

[June 2023]

# ETHERNOVIA

Improvements to IEEE 802.1CB-2017  
Maintenance Item 0343

IEEE Contribution

# Problem Statement

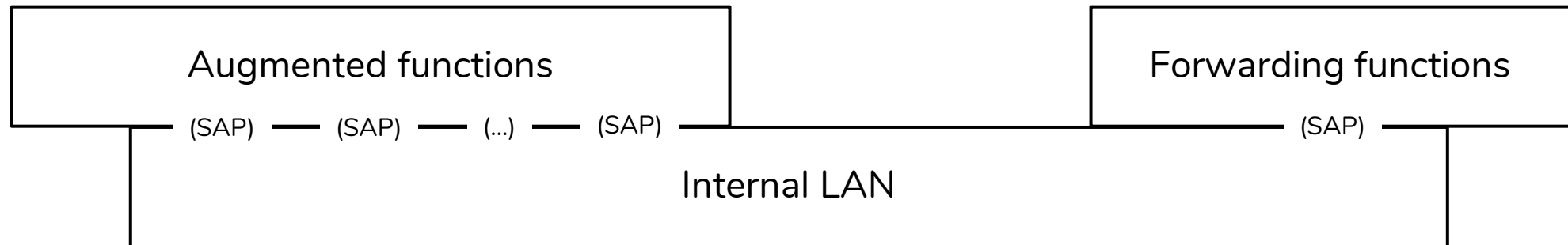
There are 3 fundamental issues with the current IEEE Std 802.1CB-2017 description:

1. An in-facing Stream Identification Function will currently discard the stream\_handle subparameter upon output towards the Internal LAN (6.4, 6.5, 6.7, 6.8).  
Even if no in-facing Stream Identification Function is configured, section 6.2 implies the stream\_handle subparameter is not passed towards the Internal LAN upon output.  
This prevents the stream\_handle subparameter to be available for the Per-stream classification and metering ([Q]:8.6.5.2).
2. Section 8.1 j) “... take place after all forwarding (**except Queuing frames, 8.6.6** of IEEE Std 802.1Q-2014)” and Figure 8-2 contradict Figures 6-5, 6-6, 8-1, C-5, C-6, C-7, and C-12, as the later all show or imply ALL functionality of [Q]:8.6 to be encompassed by the “(Relay system) Forwarding function”.  
Since 8.1 j) and Figure 8-2 have been determined to be correct, the other figures need to be adapted accordingly.
3. Figures 6-5, 6-6, and 8-1 show a Lower and an Upper Stream identification function: “The Lower Stream identification functions separate FRER packets from non-FRER packets; the latter are relayed across the NSTF as if the FRER capabilities were not present. The Upper Stream identification functions identify the FRER packets’ Streams ...” (6.3), while Figure 6-4 shows a single identification block with upper layer SAPs for the different stream\_handles and the NSTF (“Packets belonging to no Stream, or to a Stream unknown to this Stream identification function”).  
The task to “**separate FRER packets from non-FRER packets**” (6.3) is impossible to achieve, as only the match to a Stream Identification function constitutes the Frame to have to be processed by further FRER functionality up the stack.  
The “Lower/Upper Stream identification function” terminology should be removed from 6.3 and Figure 6-3 deleted.

# Add: 6.x Internal LAN

Add new section, text, and figure:

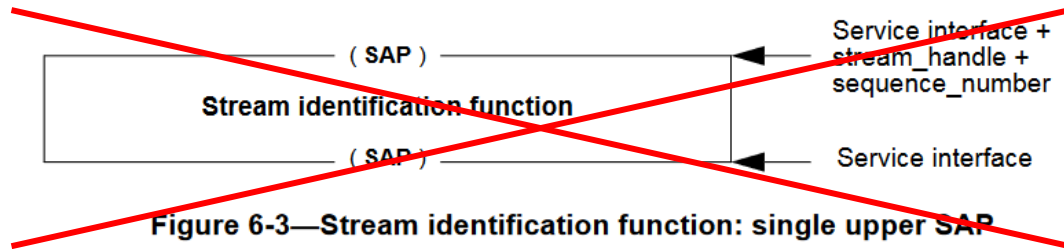
“The Internal LAN models a fully transparent frame transfer function along with all (Enhanced) Internal Sublayer Service (E/ISS) parameters.”



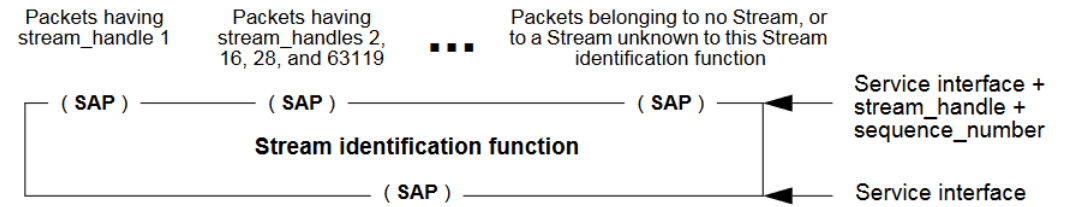
**Figure 6-y**—Internal LAN: array of upper SAPs

“The Forwarding functions entail the functionality of [Q] sections 8.6.1 through 8.6.5, but not [Q] Clause 6, [Q] section 8.5, nor [Q] sections 8.6.6 through 8.6.8, as those are modelled in the MAC (see Figure 6-6).”

