(un)reachability detection
shim6 interim meeting

Amsterdam, 2005-10-09

jari & iljitsch

initial contact

- Initial shim6 exchange, already app traffic:

  - probably no reachability check, but need to resend packets if no answer

- Initial shim6 exchange, no app traffic:

  - quick check / full reachability exploration

fbd

- We don't send or receive: do nothing

- We send but don't receive: full reachability exploration, but also need quick check first?

- We receive but don't send: generate keepalive

  - Since anything counts as incoming traffic, keepalive doesn't require shim protocol content: could be empty IPv6 header!

host id

- ReachDetect not interested in ULIDs:

  - test locators (in use / prospective after a failure, but not idle ones)

  - make sure locators belong to same host

- So need a host ID to avoid duplication of effort: just pick one address (a la router id)

- Context setup must reference host id

- FBD works on ULIDs

  - or maybe too late yesterday, couldn't make ULID/locator mapping work sanely for this

- Quick test and full exploration work on locators

  - maybe don't even know ULIDs yet

struct_p

- Probe structure:
  - source locator (128/var)
  - dest locator (128/var)
  - sent timestamp (32, in ms)
  - time since reception (32, in ms)
  - nonce (16?)
  - seqnum (16?)

quick check

- Type (min 8 bits): this is a quick check request/reply

- This probe struct_p

- Only if reply: last received probe struct_p

- (Probably include num received/sent struct_ps so packet format is the same as full exploration)

- Options (security?)

full exploration

- Type (min 8 bits): full exploration, suspected failure yes/no

- If available: context reference (contains: ?)

- This probe struct_p

- Last X received probes struct_p

- Last Y sent probes struct_p

- Options (security?)

timing

- Fixed / RTT based timeout for quick check, probably immediately go to full exploration after first timeout

- Exponential backoff for full exploration, stop as soon as we find the first good (RTT) pair or the second pair period

- Keep replying to other side

tbd

- Include struct_p in all shim signalling?

- Include address family identifier / address length or assume IPv6?