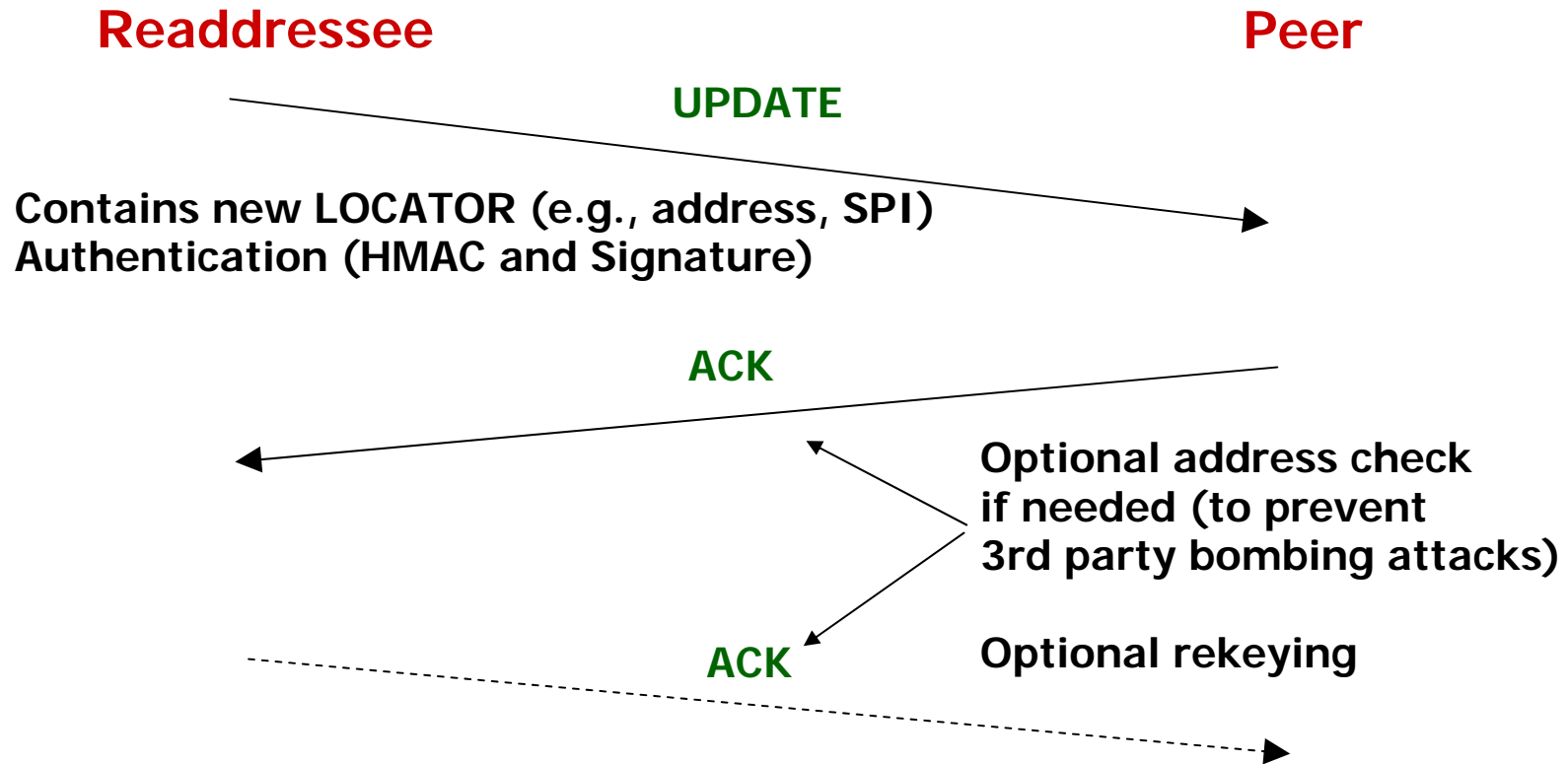# HIP-WG meeting, IETF62

HIP-mm update
(draft-ietf-hip-mm-01.txt)