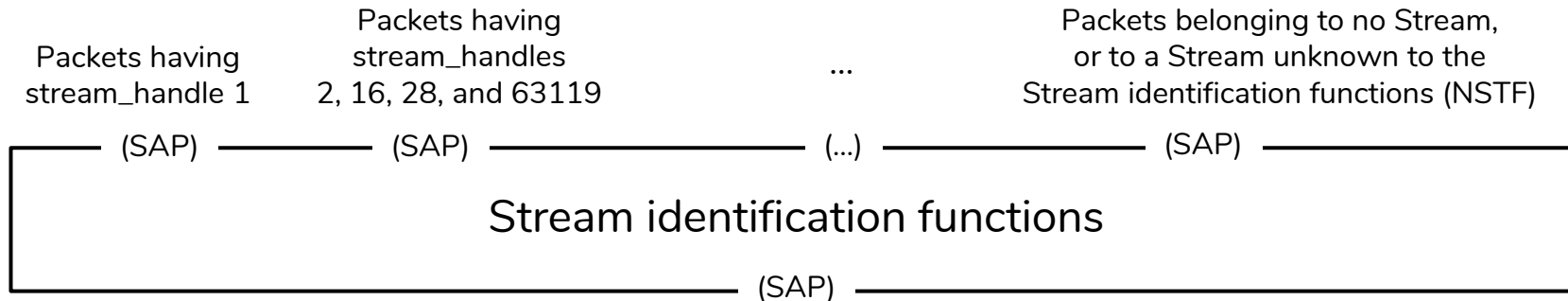
# Changes to figures in section 6.2



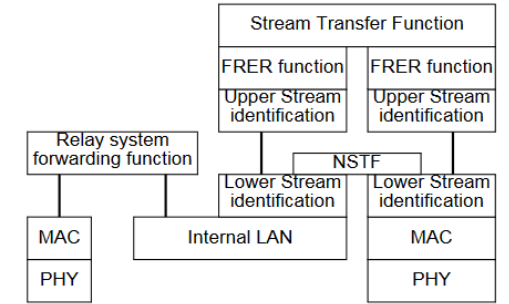
Delete Figure 6-3



Modify Figure 6-4



# Modify Figure 6-5 b.



b. Relay system with separated FRER capability, e.g., packet counting, on an output port.

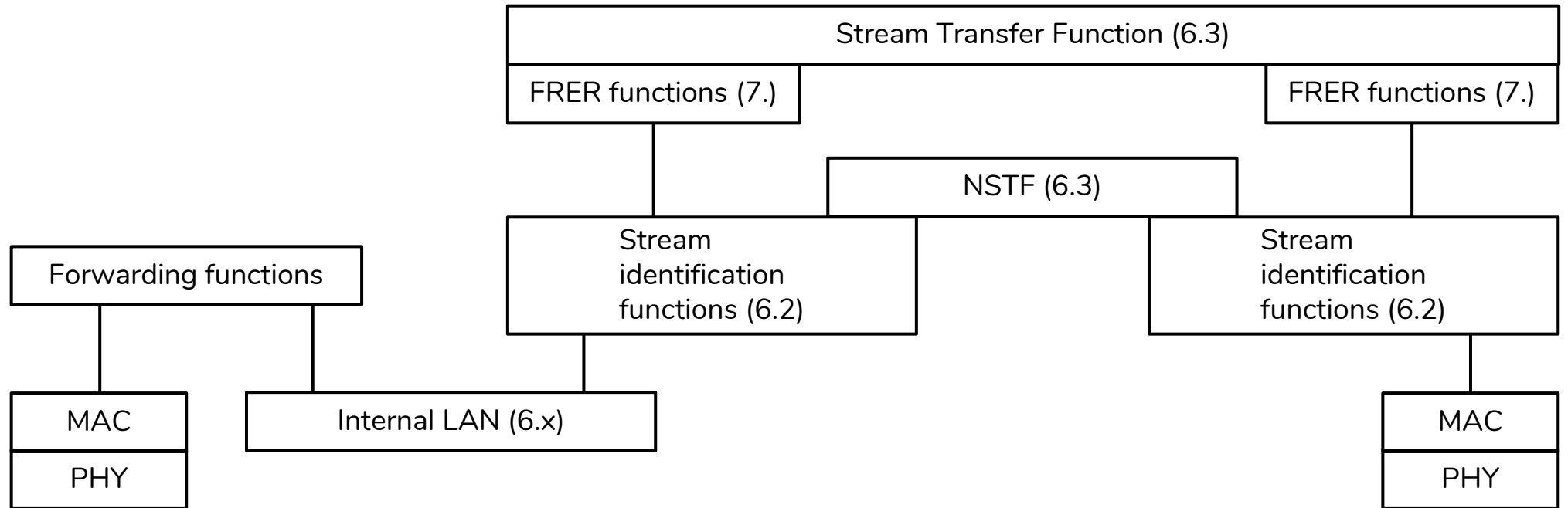


Figure 6-5 b.—Relay system with separated FRER capability, e.g., packet counting, on an output port.

