

Multiplexing Extended Header Format for 802.16m

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Source:

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Venue:

CR to SDD as per configuration control procedure (80216m-09_0008)

Base Contribution:

N/A

Purpose:

Discuss and approve the proposed text changes into SDD document

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Further information is located at <<http://standards.ieee.org/board/pat/pat-material.html>> and <<http://standards.ieee.org/board/pat>>.

Introduction

- The concept of multiplexing multiple connection payloads in a MAC PDU is accepted in SDD
 - Primarily multiplexing provides significant reduction in the encryption overhead
 - Payloads of the connections associated with same security association (SA) are multiplexed and encrypted together
 - Security Header (e.g. PN, EKS) and Security Trailer (e.g. ICV) are added once
 - Refer section 10.6.5.1.3 & 10.12 of 80216m-08_003r7
- MAC PDU Format (see Figure 1 below)
- Issue: Given the current MAC PDU format how to encode multiple connections' payload information in the MAC PDU

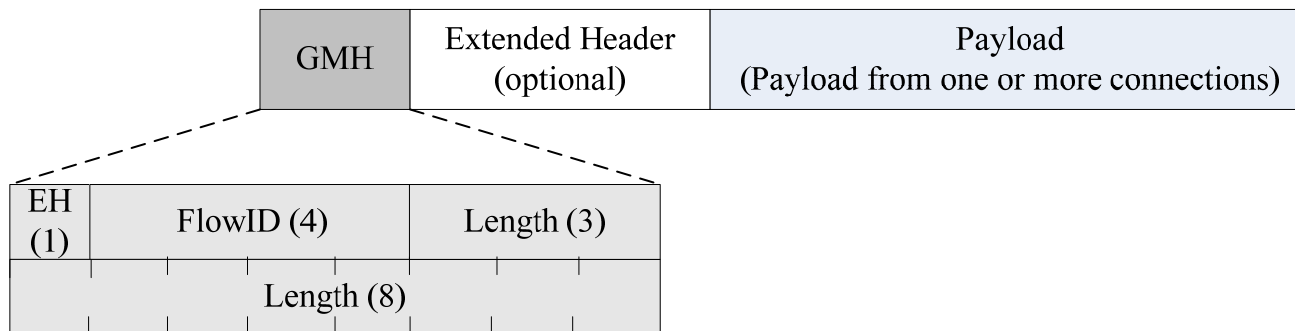


Figure 1: MAC PDU Format

Multiplexed MAC PDU Format – MEH

- GMH provides the information about 1st Payload's FlowID & Length
- Multiplexing Extended Header (MEH) provides the information about the other Payloads' FlowIDs and Lengths
- MEH is the first extended header present in the MAC PDU
 - MEH consists of one or more Flow Information Blocks (FIBs)
 - Number of FIBs = number of connections' payloads multiplexed in the MAC PDU – 1
 - Each FIB contains Flow Identifier and Payload Length

