The Road to a Completed Standard

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A revision of the following presentation authored by Pete Anslow:

https://www.ieee802.org/3/bs/public/14_05/anslow_3bs_01_0514.pdf

From here to a standard

- Now that the Task Force has been formed, the main steps to complete are:
  - Adopt baselines needed to fulfill the objectives
  - Create initial draft version (D1.0)
  - Task Force review (D1.x)
  - Working Group ballot (D2.x)
  - SA ballot (D3.x)
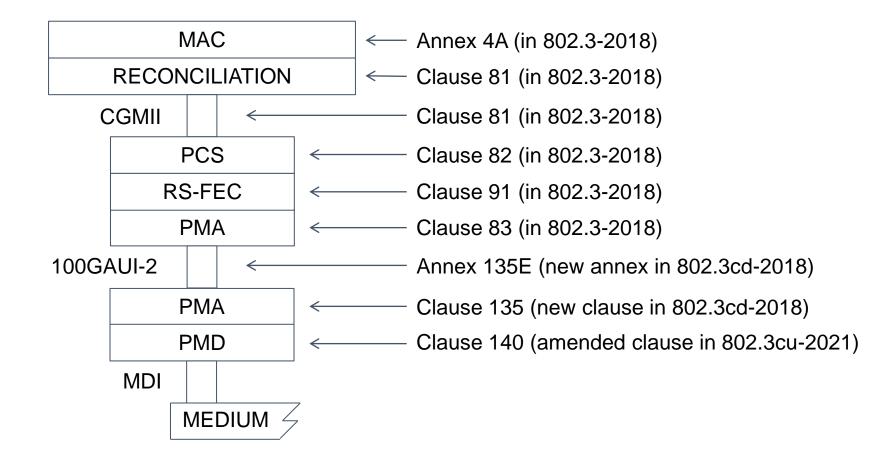 - Final approvals & publication

Project boundaries

- Approved project documents establish bounds for the project
  https://www.ieee802.org/3/B400G/public/21_0114/healey_b400g_01_210114.pdf
  - Project Authorization Request (PAR)
    https://www.ieee802.org/3/df/proj_doc/IEEE_P802.3df_PAR_11122021.pdf
  - Criteria for Standards Development (CSD)
    https://mentor.ieee.org/802-ec/dcn/21/ec-21-0306-00-ACSD-p802-3df.pdf
  - Objectives
    https://www.ieee802.org/3/df/proj_doc/objectives_P802d3df_211118.pdf

- The task force develops a standard that falls within these bounds.
  - The task force reviews these throughout the project.

How the 802.3 standard is structured

- The 802.3 standard is structured as a set of **clauses** and **annexes** which provide all the information required to build fully-functional multi-vendor interoperable Ethernet links.

- Most projects within the 802.3 Working Group produce an **amendment** to the 802.3 standard that makes changes to existing clauses and annexes as well as adding new clauses and annexes that define the new capabilities.

- Periodically, all approved amendments are combined with the base standard (as well as minor additional changes) in a **revision** project.
  - The most recently completed revision project resulted in IEEE Std 802.3-2018.
  - P802.3df is working on the next revision, likely to be IEEE Std 802.3-2022.

- The next slide takes an example Ethernet PHY (100GBASE-LR1) and shows where the details of each sublayer or interface can be found.

Example Ethernet stack for 100GBASE-LR1

MAC	← Annex 4A (in 802.3-2018)
RECONCILIATION	← Clause 81 (in 802.3-2018)

CGMII ← Clause 81 (in 802.3-2018)

PCS	← Clause 82 (in 802.3-2018)
RS-FEC	← Clause 91 (in 802.3-2018)
PMA	← Clause 83 (in 802.3-2018)

100GAUI-2 ← Annex 135E (new annex in 802.3cd-2018)

PMA	← Clause 135 (new clause in 802.3cd-2018)
PMD	← Clause 140 (amended clause in 802.3cu-2021)

MDI

MEDIUM

Baselines

- For a project defining a new Ethernet rate a new set of clauses and associated annexes will need to be generated for almost all sublayers on the previous slide. The style and some of the content for these new clauses and annexes will, however, likely be derived from existing 802.3 clauses and annexes.

