



Proxy Mobile IPv6 Extensions to Support Flow Mobility

draft-bernardos-netext-pmipv6-flowmob-03

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Background. Charter

- [...] The specification of any actual link layer mechanisms is outside the scope of the working group, but the group works on the following:
 - The working group will determine what **protocol extensions** are required **between the Proxy Mobile IPv6 network nodes (MAGs and LMAs)** to support the ability for an interface (at the IP layer) to transmit packets over different media, the ability to distribute specific traffic flows on different media components of that interface, and **making this work with the handover hints in the base protocol**. The relevant protocol extensions will be developed as necessary.

Background. Draft history

- Integrates the view of multiple authors
 - Based on input from different pre-existing drafts
 - Extensive discussions have been held internally by the authors team
 - Some points still open, left for discussion within the WG
- -00 presented in IETF 78th, -01 in 79th
 - Current version (80th) is -03


Overview (I)

- Defines protocol extensions on LMA and MAG to support dynamic IP flow mobility
 - No restriction on the prefix model
 - “shared-prefix” or “unique-prefix”
 - No restriction on the flow granularity
 - Prefix by default
 - Solution relies on the MN implementing the logical interface concept

Overview (II)


- Basic concepts
 - LMA is able to dynamically move traffic among MAGs where different interfaces of the MN are attached to
 - LMA is the controlling entity, trigger is out-of-scope
 - LMA uses RFC6089-alike conceptual data structures to know how to route flows
 - Depending on the prefix model, when a flow is decided to be moved by the LMA, there may be signaling in place between LMA and MAG (FMI/FMA messages defined in the draft)
 - Consistent IP flow policies at network and MN are assumed
 - E.g. Logical Interface behaviour

Issues/showstoppers (I)

-  *Applicability of LMA-initiated flowmob, “lack of customers for this work”*



 A lot of interest expressed in the ML by several people

 The discussion took already place when re-chartering

Issues/showstoppers (II)



Policy consistency/coherence at LMA and MN



Policies can be statically pre-configured at both ends



Mechanisms to ensure dynamic consistency can be used

- Logical Interface can be considered as one of them

Issues/showstoppers (III)



Dependency on layer-2 signaling/triggers

- RFC 5213 benefits from layer-2 signaling/triggers
- Layer-2 triggers \neq layer-2 signaling
- Our draft does not assume any new layer-2 signaling/trigger
 - Why do we need to assume that new flowmob layer-2 signaling is in place?



We propose to support both cases, when layer-2 signaling is available and when it is not

Issues/showstoppers (IV)



Approach: dynamic prefix management (ours) vs dynamic attachment of interfaces from sessions (proposed)

- Dynamic attachment requires specific layer-2 support



Dynamic prefix management is done with L3 protocol extensions between LMA and MAG

- Some people expressed that this changes RFC5213 basics
 - Anyhow, charter allows to extend PMIPv6

Issues/showstoppers (V)



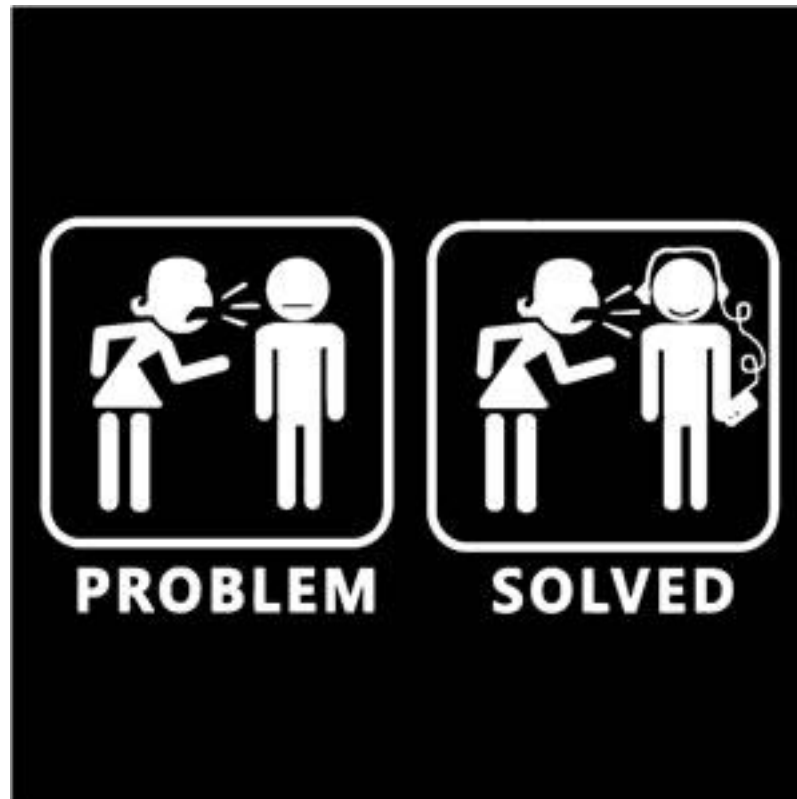
Knowledge of MN's signal condition at the LMA



Needs to be furthered discussed. One possible approach (suggested by Raj):

- Solution only applicable when network access elements are aware of MN connection and congestion state. This can be used as flowmob trigger (e.g., MAGs signal this)

Way to progress forward?



Backup slide

