

Mapping 802.11 QoS in a PMIPv6 Mobility Domain (draft-kaippallimalil-netext-pmip-qos-wifi-04)

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Mailing List comments (1/2)

[comments from IETF 88]

-Why do we need per-user QoS and what is missing

>> [new text in Introduction](#)

- default connection/admission control, etc.

>> [revised/added use cases](#)

-Don't understand justification for DSCP map set

>>[removed from draft](#))

-mapping of connection parameters between WiFi/PMIP

>> [added tables for the mapping](#)

[Pierrick's review comments]

- The draft assumes that MAC and WLC are collocated; can we imagine architecture where the controller is not in the datapath? If yes, what is the impact?

>> [Yes, should consider the possibility of WLC not being in datapath.](#)

- There is an unsaid assumption: the LMA is the decision maker regarding the QoS policy. I think it should be clearly stated somewhere. I mean, although it is not the current trend, I imagine that some deployment may let the MAG making the final decision regarding the QoS policy to apply.

>> [state that LMA is making the QoS policy decision \(and not the MAG\).](#)

- You wrote that Mean Data Rate has no equivalent parameter in PMIP QoS. However, last update of pmip-qos draft includes a vendor specific option which, IMO, could be used for that purpose.

>> [Noted.](#)

Mailing List comments (2/2)

[Georgios' review comments]

Comment 1: The draft considers the E2E QoS path as the path that goes through the IEEE 802.11 and PMIP domains. It will be useful to also discuss what happens if the E2E QoS path goes beyond the IEEE 802.11 and PMIP domains.

In order to realise the above you may discuss how the IEEE 802.11 QoS and PMIP QoS signalling can be used together with an e2e QoS signalling protocol, like RSVP.

>> [relationship between a connectivity session \(or QoS\) setup protocol – RSVP, WCS \(3GPP 23.402\)](#).

Comment_2: Agree with one of the comments of Pierrick, to map the Mean Data Rate into a vendor specific option in PMIP QoS.

>> [Yes – see Pierrick's earlier comment](#)

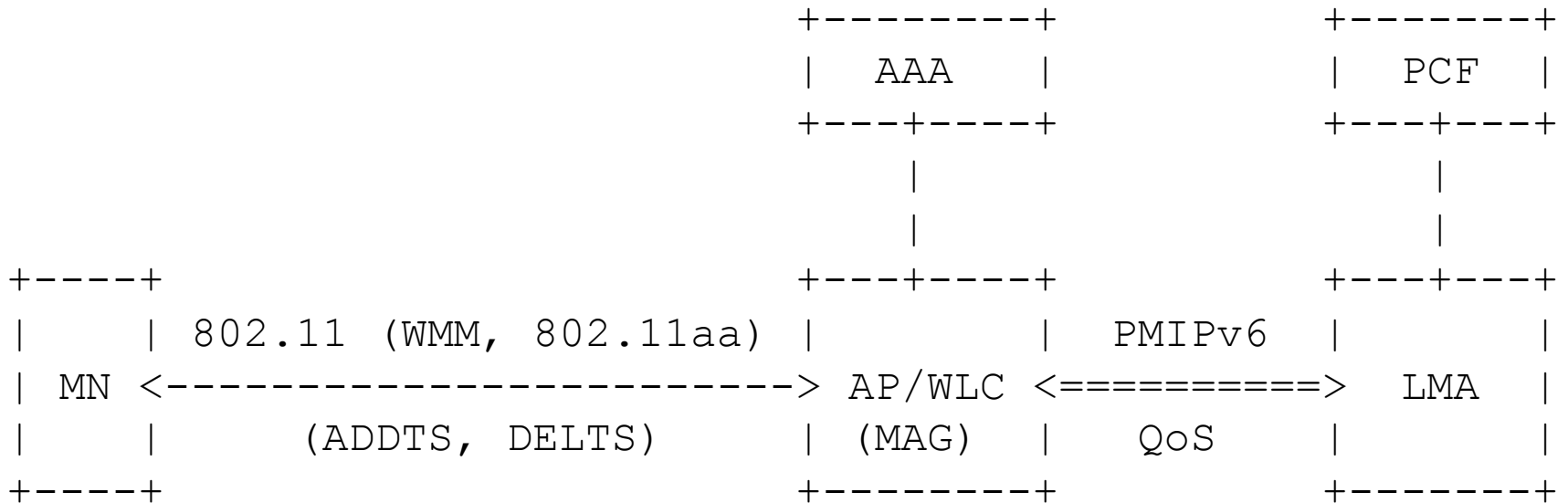
Why we need per user QoS (and what is missing)