- The major technical details for each of these clauses and annexes is defined via a set of **baseline** documents which the proponents put together and try to gain consensus for.

- Baselines can contain some "TBD" elements, but these should be kept to a minimum.

- Each of the baseline documents is then adopted by a motion of the Task Force
    - ≥ 75% approval is required as they are technical

- The baselines are used as a basis to generate the initial draft specification, so they need to include enough information for the editors to be able to create a draft.

Example baseline documents from P802.3bs

- Architecture: http://www.ieee802.org/3/bs/public/15_01/dambrosia_3bs_02b_0115.pdf

- RS / CDMII: http://www.ieee802.org/3/bs/public/14_07/gustlin_3bs_03_0714.pdf

- PCS / PMA: http://www.ieee802.org/3/bs/public/15_07/gustlin_3bs_02c_0715.pdf

- C2C 50G Electrical: http://www.ieee802.org/3/bs/public/15_03/li_3bs_01a_0315.pdf

- C2M 50G Electrical: http://www.ieee802.org/3/bs/public/15_03/brown_3bs_01a_0315.pdf

- EEE: http://www.ieee802.org/3/bs/public/15_01/marris_3bs_01_0115.pdf

- OTN: http://www.ieee802.org/3/bs/public/15_01/trowbridge_3bs_01a_0115.pdf

- 100m MMF: http://www.ieee802.org/3/bs/public/14_11/king_3bs_02a_1114.pdf

- 500m SMF: http://www.ieee802.org/3/bs/public/15_07/welch_3bs_01a_0715.pdf

- 2km SMF: http://www.ieee802.org/3/bs/public/15_07/cole_3bs_01a_0715.pdf

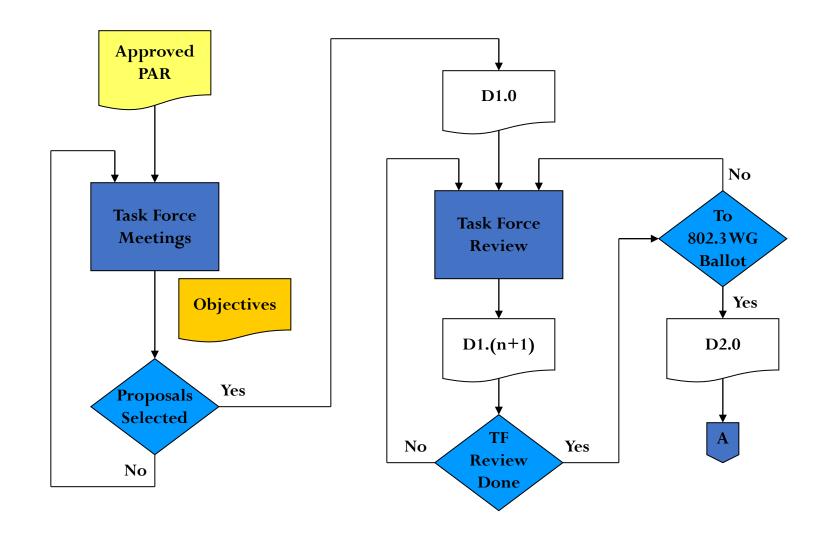- 10km SMF: http://www.ieee802.org/3/bs/public/15_05/cole_3bs_01a_0515.pdf

More on baselines

- A baseline proposal <u>must contain sufficient detail so that an editor can draft content</u> without having to infer any significant technical material
  - Baseline proposals must be complete and definitive

- A baseline proposal should have a limited scope
  - They typically address one objective or one sublayer
  - A consistent set of baselines may be adopted in the same meeting

- A baseline proposal must meet all Criteria for Standards Development ([CSD](#))

- It is okay for competing proposals for the same item to be developed in parallel
  - The best proposals will gain the most support with time
  - Offline consensus building is key

Creation of a draft

- Once a consistent set of baselines has been adopted by the Task Force, the editors work towards the creation of a draft amendment to 802.3.

- This is done using Adobe® FrameMaker® software to be consistent with the base 802.3 standard and to make integration of the amendment into the next revision easier.

- The editors are likely to generate a draft version for preview by the Task Force to ensure that the baselines have been correctly incorporated.