# Modify Figure 6-6

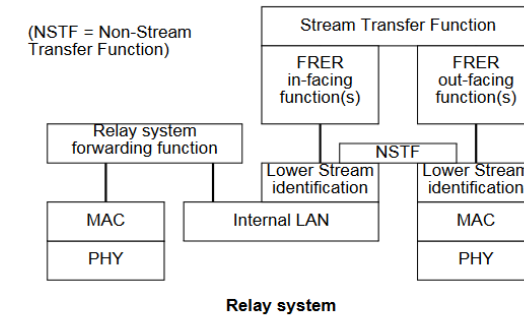
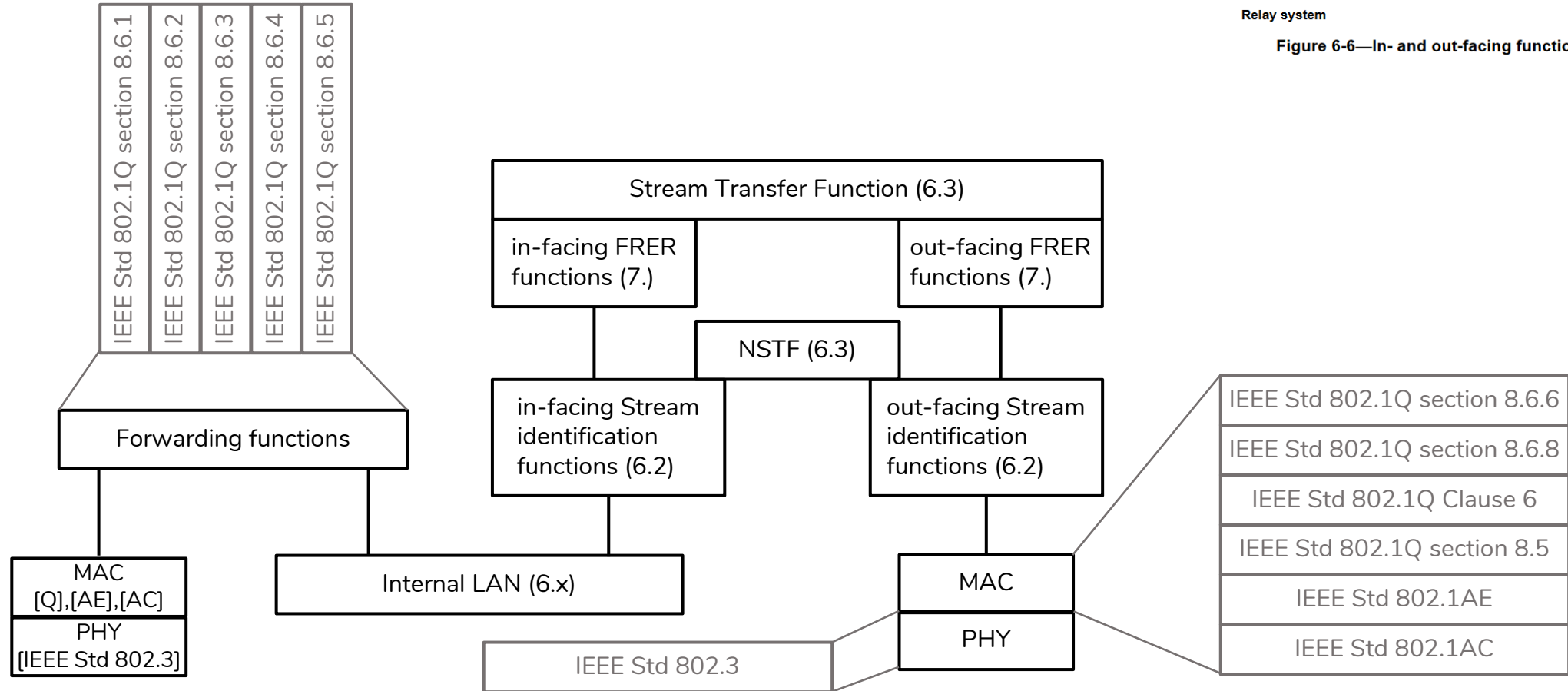


