

802.1CBdb Generic stream identification function

IEEE 802.1 Plenary Bangkok

13 November, 2018

- Back to a simple flat mask & match stream identification
 - Outcome of the last discussions
 - Proposal
- How to proceed with 802.1CBdb

Back to the initial M&M proposal

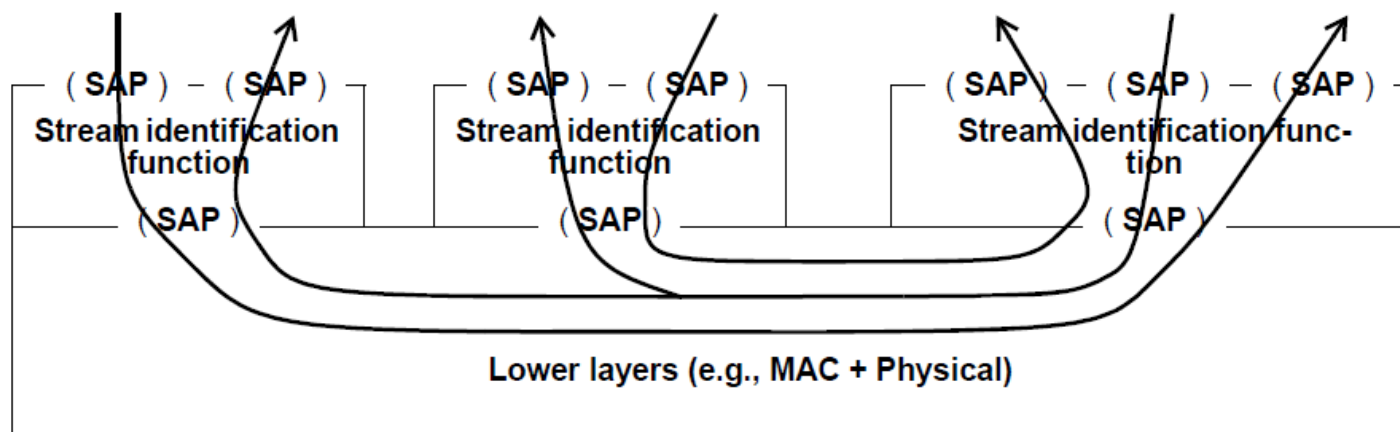
MASK&MATCH-BASED FLAT STREAM IDENTIFICATION

Outcome of the latest discussion

- Considering the potential evolution of Ethernet and the upper-layer protocols
 - Ethernet: the Tags issue
 - The Tag family will have new additions
 - No fixed Tag order in the frame
 - Tags' Ethertype attribution policy not “deterministic”
 - Upper-layer protocols
 - Variety of existing protocols
 - More to come
- Keep it simple for the user to define the identification parameters
 - Mask&Match using a list of bit fields in the frame

New proposal

- Starting from what we have in 802.1CB
 - “Stream identification utilizes a single Service Access Point (SAP) to a connectionless packet service offered by the layer below it [e.g., the Intermediate Sublayer Service (ISS) of Clause 11 of IEEE Std 802.1AC], and offers an array of SAPs to the layers above it, corresponding to different Streams.”



New proposal

- Starting from what we have in 802.1CB
 - In fact, the ISS defined in 802.1AC (Clause 11) seems to be the right candidate for a Mask&Match-based identification:

M_UNITDATA.indication	(M_UNITDATA.request	(
	destination_address,		destination_address,
	source_address,		source_address,
	mac_service_data_unit,		mac_service_data_unit,
	priority,		priority,
	drop_eligible,		drop_eligible,
	frame_check_sequence,		frame_check_sequence,
	service_access_point_identifier,		service_access_point_identifier,
	connection_identifier		connection_identifier
))

- The M&M stream identification function can use a subset of the ISS primitive parameters as inputs:
 - destination_address
 - source_address
 - mac_service_msdu