March 9, 2005

Tom Henderson
Pekka Nikander
Jari Arkko

HIP mobility management

Readdressee   **Peer**

UPDATE

**Contains new LOCATOR (e.g., address, SPI)
Authentication (HMAC and Signature)**

ACK

**Optional address check
if needed (to prevent
3rd party bombing attacks)**

ACK   **Optional rekeying**

Similar, but more complicated, procedures for multihoming

draft status overview

Main changes since version -00
1. Aligned with decoupling of ESP from base spec
2. New LOCATOR format to replace REA
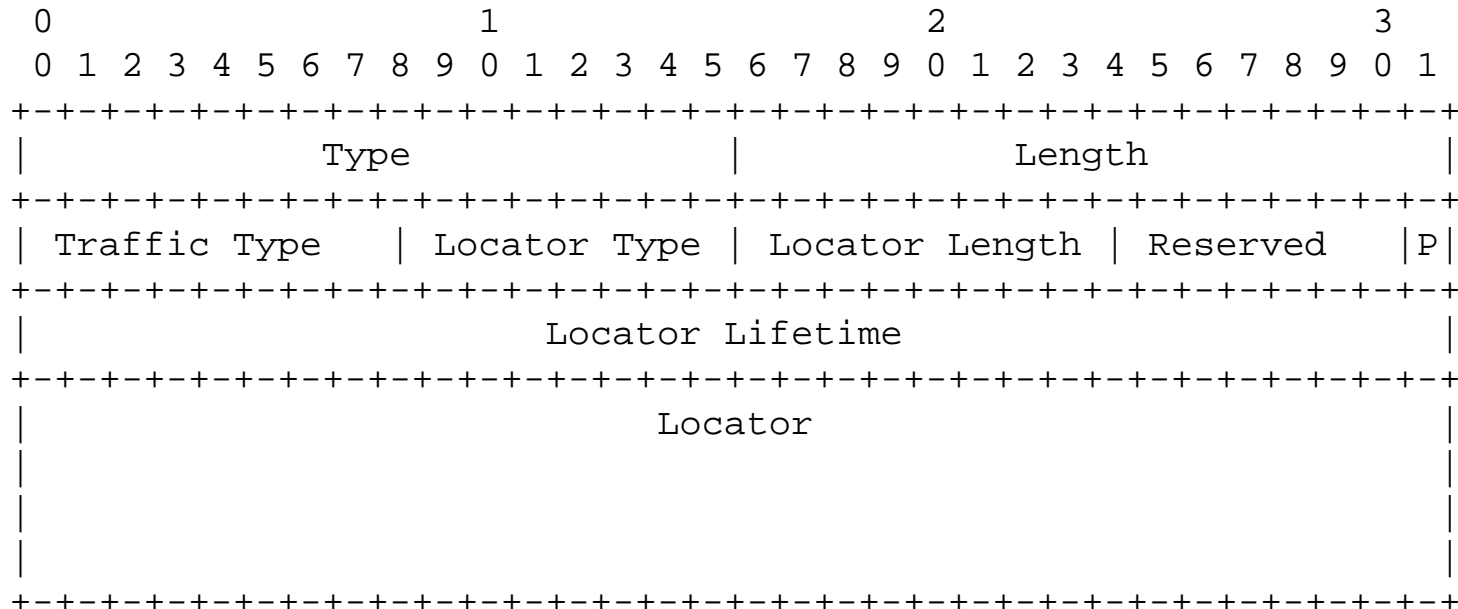3. Scope of multi-homing material reduced

1. decoupling from ESP

- Introductory part of draft does not require that HIP is used with ESP

- However, detailed procedures are described in terms of ESP
  - A generalized LOCATOR format is described, but only ESP type is defined
  - "Future documents may extend this document to include other behaviors when ESP is not used"

Intent is to specify basic approach and one specific usage profile (ESP) that could be generalized later.

