IEEE P802.3cg 10 Mb/s Single Pair Ethernet Task Force Closing Report

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Bangkok, Thailand

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IEEE P802.3cg 10 Mb/s Single Pair Ethernet Task Force Project information

Task Force Organization

George Zimmerman, IEEE P802.3cg Task Force Chair

Jon Lewis, IEEE P802.3cg Task Force Secretary

Valerie Maguire, IEEE P802.3cg Task Force Chief Editor

Peter Jones, Architecture Ad Hoc Chair

Task force web and reflector information

Reflector information: http://www.ieee802.org/3/cg/reflector.html

Home page: http://ieee802.org/3/cg/index.html

PAR: http://www.ieee802.org/3/cg/P802_3cg_PAR_140518.pdf

CSD: https://mentor.ieee.org/802-ec/dcn/18/ec-18-0079-00-ACSD-802-3cg.pdf

Objectives http://www.ieee802.org/3/cg/objectives_3cg_0318.pdf

Approved timeline: http://www.ieee802.org/3/cg/adopted_802d3cg_timeline_0718.pdf

Private area: http://ieee802.org/3/cg/private/index.html

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IEEE P802.3cg 10 Mb/s Single Pair Ethernet Task Force Activities this week

Met Monday 11/12 afternoon, Tuesday, Wednesday and half-day Thursday 11/15

- 78 total attendees (M 64, Tu 48, We 46, Th 41)

Major items discussed, decisions made and actions

- Resolved 503 comments on draft 2.1 (including 1 from floor in meeting)
  - Major issues circled on scope and how PLCA relates to the defined CSDs of the project.
    - This is a significant source of unsatisfied comments – more in next slides
  - Task Force resolved issues on:

    MDI connector, Informative language on EMC and Safety specifications, Link Status for 10BASE-T1S Auto-Negotiation, and various issues for PLCA performance and robustness
  - Generated very few new unsatisfied comments (2 confirmed, 5 waiting for closure)
  - Closed 6 unsatisfied d2p0 comments (possibly more – waiting)
- Chartered draft 2.2 preparation for 2nd recirculation ballot

Announcements

802.3cg announces an off-cycle interim February 19-20, 2019 (Tuesday and half-day Wednesday) either in San Jose, CA, or in the Southwestern US – location TBD by December 31.

802.3cg is also requesting an evening session at the January Interim for a tutorial on 802.3cg, including PLCA (Clause 148).

IEEE P802.3cg 10 Mb/s Single Pair Ethernet Adopted Timeline (July 2018)

- ✓ January 2017 – First Task Force meeting
- ✓ July 2017 – Objectives Finalized, Draft 0.1 (skeleton), all baselines presented
- ✓ September 2017 – Baselines selected, draft 0.9 for Task Force Review
- ✓ **November 2017 –Last features selected - Task Force Review D1.0,** Nov:D1.0, Jan:D1.1
- ✓ March 2018 –Task Force Review (D1.2)
- ✓ May 2018 – Task Force Review (D1.3)

July 2018 – Draft 2.0, request working group ballot

- ➢ **March 2019 – D3.0 – enter Sponsor ballot (2 recircs May'19:D3.1, July'19:D3.2)**
- ➢ **July 2019 – Request approval to proceed to Revcom out of July plenary**
- ➢ **September 2019 Standards Board approval**

WG Motion

Move that the IEEE 802.3 Working Group approve:

IEEE_802d3_to_ISOIEC_SC25_WG3_spe_1118_draft

with editorial license granted to the Chair (or his appointed agent) as liaison communications from the IEEE 802.3 Working Group to ISO IEC SC25 WG3.

M: P. Jones S: G. Zimmerman

Issues in Unsatisfied Comments

Of 84 unsatisfied comments:

- 53 (from the initial WG ballot) are held by Yong Kim on the following issues:
  - Compatibility CSD: compatibility with existing MII claimed and then changing (PLCA) this exposed interoperability test point for 10/100M MAC-PHY interface.
  - Compatibility CSD: PLCA re-defines CRS and COL behavior at MII therefore is a new MAC
  - Compatibility CSD: Half Duplex TX->RX loopback behavior issue well-known. PLCA creates a new behavior to 802.1AC MAC Services that existing systems may not handle.
  - Compatibility/Economic Feasibility CSD: PLCA compliant implementations do not interoperate in PLCA unless requires management configuration that is stated to be out of scope. So proper operation of PLCA is based on engineered and configured network.