New proposal

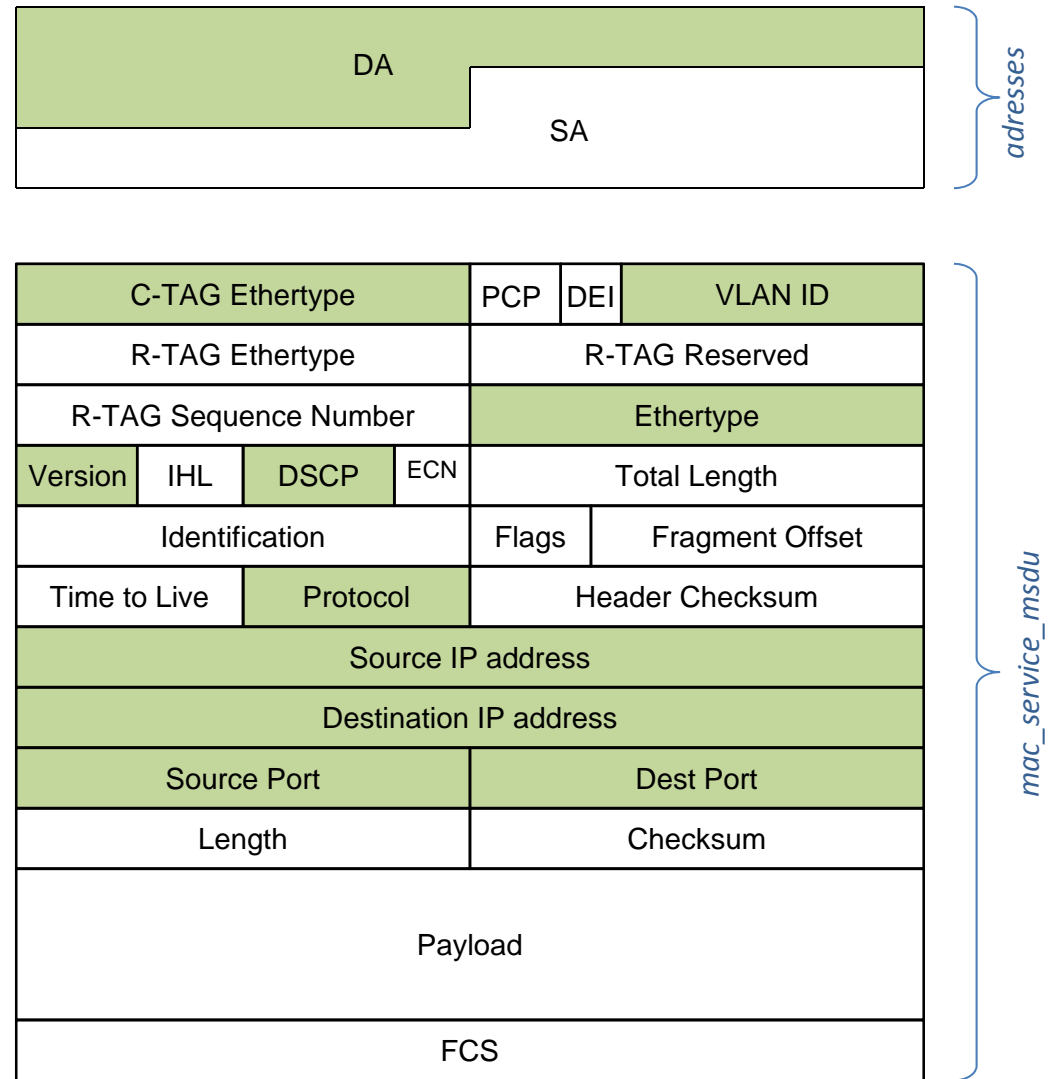
- At that particular level in the stack, the *mac_service_msdu* contains all the possible Tags a frame can include
- and the Ethertype,
 - somewhere beyond the Tags
- ... and the upper-layer (application) payload
 - after the Ethertype

New proposal

- Principle: the Mask&Match-based stream identification function uses a union of 2 sets of parameters :
 - Address (source and/or destination) set
 - msdu bit field set
 - the mask of the fields that have to be matched within the *mac_service_msdu* in the form of list of offset-length couples:
 $\{(\text{offset}_1, \text{length}_1); (\text{offset}_2, \text{length}_2); \dots; (\text{offset}_N, \text{length}_N)\}$
Offsets and lengths expressed in bits
First bit of the *mac_service_msdu* at offset 0
 - This union must not be empty
 - At least 1 address or at least 1 msdu bit field present
N > 0 if the address set is empty