- This draft and all successive draft versions are placed in the password protected private area.

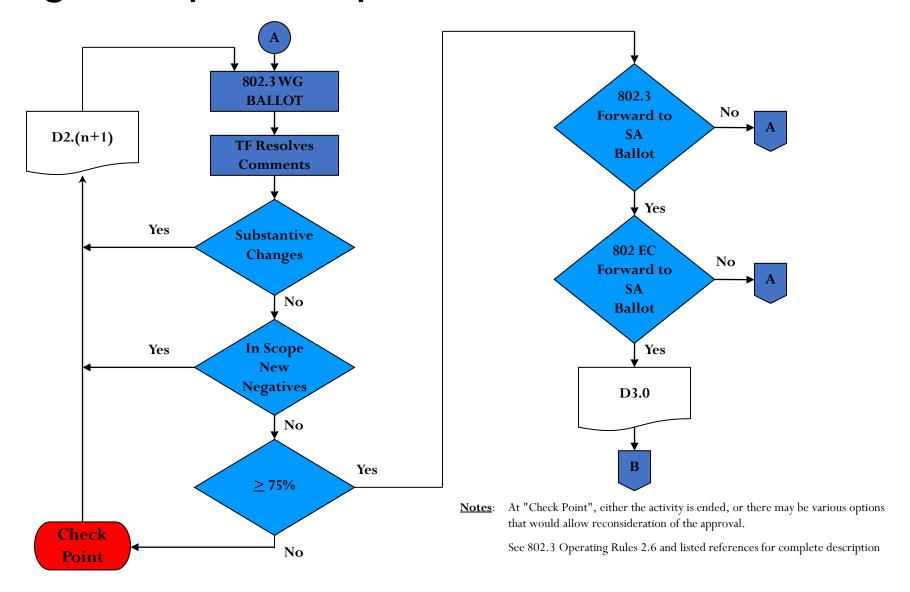- The Task Force then adopts draft D1.0 ready to begin Task Force review.

Task Force review phase

Task force review

- The first draft adopted by the TF ready for "TF review" is usually designated Draft D1.0. This may be technically incomplete, contain some TBDs, editorial notes on missing text, etc., but these will be resolved through the comment process before moving to Working Group ballot.

- During the TF review process, comments and proposals from the TF (and anyone else who wants to comment) are submitted against draft D1.x using a comment tool. All received comments are considered at the next TF meeting and resolved.

- The editors then apply the approved comment resolutions to Draft D1.x in order to create Draft D1.(x+1) which is then opened to another round of Task Force review.

- When the draft is technically complete (has no TBDs), is editorially satisfactory, and is reasonably stable, the TF requests that the draft proceeds to Working Group ballot.