- WiFi radio is a limited resource and has to be managed to achieve better and fair utilization. For example, during WiFi radio congestion or for services like VoIP, per user/flow scheduling and policing can utilize the scarce resources better.
- QoS Policies may be statically configured in WiFi AP on per service basis. However, it cannot differentiate per user.
- Per user QoS policies for PMIP mobile sessions between MAG – LMA are available. DSCP of these flows can be used to prioritize flows at WiFi AP. However, other per user information (ARP, AMBR, GBR) needs to be addressed.
- Mapping from parameters in PMIP QoS to 802.11 AC + other QoS parameters needs to be consistent when different providers and equipment are configured.

Gap:

- How to signal QoS in WiFi access when MN initiates request, and when network pushes QoS.
- How to map WiFi QoS parameters to PMIP QoS.

Background



QoS in Mobile Networks

provided for IP flow/session.

Reservation of resources for GBR flows

QoS in WiFi

provided for Ethernet frames.

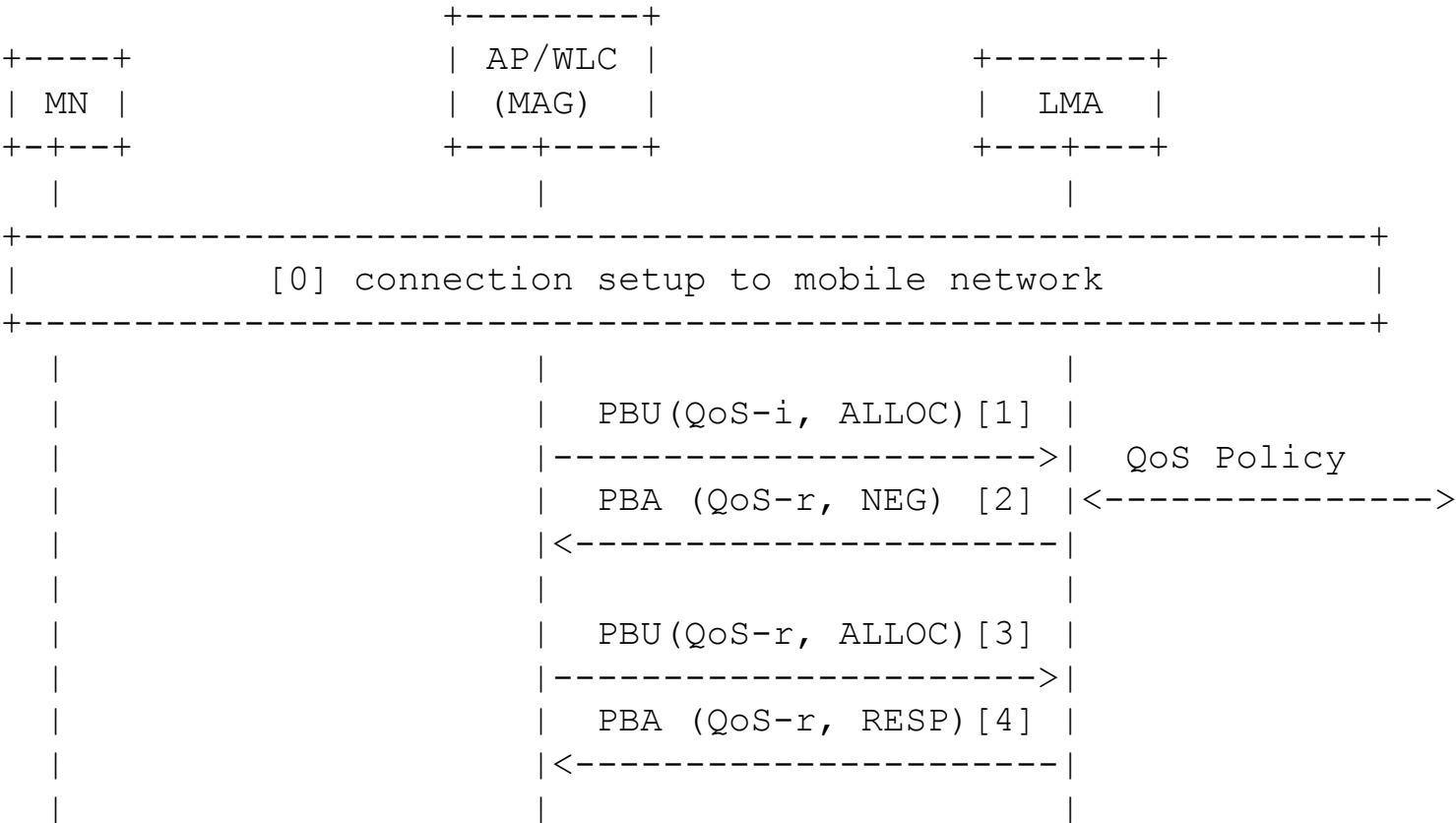
No reservation of resources.