Example

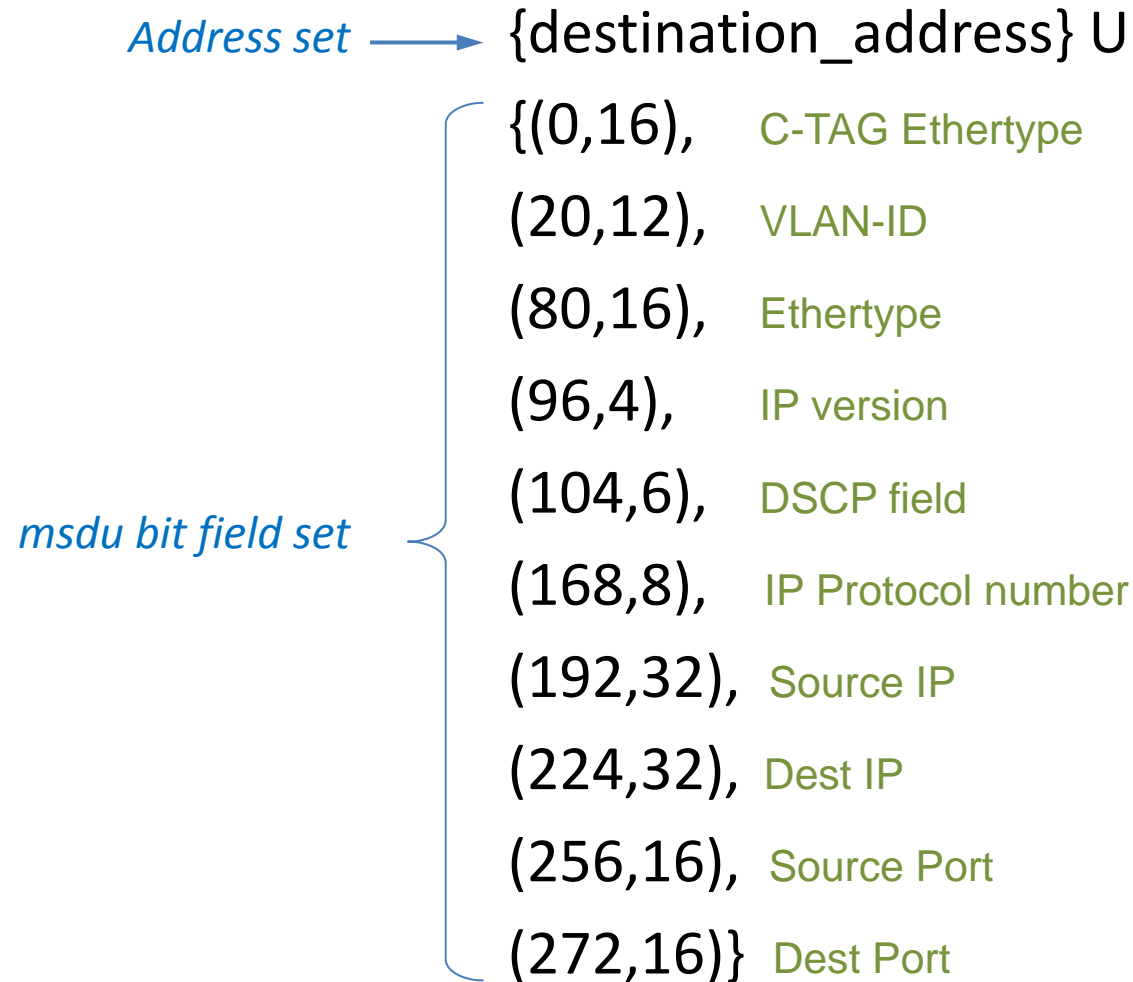
- An example of:
 - Stream identification based on :
 - Destination Address
 - VLAN-ID
 - UDP flow
 - DSCP
 - L4 protocol number
 - Source IP address
 - Destination IP address
 - Source Port
 - Destination Port
 - Applied to VLAN- and R-Tagged frames



Bit offset in the *mac_service_msdu*

Example

- Corresponding identification parameter set:



Way forward

HOW TO PROCEED WITH 802.1CBDB

- Addition of a new passive stream identification function in 802.1CB Clause 6
 - Sub-clause 6.8 “Bit field mask stream identification”*
 - Passive identification function that sits at the ISS interface
 - Uses ISS’s specific parameters as input:
 - source_address, destination_address, mac_service_msdu
 - The function matches the a list of fields
 - The *stream_handle* produced by the Bit-field mask identification function (up the stack) is derived from the matching of address(es) and/or msdu bit field(s) with values defined by the user (through network management or stream establishment signaling)

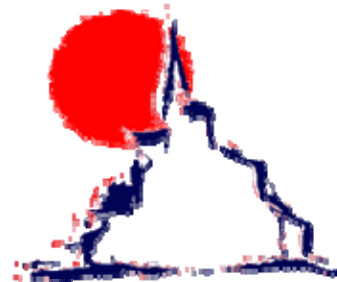
Changes in 802.1CB

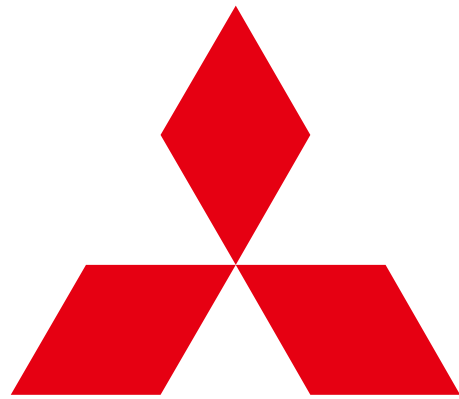
- Clause 9 “Stream Identification Management”
 - Addition of a new *tsnStreamIdIdentificationType*
 - OUI: 00-80-C2, Type number: 5
 - Addition of managed objects for bit field set identification
 - Sub-clause 9.1.6
 - Source address,
 - Destination address
 - Enumeration of (Offset, Length) couples defining the bit fields to be matched in the *mac_service_msdu*.
- Other clauses to be modified
 - 5 “Conformance”
 - Annex A “PICS”
- Additional clauses:
 - YANG model
 - Informative annex: example use of the function

What's next ?

- Is this proposal acceptable from a technical point of view ?
 - Any missing bits ?
 - Any switch / bridge implementer having issues with such an identification function ?
- Mature enough to start editing ?

Thank you for your attention





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Changes for the Better

Utiliser paramètres des primitives ISS et EISS

- DestMAC
- SourceMAC
- MSDU
- Tag ? Tag_s ?

Mask and match applied to MSDU only

Can we say that M&M stream identification is always applied at the ISS of the media independent convergence sublayer ?

=> Pas de notion de tag VLAN