Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Status of 802 Nendica/802.3 NEA joint meeting discussions

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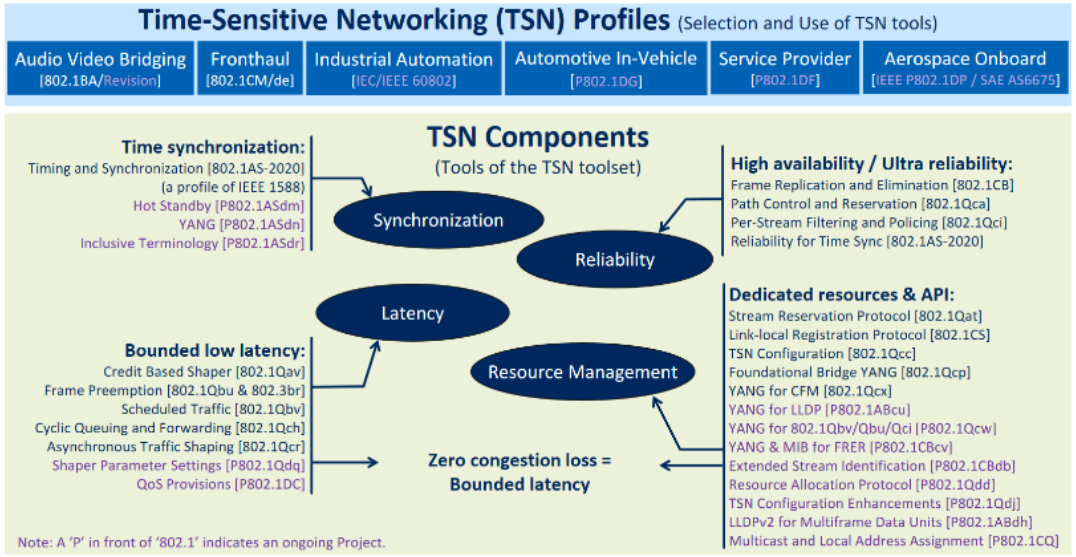
Past 802 Nendica/802.3 NEA Joint Meetings

Date	Agenda	Selected Contributions
June 22, 2022 and June 29, 2022	https://1.ieee802.org/ctf-agenda-2022-06-22/ https://1.ieee802.org/ctf-agenda-2022-06-29/	• Roger Marks, *CSD Compatibility Criterion for Cut-Through Forwarding* • Johannes Specht and Dieter Proell, *Johannes Specht Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Need for Unified and Standardized Management*
June 8, 2022	https://1.ieee802.org/ctf-agenda-2022-06-08/	• Johannes Specht, *Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Background and Clarifications*
June 1, 2022	https://1.ieee802.org/ctf-agenda-2022-06-01/	• Roger Marks, *CTF status update from Nendica perspective* • John D'Ambrosia, Shimon Muller and Peter Jones, *Summary of IEEE 802.3 Expressed concerns* • Johannes Specht, *Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Considerations on Modelling, Compatibility and Locations*
May 4, 2022	https://1.ieee802.org/ctf-agenda-2022-05-04/	• Johannes Specht, *Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Continuing Technical Discussions* • Johannes Specht, *Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Considerations on Modelling, Compatibility and Locations*
April 27, 2022	https://1.ieee802.org/ctf-agenda-2022-04-27/	• Peter Jones, *802.3 NEA CTF: CTF concerns*
April 20, 2022	https://1.ieee802.org/ctf-agenda-2022-04-20/	• Johannes Specht, *Cut-Through Forwarding (CTF) in Bridges and Bridged Network – Status Update*

From the Meetings on June 22 & 29, 2022

IEEE 802.1 is the best Venue



Source: https://www.ieee802.org/1/files/public/docs2021/admin-TSN-summary-1121-v01.pdf

- IEEE 802.1 is the "home" of the other TSN tools → management for CTF in IEEE 802.1 fits into the existing standardized management system (managed objects, management flows, MIB, YANG)
- Orchestration of per-device management from a network level point of view existent in 802.1
- Broad acceptance by vendors/markets expected (e.g., IEEE/IEC P60802 profile)

22-Jun-22 CTF: Need for Unified and Standardized Management 5

Source: https://mentor.ieee.org/802.1/dcn/22/1-22-0031-02-ICne-cut-through-forwarding-ctf-in-bridges-and-bridged-network-need-for-unified-and-standardized-management.pdf

