# NETLMM PS and REQ Drafts IETF 65

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# PS Draft

# Issue #2: Include Nonwireless Networks

In IP link definition, only wireless access points are present, whereas in Access Network we can find non-wireless access points. I understand the main NETLMM concern is wireless AP, but still, to be exact with Access Network definition, other AP should be included in IP link definition.

The definition of Access Network in Section 1.1 includes "wireless or other" access points, and the term is used throughout the document consistently with no assumption that only wireless networks are meant.

Resolution: In the absence of any specific editorial changes, the document seems to adequately address the issue and so no changes are necessary.

# Issue #5: What Does "Network-Based" Mean?

The current draft doesn't mention at all what "network-based approach" is and what are its advantages, though the expected WG doc is: "a problem statement document that clearly and succinctly describes the problem posed by localized mobility management and why a network-based approach is desirable".
The current draft only deal with the 1st part.

Section 4.0 discusses problems with three classes of existing solutions:
a) Host-based, localized mobility at the IP level,
b) Network-based solutions at the IP or link level that are proprietary or specific to certain link layers
c) Network-based solutions that use of standardized IGPs for host route distribution

Resolution: At the end of Section 4.0, add a paragraph that briefly describes the NETLMM architecture as outlined in the WG charter and, with reference to the previous text in Section 4.0 on other host-based and network-based approaches, why that architecture is preferable.

# Issues #6 and #8: Global Mobility Management Discussion assumes a Particular Architecture (i.e. Mobile IP)

The discussion of global mobility assumes a particular architecture that involves having a global mobility anchor point. Some global mobility protocols might not have this or, if they do, it is peripheral to the protocol. Also, the discussion uses Mobile IP terminology ("care-of address", "home address", etc.)

The Mobile IP terminology was used because it is concise and descriptive, but the point is valid. People may associate that terminology with Mobile IP and assume that the text is only talking about Mobile IP.

Resolution: Revise the definition of global mobility protocol to remove an assumption of a global mobility anchor, and modify the definition of global mobility anchor point to indicate that it is an optional component of a global mobility protocol. Use non-Mobile IP terminology, even if it is more long-winded.

# REQ

# Issue #1: Remove or Move Gap Analysis

The REQ draft was originally written prior to the formation of the WG in order to make a sound case for the need for a network-based, localized mobility management solution, based on the lack of an adequate localized mobility management protocol currently standardized in IETF. For this purpose, the gap analysis was useful, but now it is somewhat dated. This document really needs focus on what the requirements for the actual protocol should be. It has therefore been suggested that the gap analysis should either be:
1) Removed entirely.
2) Move to an appendix so that the requirements stand on their own.

Resolution: Move Section 3 to Appendix, remove "Gap Analysis" from the title of the document since a gap analysis is no longer part of the primary purpose of the document.

# Issue #11: Document Assumes an Architecture

The document assumes an architecture. The architecture should be mentioned somewhere.

The document was written before the NETLMM charter was approved. The charter contains the NETLMM architecture, and it should also be described here to keep a permanent record, since the charter will disappear when the WG is finished whereas the RFC will be published.

Resolution: Add a subsection in Section 1 that describes the NETLMM architecture as described in the WG charter.

# Issue #12: Handover Performance Requirement is Vague

Requirement #1: The Handover Performance Requirement is vague. It is about Binding Update latency. How do you evaluate that the protocol meets the requirement? Is this sort of hinting that you need some entity locally to reduce the latency ? The word "minimal" is vague. And also "within the time required for wireless link handover" varies with different links. Better wording is needed.

The requirement is not about binding update latency, it is about how long the terminal must wait between the time it has full link access on the new wireless link and when it can send/receive IP packets successfully. Regarding the word "minimal", there can be no specific number put here because different link technologies will have minimum latency possibilities.

Resolution: Add some words qualifying the requirement to stress that it really means the minimal amount of time between having full link connectivity and being able to route IP packets to/from the terminal, depending on what the link layer and other factors (such as routing delays) can support.

# Issue #13: Handover Signaling Volume Reduction Requirement is Vague

Requirement #2: Not sure what this requirement is getting at. This is related to Latency in some sense because if the MN sends 10 messages instead of 1 message, it increases the latency.

Actually, this requirement is not on LMM signaling volume but rather on total signaling volume from the MN to network. There are currently something like 10 messages required with standard IP protocols, and this requirement was that NETLMM reduce that.

Resolution: Clarify that the requirement is to reduce the number of messages between the network and host when the host changes to a new IP link.

# Issue #14: Location Privacy Requirement is a trivial consequence of LMM

Requirement #3: Location privacy is a trivial side effect of any localized mobility management protocol, and therefore establishes no requirement on NETLMM. The real requirement seems to be that the IP address of the MN does not change as it moves between IP links in the NETLMM domain. This should be stated.
Also, the point about a security problem with host-based LMM solutions is not really serious.

The point about clearly stating the requirement to not change the IP address is a good one, and it needs to be stated. However, the point about the security problem – a virus or worm exposing the location of the MN by sending its address to a botnet controller – is a concern for mobile network operators and if the local address has low enough topological to geographical mapping granularity, it can compromise user's location privacy, but perhaps this draft is the wrong place to discuss it.

Resolution: Change this requirement to be not changing the IP address and use location privacy as one motivation. Move the discussion of the security issue involving infected hosts having their location privacy compromised to the threats draft.

# Issue #15: Requirements or Design Goals?

Is the document supposed to list requirements, or just design goals ? If the former, the criteria for evaluating how the solution meets the requirements must also be defined. The correct title of this document in its current shape has more to do with "Design Goals and Solution Space Analysis".

There is no intent to do a regression of the criteria in this document against the protocol, so the criteria here are really design goals and not requirements. Regarding the solution space analysis, perhaps this point is meant to refer to the gap analysis? If so, since that is now peripheral to the purpose of the document, it should rather be dropped from the title.

Resolution: Change the title to be "Design Goals" rather than "Requirements"

# Issue #16: Add Backward Compatibility/Reuse Requirement

Add "backward compatibility" and "maximum reuse of existing protocols" as requirements.

NETLMM is trying to add a fundamentally new piece of functionality so backward compatibility really isn't an issue as a design goal. For example, what would it accomplish to make the signaling look like Mobile IP signaling when neither an AR nor a MAP currently are deployed supporting this functionality? It is more prudent to let it up to the design team's good engineering sensibilities to make the right choices in terms of backward compatibility and reuse of existing protocols, for example, use an existing and appropriate IETF transport protocol between the AR and MAP and not design a new transport protocol. If particular Working Group members later want some changes, that can be discussed.

Resolution: No change required.

# Issue #20: Section 5 need better motivation

Before jumping in Section 5, isn't there any existing solution of the type (edge-mobility approach) for NETLMM ? If yes, why not conducting the same analysis requirement by requirement as done in Section 3 for each approach ?

As in Issue #1, this section was intended to make a case for starting work on NETLMM. It is unnecessary now.

Resolution: Remove Section 5 from the document.

# Next Steps

# Plans for PS and REQ

- Update drafts with accepted issues after IETF
  - Rev draft versions to 01
  - Submit soon after the Internet Drafts archive gate opens again
- Start 2 week WG Last Call on or about April 1
- Line up some solicited reviews from people knowledgeable in mobile networking
  - Utilize the Wireless Directorate
- Conclude WG Last Call and WG discussion of solicited reviews around April 15 if possible
  - Rev draft versions to 02 with any issues accepted during Last Call
- Submit drafts to IESG around May 1