Figure 6-6—In- and out-facing functions



# Modify Figure 8-1 part I

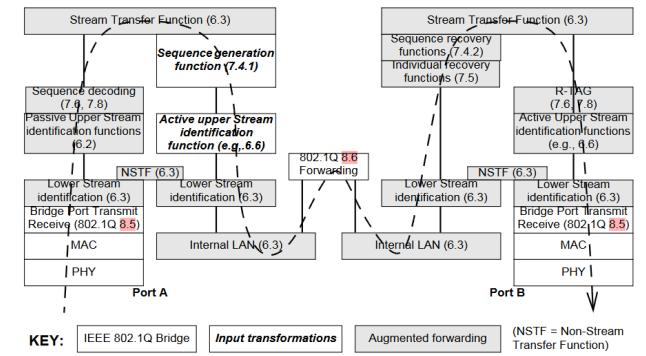


Figure 8-1—FRER functions in an FRER C-component

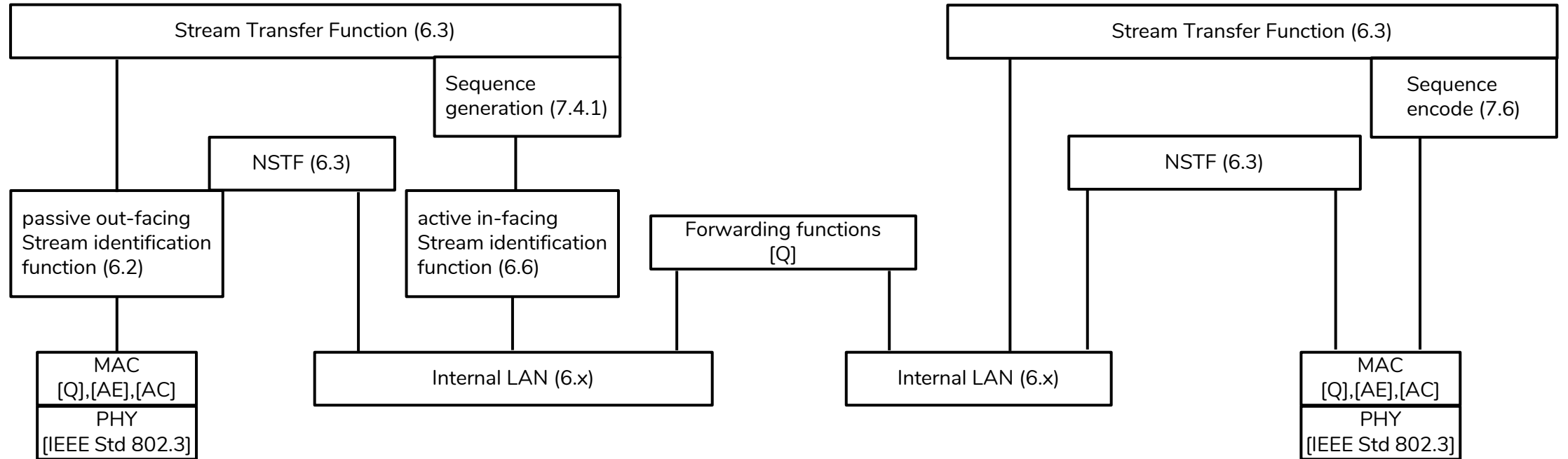


Figure 8-1—Relay system split

# Modify Figure 8-1 part II

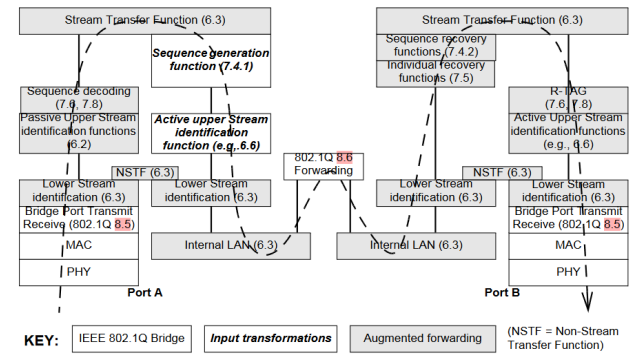


Figure 8-1—FRER functions in an FRER C-component

