

Problem Statement with Aggregate Header Limit

draft-liu-6man-aggregate-header-limit-problem

Yao Liu ZTE

Yisong Liu China Mobile

6MAN WG

IETF#121

Nov, 2024

Summary of the Draft

The AHL Problem

➤ Aggregate Header Limit (AHL)

- the concept AHL is **first proposed in [RFC8883]**
- several texts describe AHL(e.g, its related with device's parsing buffer/processing limit, packet be discarded or sent to a slow path if the limit is exceeded) but there's **not a definition clear enough** for AHL

➤ Proposed definition of AHL in this document

- Aggregate Header Limit is **the total header size**(in IPv6, it comprise the IPv6 header chain as well as any headers that are part of network encapsulation that precedes the innermost transport layer) **that a router is able to process at full forwarding rate(e.g, at fast path).**

➤ AHL of the nodes/path needs to be awared

- Total packet header chain size is increasing greatly in IPv6
- Devices have different processing limits and different behaviors after limit exceeding, difficult to manage
- Path calculation/Packet encapsulation without the awareness of AHL of the path may result in packets with larger header size than the downstream nodes are able to process

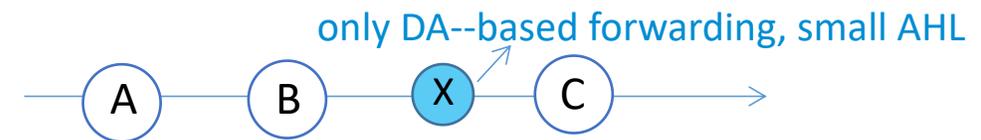
AHL Collection consideration

➤ RFC8021(PMTUD) style

- leverage "Headers too long" [RFC8883]
- but may not work well due to the similar reasons as for [RFC8201]

➤ RFC9268(HBH for PMTU) style

- AHL collected leveraging HBH may be smaller than the size that the path is actually able to process



➤ IGP MSD style

- Signaling can be easily supported
- AHLs of all the nodes collected regardless of the amount or type of the paths

Next Steps

- Welcome feedback and comments !
 - Is the updated definition of AHL needed?
 - Is the collection of AHL required ?

 - Work on the AHL collection mechanism after there's a consensus on the problem space in 6MAN.

 - P.S: previous comments and discussion around AHL can be found at:
 - https://mailarchive.ietf.org/arch/msg/spring/_niA6UBQSjhbvelkLBPtXVa6lis/
 - https://mailarchive.ietf.org/arch/msg/spring/7eLQsv6XwkGPiOq48_E0f7dI98M/
- Many thanks to Tom Herbert, Alvaro Retana, Eric Vyncke, Jeff Tantsura, Sasha Vainshtein and Acee Lindem for their helpful comments and suggestions!