2. New LOCATOR parameter

- Based on WG mailing list discussions
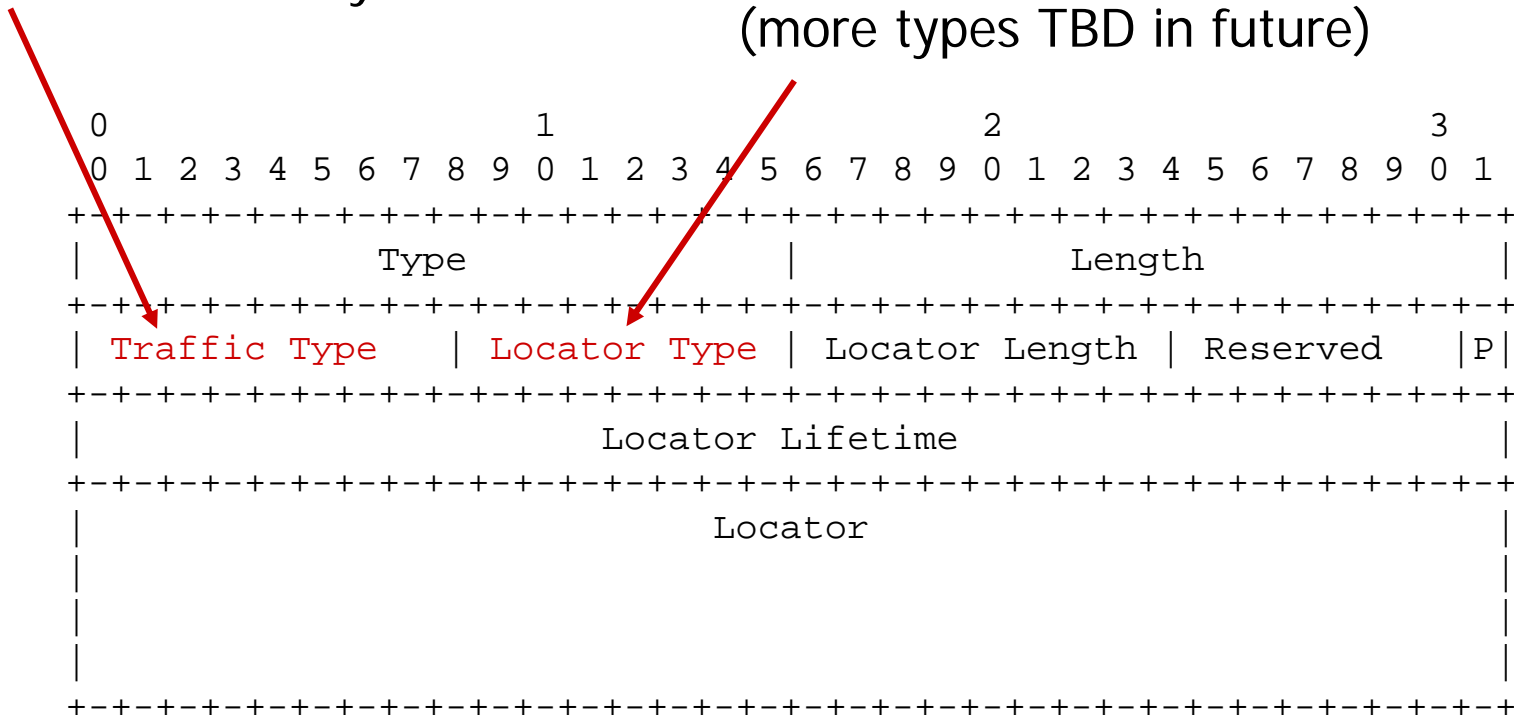- Intent is to be able to reuse for NAT traversal

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|             Type              |              Length           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Traffic Type  | Locator Type | Locator Length | Reserved   |P|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                       Locator Lifetime                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                          Locator                              |
|                                                               |
|                                                               |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