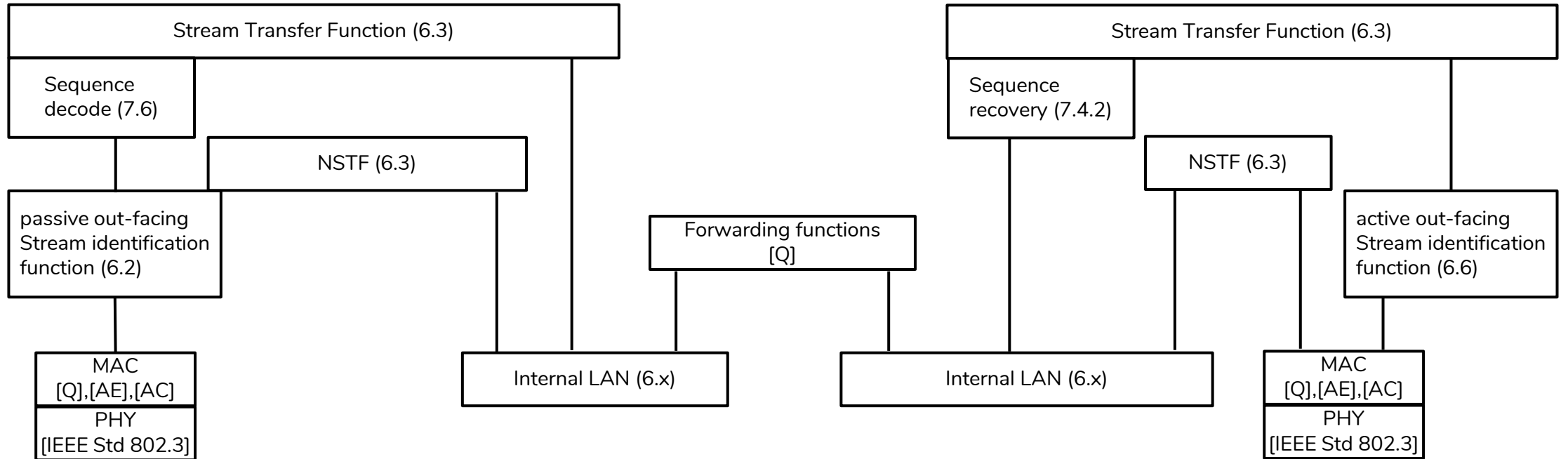


Figure 8-1—Relay system recover



# Modify Figure C-5

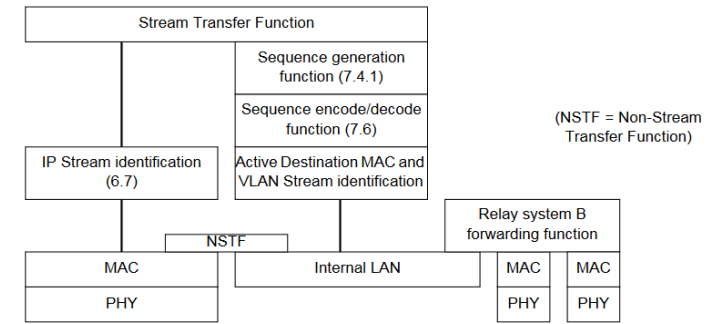
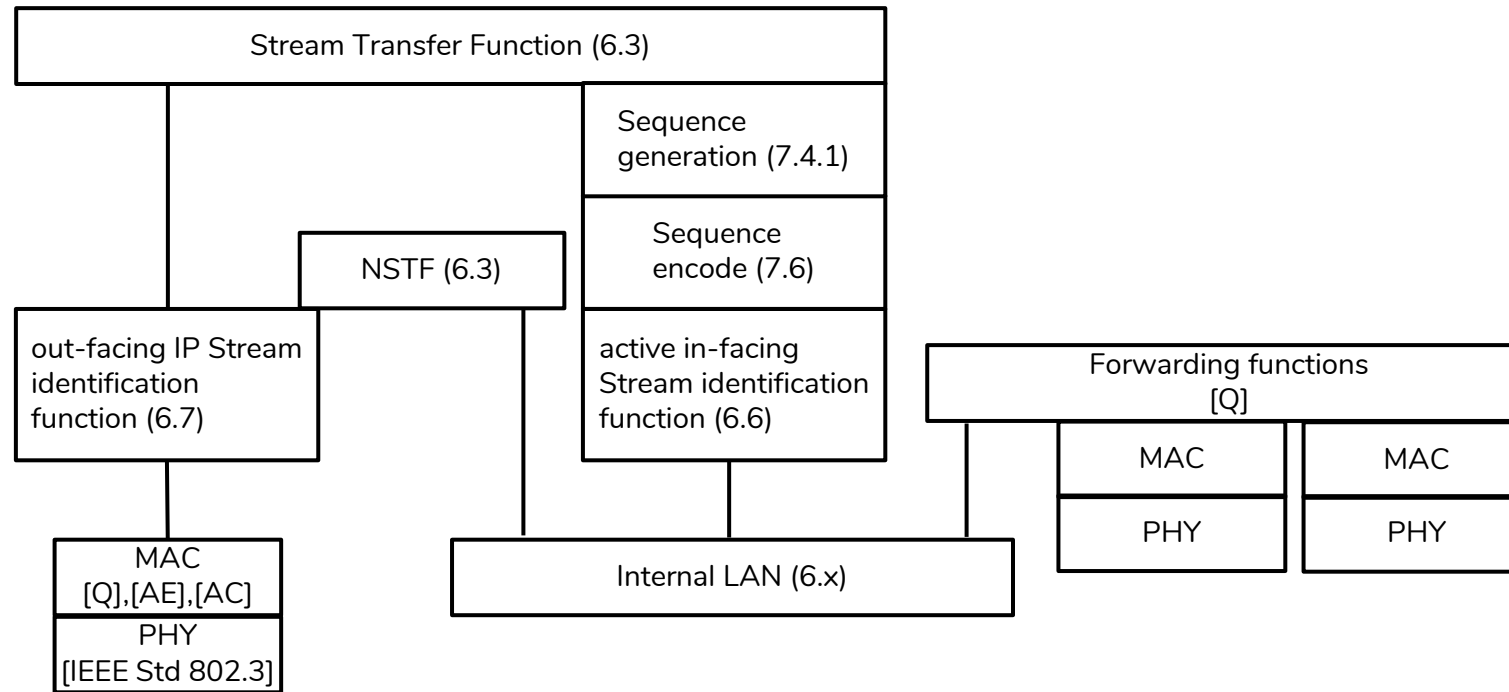


Figure C-5—Protocol stack for relay system B, proxying for End System A, in Figure C-4



# Modify Figure C-6

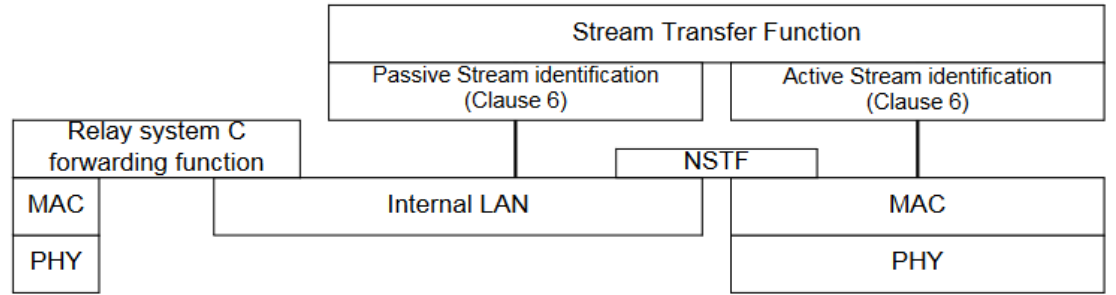
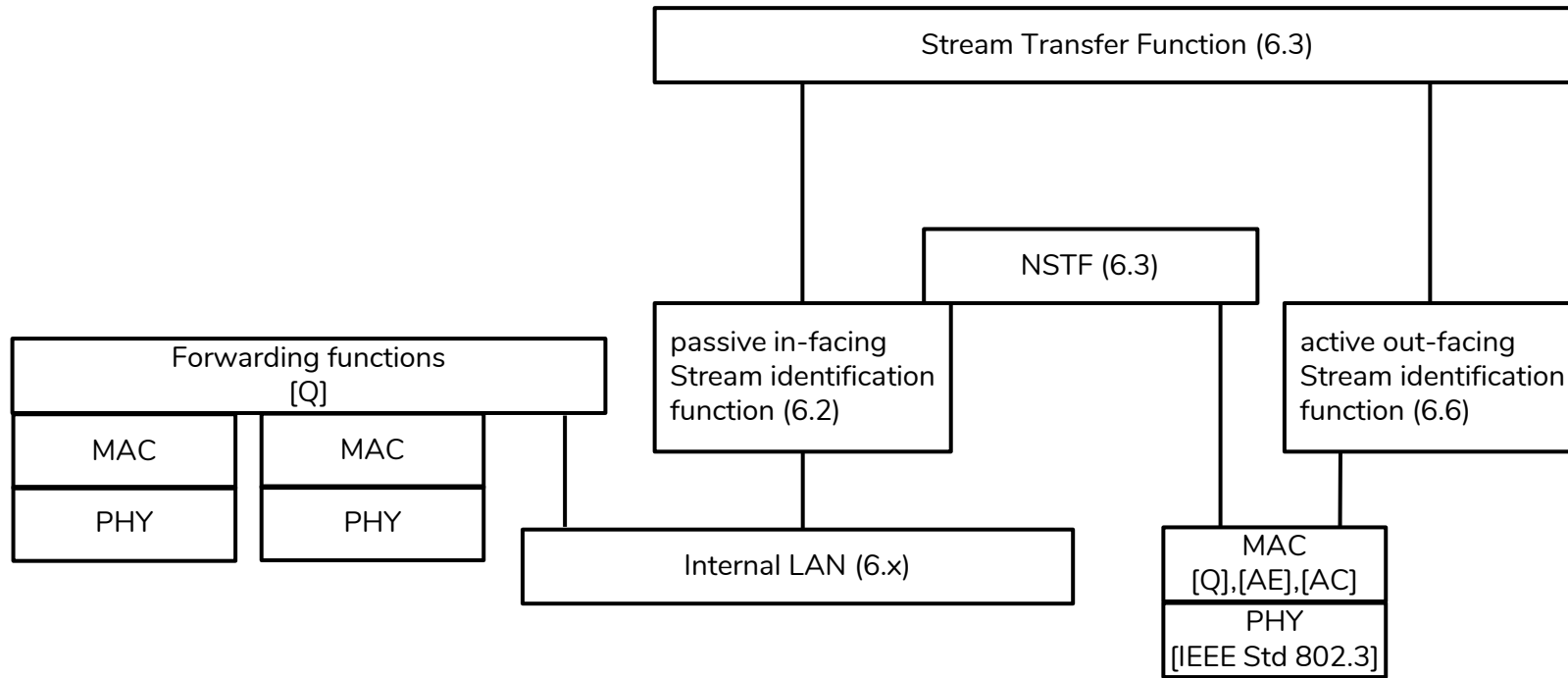


