IEC / IEEE 60802 - IA profile

Timescale reference for planning frame transmission

-To be discussed-

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Basic scope

Interoperability of planning needs a common understanding of the timescale, the reference point and the injection time of a frame

Thus, this needs to be clearly stated to ensure interoperability
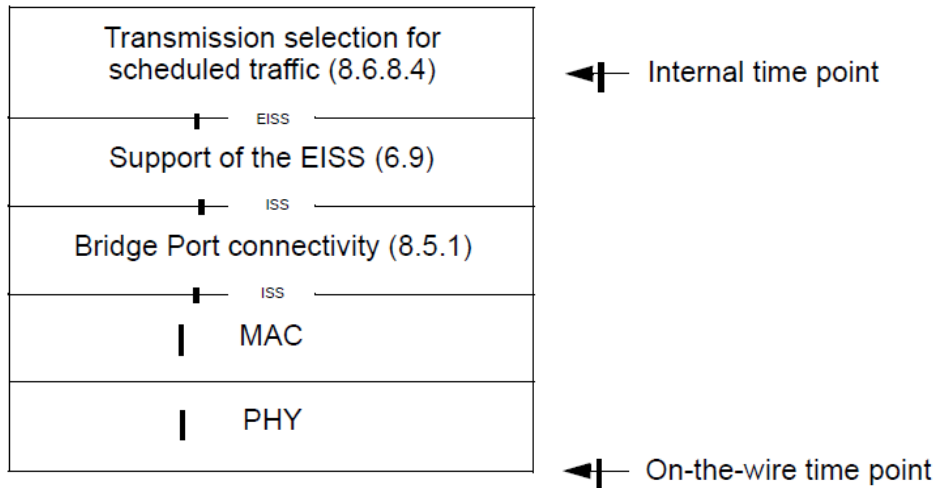
Principle

Figure 12-6—Representation of times for scheduled traffic

Timescale used for planning has its reference point "on-the-wire" independent from the usage of scheduled traffic.

Thus, if a frame needs to be transmitted at the begin of the network cycle, its SFD shall be seen "on-the-wire" at this time.

Definitions

What is the point in a frame which shall be visible on-the-wire at time zero for a given network cycle?

-> Expected definition: First bit of SFD

Are internal times out of scope for TSN IA profile?

-> Expected definition: Yes

What reference point will all planning use?

-> Expected definition: on-the-wire together with first bit of SFD

Precision

The path from queue to MDI will have defined delay and jitter. Thus, it seems to be a fair assumption that the expected point in time for frame transmission will need to cope with a jitter.

This jitter should only have a positive – being to late – effect on the frame transmission. Additional the jitter value needs to be limited to e.g. 0 - 500ns as an input for the planning.

Assumption: All subsequent frames are transmitted keeping the Inter Frame Gap.

Conclusion

The author of this contribution suggests to include such a definition either into IEEE802.1Q or the TSN IA profile.

Thank you

Questions?

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