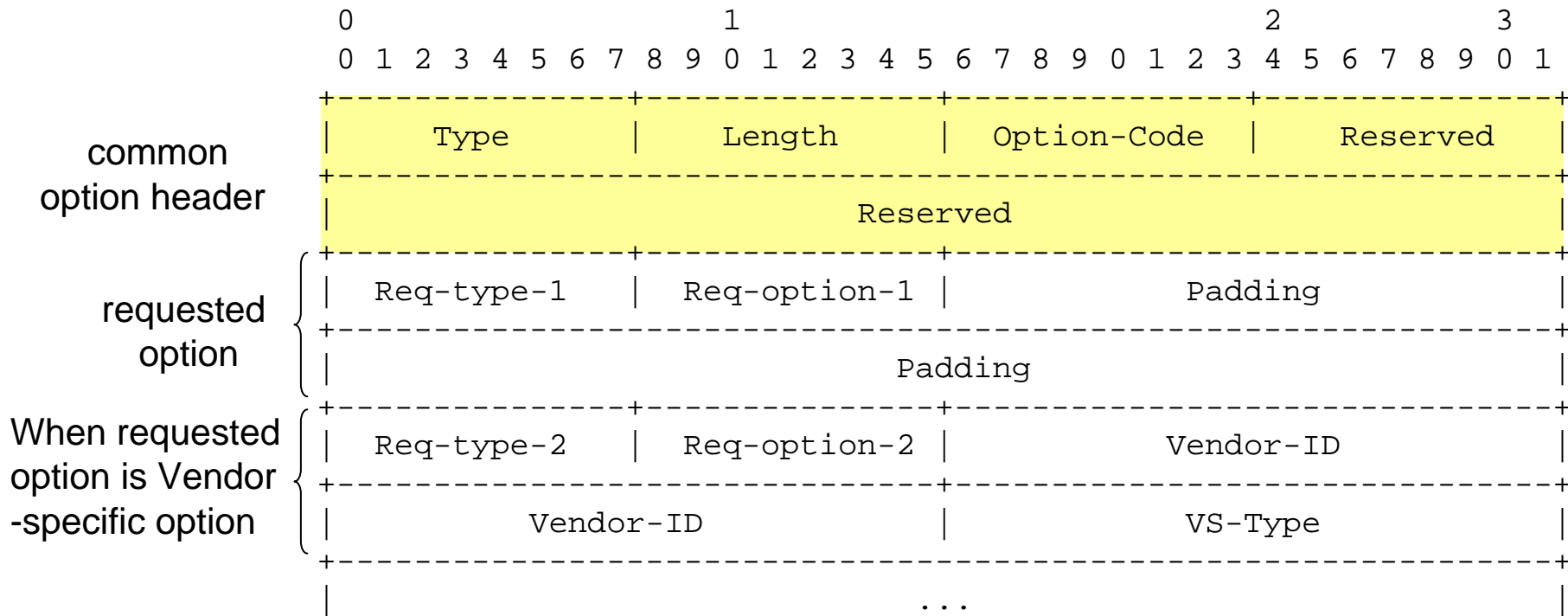
# New options for context transfer

- Major and common context information
  - NAI → new option
  - Tunnel-ID → new option
  - MN-HoA → new option-code for IP Address option
  - LMA → new option-code for IP Address option
- Technology-dependent context information
  - Vendor-specific option → new option
- Context Request Option → new option
  - Option to request context information (see next slide)

# New options for context transfer

- Context Request Option

- The Length field is in units of 8 octets (RFC4068)





# Related work

- “Mobile Node Agnostic Fast Handovers for Proxy Mobile IPv6”
  - Context transfer: HI/HAck for predictive FHO, FBU/FBAck for reactive FHO
    - HI/HAck are **ICMP**, whereas FBU/FBAck are **IP w/MH**
    - All options except MH LLA option are ICMP option
    - FBU/FBAck are not suitable for context transfer  
→ HI/HAck should be used
  - HI/HAck are identical to RFC4068
    - Behaviors of PAR/NAR are different from RFC4068
    - MIPv6 and PMIPv6 operations could be coexistent
    - HI/HAck for PMIPv6 should be distinguished
  - LUP message between t-BS and NMAG may be ok for 802.16e, but not for 3G



# Way forward

- Fast handover protocol for PMIPv6 is important work
  - should be in the charter
  - MIPSHOP WG is a more appropriate place to discuss fast handover??
- Fast handover protocol for PMIPv6 should be common to various access technologies that (potentially) use PMIPv6
  - 3GPP, 3GPP2 (and WiMAX)
  - Common context information and call flows should be specified