Cut-Through Forwarding (CTF) - in IEEE 802 Nendica on November 15th 2022

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Introduction

Current Situation

- Vendors are providing Cut-Through Forwarding (CTF) in multiple non-interoperable ways
- Users are asking for a standard to achieve interoperability

  → There are lots of complications raised by CTF above the level of the MAC that WG 802.1 is ready to address

WG 802.1 Activities

- WG 802.1 is proposing to prepare a project (P802.1DU) to address those issues

ISS Providers, MACs, GSCF, WG 802.1 limits

- Needed is an ISS Provider, such as 802.1 AC convergence+802 MACs
  - Inside of IEEE 802, or
  - outside of IEEE 802
- GSCF is a technical concept worked out in IEEE 802 Nendica, between the ISS and the PLS
- WG 802.1 will not write 802 MAC standards venturing below the traditional MAC interface

Recommendations and Intentions

Today's meeting is an IEEE 802 Nendica Meeting

- Attended by IEEE WG 802.1 participants
- Attended by IEEE WG 802.3 participants
- Attended by participants from other IEEE 802 WGs

Recommendations and Intentions

- It IS NOT intended to change the 802.3 MAC, its upper interface, or make it CTF capable
- It IS NOT intended to discuss about IEEE 802 WG responsibilities today
- It is intended to discuss on a technical level today
- It is intended to start a project for CTF in IEEE WG 802.1 (P802.1DU)

Next Steps - in IEEE 802 Nendica and IEEE WG 802.1

- Continue to develop “Technical Descriptions for Cut-Through Forwarding in Bridges” and gather feedback in IEEE Nendica, by e-mail, etc.
- Determine the “vehicles” for the next steps in standardization
- On the basis of “Technical Descriptions for Cut-Through Forwarding in Bridges”, ask 802.1 WG, at IEEE 802 Plenary Session in November 2023, to authorize TSN for PAR/CSD pre-submission(s) towards IEEE 802 Plenary Session in March 2023

^ September 2022 802.1 Interim Meeting

→ here we are …

Meetings during this IEEE 802 Plenary Session

- IEEE 802.1 TSN: Tuesday, 14:30-15:30 ICT
  - Overview of the Document
  - Why P802.1DU/Vehicles **(non-technical)**
- IEEE 802 Nendica: Tuesday, 19:30 – 21:30 ICT → **Now!**
  - Introduction to **GSCF**
  - **Technical** discussions on the document
- IEEE 802.1: Thursday, 13:30 – 18:00 ICT
  - Closing Plenary
  - **PAR/CSD Motion** on P802.1DU

Providing Technical Clarity (1)

Technical Descriptions for Cut-Through Forwarding in Bridges

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1. Purpose

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. 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.

2. Relationship to IEEE Standards

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:

3. Status of this Document

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).

Contents

Work-in-progress → Feedback welcome!

Providing Technical Clarity (2)

Work-in-progress → Feedback welcome!

Core elements of the document

Item	DCN 1-22-0042-12-ICne
Modeling of Service Primitives	Part II, 5.2
Parameter-based Modeling	Part II, 5.3
Temporal Control	Part II, 5.4
Generalized Serial Convergence Operations	Part II, 6
Bridge Port Transmit and Receive Operations	Part II, 7
Bridge Relay Operations	Part II, 8
Management Parameters	Part II, 9
Cut-Through Forwarding in Bridged Networks (right now, a placeholder with references)	Part III
Interaction of the Lower Layer Interface (LLI) with existing Lower Layers, PLS	Part IV, A.1

Thank You for Your Attention!

Questions,
Comments,
Opinions,
Ideas?