Mapping of Connection Parameters

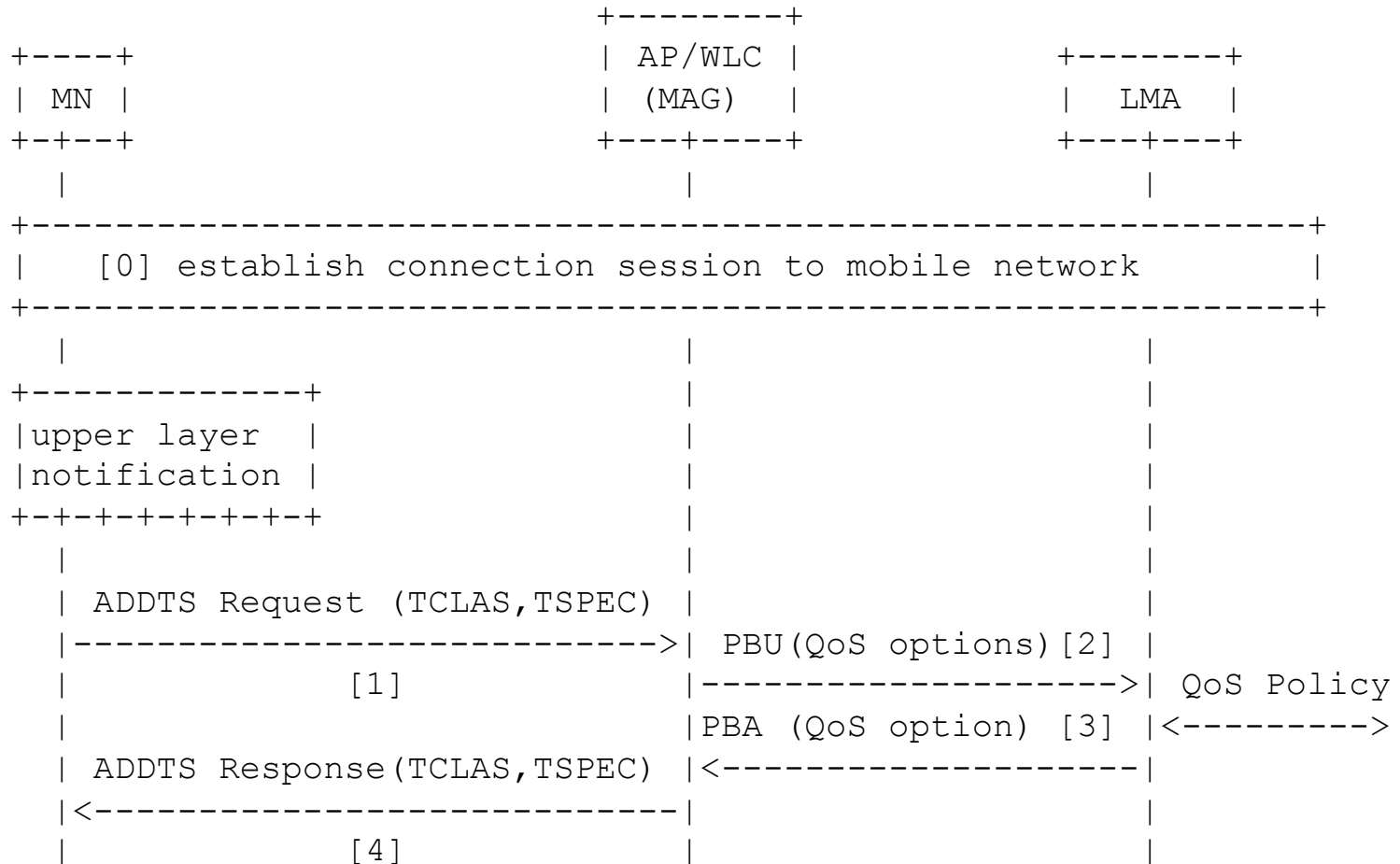
- a) Connection Mapping
TCLAS (IP session/flow) → PMIP mobility session
- b) QoS Class
802.11 QoS TSPEC → 802.1D UP (and DSCP)
- c) Bandwidth
Peak Data Rate *<equal to>* GBR
- d) Pre-emption Priority
ARP may be used in AP/WLC (MAG) to determine which flow to grant resources/tear down flows on congestion (admission control case).

