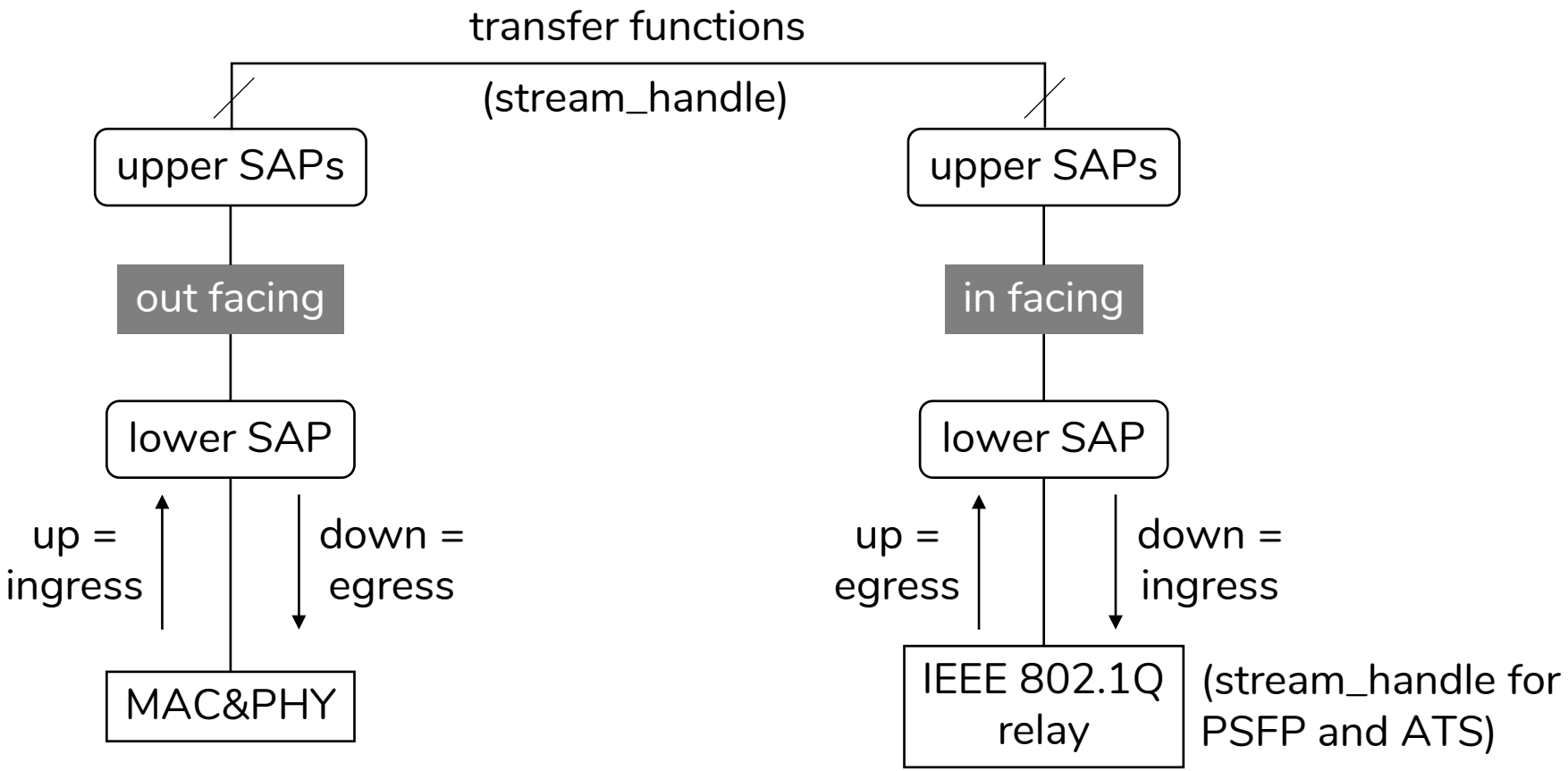
Details on IEEE 802.1CB Identifiers

IEEE P802.1DG
Automotive TSN Profile

ETHERNOVIA
VIRTUALIZING VEHICLE COMMUNICATION

Model Nomenclature



stream_handle on UP/DOWN path

As illustrated in Figure 6-3, the Stream identification function can be described as having two SAPs (see IEEE Std 802.1AC). One SAP connects Stream identification function to the upper layers. This SAP includes a stream_handle subparameter and can include a sequence_number subparameter. The other SAP connects to the lower layers. This SAP can, but typically does not, include the stream_handle or sequence_number subparameters.

