

Cut-Through Forwarding (CTF) in Bridges and Bridged Networks - Planning Proposal -

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Context and Objectives

Nendica

- Cut-Through Forwarding (CTF) in Bridges and Bridged Networks is a Nendica study item <https://1.ieee802.org/802-nendica/nendica-ctf>
- Forum to discuss CTF
- Platform to prepare material → For example, for an IEEE 802 Plenary Tutorial
- Across IEEE 802 WGs (IEEE 802.1 and IEEE 802.3) https://www.ieee802.org/3/email_dialog/msg01165.html

Work towards a potential 802.1 Standard for CTF

- Capture the dominant use-cases and relevant markets
- Capture how to deal with QoS Challenges
- Reach consensus in IEEE 802.1
- Formulate problem statements for discussion in IEEE 802.1 and with IEEE 802.3

My Intention

- Initiate/lead related discussions
- Develop technical aspects/integrate into IEEE 802.1 Stds environment
- Present/discuss material

Proposed Material/Output to Develop

Joint presentation

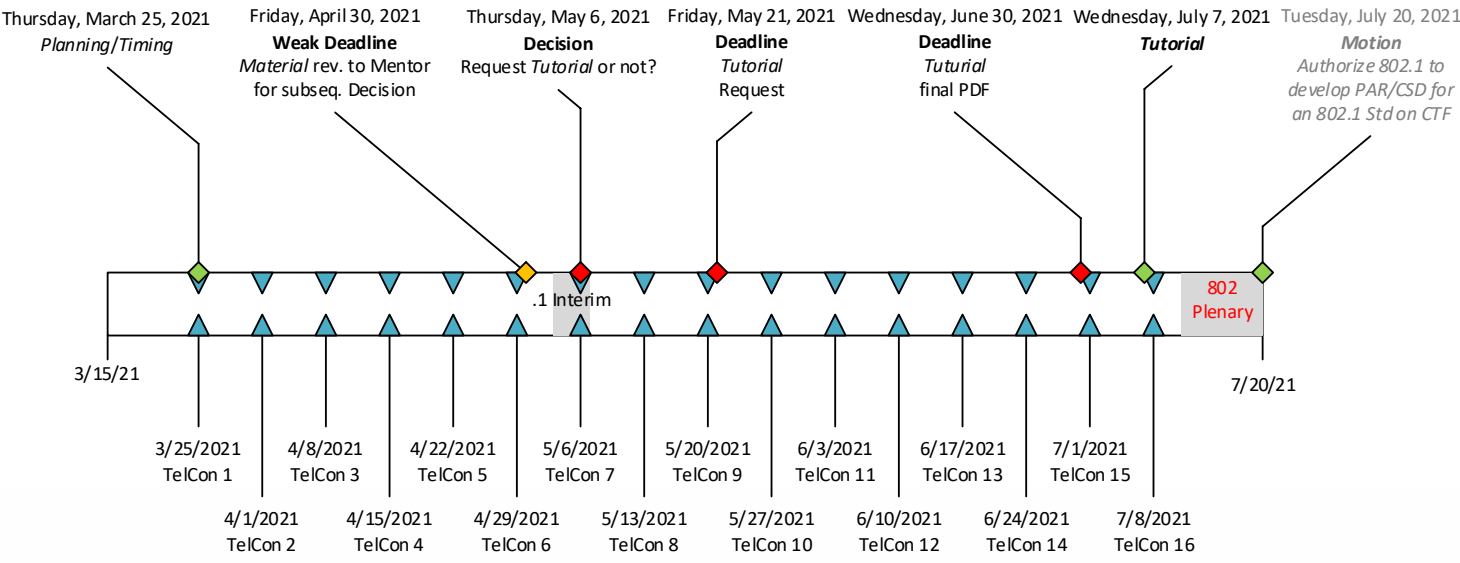
- High-level on CTF (at least from an IEEE 802.1 point of view), for example
 - Motivation
 - *Specific* Use-cases, applications, markets, etc.
 - Technical feasibility
 - Technical Overview
 - ...
- Contents from individual contributions, or by reference to individual contributions

