

Media Header Extensions for Wireless Networks

draft-kaippallimalil-tsvwg-media-hdr-wireless-03

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IETF 118 Prague, November 2023

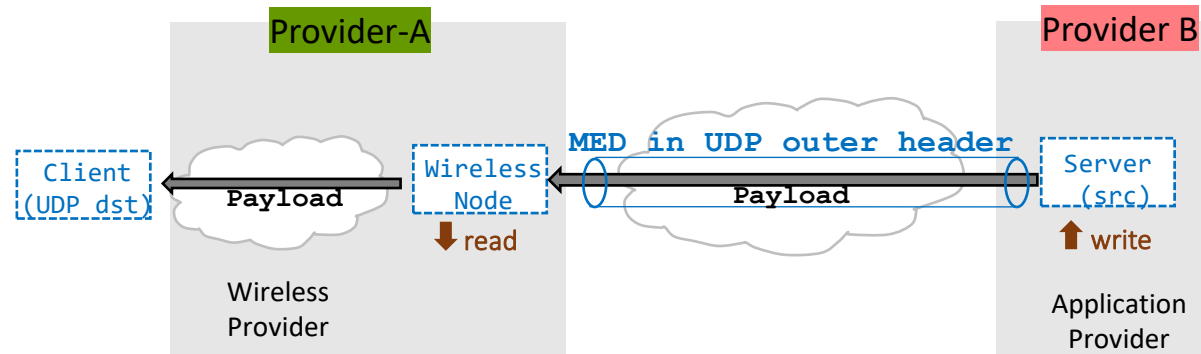
Recent Feedback (Oct 28 -)

1. Metadata parameters and use in network:

(a) Comments on mailing list indicate consensus on metadata parameters.

(b) MED usage in network (no changes to draft):

- service is triggered following creation of media session between host in Provider-A (server) and Provider-B (endpoint).
- Transport : Server in **Provider-B** produces packet with MED in outer UDP packet header to wireless node in **Provider-A**



2. Transport operation:

(a) UDP encapsulated packet used as “TRANSPORT option” is fine . Can support IPv4, IPv6, UDP or TCP media payload.

- ~~UDP option in trailer: use as per fragment option (UDP options, 9.4) for TCP (?). However, for QUIC, RTP, there is no fragmentation.~~
- UDP option is at the end of each packet

→ Move discussion points on Network Option to Appendix:

- IPv6 HBH as “NETWORK option” – easier for network entity to “read”, i.e., at head of the packet, packet drop rate should improve with new HBH
- UDP options as “NETWORK option” only possible if UDP options are extended to support it (i.e., work/revision in UDP options draft).

MED: parameters and on-path processing

INFORMATION ELEMENTS

Importance: priority of MDU relative to other MDUs of media flow.
May be used to determine drop priority.

Burst size: Continuous burst of packets.
May be used to reserve resources in wireless network.

Delay: Tolerance to delay.
May be used to defer sending of MDU.

Inserted by Media Server, and same value for all packets of MDU.
Application may insert one or more of these parameters.

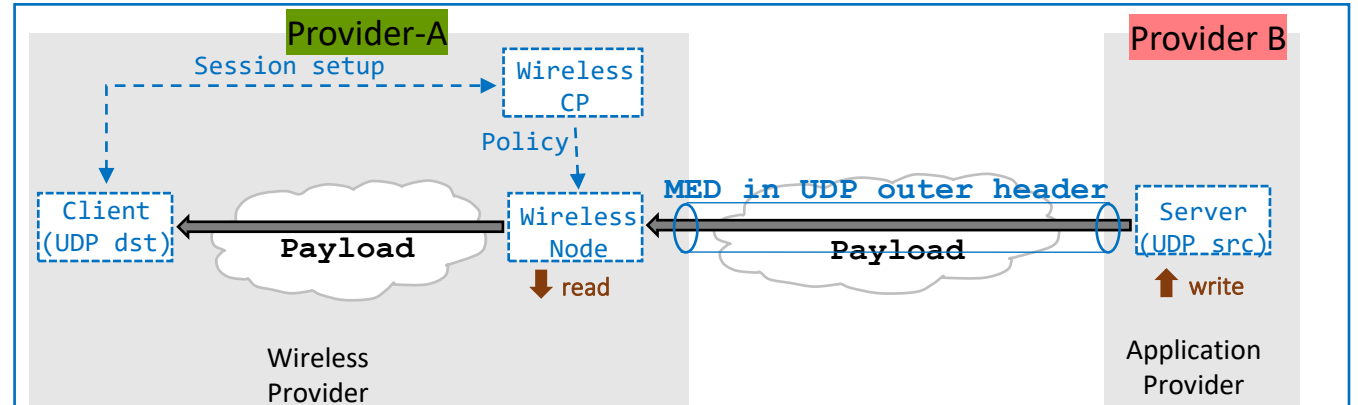
MDU Sequence : sequence number of an MDU
i.e., of group of packets that form media data unit.

Packet Counter: sequence number of a packet within an MDU
Used for detecting loss, out-of-order arrival.

Timestamp: Transmission time.
Used to calculate jitter

Values of these fields change per packet.

MED PROCESSING ON PATH



- One way only, metadata must not be reflected
 - Payload is encrypted end-to-end. Metadata is unaltered from source to destination.
 - Network entities by default do not read/ inspect metadata.
 - Server produces metadata and wireless node consumes metadata.
-
- Signals importance/burst size/delay does not increase queuing (no bufferbloat).
 - Only for wireless network (limited domain); can be incrementally deployed.
 - fairness handled in wireless network; reordering handled by endpoint.
 - Signals are advisory. If it is not received, network reverts to flow-based handling.
 - Feedback to server should look at pacing (separate draft needed).

- Clear separation of the metadata and transport.
- Flexibility to evolve MED and transport separately.

Proposed Updates are in Transport operation

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Sections 1 - 4: Metadata and its use in network: simplified model, editorial changes in 4.3.

Sections 5, 6 need revision:
MED in UDP encapsulation is “produced” by server and “consumed” by wireless node.

5.1. UDP Option MED in Outer UDP Packet Header
Fragmentation is not an issue – MED in each packet.
~~(encapsulated UDP packet with MED UDP option, example in 6.3~~
~~+ current use with QUIC, RTP packets that are not fragmented~~
~~+ otherwise, use UDP options, 9.4 – FRAG)~~

Appendix C. MED in Network Options

C.1. IPv6 HBH Network Option
** note: operation in 4.3.
(RFC 8200, draft-ietf-6man-hbh-processing, draft-ietf-6man-eh-limits)

C.2. UDP Option in Network Mode
(Question on interest in the group to work on UDP NETWORK options?)

Next Steps

We request adoption as a working group draft, as a basis for further work:

- Has been presented at IETF 116, 117 and now 118
(IETF 116: adapting for rapid resource change in wireless; IETF 117: metadata, transport details)
- Considerable discussion at TSVWG mailing list
(UDP transport/network options, IPv6 HBH, efficiency, fragmentation)
- Feedback has been uniformly helpful
(revised to separate metadata/transport, transport simplified to MED in UDP outer packet header)
- Adoption has been discussed previously at IETF 117
(26 participants indicated that this problem was worth addressing)