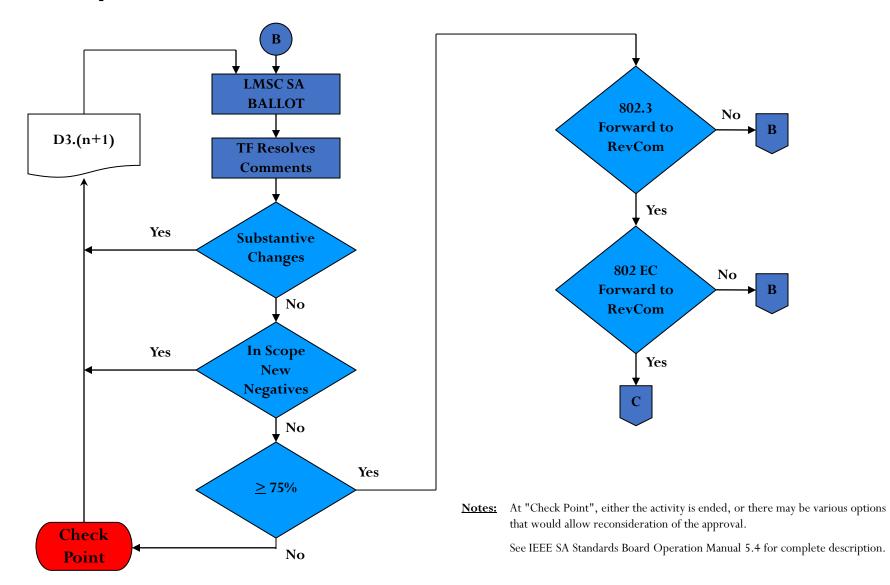# Working Group ballot phase

Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

See 802.3 Operating Rules 2.6 and listed references for complete description

Working Group ballot

- WG Ballot is similar to Task Force review except
  - The group asked to comment is the WG voting membership on the day that the initial ballot package is created.
  - Each commenter votes "approve" or "disapprove". Anyone else may submit comments but these are non-binding.
- For the first working group ballot (D2.0) the entire document is in scope for comment.
  - With each draft after that the scope narrows.
- WG ballot continues until the following conditions are met:
  - No substantive (technical) changes in the last recirculation
  - No new in-scope 'required' comments (TR/ER) associated with a Disapprove ballot in the last recirculation
  - ≥ 75% approval ratio
  - > 50% response ratio
  - < 30% abstention ratio
- When the above conditions are met the TF requests that the draft proceeds to SA ballot.
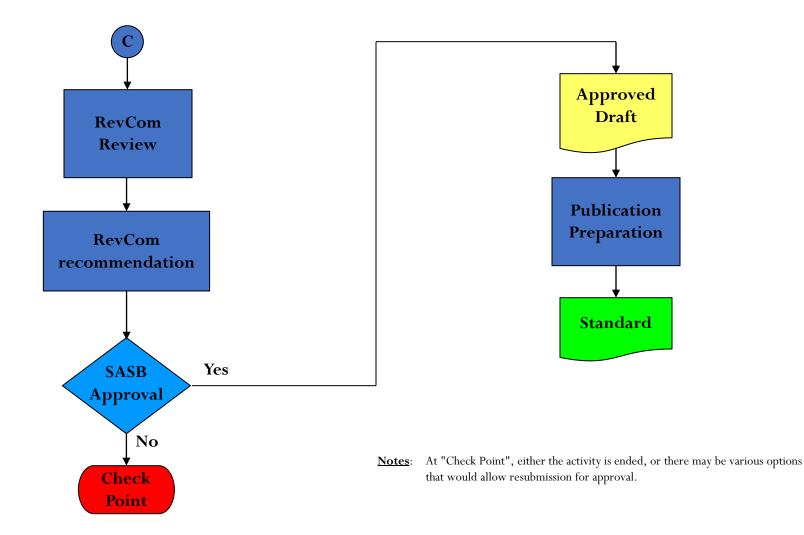
SA ballot phase

Notes: At "Check Point", either the activity is ended, or there may be various options that would allow reconsideration of the approval.

See IEEE SA Standards Board Operation Manual 5.4 for complete description.

SA ballot

- SA ballot is similar to WG ballot except that the group of participants (the SA ballot pool) is different again.
    - The SA ballot pool is open to anybody with IEEE-SA membership or willing to pay per-ballot fee.
    - Anybody in the world with interest in the given draft can join and cast ballot on the draft.
- For the first SA ballot (D3.0) the entire document is in scope for comment.
    - With each draft after that the scope narrows.
- The comments continue to be resolved in meetings of the Task Force
- SA ballot continues until the following conditions are met:
    - No substantive (technical) changes in the last recirculation
    - No new in-scope 'required' comments (TR/GR/ER) associated with a Disapprove ballot in the last recirculation
    - ≥ 75% approval ratio
    - ≥ 75% response ratio
    - < 30% abstention ratio
- When the above conditions are met the TF requests that the draft be submitted to RevCom and the SASB for final approval.

Final approvals & publication


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  │   RevCom     │                              ┌──────────────┐
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       ◇ SASB ◇ ── Yes ──┐                            v
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Notes: At "Check Point", either the activity is ended, or there may be various options that would allow resubmission for approval.

Finally

- Once the SA Ballot is complete and the final version of the draft has been submitted to RevCom and the SASB for approval the Task Force is disbanded.

- Once approved by the SASB, the standard is published.

- Any further changes use the maintenance process or take place in a revision project.

- Time to do another CFI to start the whole process over again!

Thanks

IEEE P802.3df Task Force