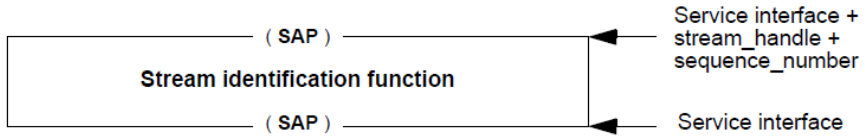


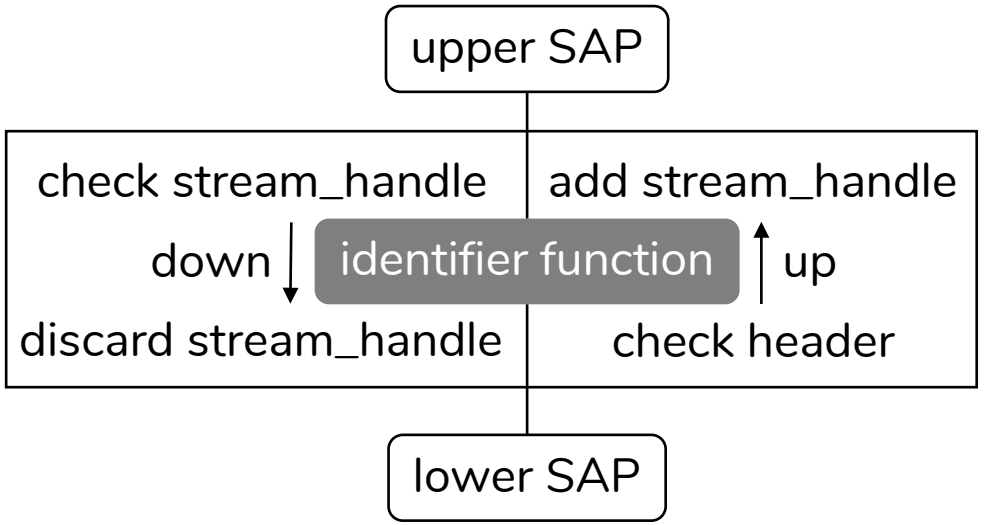
Figure 6-3—Stream identification function: single upper SAP

6.4 Null Stream identification

The Null Stream identification is a passive Stream identification function that operates at the frame level. It can be defined using the Enhanced Internal Sublayer Service (EISS) described in 6.9 of IEEE Std 802.1Q-2014, in which case it is enhanced with the extra stream_handle subparameter of the connection_identifier, specified in 6.1 of the present standard. It discards the stream_handle subparameter passed down the stack. It generates a stream_handle subparameter on frames passed up the stack based on the frame's destination MAC address and VLAN ID. It does not change any of a packet's other parameters. It is suitable for applications in which all data packets to a particular {MAC address, VLAN} pair are Stream packets. For example, AVB Streams (IEEE Std 802.1BA-2011 [B1]) have a unique {destination MAC address, VLAN} pair per Stream. In order to instantiate the Null Stream identification function, the tsnStreamIdIdentificationType managed object (9.1.1.6) is encoded using the OUI (00-80-C2) and the type values as shown in Table 9-1.

6.4 Null Stream identification
6.5 Source MAC and VLAN Stream identification
6.7 IP Stream identification
6.8 Mask-and-match Stream identification
all state:
"... discards the stream_handle subparameter for packets passed down the stack."

no statement for
6.6 Active Destination MAC and VLAN Stream identification



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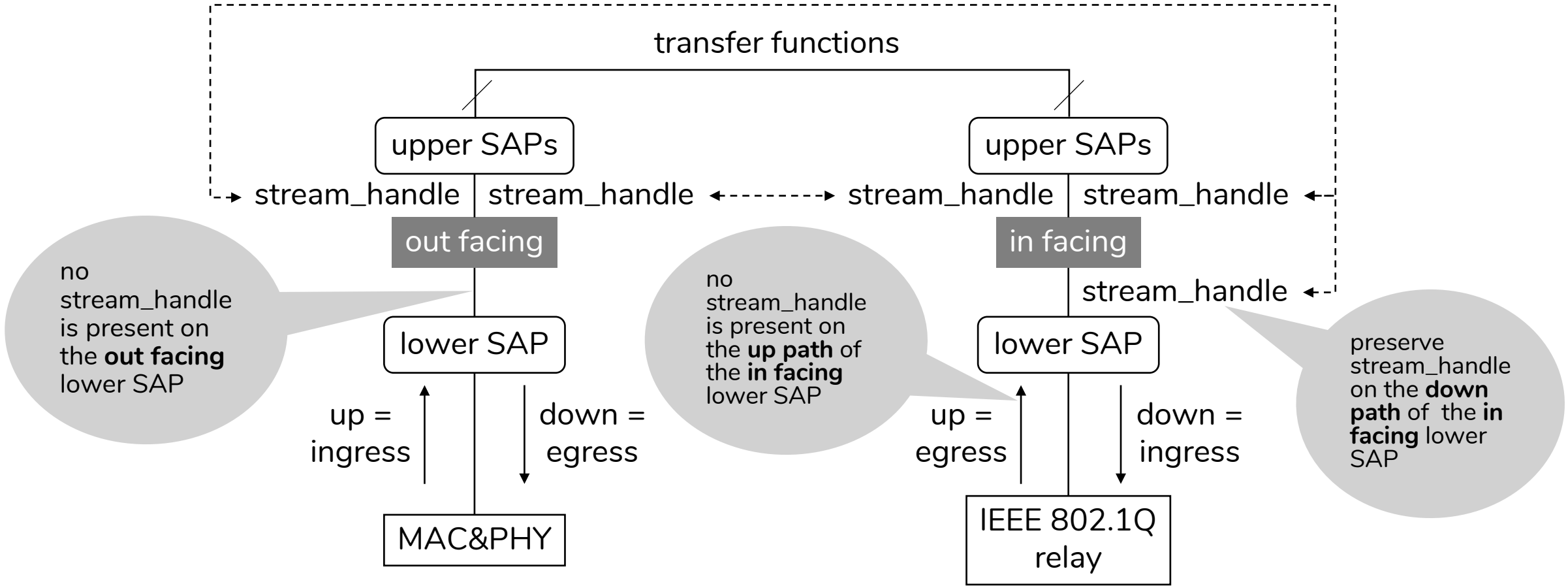
Ingress/egress stream_handles