MN <--> AP/WLC (802.11)	AP/WLC (MAG) <--> LMA PMIPv6
(TCLAS) TCP/UDP IP	Traffic Selector (IP flow)
(TCLAS) User Priority	DSCP
(TSPEC) Minimum Data Rate, DL	Guaranteed-DL-Bit-Rate
(TSPEC) Minimum Data Rate, UL	Guaranteed-UL-Bit-Rate
(TSPEC) Mean Data Rate UL/DL	-
(TSPEC) Peak Data Rate, DL	Aggregate-Max-DL-Bit-Rate
(TSPEC) Peak Data Rate, UL	Aggregate-Max-UL-Bit-Rate

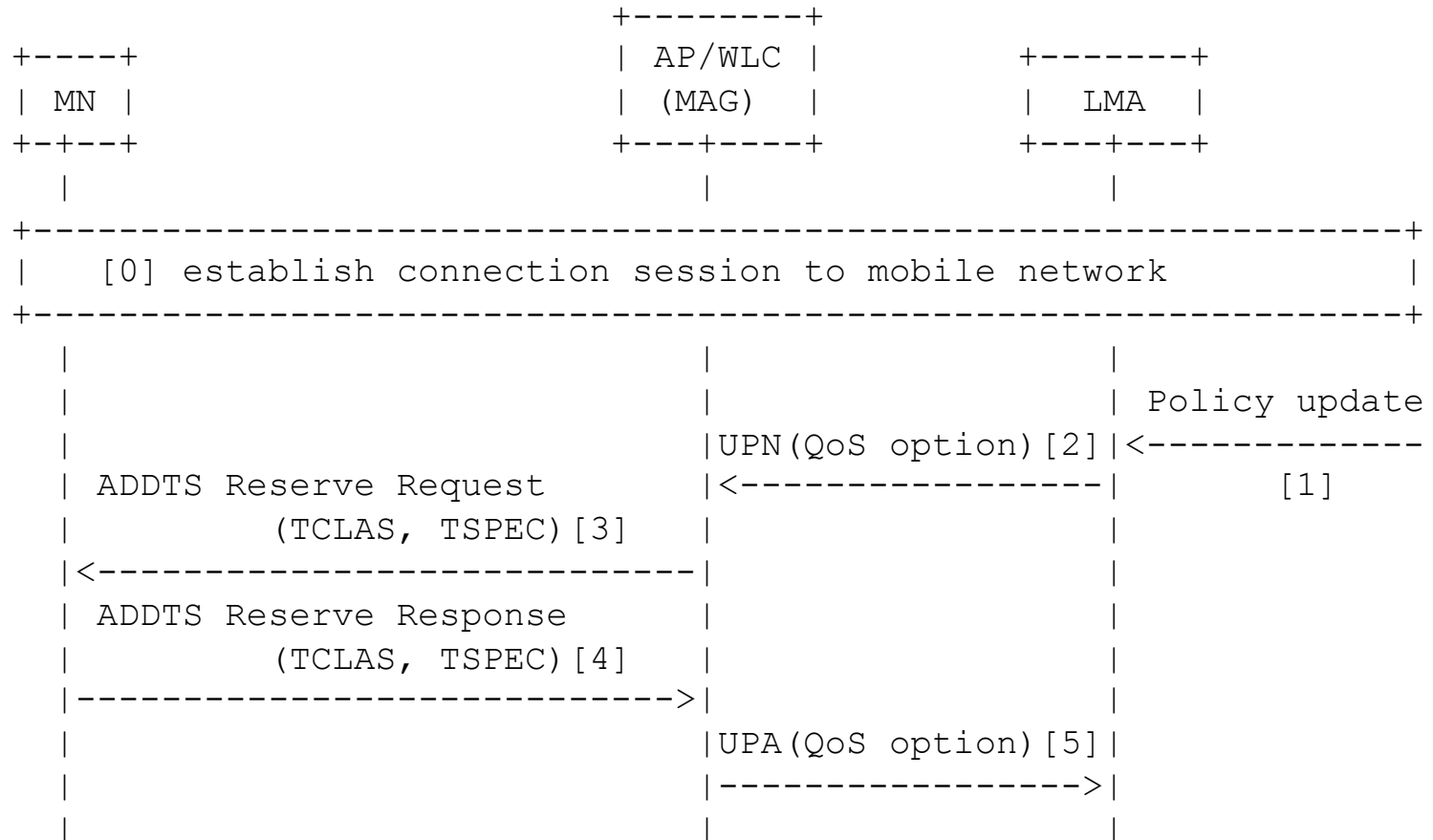
E2E QoS with no Admission Control



Case A: MN Initiated QoS Request



Case B: Network Initiates QoS Signaling

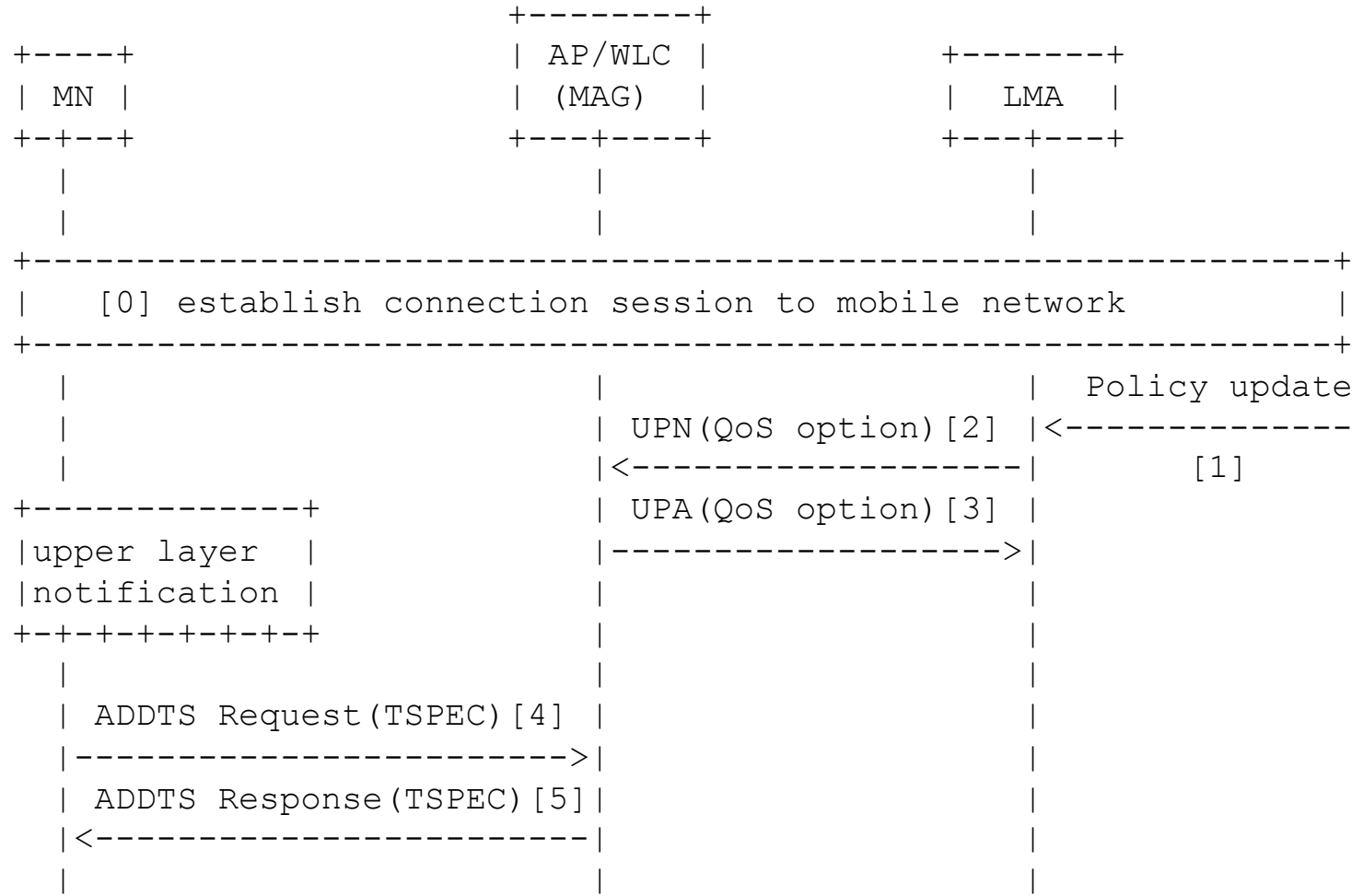


Need support of 802.11aa on AP/WLC and MN.

