IP Tunneling Optimization in a Mobile Environment

draft-haddad-mip6-tunneling-optimization-01

Some Problems...

- MIPv6 BT mode requires adding an IPv6 header, i.e., 40 bytes, per each data packet.
- MIPv6 RO mode requires sending the MN's HoA in each data packet, i.e., at least 128 bits per data packet.
- HMIPv6 requires a tunnel between the MN and the MAP, i.e., 40 bytes per data packet.
- PMIPv6 requires a tunnel between the MAG and the LMA.
- Privacy issues due to disclosing HoA in both MIP6 modes.
- Battery power consumption

TO Objectives

- Remove IP tunnel in mobility protocols when exchanging data packets between a MN and a CN via HA, MAP, LMA.
- Optimize the usage of available bandwidth
- Reduces battery power consumption.
- Simple but very efficient

TO Operations (1)

extra_header = {O_SA, O_DA}

real_header = {SA, DA}

Eliminate 40 octets by dropping the "real_header".

TO Operations (2)

To apply TO, the endpoints tunnel generate a Pad Translator:

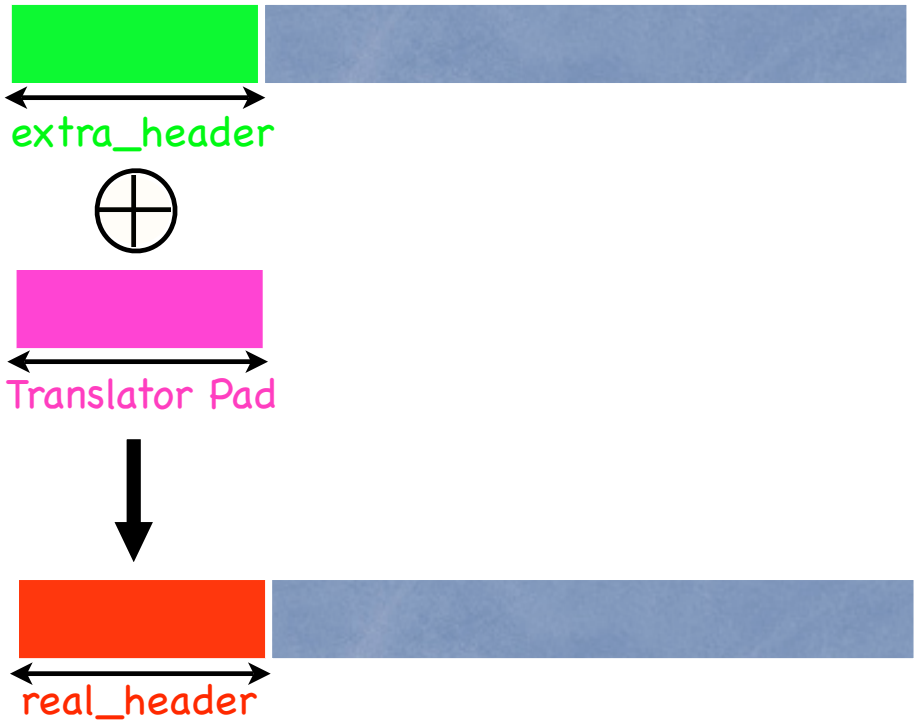
Pad = "extra_header" XOR "real_Header"

The endpoint uses ONLY the "extra_header" to send packets to the other endpoint.

Same Approach is used with the HA in the BT mode.

TO Operations (3)

The endpoint tunnel receiver applies Pad translator on "extra_header" and derives the "real_header":



TO Operations: MIPv6 RO Mode

- Pad translator is updated by the CN and the MN each time the latter configures a new CoA.
- In RO mode, TO eliminates the destination option and/or the RH option.
- The MN and the CN don't exchange any data packet carrying the MN's home address during the ongoing session.
- Simplifies the privacy problem

Questions?
Thank You!