ID / LOC Split - Basic Approach

Sender A

src = ULID(A)
dst = ULID(B)

src = Loc(A)
dst = Loc(B)

Receiver B

src = ULID(A)
dst = ULID(B)

src = Loc(A)
dst = Loc(B)

SHIM MAPPING

Identity

Locator
Where is the SHIM?

Transport Protocols
- TCP
- UDP
- DCCP
- ...

IP Endpoint Sublayer
- AH
- ESP
- Frag/Reassembly
- Destination Options

Multi6 SHIM

IP Routing
What’s a “ULID”? 

- **Upper Layer IDentifier**
  - A selection from the set of locators associated with an endpoint
    - It’s (probably) a viable locator
    - It’s drawn from a structured space (reverse mappable)
    - It’s better if it were a unique (deterministic) selection for each host
    - It's useable in a referral context within and between hosts
    - It's semi-persistent
Turning on SHIM6

- The initial SHIM6 state for a ULID pair is the null map function
- Subsequent capability negotiation to determine SHIM6 capability
- Exchange of Locator Sets
- SHIM mapping installed
  - ULID pair to current Locator pair
Maintaining State

- Locator failure triggers
  - More work needed here.
  - Possible triggers include failure of upper level keepalive signal to the SHIM layer, explicit trigger from upper level, ICMP error, explicit SHIM level reachability failure
  - Re-Homing may involve exhaustive pair exploration to establish a new viable locator pair (More work needed here)
  - Signal upper level protocol of path state change (More work needed here)
Removing State

- No explicit upper level protocol trigger
  - Use state timeout to remove stale SHIM mapping information

(The entire area of vertical signalling in the host protocol stack requires further consideration)
Some Open Issues

- Integration of use of HBAs and CGAs with SHIM6
  - In particular dynamic vs static locator set management
- SHIM6 capability negotiation and locator set exchange
  - Protocol analysis required
- Explicit packet signals for triggering SHIM mapping on incoming packets
  - How should you tell an incoming SHIM packet vs a non-SHIM packet?
- Interaction with site exit routers
  - Not defined as yet
- ULID selection
  - How deterministic should this be?
- DNS interaction
- Adds and WDLs from locator pool
- Per-transport locator failure triggers
  - i.e. per transport vs per ULID pair SHIM state?