→ MAG uses PBA with new QoS and associates IP flow/connection id.

→ MAG sends ADDTS Reserve Request

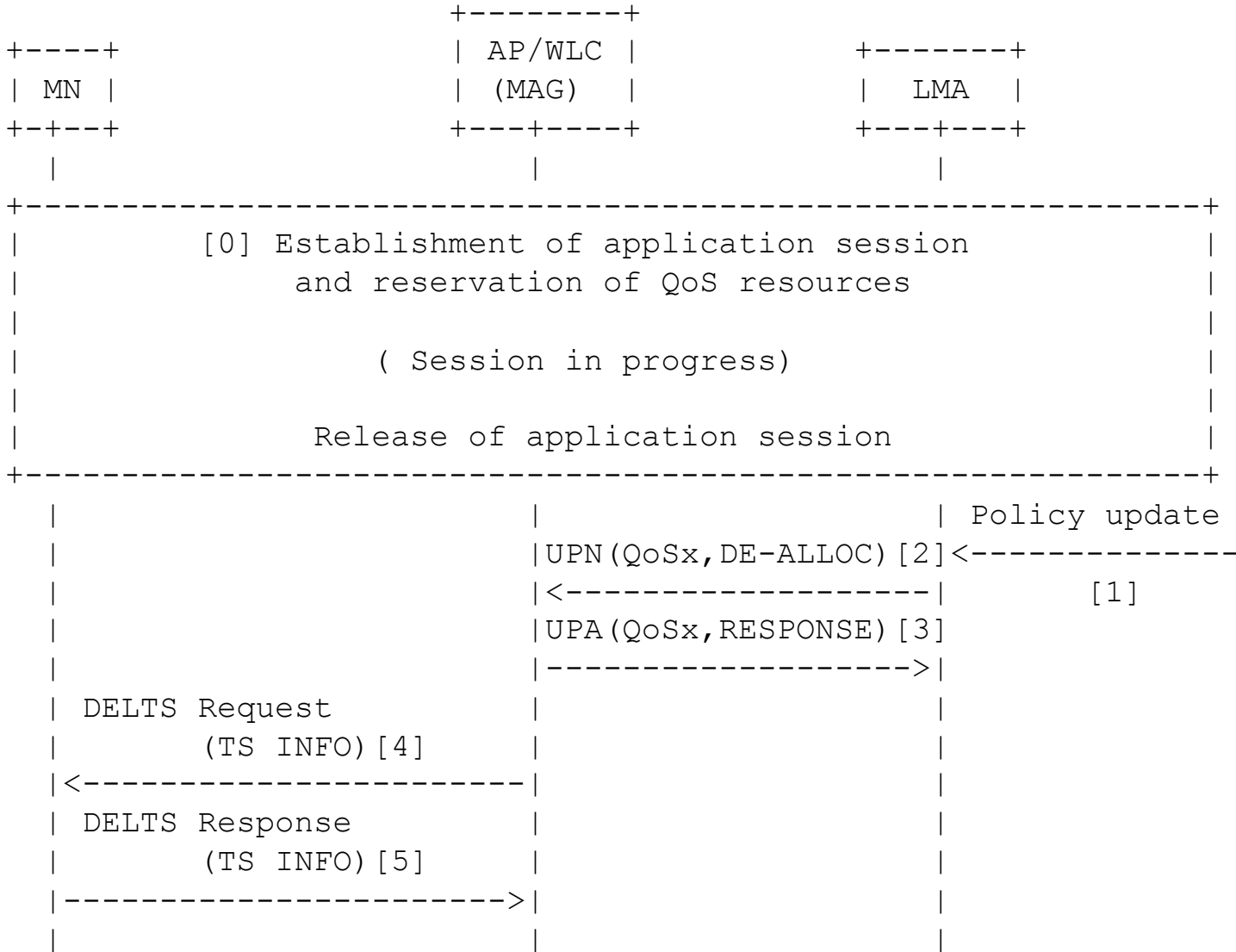
Case C:Hybrid Network init for PMIPv6, user initiated for WiFi