Figure C-6—Protocol stack for relay system C in Figure C-4



# Modify Figure C-7

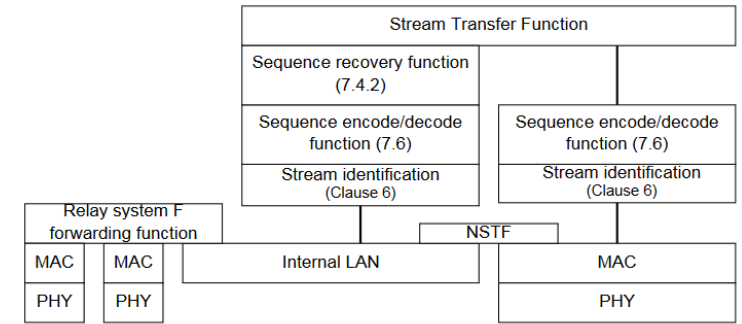
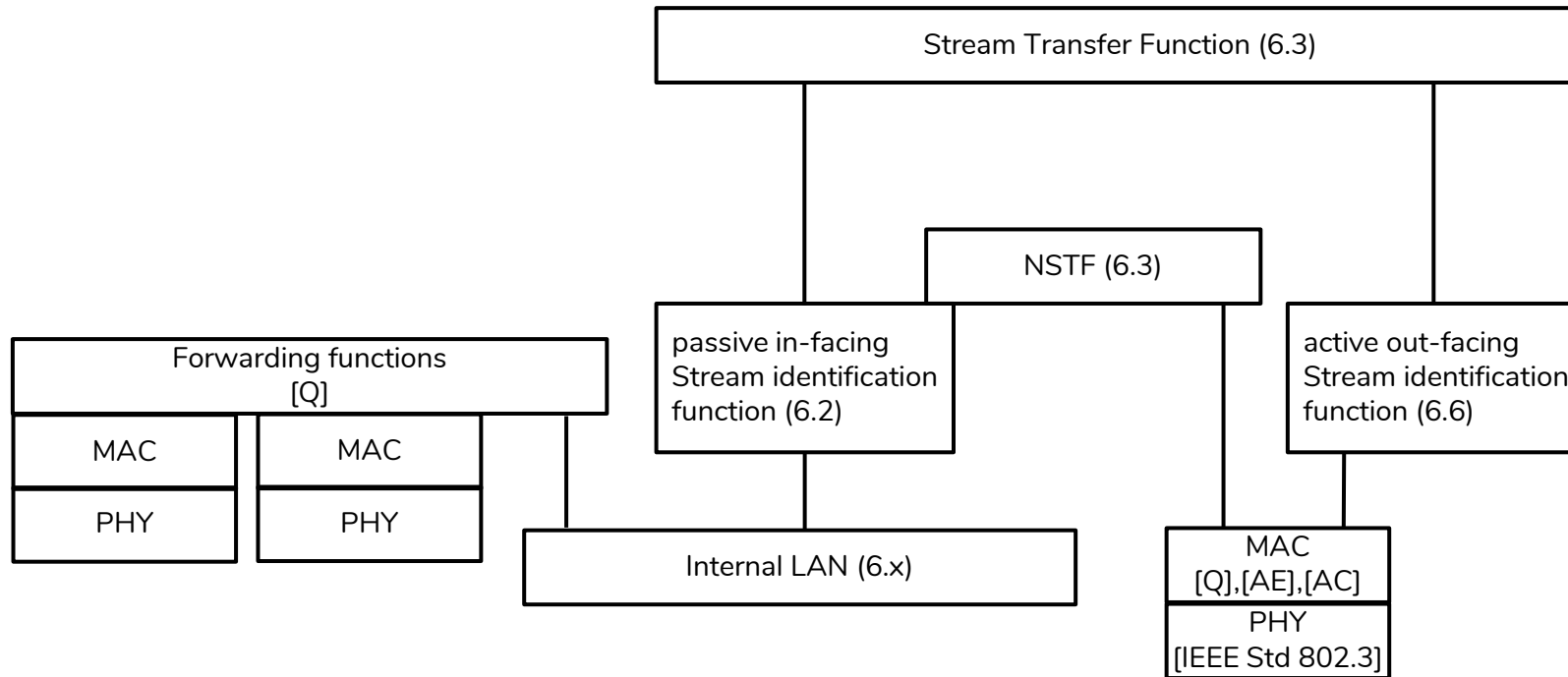