Individual contributions

- Technical document (author's work in progress)
 - "Preview" of core elements in a potential IEEE 802.1 Standard
 - Network aspects and constraints
 - New protocols/protocol procedures for CTF
 - *Generic* use-cases (market- and application unaware)
 - Technical decisions from discussions
 - See also <https://www.ieee802.org/1/files/public/docs2021/new-specht-cut-through-update-0121-v02.pdf>
- ***Other individual contributions on CTF are welcome!***

Planning Proposal: Introduction

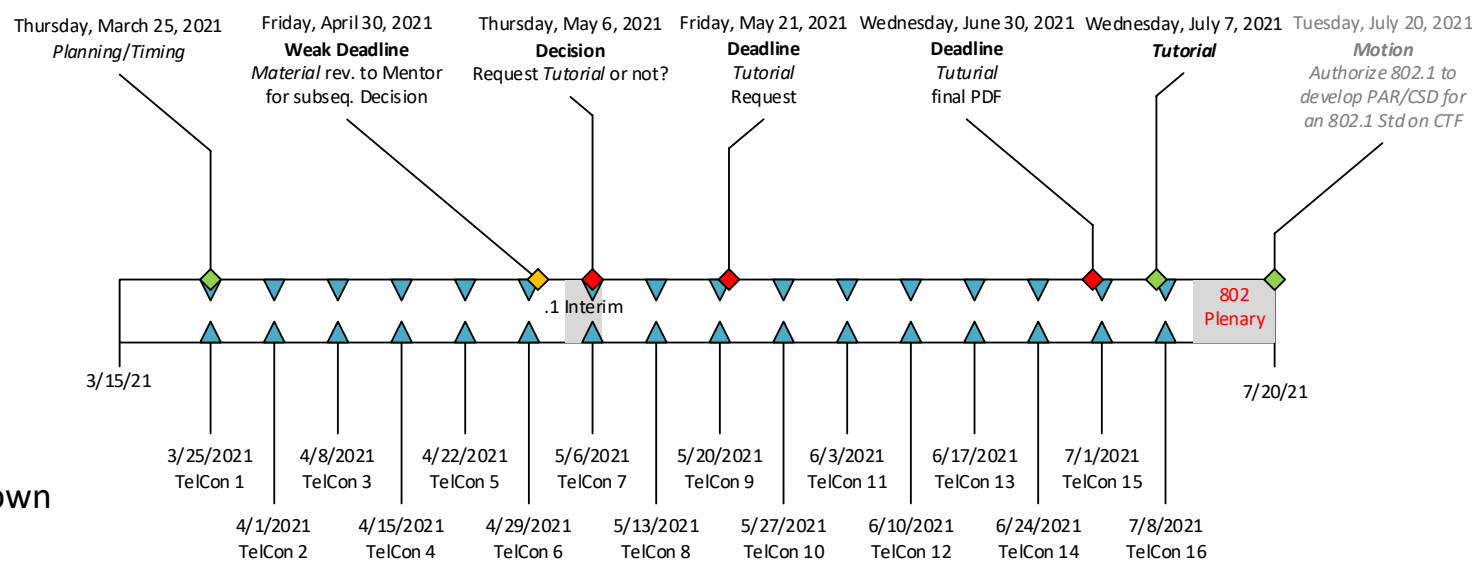
- Historically, CTF is controversially discussed in IEEE 802.1 and IEEE 802.3
- Building IEEE 802.1 consensus, followed by initial joint 802.1/802.3 activities, is a *first phase*
 - Before IEEE 802.1 activities (e.g., motion)
 - Before IEEE 802.3 activities (e.g. CFI)
- This proposal shows how such a first phase *could* look like
 - Consensus is not a decision of an individual such as the author
 - Open for discussion, adjustment, change during the course of this first phase
- This proposal is based on the idea to give an IEEE 802 tutorial on CTF
 - A tutorial is **one option** to discuss/initiate activities across multiple IEEE 802 WGs (IEEE 802.1 & IEEE 802.3)
 - Broad audience
 - Requires sufficient contents
 - However, there are **alternative options**
 - Joint 802.1/802.3 sessions
 - Nendica sessions