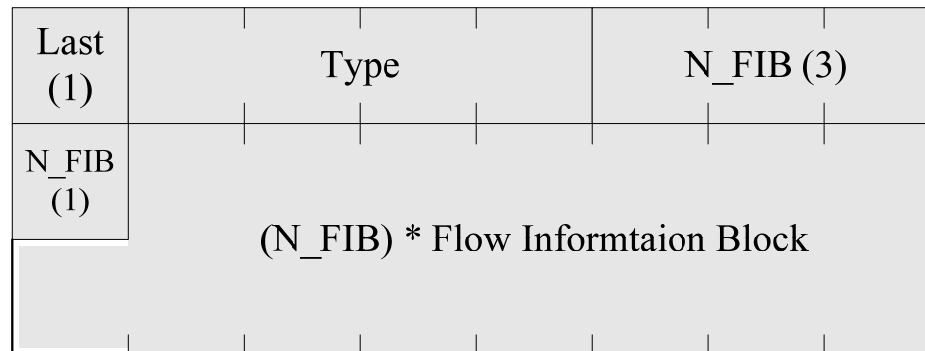


Figure 2: Multiplexing extended header

Multiplexed MAC PDU Format – Flow Info

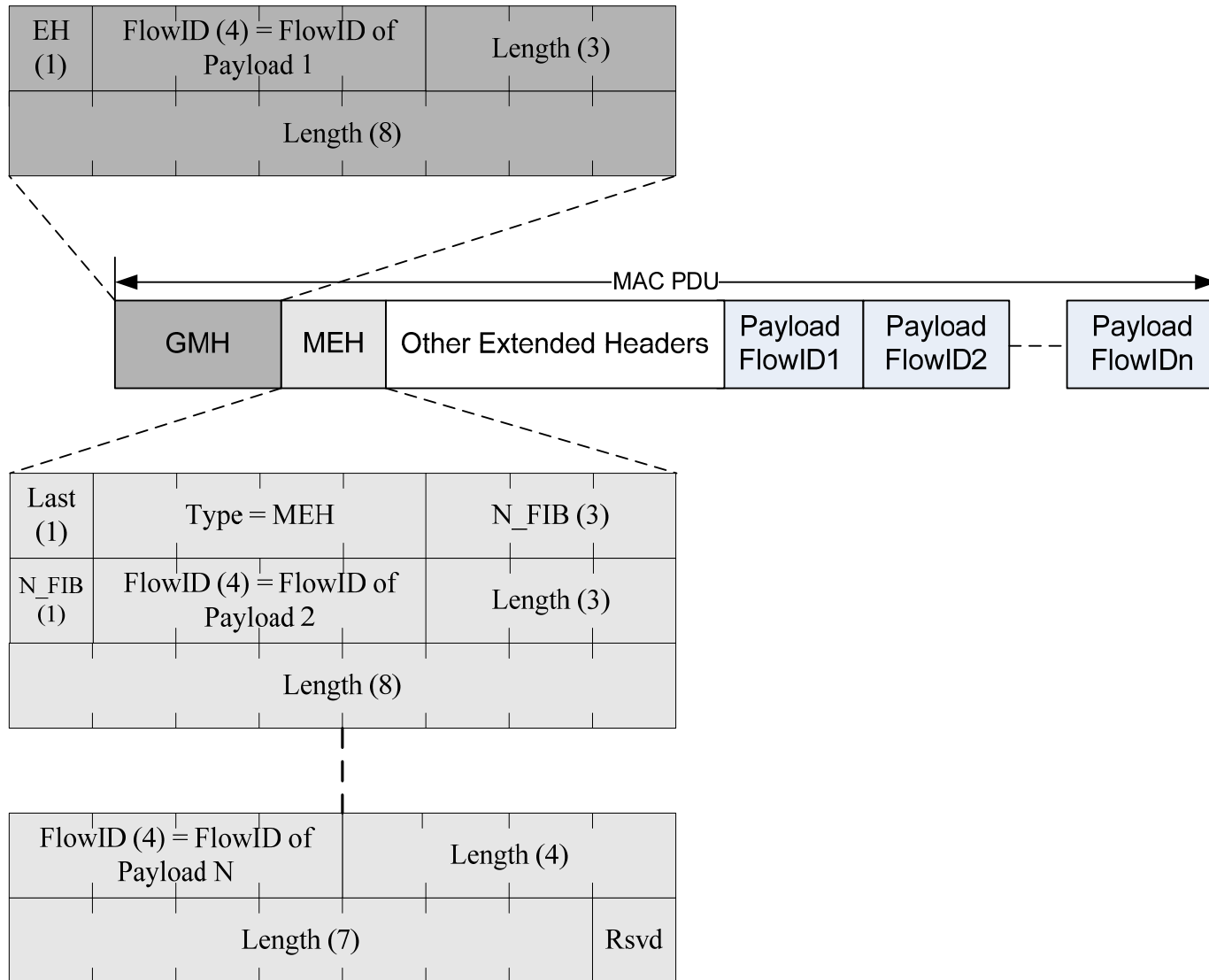


Figure 3: Multiplexed MAC PDU & Flow Info

Multiplexed MPDU – Security Info