Figure C-7—Protocol stack for relay system F in Figure C-4



# Modify Figure C-10

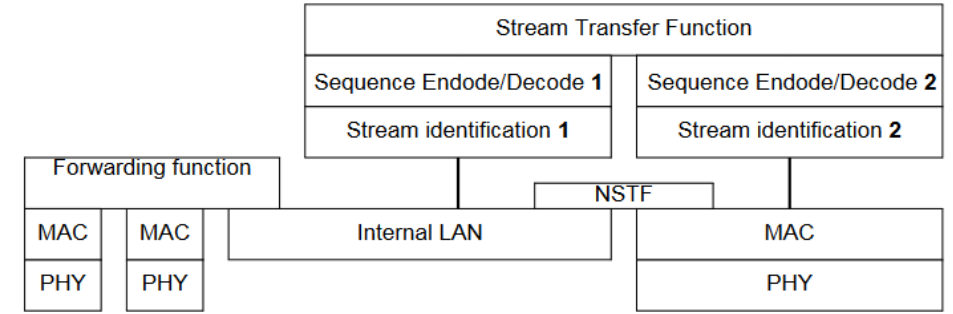
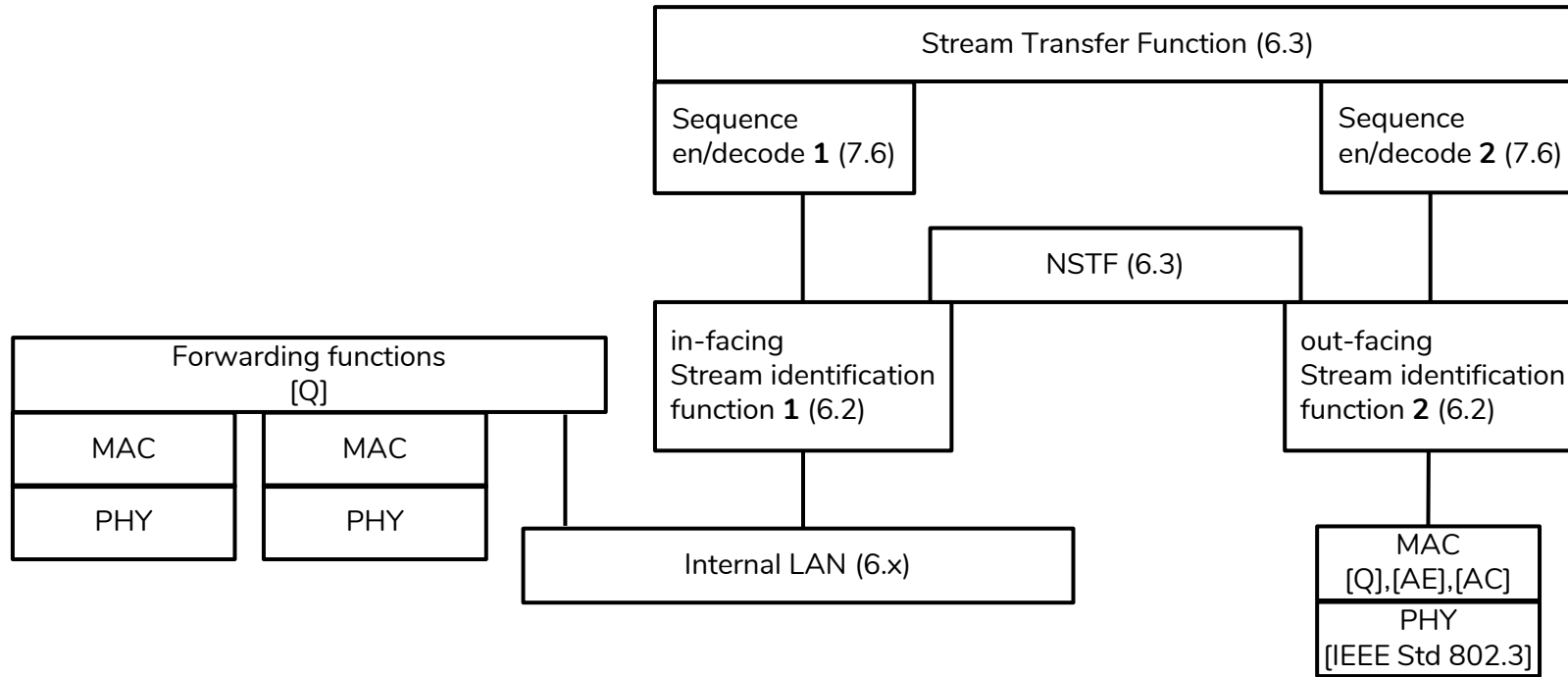