802.1 Discussions during the IEEE 802 July 2022 Plenary Session

ET Start	ET End	Monday Jul 11	Tuesday Jul 12	Wednesday Jul 13	Thursday Jul 14	Friday Jul 15	PT Start	CEST start	JST start
07:00	07:30	Hybrid Orientation					04:00	13:00	20:00
07:30	08:00						04:30	13:30	20:30
08:00	08:30	TSN	Maintenance	TSN P802.1DP	TSN P802.1DG	TSN 60802	05:00	14:00	21:00
08:30	09:00				Nendica		05:30	14:30	21:30
09:00	09:30			Security			06:00	15:00	22:00
09:30	10:00						06:30	15:30	22:30
10:00	10:30						07:00	16:00	23:00
10:30	11:00	Opening Plenary	TSN P802.1DG Security	TSN TSN 60802 Security	TSN TSN 60802	TSN 60802	07:30	16:30	23:30
11:00	11:30						08:00	17:00	00:00
11:30	12:00						08:30	17:30	00:30
12:00	12:30						09:00	18:00	01:00
12:30	13:00						09:30	18:30	01:30
13:00	13:30					TSN 60802	10:00	19:00	02:00
13:30	14:00	TSN Security	TSN YANGsters	TSN TSN 60802 Security	Closing Plenary		10:30	19:30	02:30
14:00	14:30						11:00	20:00	03:00
14:30	15:00						11:30	20:30	03:30
15:00	15:30						12:00	21:00	04:00
15:30	16:00					TSN 60802	12:30	21:30	04:30
16:00	16:30	TSN Security	TSN 60802 Security	TSN TSN 60802 Security	Closing Plenary		13:00	22:00	05:00
16:30	17:00						13:30	22:30	05:30
17:00	17:30						14:00	23:00	06:00
17:30	18:00						14:30	23:30	06:30
18:00	18:30	802 Technical Plenary					15:00	00:00	07:00
18:30	19:00		802.1/802.15 Joint	Social Event			15:30	00:30	07:30
19:00	19:30						16:00	01:00	08:00
19:30	20:00		Nendica				16:30	01:30	08:30
20:00	20:30	802.1 Reception					17:00	02:00	09:00
20:30	21:00						17:30	02:30	09:30
21:00	21:30						18:00	03:00	10:00

Source: https://1.ieee802.org/wp-content/uploads/2022/07/2022-07-schedule-v12.png

Proposed Topics for Discussion

- Recap: Suggested Goals for the Joint Nendica/NEA Meetings
  - Identify Stds requirements, inconsistencies and and possible constraints w.r.t. CTF
  - Understand concerns and positions of WG 802.1 and 802.3 individuals
  - Building consensus across 802.1 and 802.3 on CTF
- Proposed Discussion Topics Tomorrow
  - Outcome of joint discussions
  - Logistics
    - A third 802.1 WG motion on P802.1DU PAR/CSD
    - Active participation - need for standardizing CTF in 802
    - 802.1 WG expectation on potential future Nendica/NEA joint activity
  - Technical
    - Service Interface, atomic and instantaneous
    - IEEE 802.1 WG statement on compatibility (CSD)
    - Minimum required technical features for a CTF Standard
  - A.O.B. on CTF – you're welcome to contribute!

Author's summary of discussions during the IEEE 802 July 2022 Plenary Session

- P802.1DU clarification requested by IEEE 802.1 individuals prior to moving on
  - Just a managed object to enable/disable CTF, or more (timing parameters, forwarding operations, …)?
  - Suggested form: Specification document (individual contribution)

    → CTF Study Item?
- CTF capable MACs
  - NEA concluded that a new definition of the IEEE 802.3 MAC would be required to provide cut-through capability
    https://www.ieee802.org/3/minutes/jul22/0722_NEA_close_report.pdf
  - *Some* MAC with support for CTF desirable
    https://mentor.ieee.org/802.1/dcn/22/1-22-0037-00-ICne-cut-through-forwarding-status-update-from-nendica-perspective.pdf

Author's summary of discussions during the July 2022 Plenary Session

- Venues for standardizing CTF, or parts thereof
  - IEEE 802
    - IEEE 802.1 & 802.3
    - new 802 WG
  - Others
    - IEC
    - IETF
- Some sense of urgency
  - CTF support required at least by IEEE/IEC 60802
  - May apply to other profiles/markets (e.g., Pro A/V, data center) https://mentor.ieee.org/802.1/dcn/21/1-21-0037-00-ICne-ieee-802-tutorial-cut-through-forwarding-ctf-among-ethernet-networks.pdf
  - May affect "Nendica Study Item: Forwarding of Fieldbus CPF 12 on 802.1 Bridges" https://1.ieee802.org/nendica-cpf12/
  - Short term and long term approaches for specifying CTF may be considered

Thank You for Your Attention!

Questions,
Comments,
Opinions,
Ideas?