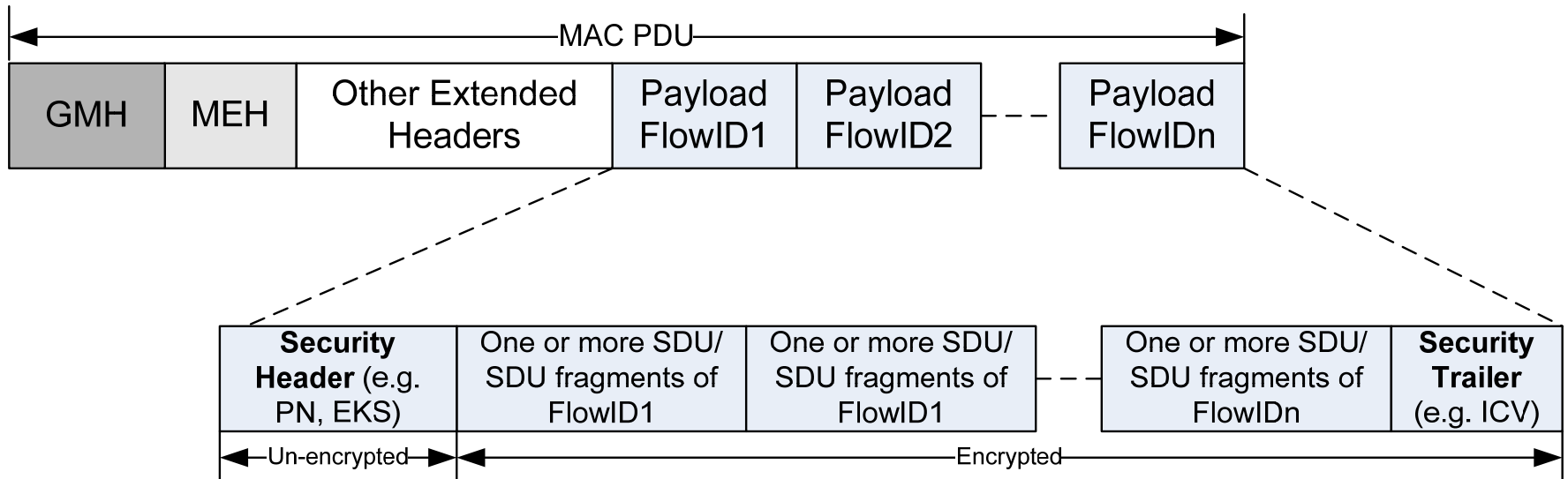


Figure 4: Multiplexed MAC PDU & Security Info

Multiplexed MPDU – Fragmentation/Packing Info

- Fragmentation & packing information is carried in FPEH (See contribution C80216m-09_0393 for details)