Note: IEEE 802 July 2021 Plenary dates are subject to change

Planning Proposal: Steps/Goals

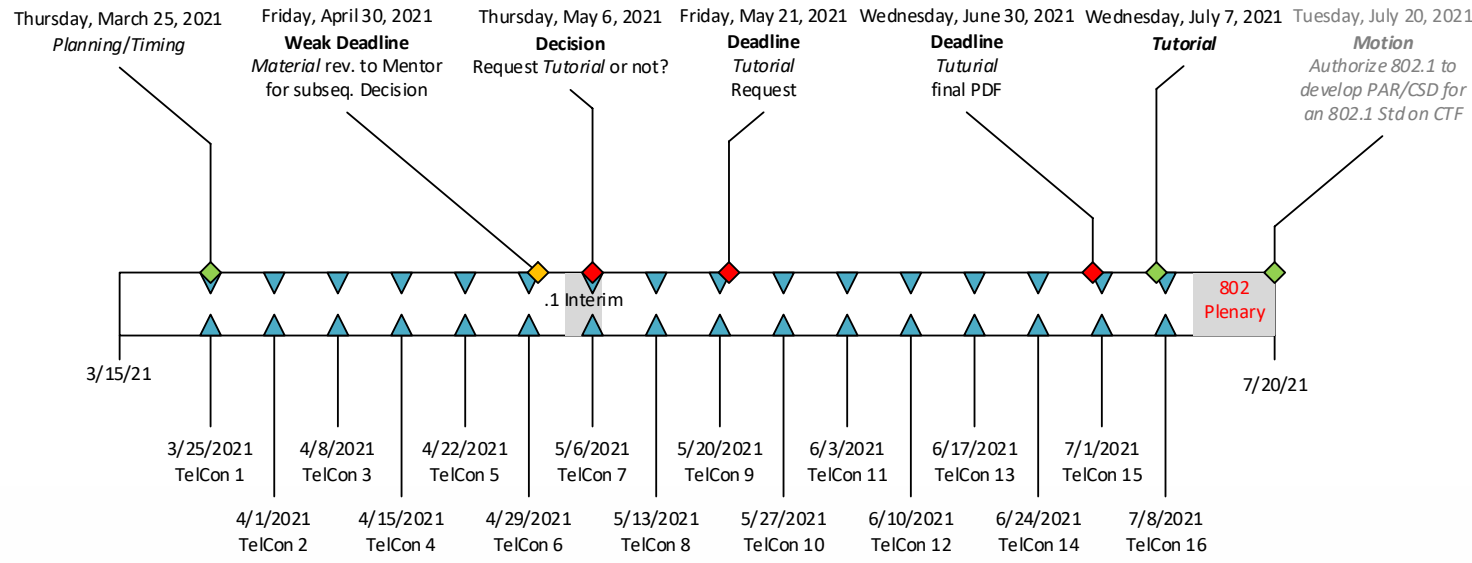
- Now ... Until ~ end of April 2021
 - Prepare the 802.1 presentation on CTF for 802.1 & 802.3
- May 6, 2021 (during the 802.1 Interim)
 - Decision: Request IEEE 802 tutorial time, or not?
 - Implication: Level of consensus/support in 802.1 known
 - Implication: Open concerns, discussion points known
Resolution until tutorial request feasible?
 - Implication: Sufficient content & contributions exists/known
- May 21, 2021 (or earlier)
 - Options (either, or both)
 - Request 802 Tutorial time in July (high attendance expected)
(<https://mentor.ieee.org/802-ec/dcn/21/ec-21-0076-00-00EC-2021-july-tutorial-request-form.docx>)
 - Pre-announced Nendica session(s)/joint 802.1 & 802.3 sessions (less timing constraints)
- June 30, 2021 (or earlier; in case of an 802 Tutorial)
 - File final presentation
- July 7, 2021
 - 802 Tutorial
- After July 7, 2021 (in case of an 802 Tutorial)
 - 802.1 specific steps, 802.3 specific steps, **OR**
 - Further joint activities



Planning Proposal: Nendica Meetings

Schedule

- Start during regular Nendica sessions
 - Current Nendica schedule: 2h/week
 - Weekly 90 min. for CTF, or less
 - Other Nendica work items/study items
 - Required discussion time not know, yet
- If (and only if) more time is needed:
 - Separate sessions for CTF, 2h/week
 - Wednesdays, 9am to 11am ET (1h overlap with IEEE P802.1DP)
 - Requires 802.1 approval
- Keep CTF on the agenda
 - Reminder/placeholder, welcoming individual contributions
 - Submitting contributions (latest)
 - Indication: The day before a Nendica meeting
 - Upload: Before presenting during the meeting (https://mentor.ieee.org/802.1/documents?is_group=ICne)
- Add key dates to Nendica/IEEE 802.1 calendar