Figure C-10—Protocol interworking



# Modify Figure C-12

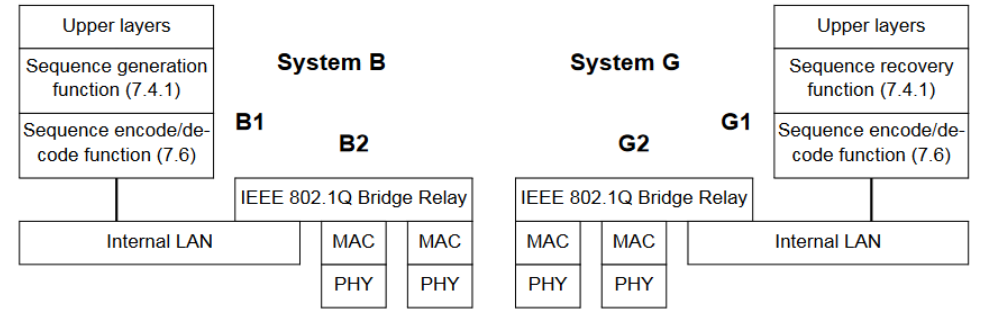
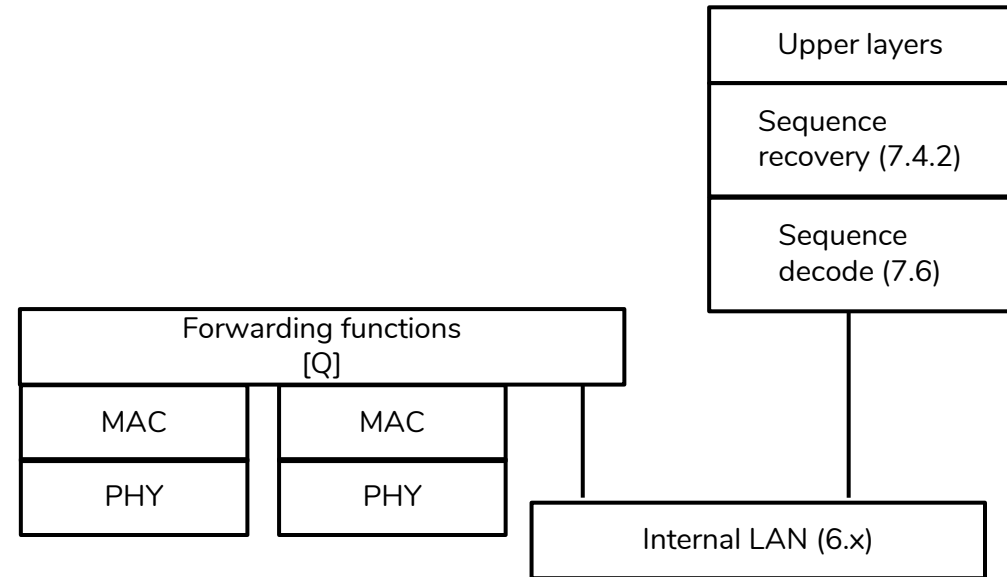
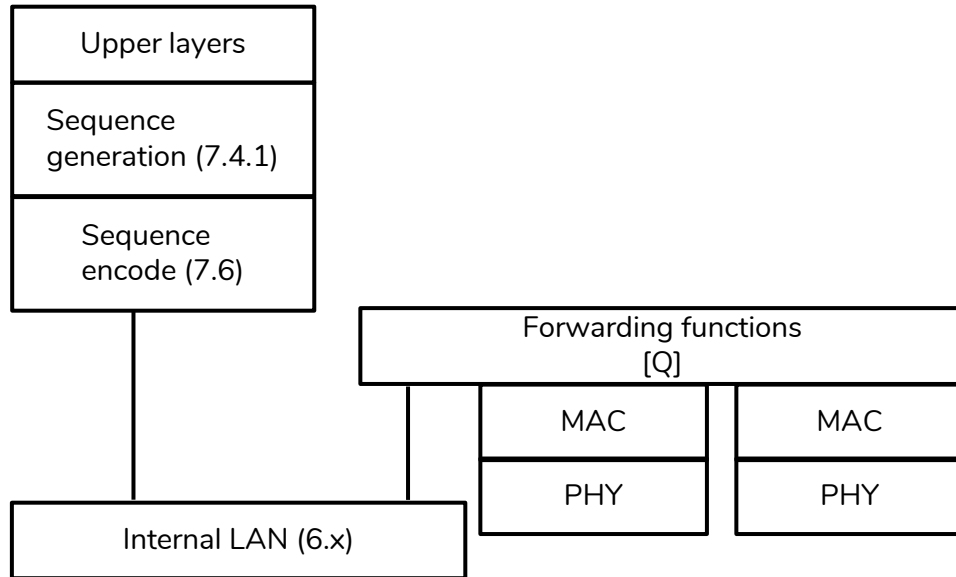


Figure C-12—Protocol stacks for Systems B and G in Figure C-11



# Further actions

- Text changes are needed in sections:
  - e.g. 6.1: The ISS defined in IEEE Std 802.1AC and the EISS defined in IEEE Std 802.1Q include a connection\_identifier parameter that is of local significance (to a system) only. The parameter is carried across the Internal LAN (6.x), but might not be carried across other underlying MAC services [AC].
  - e.g. 6.3: ~~The Lower Stream identification functions separate FRER packets from non-FRER packets; the latter are relayed across the NSTF as if the FRER capabilities were not present. The Upper Stream identification functions identify the FRER packets' Streams so that the other FRER functions can perform their tasks and separate non-FRER packets, which are relayed across the NSTF.~~
  - e.g. 7.4: ~~It discards the stream\_handle subparameter for packets passed down the stack.~~
  - e.g. 6.5: ~~It discards the stream\_handle subparameter for packets passed down the stack.~~
  - e.g. 6.7: ~~and discards the stream\_handle subparameter for packets passed down the stack.~~
  - e.g. 6.8: ~~It discards the stream\_handle subparameter for packets passed down the stack.~~
- and more! If we find agreement on the conceptual changes.



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Thank you for your attention!