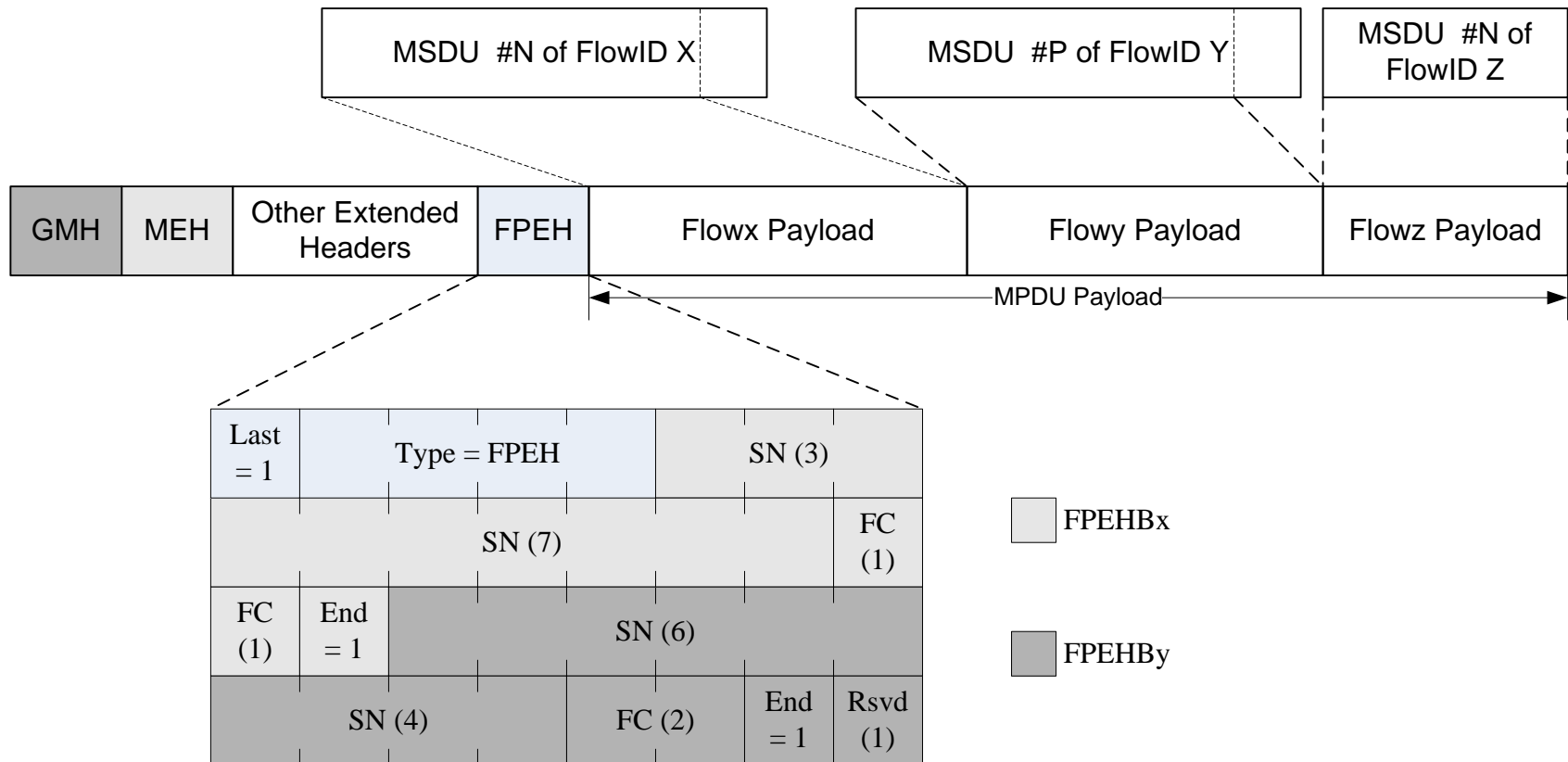


Figure 5: Multiplexed MAC PDU & Fragmentation/packing Info (Few Payloads having fragmentation & packing info)

Proposed text change in SDD (1/2)

[Insert the following text in section 10.12.2.2 in IEEE 802.16m-08/003r7]

----- **Text Starts** -----

10.12.2.2 Multiplexing extended header

IEEE 802.16m supports multiplexing of multiple connections payloads belonging to same AMS in a single MAC PDU. GMH contains the flow identifier and length of the 1st connection payload in a MAC PDU. Multiplexing extended header (MEH) contains the flow identifiers and lengths of remaining connections payloads multiplexed in a MAC PDU. The multiplexing extended header is shown in figure x. MEH, if present, is the first extended header present in the MAC PDU. MEH consists of one or more flow information blocks (FIBs). The number of FIBs in MEH is equal to number of connection payloads multiplexed in the MAC PDU minus one.

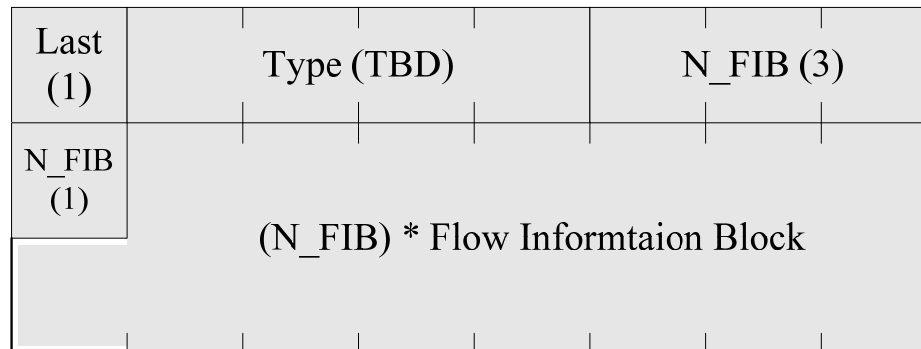


Figure x: Multiplexing Extended header for 16m

Proposed text change in SDD (2/2)

The flow information block is shown in figure y. The 'nth' FIB in MEH contains the flow identifier and length of 'n+1'th connection payload in a MAC PDU. .

- FlowID : Flow Identifier*
- Length: Length of payload.*
- Rsvd: Reserved bits are added at the end of last FIB in MEH to octet align the MEH.*

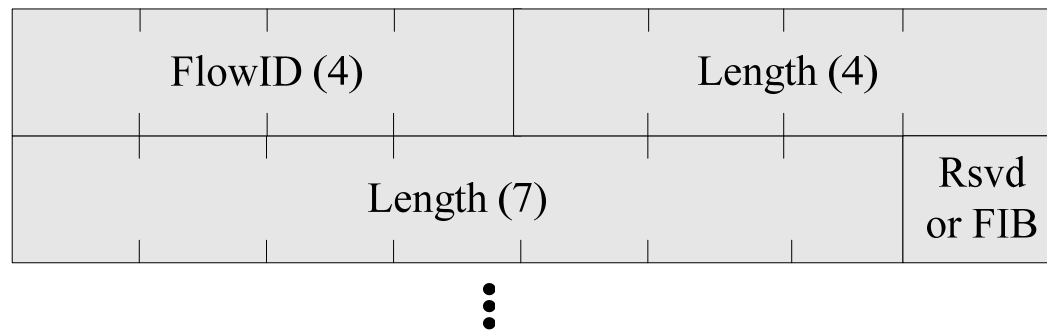


Figure y: Flow Information Block

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