

User Plane Message Encoding

draft-murakami-dmm-user-plane-message-encoding-00

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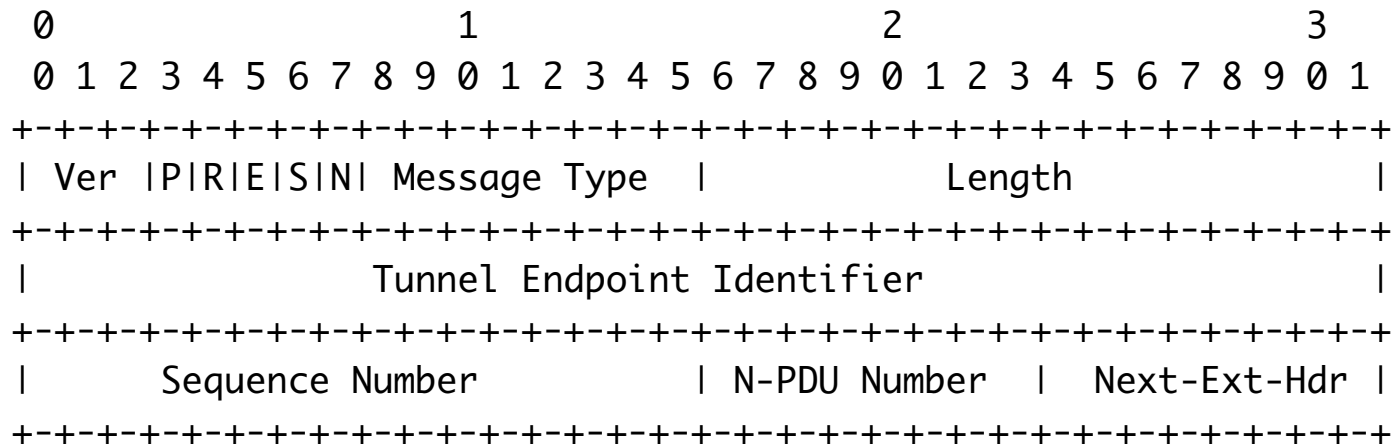
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Motivation

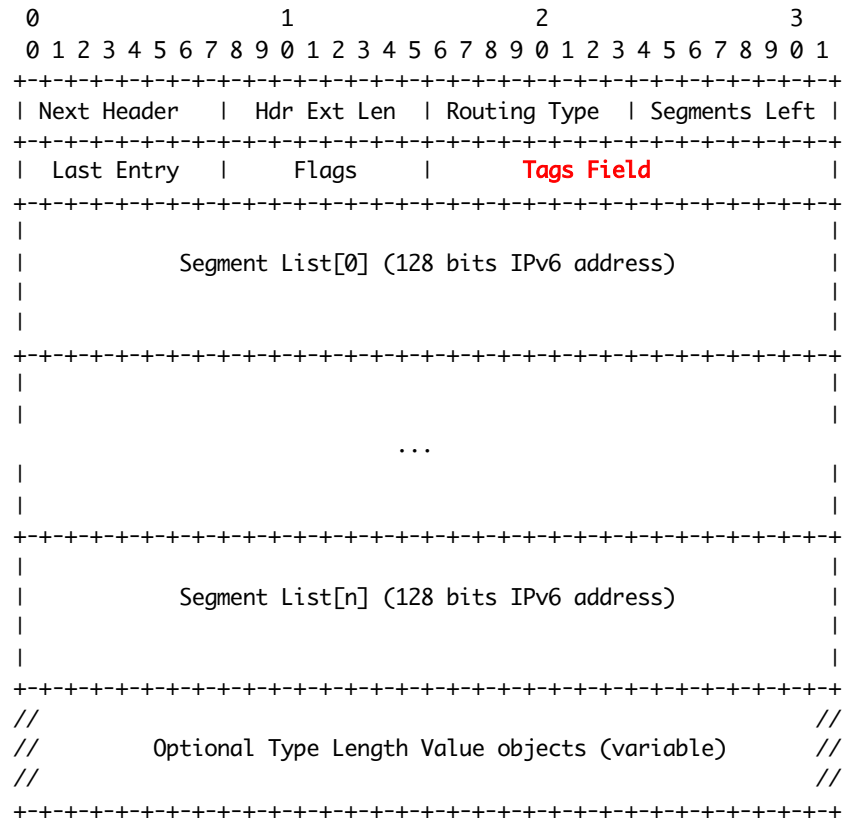
- 3GPP User Plane needs to support the user plane messages associated with a GTP-U tunnel defined in [TS29281].
- In the case of SRv6 User Plane [I-D.ietf-dmm-srv6-mobile-uplane], those messages are also required when the user plane interworks with GTP-U.
- The Tag field of SRH is capable to indicate different properties within a SID. Also, SRH TLV is capable to provide meta-data to the endpoint node.
- The capability of SRH can be possible to map the user plane messages into it.
- There is no additional headers or extension headers to be chained in the packet for carrying the user plane messages.