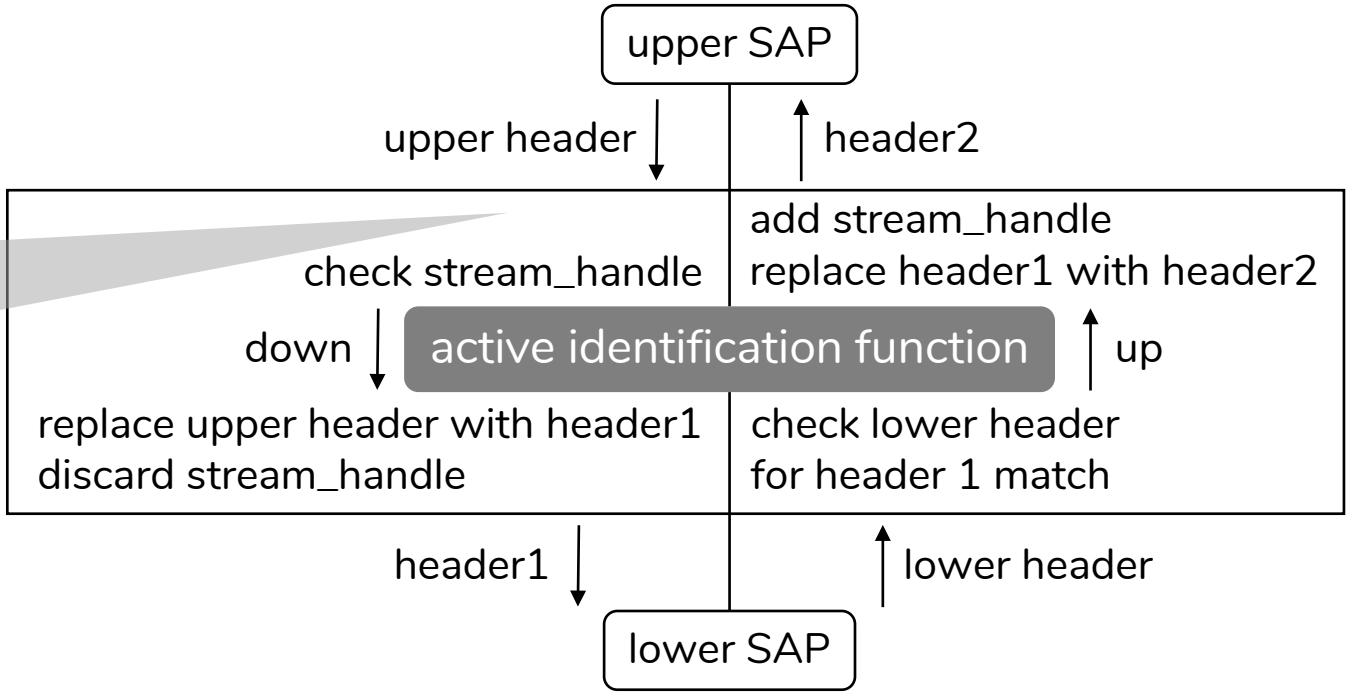
Active Stream Identification

In the Active Destination MAC and VLAN Stream identification, the destination_address, vlan_identifier, and priority parameters of the frame passed down the stack from the upper layers or up the stack from the lower layers are replaced with alternate values. The replacement values for frames transmitted down the stack to the Active Destination MAC and VLAN Stream identification, and used to recognize frames passed up the stack to the Active Destination MAC and VLAN Stream identification function, are those listed in 9.1.2. The replacement values for frames passed up the stack (not including the priority parameter) are in 9.1.4.

header1

header2

symmetric operation requires identification of header2 up the stack, as check is done on stream_handle only when going down the stack



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Requirements for IEEE P802.1DG

- For every out facing stream identification function that acts on egress (down the stack), there shall be an in facing stream identification function assigning the appropriate stream_handle (up the stack)
- No in facing stream identification function shall be configured to act on ingress packets (down the stack) in order to preserve the stream_handle assigned by the out facing identification function (up the stack)
- Active Stream Identification for a specific stream_handle shall only be used on either in or out facing, not on both for the same stream_handle
- The stream identification (up the stack) connected (via stream_handle) to an active stream identification (down the stack) shall use header2 from [CB]:9.1.4 to recognize the frames and thereby make the operation symmetrical
- Should the number of identifiers be increased to account for in and out facing?

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THANK YOU
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