Export of GTP-U Information in IPFIX

draft-voyersriram-opsawg-ipfix-gtpu-03

Enabling insights in GTP forwarding plane by adding GTP-U dimensions

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GTP-U @ IPFIX

Data-Plane visibility is missing in GTP

- GTP is already deployed by network operators
- Data-Plane visibility is missing in GTP-U and so unable to identify the transport performance of PDU Sessions with specific QoS within a slice or within a group of slices hosted on the same User Plane Function.

Octets	Bits 8	7	6	5	4	3	2	1
1	Version			PT	(*)	E	S	PN
2	Message Type							
3	Length (1st Octet)							
4	Length (2nd Octet)							
5	Tunnel Endpoint Identifier (1st Octet)							
6	Tunnel Endpoint Identifier (2nd Octet)							
7	Tunnel Endpoint Identifier (3rd Octet)							
8	Tunnel Endpoint Identifier (4th Octet)							
9	Sequence Number (1st Octet)1) 4)							
10	Sequence Number (2nd Octet)1) 4)							
11	N-PDU Number2) 4)							
12	Next Extension Header Type3) 4)							

NOTE 0: (*) This bit is a spare bit. It shall be sent as '0'. The receiver shall not evaluate this bit.
NOTE 1: 1) This field shall only be evaluated when indicated by the S flag set to 1.
NOTE 2: 2) This field shall only be evaluated when indicated by the PN flag set to 1.
NOTE 3: 3) This field shall only be evaluated when indicated by the E flag set to 1.
NOTE 4: 4) This field shall be present if and only if any one or more of the S, PN and E flags are set.

Figure 5.1-1: Outline of the GTP-U Header

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IPFIX entities in context of the GTP-U (1)

- **gtpuFlags**

  8-bit flags field defined in the GTP-U which indicates the version of GTP-U protocol, protocol type and presence of extension header, sequence number and N-PDU number in the GTP-U header.

- **gtpuMsgType**

  8-bit message type field defined in the GTP-U which indicates the type of GTP-U message.

- **gtpuTEid**

  32-bit tunnel endpoint identifier field defined in GTP-U which unambiguously identifies a tunnel endpoint in the receiving GTP-U protocol entity for a given UDP/IP endpoint..

- **gtpuSequenceNum**

  16-bit sequence number field defined in the GTP-U. This field is interpreted based on the corresponding flag value from gtpuFlags

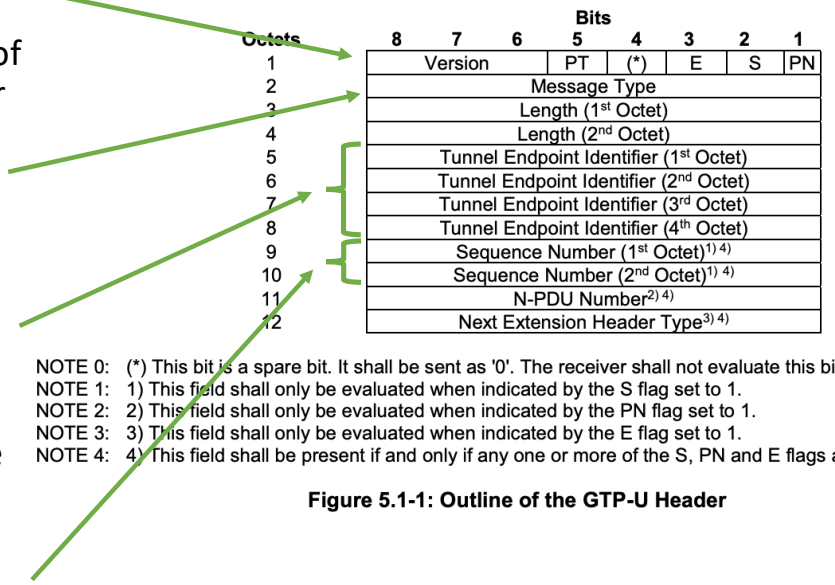

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Figure 5.1-1: Outline of the GTP-U Header

GTP-U @ IPFIX

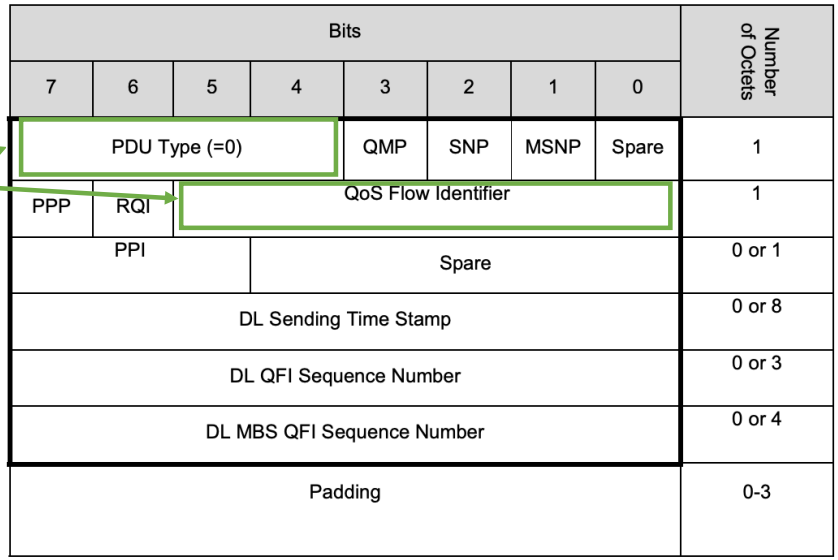
IPFIX entities in context of the GTP-U (2)

- **gtpuQFI**

  8-bit QoS flow identifier field defined in PDU Session Container extension header of GTP-U. This is defined in section 5.5.3 of PDU session spec [TS.38415]. This is used to determine the QoS flow and QoS profile which are associated with the received packet..

- **gtpuPduType**

  8-bit PDU type field defined in PDU Session Container extension header of GTP-U. This is defined in section 5.5.3 of PDU session spec [TS.38415]. This field indicates the structure of the PDU session UP frame..



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Next Steps

- Data-Plane visibility is missing in GTP.
- Authors want to avoid private enterprise code points being used in GTP 5G deployments.
- During the IETF week, we will be requesting for IPFIX IANA allocation.
- This draft could progress to document the use cases and will be helpful for 3GPP references also.
- Call for adoption at OPSAWG at IETF 119.