2. New LOCATOR parameter

Traffic Type:
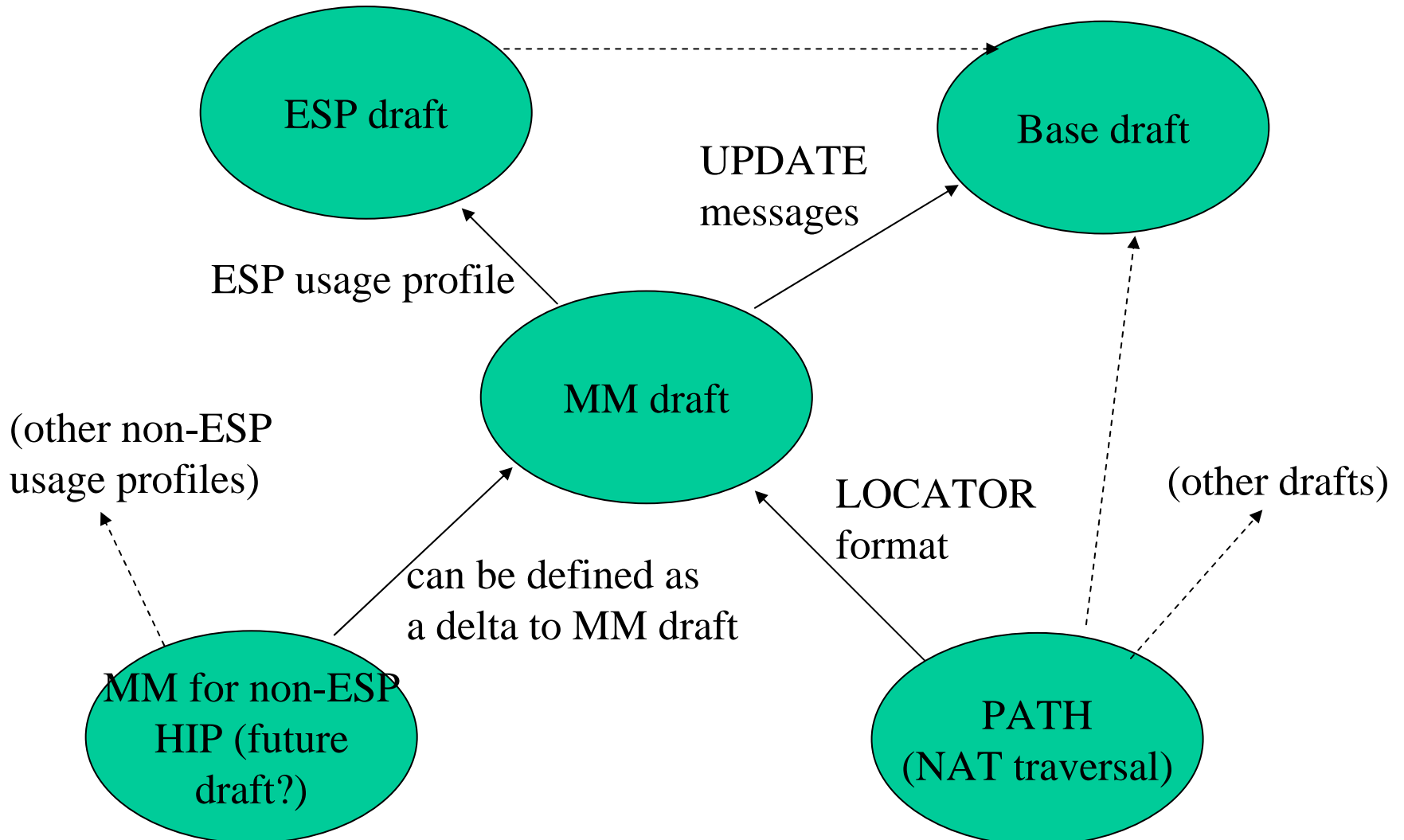
0: Signaling and User Data

1: Signaling Data Only

2: User Data Only

Locator Type:

0: IPv6 (or IPv4-in-IPv6) address

1: ESP SPI concatenated with IPv6 address

(more types TBD in future)

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|             Type              |            Length             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Traffic Type   | Locator Type | Locator Length | Reserved   |P|
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                       Locator Lifetime                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                          Locator                             |
|                                                              |
|                                                              |
|                                                              |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Draft dependencies

ESP draft

Base draft

UPDATE
messages

ESP usage profile

MM draft

(other non-ESP
usage profiles)

LOCATOR
format

(other drafts)

can be defined as
a delta to MM draft

MM for non-ESP
HIP (future
draft?)

PATH
(NAT traversal)

3. Scope of multihoming material reduced

- Intent is to specify <u>mechanism</u> for host multihoming, but leave <u>policy and procedures</u> for later
  - Can experiment with LOCATOR to convey additional addresses
  - However, do not discuss topics such as:
    - selecting preferred source and destination addresses
    - managing lots of SAs simultaneously between different pairs of locators
    - load balancing across addresses
    - updating keying material/SAs for some subset of active SAs, etc.

HIP working group

Open issues

- ## No known implementations of this new draft
  - some implementations of -00, but not extensively tested
- ## Missing sections in draft
  - policy considerations (Section 8)
  - security analysis and considerations (Section 9)
- ## Are we exposing signaling data in the right way for HIP-aware middlebox traversal?
  - e.g. parameter ordering– does it matter?
- ## Do we aim to publish the draft with this reduced scope?
  - or hold out for more sophisticated mobility/ multihoming?

HIP working group

Next steps

Note: This slide unchanged from last meeting!

- Informal middlebox design team/reviewers needed
    - resolve how middleboxes and mobility interact
- experimentation with real multihoming
    - are any PlanetLab nodes multihomed?
- Security and policy issues sections need written