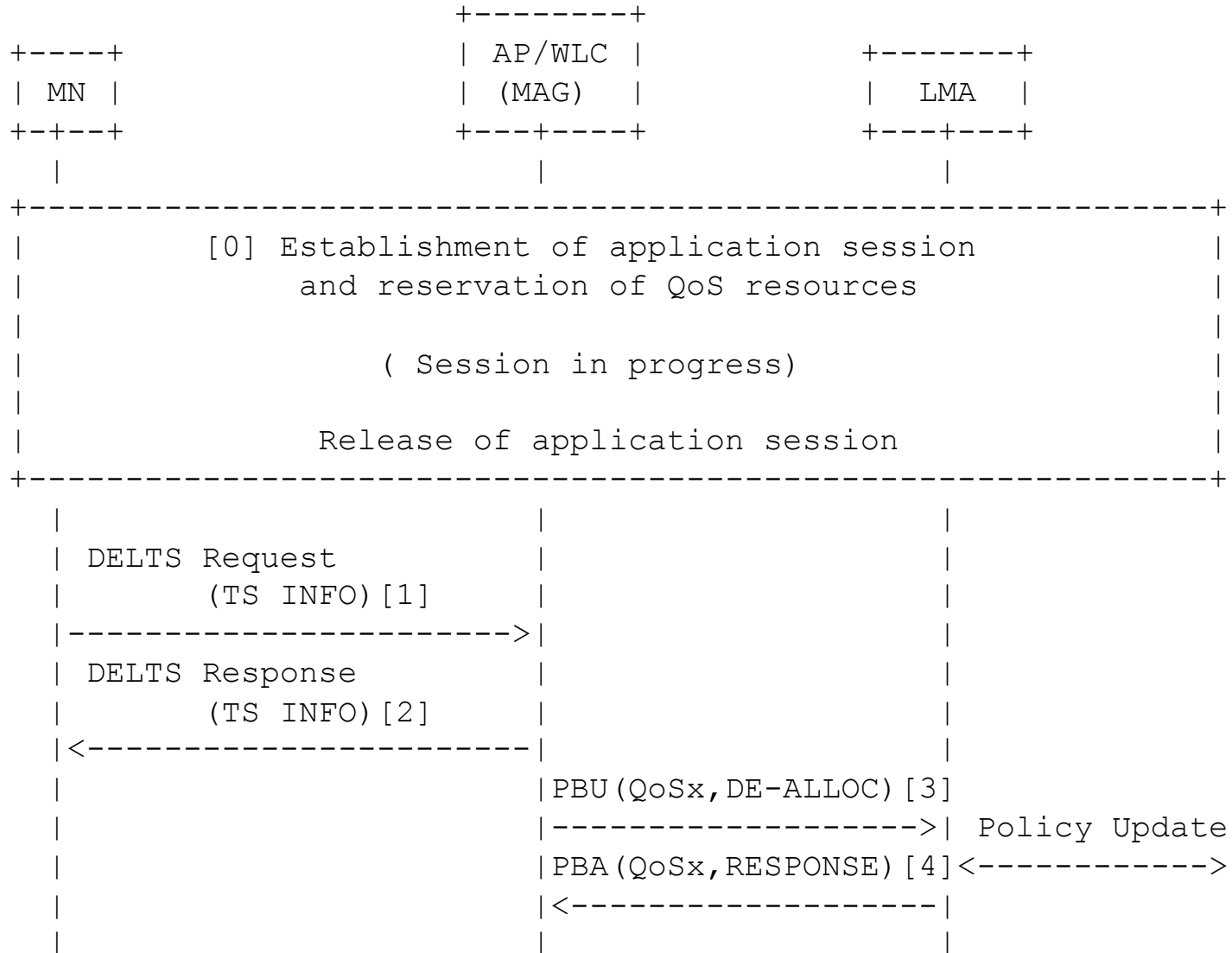
WMM based mechanisms:

→ MAG uses PBA with new QoS and associates IP flow/connection id.

Case D: Network Initiated Release



Case E: MN Initiated Release



IETF next steps

Adoption call issued for consideration
as WG draft.