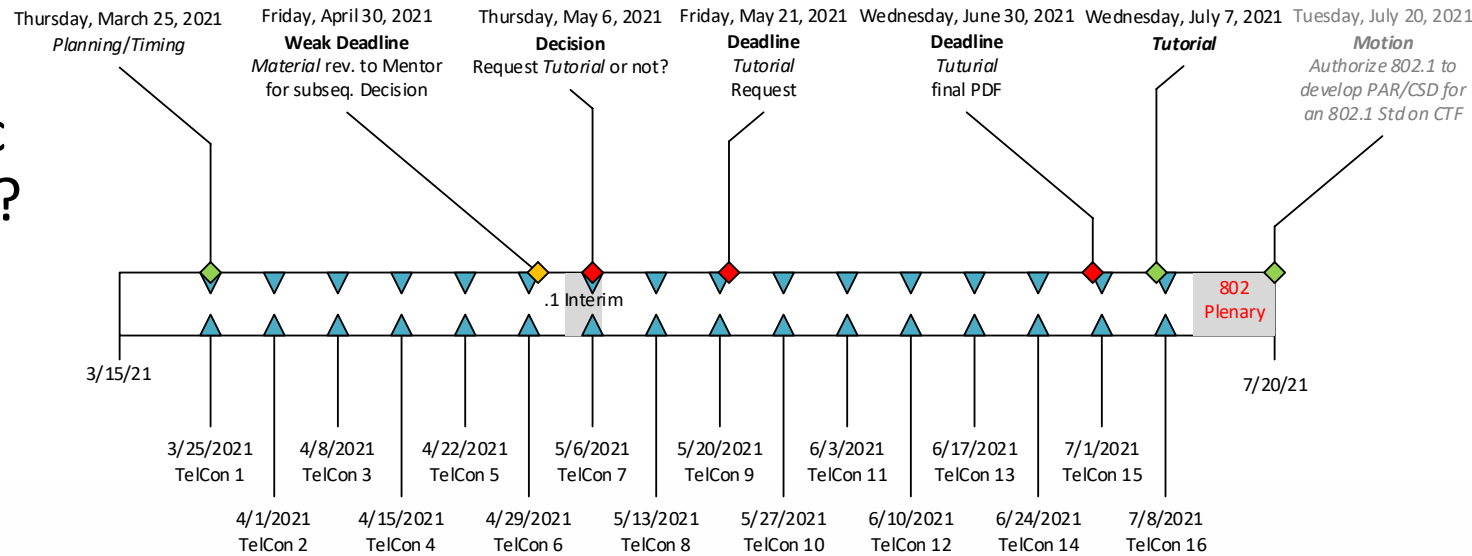
Content

- Present and discuss individual contributions on CTF
- Prepare and discuss joint material
 - Structure & content
 - Content of this presentation itself
 - Link to individual contributions from this presentation
 - Presenters

Discussion: Timing and Locations

Estimates

- Appears aiming for May 2021 realistic to reach “sufficient” 802.1 consensus?
- Appears aiming for July 2021 realistic to initiate dedicated steps in IEEE 802.1 and IEEE 802.3?



Beyond IEEE 802.1

- 802 Tutorial?
- 802.1/802.3 joint session(s)?
- Final decision could be made in May 2021, based on the status by then

Discussion: In case of a joint presentation/tutorial

Author of this slide set¹

- Introduction & Motivation
(TSN tools/data plane/guaranteed latency/CTF delay performance impact...)
- A possible 802.1 integration
 - Network aspects/QoS challenges with CTF
 - Bridge features with CTF
- Problem statements

Contributions from others?

- For example, markets/specific use-cases
- Proposals/contributors?

Other discussions?

1: Cmp. <https://www.ieee802.org/1/files/public/docs2021/new-specht-cut-through-update-0121-v02.pdf> and <https://mentor.ieee.org/802.1/dcn/21/1-21-0009-01-ICne-cut-through-forwarding-ctf-in-bridges-and-bridged-networks.pdf>

Thank you for your Attention!

Questions, Opinions, Ideas?

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