The above is expanded in the presentation given at this plenary. See:

http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf

Issues in Unsatisfied Comments

Of 84 unsatisfied comments:

- 17 are held by Geoff Thompson on the following issues:
  - 1 (on d2p1) is on a pending maintenance request (minor)
  - Others (from d2p0) are related to Scope and Layering

- Following is a summary of the dissent

-Dissenter's Report-
WRT to 802.3cg WG ballot

Yong Kim

Unresolved Negative Comments – How I got here

Path to the issues realization

- Half-duplex (CSAM/CD) improvement is hard ➔
- 802.3 took forever to get to BLAM and still did not succeed ➔
- Came to see that PLCA (PHY Layer Collision Avoidance) in RS layer is doing →
  - “beacon” PHY=Master node (NodeID=0)generated packet in IPG let each node to transmit based on its transmit opportunity based on respective NodeIDs.
- And How it is doing →
  - CRS (carrier-sense), COL (collision), functions and behaviors change from existing RS/MII, among other things.
- Thus submitted the findings in the initial working group ballot and they remain unresolved negative comments.

And wondering why my concerns are in the minority…

Unresolved Negative Comments – What should follow

- Past projects that had concerns WRT to MAC-like functions in adjacent layers (MAC control, RS, etc) had healthy technical discussions and vetting. Examples may be EPON, MAC Merge, etc.

- The other project had enough vetting venues via multiple tutorials. PLCA had none (being remedied – great!)

- All four concerns I have has to do with compatibility – two of them WRT to installed base. One to do with MAC, and one to do with plug-&-play nature of Ethernet.

- That said, NONE of them matter – Ethernet specification is defined by 75%+ technical consensus, based on informed and transparent process.

- Read the PLCA clause, form your own informed decision and vote, or revise your vote. I believe PLCA is NOT a PHY project (RS + media **Independent** Interface), and deserves its own considerations based on what it actually does. The rest of 802.3cg operates with CL22 RS as-is.

GraCaSI

-Dissenter's Report-
P802.3cg
10 Mb/s Single Pair Ethernet
Bangkok, Thailand

Thursday, Nov. 15, 2018

Geoff Thompson
802.3 Voter, Former Chair

MAJOR ISSUES for 802.3 regarding P802.3cg

- SCOPE (being exceeded)

- LAYERING (being violated)

SCOPE (being exceeded)

- New/”Enhanced” access method being added for half-duplex

- No mention of this in project Paperwork (PAR, CSD)

- Advertised as a “Physical Layer” project.

LAYERING (being violated)

- New media access control is being pasted into PHY instead of being put into the MAC layer

- Prop. media access method (PLCA) is master/slave Round Robin. Nothing wrong with it. But it isn't peer, isn't Ethernet.

WHAT IS MY ASK?

- Examine and consider these issues when casting your ballot

- Be prepared to consider PAR and CSD changes in March

GraCaSI
Standards Advisors

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Response to 802.3cg Dissenter's Reports

Peter Jones
Cisco Systems

Major Issues from Geoff Thompson Dissenter's Report

Scope and Layering

Respectfully disagree.

- This has been discussed in detail in the Task Force.
- The Task Force asked for, and received advice from a number of individuals with relevant experience on this topic.
- The Task Force has considered the dissenters contributions. The consensus of the Task Force is that 802.3cg D2.1 does not exceed scope or violate layering.

The consensus of the Task Force is that 802.3cg PAR and CSD do not require changes.

Major Issues from Yong Kim - Dissenter's Report

PLCA concerns, installed base, MAC, Plug & Play

Respectfully disagree.

- Installed Base: 802.3cg is new physical media for 10Mb/s. PLCA operates within a single pair mixing segment. 10Mb/s install base cannot attach to this mixing segment
- MAC: The Task Force asked for, and received advice regarding the PHY and the PLCA RS. TF Consensus is that PLCA falls within 802.3's RS definition.
- Plug & Play: PLCA is a optional feature, requiring management action to enable. 802.3cg Plug & Play is preserved.

The consensus of the Task Force is that 802.3cg (including PLCA) does not violate the Compatibility CSD.

Relevant Technical Presentations on PLCA

1) Pay special attention to slides 16-17 about compatibility with existing MAC implementations.
   http://www.ieee802.org/3/cg/public/July2018/PLCA%20overview.pdf
2) FAQ
   http://www.ieee802.org/3/cg/public/July2018/PLCA%20FAQ.pdf
3) Shows (approved this meeting), PLCA to coexisting with non-PLCA enabled nodes.
   http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf
4) Addresses commenter's concerns on various topics:
   http://www.ieee802.org/3/cg/public/adhoc/beruto_3cg_plca_multiple_collisions.pdf
5) http://www.ieee802.org/3/cg/public/adhoc/beruto_3cg_plca_mac_compatibility.pdf
6) Recently added burst mode
   http://www.ieee802.org/3/cg/public/Nov2018/beruto_3cg_PLCA_burst_mode_revB%20.pdf

Questions?

Thank you!

BACKUP – NOT FOR PRESENTATION, BUT FOR POSTING

Ethernet is not the answer to all problems

UNLESS

You always call the answer to your problem Ethernet

What is Ethernet (GOT OPINION)?

PEER

PACKET ORIENTED (i.e. Not circuit switching)

DOESN'T HAVE PRIORITIES

Does CSMA/CD or FDX of Ethernet frames