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TELECOMMUNICATION STANDARDIZATION SECTOR

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SG13-LS86

STUDY GROUP 13

Original: English

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Source:	ITU-T Study Group 13
Title:	LS/r on work items related to deterministic networking and deterministic communication service in ITU-T SG13 (IEEE 802.1-LS71)

LIAISON STATEMENT

For action to:	IEEE 802.1 TSN WG
For information to:	ITU-T Study Group 12, IETF DetNet WG, 3GPP SA2
Approval:	**ITU-T Study Group 13 meeting (Geneva, 24 March 2023)**
Deadline:	-

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Abstract:	This LS answers the liaison statements from IEEE 802.1 on deterministic networking and deterministic communication.

This liaison statement answers IEEE 802.1-LS71 and LS66.

ITU-T Study Group 13 (SG13) would like to thank IEEE 802.1 for sharing information related to collaboration on deterministic communication between IEEE, IETF and 3GPP, as well as specific technical considerations on deterministic networking and deterministic communication service related work items in SG13.

In Q6/13, basic telecommunications operators are specifying common frameworks and functional architectures in support of heterogeneous deterministic networking technologies (for example, TSN and 5G). It may benefit the integration of heterogeneous technologies. The academic organizations are studying different deterministic networking techniques and related mechanisms.

Based on your request on editorial corrections indicated in IEEE 802.1-LS71, Question 6 of SG13 (Q6/13) have agreed to adopt the following actions:

- In Y.3120, IEEE Std 802.1Q-2022 will be added in the bibliography as [b-IEEE TSN] IEEE 802.1 Time-Sensitive Networking Task Group, https://www.ieee802.org/1/tsn.
- In Y.3121, the term "central network configuration" will be revised as "Centralized Network Configuration" in clause 4 (abbreviations and acronyms), and accordingly the outdated TSN bibliography item will be replaced with "[b-IEEE TSN] IEEE 802.1 Time-Sensitive Networking Task Group, https://www.ieee802.org/1/tsn".

For work items you are concerned with in IEEE 802.1-LS66, the following is the latest information.

Y.det-qos-reqts-lan has been approved and published as Y.3121. The term "gateway" is replaced with "interworking module" already. The context of Y.3121 is across multiple heterogeneous technology domains. Multiple TSN domains are not the case, so it is out of the scope. If the networking technologies under the common IEEE 802 architecture can work without interworking module, it is also out of the scope. Interworking module is optional, only used when needed. For 5G and TSN integration, DS-TT (Device side TSN Translator) and NW-TT (Network side TSN Translator) can be regarded as "interworking module", which support interworking across two heterogeneous technology domains, e.g., 5G and TSN.

Y.IMT2020-jg-lsn and Y.IMT2020-fa-lg-lsn have been approved and published as Y.3118 and Y.3120, respectively. According to the comments, the following modifications have been made on these two Recommendations:

- The term 'large scale network' was redefined as 'A network or a set of interconnected networks, with diameter of 16 or larger, in which the numbers of flows and nodes are proportional to the diameter of the network' in order to reflect the proportional relationship between the diameter and other essential parameters.
- The term 'domain' was elaborated not to be confused with the term 'aggregation domain (AD)' that was redefined as 'A maximal set of the interfaces of the consecutive relay nodes in the path, travelled by a flow, in which the 'flow membership' of the flow aggregate the flow belongs to is unaltered'.

Also, it was already stated that the TSN has both synchronous and asynchronous solutions, e.g. in Y.3113 "The asynchronous traffic shaping (ATS) [b-IEEE 802.1Qcr] technique presented in TSN employs a node with an output port with IRs for each input port, and a strict priority class-based FIFO system side by side [b-Specht]."

The concern regarding the difficulty of accurate timestamping in Y.3118 is indeed valuable, and greatly appreciated. It is expected to be mitigated soon with the advancement of hardware technology, however, currently most of the vendors support 1-step PTP, which requires timestamping-on-the-fly on 1Gbps interfaces (e.g. Allied Telesis). Considering the timestamping in Y.3118 can be done upon packet entrance to a network, not when departing from a source, accurate timestamping will be able to be executed in 10 Gbps in near future.

Q6/13 is anticipated to cooperate closely with leading standardization organizations (i.e., IEEE, IETF and 3GPP) to obtain the latest standard progress and jointly promote deterministic networking technologies and services.

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