GTP-U message format

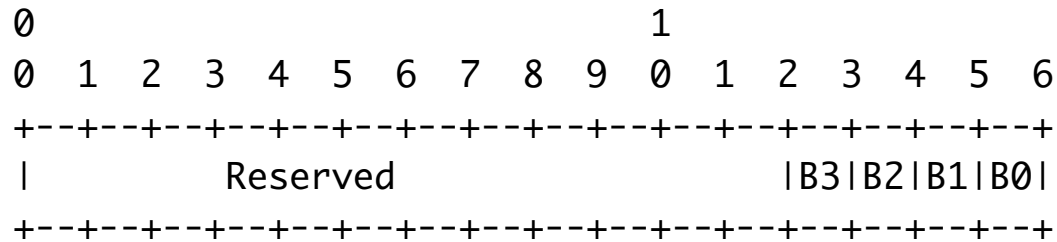


- Message Type for User Plane Message
 - Echo Request: 1
 - Echo Reply: 2
 - Error Indication: 26
 - End Marker: 254

Segment Header



Encoding of Tags Field



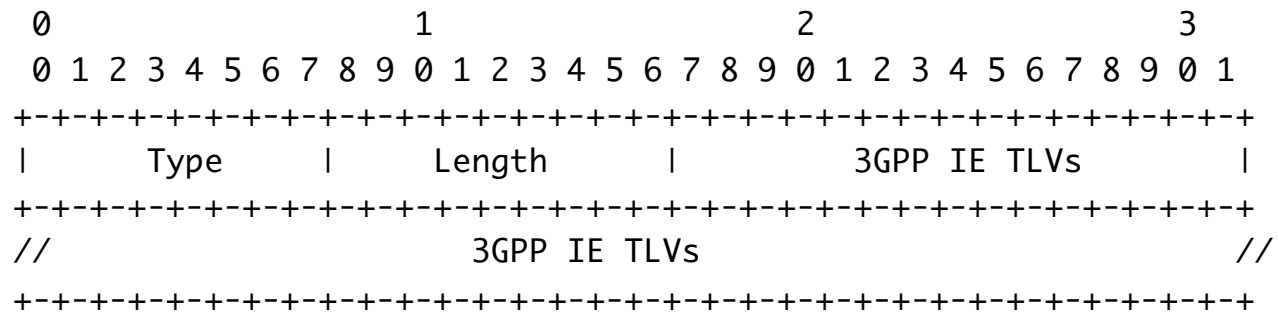
Bit 0 [B0]: End Marker

Bit 1 [B1]: Error Indication

Bit 2 [B2]: Echo Request

Bit 3 [B3]: Echo Reply

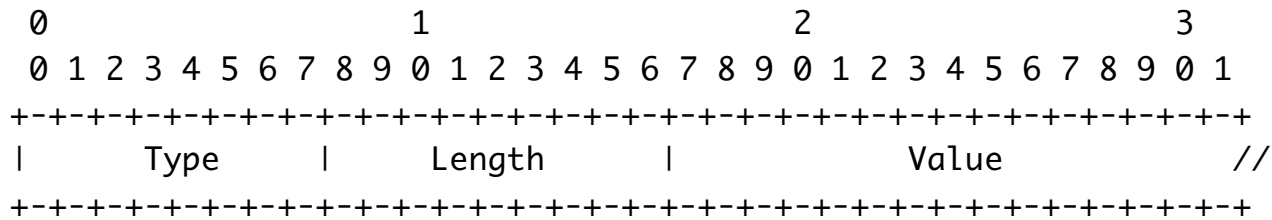
User Plane Information Element



5GS Container TLV

- SRH TLV should be leveraged to carry user plane information element.
- Type must be assigned by IANA

3GPP IE TLV



3GPP IE TLV

- 3GPP IE is encoded in this TLV.
- 3GPP IE TLV should be followed with 3GPP specification.

PSP Case

- In order to carry User Plane message over SRv6 network, SRH must be sustained over entire SRv6 network because User Plane message type and required information elements are encoded into SRH.
- If the penultimate segment is popping out SRH, i.e., PSP, User Plane message can not be carried in entire SRv6 network.
- In order to avoid this problem...
 - PSP must NOT be used in SRv6 network or
 - Another SRH should be added to carry User Plane message along with the outer IPv6 or SRH if PSP is mandatory.

- Q&A