

Cut-Through Forwarding (CTF) - Summary of the November 2022 Plenary Meeting

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DCN 1-22-0050-00-ICne

Calendar Overview (802.1 Calendar)

ICT Start	ICT End	Monday Nov 14	Tuesday Nov 15	Wednesday Nov 16	Thursday Nov 17	Friday Nov 18	ET Start	PT Start	CET start	JST start
08:00	08:30						20:00	17:00	02:00	10:00
08:30	09:00	TSN	TSN 60802 ad-hoc	P802-REVC	Maintenance	TSN 60802	20:30	17:30	02:30	10:30
09:00	09:30			Maintenance	Nendica		21:00	18:00	03:00	11:00
09:30	10:00			TSN P802.1DP			21:30	18:30	03:30	11:30
10:00	10:30						22:00	19:00	04:00	12:00
10:30	11:00						22:30	19:30	04:30	12:30
11:00	11:30	Opening Plenary	TSN P802.1DG	TSN 60802 ad-hoc	TSN	TSN 60802	23:00	20:00	05:00	13:00
11:30	12:00			TSN	TSN 60802	TSN 60802	23:30	20:30	05:30	13:30
12:00	12:30						00:00	21:00	06:00	14:00
12:30	13:00								06:30	14:30
13:00	13:30								07:00	15:00
13:30	14:00	TSN	YANGsters						07:30	15:30
14:00	14:30		TSN	TSN	Closing Plenary	60802			08:00	16:00
15:00	15:30			TSN			03:00	00:00	09:00	17:00
16:00	16:30						03:30	00:30	09:30	17:30
16:30	17:00	TSN	TSN 60802 ad-hoc	TSN	Closing Plenary	TSN	04:00	01:00	10:00	18:00
17:00	17:30			TSN					10:30	18:30
17:30	18:00			TSN 60802					11:00	19:00
18:00	18:30								11:30	19:30
18:30	19:00		802.1/802.15 Joint						12:00	20:00
19:00	19:30		Nendica	Social Event			07:00	04:00	13:00	21:00
19:30	20:00						07:30	04:30	13:30	21:30
20:00	20:30						08:00	05:00	14:00	22:00
20:30	21:00						08:30	05:30	14:30	22:30
21:00	21:30						09:00	06:00	15:00	23:00
21:30	22:00	Group and Technical					09:30	06:30	15:30	23:30
22:00	22:30	Advisory Group status					10:00	07:00	16:00	00:00

Source: <https://1.ieee802.org/november-2022-plenary-session-in-bangkok-thailand-hybrid/>, 2022-11-30

Status & Next Steps

One Slide Summary

CTF technical discussions

One Slide summary (in 802.3)

P802.1DU Motion

Tuesday: Status & next steps (802.1 TSN), Technical (Nendica)

Providing Technical Clarity to WG 802.1 (1)

1 Technical Descriptions for
2 Cut-Through Forwarding in Bridges
3 DCN 1-22-0042-12-ICne
4 Author: Johannes Specht
5 November 14, 2022

170 1. Purpose
180 Purpose of this document is to provide input for technical discussion in pre-PAR activities of IEEE 802, the *IEEE 802 Network Enhancements for the Next Decade Industry Connections Activity* (Nendica) in particular. The contents of this document are technical descriptions for the operations of Cut-Through Forwarding (CTF) in bridges.
184 The intent is to provide more technical clarity, demonstrate technical feasibility, and thereby satisfy the request expressed by individuals during the IEEE 802.1 closing plenary meeting in July 2022.

187 2. Relationship to IEEE Standards
188 This document **IS NOT** an IEEE Standard or an IEEE Standards draft, it is an individual contribution by the author containing technical descriptions. This allows readers to focus on the technical contents in this document, rather than additional aspects that are important during standards development. For example:

200 3. Status of this Document
207 This document is work-in-progress. It contains technical and editorial errors, omissions, simplifications and certain descriptions can be enhanced. Readers discovering such issues are encouraged for making enhancement proposals, e.g. by proposing textual changes or additions to the author (johannes.specht.standards@gmail.com).

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Johannes Specht, Individual Contribution, DCN 1-22-0042-12-ICne

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Work-in-progress → Feedback welcome!

14-Nov-22

Cut-Through Forwarding (CTF) - Updates since September 2022

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Source: <https://www.ieee802.org/1/files/public/docs2022/new-specht-ctfstatus-1122-v01.pdf>

Wednesday (802.1 TSN) & Thursday (802.3): One Slide Summary

P802.1DU: One-slide summary

The intention of the IEEE 802.1 TSN Task Group is:

- P802.1DU is a stand-alone document, separate from 802.1Q, defining **Cut Through Forwarding (CTF) Bridges** and **CTF in Bridged Networks**.
- P802.1DU specifies the CTF Bridge entirely above the traditional MAC demarcation between 802.1 and other 802.xx working groups.
- 802.1 TSN will maintain this demarcation.
- Ports of CTF Bridges can be, among others, any mix of Store and Forward MACs (e.g., 802.3) and/or cut-through MACs (CTF MACs).
- P802.1DU provides connectivity in networks of mixed CTF and 802.1Q Bridges with CTF and Store and Forward MACs.
- A CTF Bridge is compatible with any CTF MAC via an interface for CTF MACs, and supports (does not limit the choice of) different error frame marking mechanisms.

<https://www.ieee802.org/1/files/public/docs2022/du-cut-through-summary-1122-v04.pdf>

Source: <https://www.ieee802.org/1/files/public/docs2022/du-cut-through-summary-1122-v04.pdf>

Thursday (802.1): Motion on P802.1DU

Motion

- 802.1 authorizes the TSN TG to generate PAR and CSD at the January 2023 interim session for pre-circulation to the EC for an IEEE 802.1 standard on Cut-Through Forwarding.
- Proposed: Johannes Specht
- Second: Paul Congdon
- In the WG (y/n/a): 34, 3, 9

Source: <https://www.ieee802.org/1/files/public/minutes/2022-11-closing-plenary-slides.pdf>

Some Technical Thoughts

- Upper interface to CTF MACs
 - Based on <https://mentor.ieee.org/802.1/dcn/22/1-22-0042-12-ICne-technical-descriptions-for-cut-through-forwarding-in-bridges.pdf> for *DATA.*
 - An option supporting late errors by CTF MACs
 - Extra interface with service primitives, running in parallel to *DATA.* (e.g., *CTFERR.*)
 - *CTFERR.indication(...): Up/from a CTF MAC, indicates a late error on reception
 - *CTFERR.request(...): Down/towards a CTF MAC, requests erroneous frame marking
- CTF Bridges supporting CTF and S&F MACs
 - Based on <https://mentor.ieee.org/802.1/dcn/22/1-22-0042-12-ICne-technical-descriptions-for-cut-through-forwarding-in-bridges.pdf>
 - S&F MAC → CTF MAC thoughts
*DATA.indication's start after reception completed → “fall back to S&F” applies
→ stages as specified in published 802.1 Stds → CTF
 - CTF MAC → S&F MAC thoughts
Always “fall back to S&F” prior to per-class per port queuing

Thank You for Your Attention!

Questions,
Comments,
Opinions,
Ideas?